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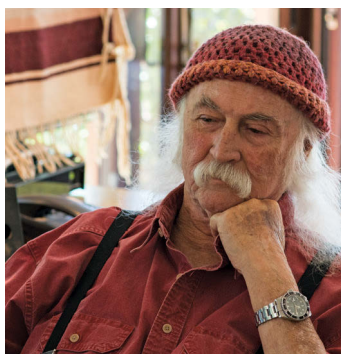
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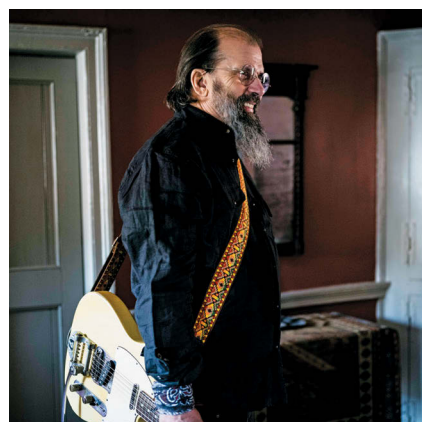
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On the Cover: David Crosby will never let go of his irascible spirit, which lives forever entwined with his deep musical soul. Even now, with three excellent records over the past two years, he's finding new inspiration within his own creative self. **Photo:** Chris Pelonis.

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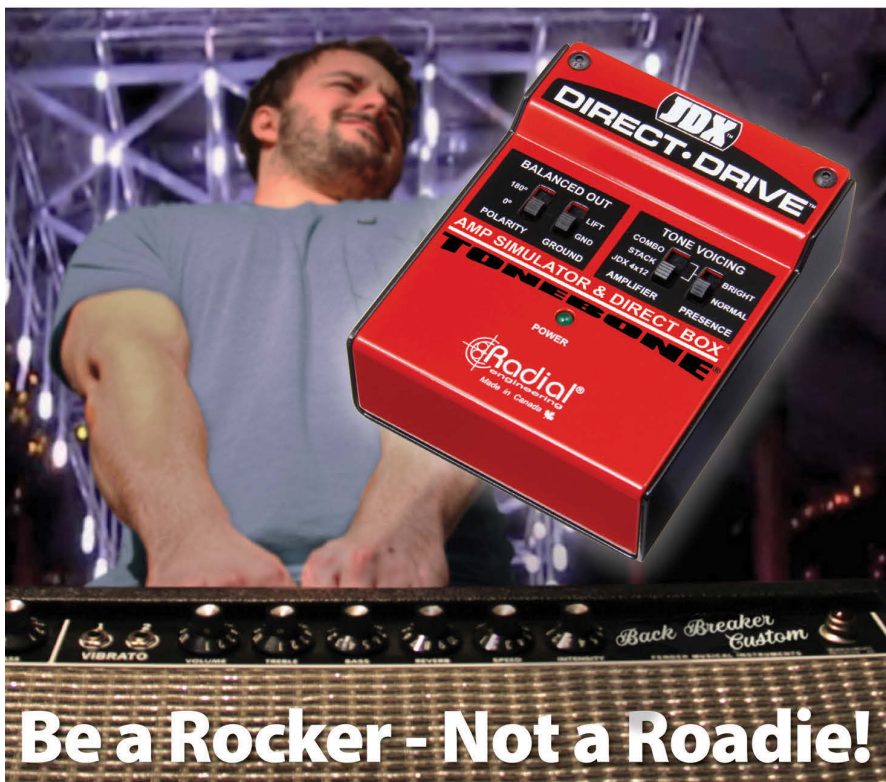
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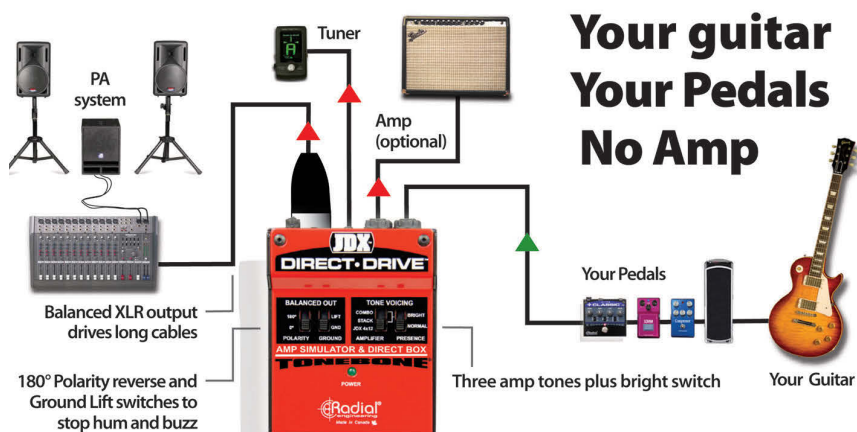




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EDITOR Tom Kenny tkenny@nbmedia.com
TECHNICAL EDITOR Kevin Becka kbecka@me.com
MANAGING EDITOR Barbara Schultz bschultz@nbmedia.com
DIGITAL EDITOR Kieran McGee kmcgee@nbmedia.com
TECHNOLOGY EDITOR, NEWBAY MEDIA
Strother Bullins sbullins@nbmedia.com
FILM SOUND EDITOR Larry Blake swelltone@aol.com
SOUND REINFORCEMENT EDITOR Steve La Cerra
CONSULTING EDITOR Paul D. Lehrman paul.lehrman@tufts.edu
CONTRIBUTING EDITORS Michael Cooper Eddie Ciletti
Gary Eskow Sarah Jones Barry Rudolph Matt Hurwitz

VP/GROUP PUBLISHER

Ed Hecht ehecht@nbmedia.com

ADVERTISING

Kim Sarni ksarni@nbmedia.com
Joanne Melton jmelton@nbmedia.com

SPECIALTY SALES MANAGER

Zahra Majma zmajma@nbmedia.com

ART & PRODUCTION

ART DIRECTOR Todd Berkowitz tberkowitz@nbmedia.com
PHOTOGRAPHY Steve Jennings, Todd Berkowitz
PRODUCTION MANAGER Beatrice Weir bweir@nbmedia.com

CIRCULATION

GROUP DIRECTOR, AUDIENCE DEVELOPMENT Meg Estevez

NEWBAY MEDIA AUDIO GROUP

EXECUTIVE VICE PRESIDENT/GROUP PUBLISHING DIRECTOR
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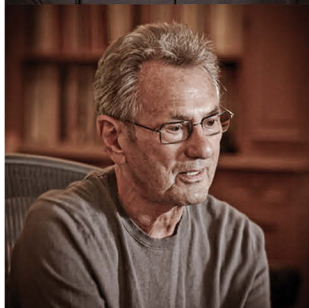
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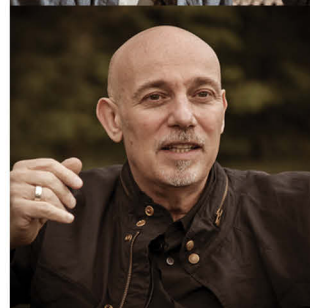
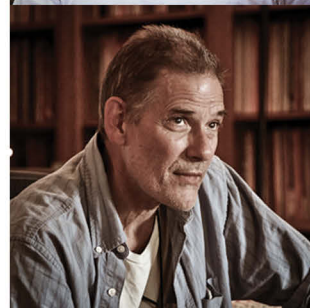
MIX^{WITH} THE MASTERS

The Mix With The Masters Program offers the unique opportunity to work closely with the world's top music mixers, producers and engineers and to improve one's skills in music production. Since its successful debut in 2010, it has hosted over 1000 participants and 80 seminars.

In addition to these seminars, Mix With The Masters has now launched an exclusive online community for Engineers and Producers, offering an incredible array of exclusive online services, enabling its members to discover the approaches and techniques of A-list music mixers and producers. You can now become a member to get an unlimited access to hundreds of videos, and to take advantage of our unique services such as Webinars, One-Day Seminars and much more.

In like manner, the Mix With The Masters residential seminars are held at the Studios La Fabrique in the South of France, which is the perfect setting to both learn and relax. Each weeklong seminar includes, among other activities, a series of discussions about production techniques, mental and philosophical approaches towards mixing, career advice, workshops, during which the guest speaker tracks a band, and mixes in front of the attendees, as well as giving them feedback on their own projects.

The process of greatness fostering greatness has long been recognized, and is the reason why master classes are organized. The Mix With The Masters Program is proud to be part of this tradition, both through our online community and weeklong seminars.



UPCOMING 2017 SEMINARS

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TCHAD BLAKE // SEPTEMBER 20-26

ALAN MEYERSON // SEPT 28 - OCT 4
JOE CHICcarelli // OCTOBER 6-12

From the Editor

IT ALL STARTS WITH A SONG, A VOICE AND A GUITAR

There's this thing that guitarists sometimes do when they feel particularly passionate about an acoustic and want to share its wonder. Whether sitting or standing, they hold it aloft on its back, firmly yet gently, with minimum points of contact, and say, "Listen to this. Shhhh...you gotta listen to this." Then they make a single solid strum and let it ring.

Ten seconds go by. It's gorgeous. Then 20. Still clearly audible, still of the same piece, a gentle, even, musical decay. Has it been 30 seconds? It just keeps going. Ringing and singing. The tone, the resonance, the very combination of woods hover in the room long after the strum is gone. A great guitar in the hands of a great guitarist? There is nothing better.

David Crosby is an amazing guitarist. He has some amazing guitars. And he keeps getting even better.

Though he is not an engineer, Crosby hears and listens better than most, with an ear for subtlety, nuance and tone. He's not a studio designer, but he can talk woods and density and resonance all day long, drawing parallels between his beloved 1969 Martin D45s and the sound of his favorite studio, friend Jackson Browne's Groovemasters. He's not really thought of as a songwriter, but he has lived his whole life with music in his soul. Of course he writes, and now, in his early 70s, the songs are pouring out of him.

At a time in his life when most any other individual, regardless of his or her career, would be contemplating a porch and hammock at the lake house, Crosby just wrapped up a three-album, two-year run and headed out on tour with one of the two bands he performs and records with. He's still irascible, funny, insightful, contemplative and compassionate. And he's happy.

A lot of that has to do with the people in his inner musical circle. James Raymond, his son; Michael League, composer from one of his favorite bands, Snarky Puppy; Jeff Pevar from the core mid-'90s CPR; and players Mai Agan, Michelle Willis, and Becca Stevens. Then there's the singer-songwriter circle in and around his adopted home in the Santa Ynez Valley, northeast of Santa

Barbara. People like Michael McDonald, Jackson Browne and Chris Pelonis, who designed his studio and photographed this month's cover of Mix.

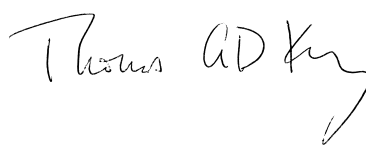
His beautiful home nestled in the hills, his lovely wife, Jan, his dogs and horses, the alcove honoring his friend, His Holiness the Dalai Lama—all of this contributes to the recent burst of creativity. Place matters, he says, and he's in a good place.

"It's quiet, not a lot of traffic," he says. "Life is not about what you would like it to be next week, or what you did two years ago. It's about what you do after breakfast. Peace and quiet and a quality of life. Green trees, lots of animals—it makes a difference in what kind of art you make."

David Crosby is an Artist with a capital A. He lives at the front end, with the song, his voice and a guitar, into a microphone. That's where it all begins for him. That's what matters.

"It's the truth," he says. "If you don't have a song that you can walk up and sing to somebody and make them feel something, then you don't have it. And you can't polish it. Music is sort of reflective of American values in that it's become so much about surface and not about substance. You hear these people polishing these records and see all these ornate productions...and the song wasn't there in the first place. Then you go listen to a Joni Mitchell record, a Jackson Browne song, or a Paul Simon song, and you say, 'Now that's a song.'"

Take a moment to call up Spotify or go out and buy the records—Croz, *Lighthouse*, *Sky Trails*. There are some fine songs in there, too.



Tom Kenny
Editor



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Photos Courtesy of Sweetwater



Sweetwater founder and president Chuck Surack greeted thousands of customers in the lobby, in front of the VW van where the company all started.

Tom Holkenborg to Deliver Keynote at 4th Annual Mix Sound for Film & TV Event

Artist-composer Tom Holkenborg (aka Junkie XL) will kick off the Fourth Annual Mix Presents Sound for Film & Television event with a Keynote address on the creative interplay and emotional impact of sound and music in today's media landscape. The event will be held on Saturday, September 16, at the world-class audio post-production facilities of Host Sponsor Sony Pictures Studios, Culver City, Calif.

"Junkie XL first came to my attention as a DJ/Producer, when he appeared on the cover of the late, great *Remix* magazine," says Tom Kenny, editor of *Mix*. "Then when Mark Mangini, one of film's most inventive sound designers, spoke at our second annual event, he kept telling me about this guy, Tom Holkenborg, and how they worked together on *Mad Max* and *Black Mass*. Music and effects weaving in and out. Evocative and emotional. Now here we are, and we're thrilled to have Tom in the house."

Holkenborg is a Grammy-nominated and multi-platinum producer, musician, and composer now at the vanguard of a wave of exciting new film composers, with 20 years of experience and credits that include *Mad Max: Fury Road*, *Deadpool*, *Black Mass*, *Divergent*, *Brimstone* and the upcoming *Justice League* and *The Dark Tower*.

A native of Holland, while producing music he undertook mentorships with celebrated composers Harry Gregson Williams (Domino and Kingdom of Heaven) and Klaus Badelt (Catwoman). But things really started to fall into place when Holkenborg started collaborating with Oscar-winning composer Hans Zimmer. Their partnership lasted several years, and most recently included 2016's blockbuster *Batman vs Superman*, which marked their seventh scoring collaboration.

Throughout his career, education and mentorship have been key themes for Holkenborg. He created a Bachelor Program at the renowned ArtEZ Conservatorium, in his hometown of Enschede, for music composition, from which more than 200 students have graduated, and continued his commitment to education on digital platforms, producing the online tutorial series, Studio Time.

Mix Presents Sound for Film & TV is hosted by Sony Pictures Studios, with the support of Event Partners, the Motion Picture Sound Editor's guild, and the Cinema Audio Society. At press time, sponsors include Dolby, Avid, JBL, Yamaha/Steinberg, Meyer Sound, Formosa Group, Westlake Pro, Audionamix, RSPE and Sound Particles.

Visit mixsoundforfilm.com for program details and registration information.

Sweetwater Gearfest 2017: An Audio Celebration



Sweetwater owner/founder Chuck Surack solos on baritone saxophone during the Sweetwater All Stars' performance. Guests included Eric Johnson, Greg Koch, Carl Verheyen, Dweezil Zappa and many others.

Every year in June, Sweetwater puts on a free all-day celebration of music and sound called Gearfest, and each and every year it gets bigger and better, drawing a record 14,000-plus visitors this year to Fort Wayne, Ind., on June 23-24. It's big, it's free, and it's all about technology and music.

Launched in 2002, it's the nation's largest customer-focused music and pro audio festival and trade show, featuring exhibits from manufacturers, workshops, clinics, seminars, live demos, special performances, a musician's flea market, and much more.

This year's two-day event featured guests including Grammy Award-winning producer/engineers Al Schmitt, Chris Lord-Alge and Chuck Ainlay. Musicians included virtuoso guitarist Eric Johnson; Dweezil Zappa, Steve Stevens, Rock & Roll Hall of Famer and Earth, Wind & Fire keyboardist Larry Dunn; bassist and vocalist Rhonda Smith, renowned blues/jazz guitarist Robben Ford, Terry Bozzio, and Omar Hakim.

Sweetwater Founder and President Chuck Surack remarked, "One of the most exciting and humbling experiences I enjoy every year is personally greeting thousands of our customers at the front door as they arrive. Their enthusiasm for Sweetwater and GearFest is astounding and they really appreciate our incredible employees and their personal, caring, and welcoming interactions with each and every attendee."

Housed in more than 20 tents, more than 400 manufacturers of musical instruments, music technology, and pro audio equipment were on hand to provide GearFest attendees a look at the latest gear.

For the second year, Sweetwater offered free camping for tents and RVs. In addition, hourly prizes were given away, totaling more than \$50,000 worth of music instruments and equipment.

More than 45 videos, including interviews and product demos, were recorded and posted at Sweetwater's YouTube channel.

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Music

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MATTHEW SWEET
By Robyn Flans **16**

CLASSIC TRACK:
CHEAP TRICK
AT BUDOKAN 18



Photo: Chad Batka

STEVE EARLE'S SO YOU WANNA BE AN OUTLAW

Marking Musical Influences and Milestones

By Barbara Schultz

Steve Earle and Ray Kennedy go way back. Kennedy held the “guitar pickin’ party” in 1985 where Earle first heard guitarist Mike McAdam play. “There were about 100 people at that party, but Steve noticed Mike’s playing, and Mike became a member of Steve’s band for [20 years]. That was back in the day when songwriters just hung around each other,” Kennedy says. “It was right after Steve made *Guitar Town*. But our working relationship started ten years later, when we produced *I Feel Alright*.”

The memory of those album sessions are engraved on Kennedy’s memory. It was during

the recording of Earle’s song “Valentine’s Day” that Kennedy’s wife called to say she’d gone into labor. Twenty-two years later, Kennedy scheduled our interview around his “Valentine’s Day” daughter, Evie’s, college graduation, which fell just before the June 16 release of Earle’s latest, the Richard Bennett-produced *So You Wanna Be an Outlaw*...

It’s all tangled—part and parcel of a life making music: family milestones marked by sessions and vice versa. Yet, Kennedy is quick to point out that, even an adult lifetime later, the way he and Earle make records has remained pretty constant.

“The goal always with Steve is to record as much live stuff as possible. And we kind of pretend we’re on tape, even though we’re on Pro Tools 24/96,” Kennedy explains. “If we get a great first take and somebody made a few mistakes, we just punch it in like we did in the old days. And we don’t really like having lots of options; we like to commit early.

“Everything was recorded through an API console—all the API preamps in the hybrid API/Neve they have at Arlyn,” Kennedy continues. “It’s tricky to do what they did, joining the two boards, because the voltages are different, but they built a master section that joins them



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Pittsburgh Lifeforms SV-1 Blackbox Desktop
Analog Modular Synthesizer - Eurorack
PIPMS1008 | \$699.00



Warm Audio WA-87 Multi-Pattern
Condenser Microphone
WA87 | \$599.00

TIPS & TECHNIQUES

From the Pros

1 You Don't Need to Slam an Input at 24-Bit

In the analog days, it was often desirable to drive preamps as hard as possible, for tonal purposes. The same held true in the 16-bit world, but for issues relating to the noise floor. However, neither of these issues apply to 24-bit, so give yourself valuable headroom—you'll need it later on.

2 Check for Mono Even though it's 2017

In the old days, one often checked mixes for mono compatibility due to technological constraints of the times. You should still do this today, since your average listener won't hear a mix in perfect stereo (think sitting in the driver's seat, or sitting on the left side of a couch).

3 Try Out a Manual De-Esser on Vocal Tracks

What is a manual de-esser? The answer is, you. Go through the track and manually gain down each sibilance, either by clip or pre-fader automation. Pretty quickly, you'll learn to recognize the football-like shape of a peaky sibilance, which will expedite the process. Sure, it takes time, but it's one of the most natural ways to tame those ear-splitting "ssssss" sounds.

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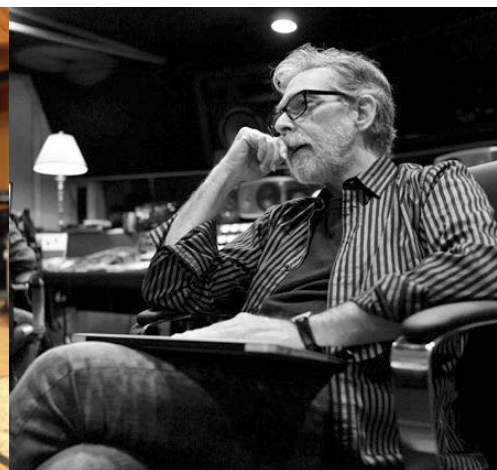
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Engineer Ray Kennedy



Steve Earle



Producer Richard Bennett

Photos: Mike Lukas

together. I recorded through the API and monitored through the Neve. I like the toughness and punchiness of an API console, and I use a lot of API equipment in my studio."

So, that's six pieces going down live—guitarist Chris Masterson and fiddle player Eleanor Whitmore (aka The Mastersons), drummer Brad Pemberton, pedal steel player Ricky Ray Jackson, bassist Kelly Looney, and Earle himself, playing guitar or mandolin and singing keeper vocals. The project needed room to spread out, and plenty of gear to go around.

"Other than two songs that we cut live down the street at the Continental Club, we did the whole record in Arlyn Studios [Austin, Texas]. I was somewhat familiar with the studio, though it had been awhile since I'd worked there," says Kennedy. "Freddy and Lisa Fletcher, the owners, are great folks. It's a great studio—the acoustical space, the staff and the gear. Every morning in the 10 days I was there we'd come in and eat breakfast tacos—the most tacos I've ever eaten in my life."

Earle told Kennedy that he wanted the album to have an Outlaw-ish

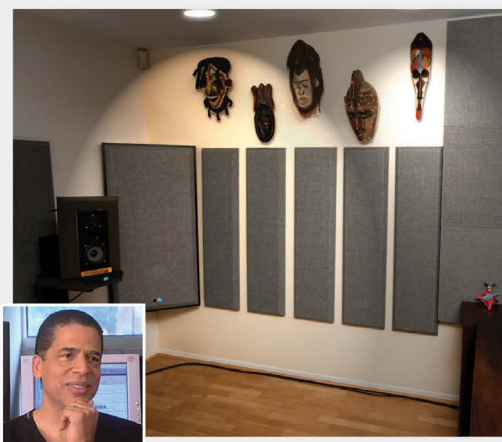
Primacoustic... better design, better



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

~ **Tommy Lee**

Founding member - Mötley Crüe.



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

~ **David Rideau**

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



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

~ **Butch Walker**

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

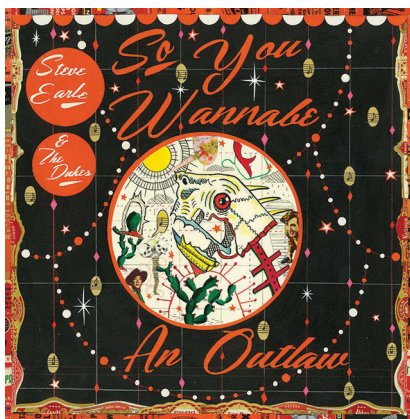
"I love the way the control and tracking rooms sound now... and so does everyone that records here!" ~ Butch Walker

approach, and that Waylon Jennings' *Honky Tonk Heroes* was his inspiration. The opening/title song is a perfect start: a duet between Earle and original outlaw Willie Nelson.

"For Steve's voice, I've got a special, old Neumann tube mic that's modified by Fred Cameron; he was famous for doing little mods to classic German microphones that made them even better than the original," Kennedy explains. "Steve sang through a hybrid 67/87; it's the mic that you would hear on most of our records for the past 22 years.

"Steve's guitar amp is a Vox AC50, which he bought from [Bob Dylan guitarist] Charlie Sexton," Kennedy continues. "He had two AC50s, and somehow Steve convinced him that one of them should be his. I had a custom cabinet made for that by [speaker manufacturer] Scumback; the back opens and closes, so if you want a really tight Marshall sound, close the back; if you want more sound spilling out and filling the room, like to get all the sparkly overtones of a 12-string, you open it. Steve played a '55 Tele and a '55 Les Paul; that's his birth year, 1955, so he's really into '55 guitars."

Kennedy captures Earle's amp via an RCA 74B, a ribbon mic from the '40s. "I have a lot of those RCA ribbons," he says. "The 74B is like a



baby 44. I just like ribbon mics on guitars; Chris Masterson's guitar was miked with a 74B as well."

The engineer brought those ribbon mics with him from Nashville to Austin, as well as a collection of his favorite drum mics. His choices include an Electro-Voice 868 on kick drum ("because it's punchy and tough-sounding, and goes an octave lower than other kick drum mics"), a 57 on snare top, an RCA Varacoustic ribbon as a room mic and an AKG C12A as an overhead.

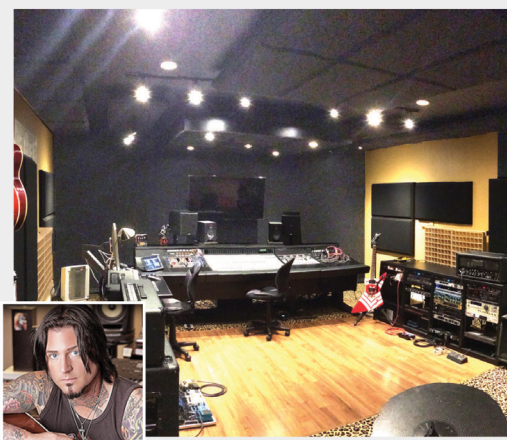
"I don't use overheads in a traditional sense," Kennedy says. "I'm one of those who uses the Glyn Johns method of putting the mic over the drummer's shoulder. That picks up the toms and cymbals." Kennedy also put up a trash mic near

the floor, to add more personality to some of the rocking tracks.

He used a more clean sound, however, on ballads such as the duet by Earle and Miranda Lambert, "This Is How It Ends." Lambert joined the band at Arlyn, and sang live with them on the heartbreaker she co-wrote with Earle.

"You need that chemistry of two people singing together at the same time," Kennedy says. "All the great duo acts—the Everly brothers, Simon and Garfunkel—the two of them sing together, and the synergy is tremendous." ■

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

~ John Rzeznik

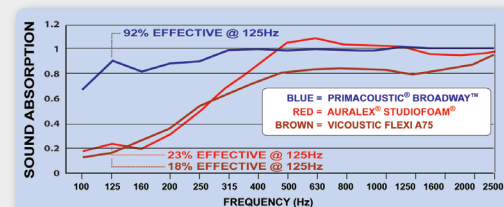
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MATTHEW SWEET, BELOW THE SURFACE

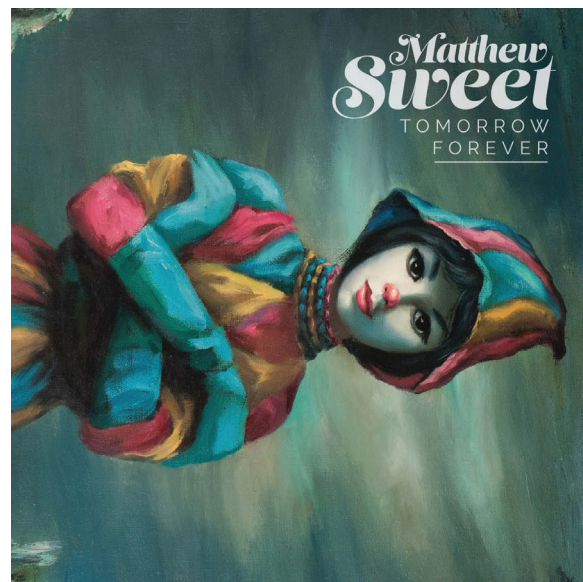
Artist Explores Memories of Home and Family on New Album

By Robyn Flans



Matthew Sweet recorded *Tomorrow Forever* in his personal studio, Black Squirrel Submarine

Photo: Evan Carter



friends with them,” says Sweet, whose song “You Knew Me” pays homage to her.

The loss froze him and put him behind on the album. He was supposed to deliver the record in late Spring 2015, but he wasn’t able to begin it until then. When he did finally get started, however, the music poured out.

“Somehow my memories had become very remote to me from traveling around the world,” says Sweet, who works in his personal studio, called Black Squirrel Submarine. “When I moved back, all that stuff came back to me—like when I first was in bands, what it was like when I worked at Beats Music, the feeling of when I got my first electric bass guitar.”

By summer of 2015 he had recorded 15 songs with longtime rhythm section members Paul Chastain, who played another guitar along with Sweet, and drummer Ric Menck.

In late 2015, Menck returned to Nebraska to work on another batch of material that Sweet describes as “more

A move back to his native Nebraska to an old three-level 1937 house, the rediscovery of his childhood and the loss of his mother inspired Matthew Sweet’s latest double LP *Tomorrow Forever*. He had already begun a Kickstarter campaign to fund a project when he and his wife moved back to Nebraska in December of 2013, nine months before his mother died.

“We were really good with each other. We’re two people that are too alike so there’s sort of an awkwardness between us in some way. I’m really happy to say that had gone by the wayside long before she passed away. I would just say to anybody who has weirdness with their parents, make

jangly power-pop songs.”

In early 2016, another bunch of songs was created with Bangles drummer Debbie Peterson that Sweet characterizes as “moody and slow.” As artist, producer and engineer, Sweet says his recording process is simple: “I’ve always played a guitar and sang something whether it’s dummy words or melody, along with a drummer. I kinda know when I have the drum track where I can make what I think I’m gonna make.”

The drums are set up at the end of the room with an AEA R88 stereo ribbon used as an overhead mic on drums, Sennheiser e602 and e604s on the kick and toms. ■

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Classic Tracks

By Matt Hurwitz



CHEAP TRICK AT BUDOKAN

In August 1977, Cheap Trick had the lead review in *Rolling Stone* magazine—the same issue marking Elvis's death—for their new album, *In Color*. Though a single from the album, “Clock Strikes Ten,” reached Number One in Japan, the band was still an opening act doing 50-minute sets in America. That would all change with the release of *Cheap Trick at Budokan* and its hit single, “I Want You To Want Me,” in February 1979.

With their budding success in Japan and impending release of their third album, *Heaven Tonight*, their agent, William Elson at American Talent Int'l and manager, Ken Adamany, began talking about touring the busy act in both Europe and Japan. By February 1978, a deal had been signed with promoter Daniel Nenishkis of Ongakusha Company, Ltd., in Tokyo, for six shows over seven nights, from April 25 to May 1, starting in Fukuoka, then Nagoya, the Koseinenkin Kaikan Chu-Hall in Osaka, two nights at the world-famous Nippon Budokan in Tokyo, and ending in Shizuoka. The venues varied in size, with Osaka holding 2,500 up to Budokan at 10,000. The shows sold out quickly.

Shortly before the tour, Sony had purchased CBS Japan and split it into two independent labels—EPIC/Sony and Columbia/Sony—which they intended to launch with live albums by foreign bands, in the mold of Deep Purple's *Live in Japan* six years earlier. “I had offered Aerosmith to make a live album of their concert at Budokan one year before, but was turned down,” says former label executive Norio Nonaka. “So we were desperate to have a chance to make a live album of Cheap Trick.”

Nonaka recruited Tomoo Suzuki, considered one of CBS/Sony's top engineers, to record three shows: Osaka and the two at Budokan. The album was to then be mixed by the label and released solely in Japan as a souvenir of the band's first visit to the country. “The label said they wanted to make a recording. We said, ‘Fine,’” Adamany recalls.

Throughout late March and April, the band's live sound mixer, David Lewis, worked with the promoter's sound reinforcement contractor, Tokyo Sound Co., to ensure an adequate sound system. Lewis implored them to boost their suggested system to include multiple 4-way JBL 4520 systems and equivalents to fill the halls.

The group arrived on Friday, April 21, and two days later spent the first part of the day rehearsing and fleshing out an expanded set list. “We were suddenly doing a headlining show, 19 songs, and we'd never done that before,” recalls drummer Bun E. Carlos. The group added several songs from the new *Heaven Tonight* disc, mostly tracks that had been written and played previously since there was no real time to work others up.

The label also requested three new songs, so the band added “Look Out,” which had been floating around since 1975-76, the bluesy “Need Your Love,” which would be recorded on their following album, *Dream Police*, and the classic “Ain't That a Shame.”

At the Osaka and Budokan venues, Suzuki arrived with a small CBS/Sony mobile unit that carried two Ampex MM-1200 24-track tape machines, recording to Ampex 456 tape stock, and a 30-input Quad-Eight Electronics 3024 Q.E. recording console, filling up 23 of the 24 tracks available. For miking, he simply took taps from Lewis' P.A. mixer, with two exceptions: he added a Shure/Unidyne SM-57 to capture Carlos' snare and a single Sennheiser 421 for his rack toms. Two audience mics were added on either end of the stage, as well, Carlos says.

Suzuki showed up first in Osaka and quietly went about his business, essentially unknown to the band. “We knew they were supposed to be there, but we never saw them, even during soundcheck,” Adamany says. “I remember saying, after the concert, ‘Wow, great show. Too bad they didn't record it.’ And then, all of a sudden, on stage left the door opens, and there's a room with two 24-track machines and three guys. We had no idea they were there.”

Afterwards, Suzuki recalls, “I packed up the equipment at 11 p.m. and headed for Tokyo in my car. It's about 550 kilometers from Osaka to Tokyo. I reached Tokyo at 5 a.m., slept for two hours, and then entered Nippon Budokan to begin setting up.”

FAST-FORWARD: MADE IN THE MIX

The band had lunch with CBS/Sony Japan execs on May 2 and then flew back to the States. Shortly after their return, Adamany had a listen to a cassette copy of Lewis' ¼-inch, 2-track soundboard recordings. Impressed, he played them for Epic product manager Jim Charne, who declared “I Want You To Want Me” a likely hit.

Knowing that the Japanese division was keen on releasing the recording, Adamany had the multitrack tapes sent to Record Plant NY for producer Tom Werman (who had helmed *In Color* and *Heaven Tonight*) to hear. Immediately, major flaws in Suzuki's tracking, consistent across all three



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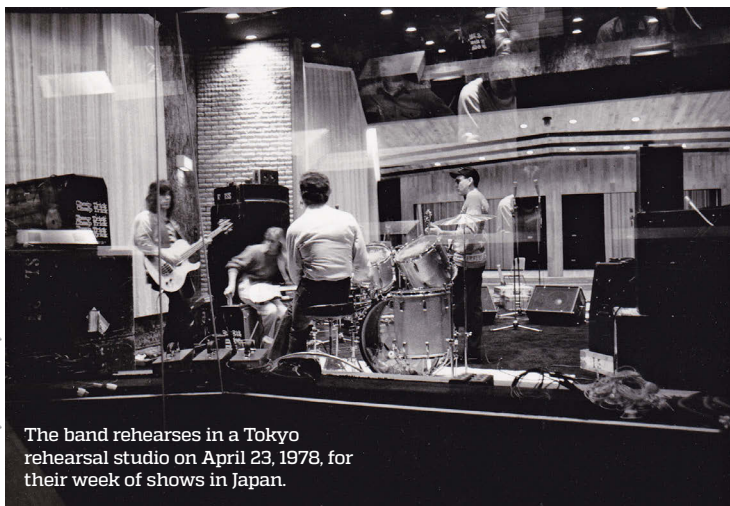
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The band rehearses in a Tokyo rehearsal studio on April 23, 1978, for their week of shows in Japan.

nights, became apparent. “The bass was either missing or would cut in and out, and my kick drum just sounded like some tapping,” Carlos explains.

Werman turned to Adamany and stated simply, “There’s nothing there, Ken. There’s just no need for Epic U.S. to get involved.” Carlos adds, “He told us, ‘Why don’t you guys just go into The Capitol Theater in New Jersey and redo it like KISS did with *Alive 2*?’ Well, we didn’t want to do that. Without Werman, we didn’t have a producer, so we just said, ‘Lookit, me and Rick will do it.’”

The first step was to figure out which songs would appear on the album, and from which of the three nights’ recordings. Carlos brought cassette copies of the board tapes on the road that summer, listening in the back of the bus or in hotel rooms. “I went through all three shows and just marked which ones had no fatal flaws, which ones had the best lead vocals, which had good drums, which for the bass and guitar, which ones didn’t have a bunch of clams on them.”

To effect repairs, the band booked a day in early June at Record Plant Studio A—which turned into one long night—with engineer Jay Messina, who, along with producer Jack Douglas, had recorded the band’s first album in the same room. Messina made a copy of Suzuki’s 24-track reel, creating space for additional tracks by wiping unusable bass or other material. Roadies arrived with Nielsen’s guitars and Petersson’s bass; Carlos’ drums were perhaps fixable via simple EQ work.

Petersson’s bass replacement was considered central. “It appears to have been an issue with the cable connectors in the original recording,” notes reissue producer Bruce Dickinson. “The bass would fade in and out or go completely, or there would be weird buzzing noises that would overwhelm Tom’s sound.”

Nielsen, meanwhile, took the opportunity to both add to and replace his original playing where he wasn’t happy with the recordings—replacing his solo on “C’m on, C’m on” and “Ain’t That a Shame,” pieces on “Surrender,” “Clock Strikes Ten,” “Need Your Love” and, rather skillfully, replacing the beginning of “Hello There.” “It starts cold,” Carlos says, “and Rick did it in just a few takes.” A slew of solos for “Big Eyes” were created, the guitarist clearly excited to hear *all* of them in the night’s mix, and eventually in the final.

Zander replaced and augmented several vocals, for instances where he or Nielsen might have been off mic, even doubling and harmonizing with himself on some tracks. “I Want You” received an entirely new lead vocal, Zander doubling himself.

A rough mix was created that night, with Carlos and Nielsen each making

notes on what additional changes were needed, either in overdubs or mixing/editing (Nielsen specifically wanted to hear the audience’s “cryin’, cryin’” answer in “I Want You” and “Lots of chorus” for “Surrender,” among other things).

Additional fixes were recorded on July 18 and 24, mostly vocal overdubs and some guitars, with engineer Mike Beiriger at Record Plant L.A. while the band was on the West Coast. While there, Adamany received a note from EPIC/Sony product manager Tai Ohnishi, requesting final mixes by August 15, to facilitate an October 9 release in Japan.

With time running out, Douglas and Messina were asked to come back in, and the band took advantage of two open days, August 7 and 8, in Studio A, to record more overdubs. The group returned to the road, leaving Adamany to mix with Douglas and Messina. Douglas set about tackling the problem of Carlos’ bass-less kick drum, which Messina described as “more like a knocking sound. I tried to get as much bottom out of what the mic captured, and it still was missing some low end.”

Douglas, throughout his career, has been serially inventive in his approach to recording and mixing. In this case, he explains, “I take the signal and gate it down to just a beat,”—which Messina then keyed to an oscillator putting out 50 or 60 Hz and gated with a Quad-Eight noise gate, opening momentarily when it received the beat—“We then put a speaker up against a bass drum and mike the bass drum and record that. We would call them ‘Bun E in a Box.’ He calls them ‘Budokan Drums.’”

Carlos’ two rack toms had been miked essentially in mono, even with two mics. Douglas created a stereo spread by splitting the signal and adjusting EQ, low and high, on two channels. The “Good night Tokyo” replaced its “Osaka” counterpart on “Goodnight,” “Surrender” had its tempo increased via a discrete speed change, and Douglas created a masterful side-opening intro to “Ain’t That a Shame.” “Rick and I still don’t know how he did that,” Carlos says.

“Jack and Jay didn’t just do the kick drum trick, they brought out so much of the sound of the shows like no one else could have,” Adamany emphasizes. Still there remained some additional items in the mix which he wanted to see happen. By that point, Messina was committed to other work; his mix was mastered by George Marino at Sterling Sound on August 18.

Adamany also booked time with Gary Ladinsky, who had recorded the band’s previous two albums with Tom Werman, at Record Plant L.A. in hopes they could knock out the remaining adjustments. Dates were pushed to mid-September, and in Ladinsky’s absence, they tracked additional fixes with Mike Beiriger in Studio A to “Ain’t That a Shame.”

Ladinsky arrived on September 18 and spent 40 hours over three days remixing, with Beiriger and Adamany, six of the ten songs, leaving Messina’s mixes intact for “Look Out,” “Big Eyes,” “I Want You To Want Me” and “Surrender.”

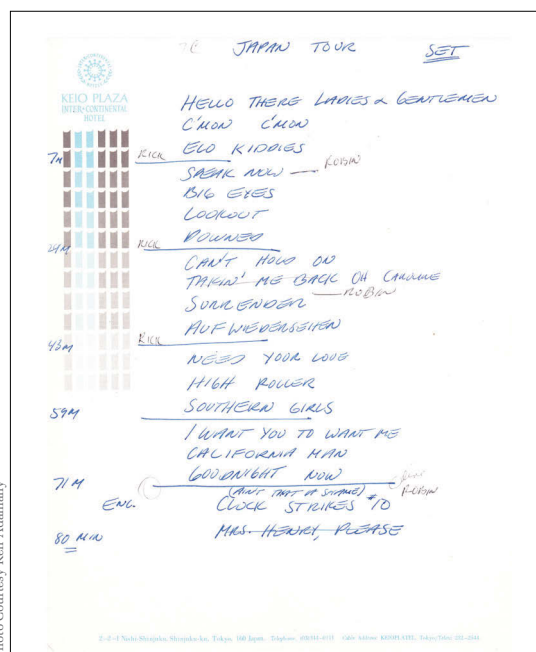
The kick drum problem, of course, remained (“The kick and snare sounded about the same,” Ladinsky observed), so Messina guided him through the oscillator/noise gating process by phone. Crossfades were once again prepared, and Ladinsky then flew to New York to master, once again, at Sterling, this time with Greg Calbi, subbing for the unavailable Marino. [While in town, that evening, Ladinsky recorded Cheap Trick at The Palladium, for radio broadcast.]

Since it was not a firm bet that Ladinsky would be available for additional mixing, the Messina master had been sent to Japan for manufacturing, but upon completion of the new mixes, Stolzman informed them on October 1 that the original tape was to be returned and lacquers destroyed, pending

receipt of the new master tape and lacquers from Sterling, along with new back cover art to add the engineering credits for the new mixes.

On October 14, Ohnishi sent Adamany a box of 25 of the new albums, but something was wrong. "They sounded terrible," Carlos remembers, "too much midrange—the EQ was all wrong," the label having apparently attempted their own mastering to the stereo master. Adamany sent a mailgram, telling the label, "Stop pressing album—the parts we sent you from Sterling Sound in New York were not used by your pressing plant. You must use parts from Sterling."

In the meantime, on October 2, Epic in the U.S. had Sterling cut a 7-track 12-inch sampler, *From Tokyo To You*, issued to radio on Halloween. "By that time," Adamany explains, "we had convinced everyone that there was something there. There was a lot of excitement on FM radio over 'I Want You To Want Me' and 'Ain't That a Shame.' So they did a big teaser, as a test to consider releasing the album here."



The tour's set list, as compiled during the band's Tokyo rehearsal on April 23, 1978.

Within a few weeks, on November 17, Epic issued the second single from *Heaven Tonight*—"California Man," backed with the live "I Want You To Want Me" (with no reference to its source on the label, except "Recorded Live in Japan" on the radio copies). The group's fans were alerted to the release in a regular tour info mailing, which also noted that a live album "currently available only in Japan," would become available as an import around December 1.

Imports indeed began to show up in the States, and, due to the airplay of "I Want You To Want Me" and other tracks off the sampler, began selling like hotcakes. Demand was huge, and on February 2, *At Budokan* was finally released in the States.

On March 20, "I Want You To Want Me," backed with the live "Clock Strikes Ten," was issued as a single, which peaked at No. 7 on *Billboard's* Hot 100, finally bringing Cheap Trick to the forefront of American radio and to American fans.

A second single, an edit of "Ain't That a Shame" (done by Adamany and a friend, Mercury Records exec Robin McBride at his home studio), was issued July 27. A third single was considered, but by that time Epic, which had held *Dream Police* to give *Budokan* its space, released the new studio album on September 21.

"*Budokan* brought in so many new fans; for many, it was their first Cheap Trick album," Adamany observes. "So when the exceptionally well-produced and recorded *Dream Police* came out, there was a big rush to buy it, but it sounded so different to them. To the new fans, *Cheap Trick At Budokan* was Cheap Trick." ■

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On the Cover

Story by Tom Kenny // Photos by Chris Pelonis

DAVID CROSBY ON A ROLL

At Home and at Peace, With 3 Great Records in 2 Short Years



David Crosby in his home-based editing/listening station, overlooking horses in a pasture and the hills of the Santa Ynez range, with Neumann KH120 and Pelonis Sound Model 42 monitoring.

How does he do it? How does David Crosby, after more than five decades of racing through the rock and roll jungle, beating the odds more than a few times, come out the other side and make you feel like he's just getting started?

He's written (and co-written), recorded and released three stellar albums—*Croz*, *Lighthouse* and *Sky Trails*, all self-funded and self-produced—since 2014. He performs and records with two different bands, often intermingling the lineups, and has dived headfirst into the art of collaboration. He continues to fly around the country to lend harmonies on friends' projects. And he's writing more prolifically than he ever

has, with songs in his back pocket and ready to jump into an album project where all four members will share in writing and producing. He says that he's as happy and inspired as he's ever been. And it shows. Then he adds, with a smirk, "But I'm still a grumpy old f—."

This is not the time or place to summarize a remarkable career, because it's still growing, still vital, still on fire. When *Mix* sat down with him on a May afternoon at his ranch-style home in the Santa Ynez Valley northeast of Santa Barbara, greeted by his lovely wife Jan, four big playful dogs and a dozen or so horses in the pasture, we wanted to know about today, What led to this explosion of creativity?

So, you've been pretty busy lately. Where does all this come from?

I'll tell you what happened: I quit CSN. In show business, you just don't do that. It's a good gig, and it had a great paycheck. And it was dead. It had devolved to the point where you're just turning on the smoke machines and playing your hits. I loved being in the band, CSNY, too—great for the first ten years. They go uphill until they peak, then downhill until you should get out. There was no forward motion at all. So I quit. As soon as I did that in my head, it was *Croz*, *Lighthouse* and *Sky Trails*. Three albums in two years. And they're pretty good records.

In music, you have to feel inspired, and if

you're unhappy in your musical situation, you're just trying to survive, to keep your head above water. But you're not inspired to make music.

And now you are inspired, I'm guessing, working with two bands and a few different writers.

I am, absolutely, but let me back up a second. I knew I had a son, and that he had been placed for adoption, but you can't track from the parent down. It has to be from the child up. So 20-some years ago, when, not to put too fine a point on it, but I was dying in UCLA Hospital, everybody suddenly knows where I am. And I'm getting Santa Claus-sized bags of mail every day. In one of those was a letter that said, "Hello, we are John and Madeline Raymond, and we raised your son, James." I knew this was real. I felt it.

So James gets hold of me through a friend, Mike Finnegan, and I'm thinking that those types of meet-ups would usually go very badly. Somebody brings a whole lot of baggage. James didn't do that. He came to me, with no baggage at all, and let me earn my way back into his life. Which was a huge kindness.

He is a brilliant writer. Brilliant player. A really good arranger, a super producer. He was at the core of CPR, along with Jeff Pevar. James co-wrote and produced *Croz*, a really good record. He co-wrote and produced this record, which

is called *Sky Trails*. He engineers, produces and plays in one of the two bands that I do now. The other one is the Lighthouse band. Michael League and Becca Stevens and Michelle Willis. That's a really good acoustic band, one of the most fun experiences I've had recording and playing live.

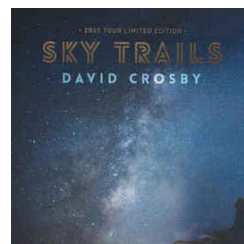
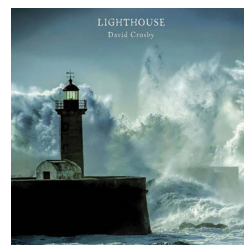
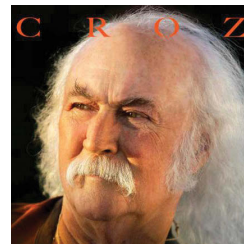
But back to James. You've been playing together for 20 years now. Did you connect immediately on a musical level?

It didn't take long at all. Once I heard him play, I said, "Holy shit. We need to write together." I wrote the words to "Morrison," and he came back with the music. It was so good. It was such an immediate and total connection, astoundingly. We really, really have a good time doing it.

Now we send each other bits and pieces all the time. That's part of why this rig is the way it is [pointing to his editing/listening station, with Neumann and Pelonis monitoring].

You seem to have embraced collaboration in general, beyond writing with James.

I had been pretty solo. But I've found that writing with other people just expands the possibilities. You have to let your ego go and be open to new ideas. You have to be unafraid to say your opinion. You have to be willing to work at it. It takes work, and it absolutely challenges me. I write with re-



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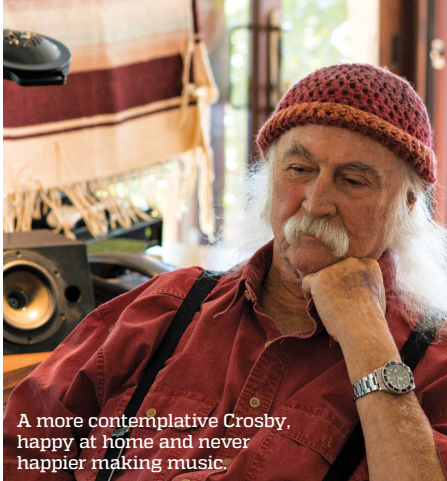
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A more contemplative Crosby, happy at home and never happier making music.

ally good people, and if you don't bring something good, they will bring something better. But it's given me all kinds of textures and flavors I wouldn't come up with by myself.

Michael McDonald is such a joy to write

entire pages of other stuff. I write every which way there is. I'll get comfortable and sit down with a guitar, in a tuning, and see where it takes me. The writing can be about anything, probably more about love than anything else. But you have to care about the process.

Has the process changed, now that you're at home, often alone?

I still crave the collaboration, I love being in the room with a band. There's a thing that happens when players get their egos out of the way and listen to each other, a moment when it kind of gels. When it does, and this is going to sound all cosmic and woowoo, but when it does, the whole is greater than the sum of its parts. There's all of a sudden some kind of multiplication taking place. I don't fully understand it, but I know when it happens. If you're in a room, sometimes it gets right, then lifts, and you're in a bubble. That's what I came to the party for. It excites me.

So you still go into studios to record?

I love it. I have a great time in there. But not everywhere. Vibe is really important. The feel is crucial if you're trying to make music. Everybody in the room affects the session, from the janitor on up. Everyone in the building. But I love Jackson's Groovemaster in Santa Monica. A good single room with a nice collection of mics and a great Neve board. I love The Village. Jeff [Greenberg] is a real good man.

There's this place up here that Chris [Pelonis] built, Joel Jackson's place, called Rumor Mill. A very good little studio, but he needs a bigger desk.

with. Like me, he loves to work at it. He doesn't take it for granted. We will sit at that piano and work for hours. We work at it, and that's key.

There are people who think that The Muse is going to come and drop the song in their lap. The Muse might drop the idea, but you have to work at it, and you have to apply craft to it. Channeling is good for an idea, the spark. But you have to work.

Joni Mitchell taught me an important thing, many years ago when we used to run together. I said something to her and she'd say, "Write that down." I would say, "Why?" She said, "Because it's good." I said something like, Oh, there's a million of them. And she said, "No. It doesn't work like that. If you don't write it down, it didn't happen. Write it the f — down." I said, "Okay! I will!" Such a great lesson.

Now, if I get four words in a row, I write it down. I have files in this computer. We have to keep these little tidbits because they can generate

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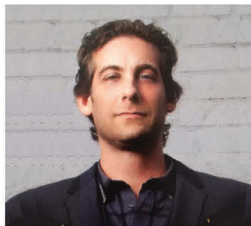
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I can do good vocals there, which is what I need to do. But the whole business has changed. Pro Tools and Logic have made it so you can work anywhere. I do a lot of my work right here.

For mixing, my friend Fabrice Dupont is a really sharp guy. He mixed *Lighthouse* and taught me a lot. He's a wonderful engineer, and he has one of the best mix rooms I've been in. Fab works with Michael League and the Lighthouse band. And then with the James Raymond Band, I work with Dan Garcia. He's a protégé of Bill Schnee. Tracking and mixing. An excellent engineer.

Let's talk about guitars. Your recordings are exquisite.

An acoustic guitar is a very, very delicate thing. I won an audiophile award for my first solo record because of how we make acoustic guitars sound, and there are a lot of tricks to it. But we also made that record before there were electronic tuners. Electronic tuners will get it in tune, roughly, but if you really want to get overtone structures, you have to then take it and tune it until you hear them start to appear. That's easier to do in open tunings than in regular tunings. Now you also have to have the ear to really fine-tune the guitar. And you have to be able to sing well enough to do the same thing. To hear the overtone structures.

If I'm trying to fit vocal stacks and guitars together. I listen into the music for overtone structures. If they're in tune perfectly, they generate it. A guitar will make notes that you're not playing; it's the nature of guitars. And it's better with a better guitar, with better materials. The overtones will come out.

So what do you pick up first, your go-to guitars?

I have some 1969 D45s Martins that they let me cherry-pick back when they started making D45s again. They hadn't made them since before the Second World War. They're pretty much state of the art. I don't think there's anything better than them that I know about.

But they differ in terms of where they are in their life. A guitar doesn't come with a voice. A brand new Martin doesn't get its voice until about six to eight years in. The more you play them, the better they get. And you have to play them a lot at the beginning to get that voice. Then they acquire a tone quality where you can tell the difference. They get rich and deep.

The other thing is we use pickups on them, and there are dozens of different kinds of pickups. A lot of people have been working for a lot of years to get the perfect performance guitar that has a pickup in it that sounds like an acoustic and not clacky and weird. If you go to a Jackson Browne performance live, Paul Dieter's live acoustic sound is as good as any I've heard.

Anything you would like to add in closing? You seem happy.

I am very happy. I can only tell you what my advice to other people is: Don't go for the short-term-dollar answer. When you're making choices, make your choice based on the highest ground you possibly can. What I did was follow the music, I didn't follow the money. And in show business, that's absolutely a disaster. You don't do that. I did it. It's what my nature told me to do and I followed my instincts. And I'm here, happy as shit because I'm making really good music. ■

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BROKEN SOCIAL SCENE

CANADIAN COLLECTIVE REUNITES TO TRACK *HUG OF WAR*

// BY BARBARA SCHULTZ



Photo: Norman Wong

Thereal vocal harmonies, guitars that hint at U2 one minute and The Clash the next, keyboards that sound like horns, horns that sound like synths, dry drums, huge drums, e-drums... and that's just the tip of the iceberg. The sounds of Canadian musical collective Broken Social Scene are as many and as varied as the band's copious members and their side/solo projects. Their latest album, *Hug of War*, is the beautiful, amorphous sum of all of those parts.

BSS were encouraged in their ambitious endeavor by producer/engineer Joe Chiccarelli. "They're made up of members of Stars and Metric and Apostle of Hustle, and lots of other bands. Leslie Feist is also a member," Chiccarelli explains. "There's a core of four or five people that lead the band, but with their various part-time members that goes up to at least 12 or 13 if they have a horn section. That's why I often say to people, 'That this record got made is, in itself, an accomplishment.' They hadn't had a record in about six years, so getting them together took a concerted effort from a lot of different people.

"The president of Universal Records Canada [and co-founder of the band's Arts & Crafts label], Jeffrey Remedios, is a friend of mine and he had mentioned the band, and I told him, 'Jeffrey, I am a huge fan. If these guys want to record, I would kill to work with them,'" continues Chiccarelli. "He put me together with Brendan [Canning] and Kevin [Drew], two main members of the band. I said, 'You guys have a fan base out

there, and they're dying for a record! Part of my initial role was being a cheerleader and getting them excited about working together again."

Hug got rolling the way BSS projects often do: Bandmembers worked in subsets and in private moments on ideas that could become songs. "Brendan's house is set up for them to rehearse and record, and they would get together there," Chiccarelli says.

During the pre-production/writing phase, the musicians sent snippets and demos from their home base in Toronto, Ontario, to Chiccarelli in L.A. "Sometimes there would be a 10-minute jam and I might send them notes back saying, 'There's a riff at 2:10 that's really great and you should try to turn it into something,'" says Chiccarelli.

When BSS were ready to lay down album tracks, Chiccarelli joined them and engineer Nyles Spencer in the Tragically Hip's studio, The Bath House (Bath, Ontario). Spencer is

the chief engineer there, and his seven years' experience working in the facility in various capacities suited the band's constantly changeable workflow.

"The Bath House is actually an old house that was built in 1842, on the shores of Lake Ontario, and bands stay here when they record," Spencer says. "So, typically we host longer sessions—a week to a month—where bands can eat, breathe and sleep the record they're working on. We worked in a few other studios, too, but a large portion of it was tracked here."

Sessions began with basic tracks, with core members Kevin Drew, Brendan Canning, Charlie Spearin, Andrew Whiteman and Justin Peroff laying groundwork for many songs. "Ariel [Engle] might join them as well on the session, or horn players would be kicking around, and we'd use several rooms," Spencer says.

"The rooms have not been treated that much, so there's a very natural sound, but we're augmenting that a lot of the time," he adds. "For drums—we're making rooms smaller, dampening it down in some cases when we're looking for a drier sound, building kick drum tunnels, tenting off hi-hats when we wanted that isolation. But instead of getting the perfect sound of the floor, a lot of it with Broken Social Scene was more about capturing that immediate idea and making sure you have that on record, no matter where it's coming from. I think that keeps things fresh.



Standing L-R: Sam Goldberg, Charles Spearin, Brendan Canning, Amy Millan. Seated front: Justin Peroff, Ariel Engle, Andrew Whiteman. Seated middle: Kevin Drew, Leslie Feist. Seated rear Evan Cranley, Jimmy Shaw.

"We would have the grand piano set up, and a bunch of synths," Spencer continues. "In the control room, there were any number of lines that we could grab and plug into. We had another area with a bunch of guitar amps in a row that members could use, or we could go into all of them, splitting between two or three amplifiers and then summing them down."

"This is not your typical rock band that bashes up stuff in the rehearsal room for a few weeks and then goes in and cuts it," Chiccarelli says. "It's more like an artist who takes lost and found objects and puts them together in a sculpture."

Some of those sculptural elements came from happy accidents, as well: "I'll tell you a funny story," Spencer says. "It was an after-midnight thing. We were done for the day and wanted to blow off some steam: Everybody grab an instrument and we're going to jam, myself included. Ariel was playing guitar in another room, so I had a talkback mic up for her, an RCA77DX.

"It was actually a drum mic; she was sitting beside a drum kit, and I pulled it over for her," he continues. "It was going through a preamp in our API 1604 console, and a 560B EQ and then it was hitting a Standard Audio Level-Or, and then it was probably hitting another 560B to knock off some of the hiss. It was just meant to fill in as a talkback mic, but she ended up singing a vocal into it, and that was the vocal for the song 'Gonna Get Better.' I do use that RCA a lot for vocals, but I don't put it through a leveler. But that immediate idea was the important thing."

After three weeks in The Bath House, Chiccarelli went back to L.A. for a while and the musicians resumed work in Canning's rehearsal space. "They did some overdubs on specific parts they wanted to experiment with, and I would edit and send them a rough mix. Then we all got together again—this next time in the city of Toronto at Union Sound," Chiccarelli says.

"We got a lot of really dry, cool drum sounds there," Spencer says. "They have some very small iso booths, and jamming Justin into one of the booths, with as many mics as we could fit, it was pretty tight, but it achieved a really tight and in-your face sound. It was a good addition to the palette of sounds we were getting."



To produce Broken Social Scene, Joe Chiccarelli brought his ATC SCM45A monitors from one Canadian studio to another. Here he is pictured in Sunset Sound, where he frequently works when at home in L.A.

The Leslie Feist-led track "Hug of Thunder" also came together at Union Sound. "That was from a jam that she built upon," Chiccarelli says. "At one point, we went in and tweaked some of her vocals, and there were other overdubs on that. I just want to stress the collaboration part of this. The technology we have now makes these kinds of collaborations really easy, so Charlie could take a hard drive to his home studio, edit, send me a file, and then I do some cleanup, send them back a rough mix, and the track is just built upon, built upon, built upon."

Further BSS tracks were captured in Mixart Studios (Montreal). "That was a much bigger room and had more open bombastic drum sound, more live, so we took advantage of that and overdubbed some big drums there," says Chiccarelli.

"They also had a really good Neve [8066] console," Spencer says. "We were still really focused on getting bed tracks there, more and more bed tracks, some of which were just jams."

Throughout the process, just a couple of ingredients remained constant. In every studio where they worked, Chiccarelli and Spencer recorded to Pro Tools 24/96, and Chiccarelli monitored through his ATC 45M speakers. "Other than that, every song is so different that it was great to be in a different room and create a different drum sound based on the way the room sounds, for example. It was fun that there was no need for a consistent sound. There's freedom in that," Spencer says.

"As you can see, the songs were mounting and mounting, with tracks coming from a lot of sources, and then the band went back and did more overdubs at The Bath House again without me, experimenting with guitar textures and horns, and again they would send me the hard drive and I would do some trial edits or rough mixes [in L.A.]," says Chiccarelli.

The roughs provided a useful guide for mix engineer Shawn Everett, who inherited a very fluid project. "Shawn did Alabama Shakes' album [Sound & Color]," Chiccarelli says. "He and Kevin are old friends, and Kevin said, 'I've always wanted to work with him. I hope you wouldn't be offended if I ask him to mix,' and I said, 'No. If you feel passionate about working with him, that's great.' But I think it must have been a challenge. There were so many pieces, and the process was ever changing, even into the mixing and mastering—an ever changing process of experimentation." ■



A TRACK FROM HELL

Vocal-Rich Sound Design for 'The Exorcist'

By Matt Hurwitz

Kerry Gutierrez, a voice actress leading her ADR group of six from Twist and Shout, stands alone at the mic in a studio at Outland Audio in Burbank, as the others watch, hissing a seductive whisper for the voice of a floating demon. Next up, her colleague, Marco Aguilera, issues a throat-ripping series of growls, matching the wrenching mouth movements of actress Geena Davis on a monitor.

"A little more growly, animal-y?" he asks. Sound supervisor Fred Paragano, CAS, and associate producer Nicole Carrasco confer a moment and respond, "Less snarly," anticipating the likely presence in the upcoming mix of a BFMC—Big F-ing Music Cue.

These are the roots of some of the hellish sounds in *The Exorcist*, a Fox debut in Fall 2016. By the time Paragano and the teams from Atomic Sound and South Lake Audio finish their work, they will be just one part of the show's frightening sonic landscape. "There are no typical sounds on this show," Paragano says.

The post-production audio team was put together by veteran supervising sound editor Tom de Gorter, through his Burbank-based Atomic Sound Post Production Services. De Gorter assembled a team of skilled, independent editors/mixers, including Paragano, dialog editor Herb Rawlinson, sound effects editor Ian Blackman and music editor Nino Centurion.

He also engaged South Lake Audio Services, Burbank, which including South Lake principal and re-recording mixer Keith Rogers, CAS, and Scott Weber, both multiple Emmy nominees. Both also received CAS Award

nominations for their work on HBO's *Westworld*, as did de Gorter and Paragano with MPSE Golden Reel noms (de Gorter won).

The process, as with all shows, begins with a spotting session, in this case attended by Paragano, Carrasco and exec producer Rolin Jones. Paragano builds the notes into the project timeline, which are then imported into the Pro Tools session each team member is working from.

"They can each see where their work will fit in with the rest," he explains. "We don't have a final lock on the picture when we begin. This way, when we do the conform, all the notes follow along. They're still tied to every item in the correct place in the timeline."

The team works on a comparatively tight schedule, with five days to complete editorial and mixing. "I get three days to do my dialogue edit," says Rawlinson. "On this show, you can't just be good, you have to be good and fast."

The process begins with the arrival of dailies, with multiplexed ("muxed") tracks from the production sound mixer, J.T. Mueller for most episodes. Atomic Sound's lead sound assistant, Eddie Rogers, uses Synchro Arts Titan 4 to demux the tracks, splitting each into eight separate files (containing the mixer's comp track, one or two boom mics, and lavaliers). "You can also do it in Pro Tools," he says, "but Titan does it in bulk. We get anywhere from 10 to 20 sound rolls per episode, and it just chews through all that stuff quickly. It's really efficient."

Once he identifies sources, Rogers assembles each scene from the dailies

and the picture editor's EDL, comparing against the editor's dialog guide track. The assembly is based on whatever cut the picture arrives in—which is not always in final lock. “They’ll give us a ‘pre-lock’ version, which we sometimes call a ‘latch,’ since it’s not locked. I’ll assemble to that, just to get the editors started since our schedule’s so tight. Then, when the lock comes in, I’ll send them a ‘bring out your dead’ e-mail, and they’ll send me their Pro Tools sessions, which I’ll conform [using The Cargo Cult’s Conformalizer] and send back to them. We might get a new cut with 120 changes, and this beast will just go through and slice it all up and keep it all in sync.”

Rawlinson, working from his home studio, would normally split out dialog into eight tracks, including “futz” tracks and a single production effects (PFX) track. On *Exorcist* he breaks out four PFX tracks.

Demonic characters—those which will be treated but which were recorded as production audio—must also be split out by Rawlinson onto their own tracks, so that the mixers can apply treatment, essentially creating dialog effects tracks. Group ADR demon voices, recorded and processed separately by Paragano, are not included as part of dialog effects, but instead kept as part of group ADR and cut into the master file by Paragano himself.

With so much being split out of the production tracks, a major part of Rawlinson’s work is placement of “backfill,” ambient sounds to fill the space of the removed dialog or physical effects. “It’s like cutting one big phone conversation,” he explains. “You also want to keep all the natural breaths, before and after actors’ lines. That’s the ebb and flow of dialog editing. Fred says, ‘Think of it as music,’ and he’s right. When you put the breaths in the right place, everything flows.”

BUILDING DEMONS

From the spotting session, Paragano knows what regular group ADR material will be required and but he’ll need to record to represent demonic voices and sounds for each episode. Cues such as “Demon struggling” and “Casey fighting efforts” are not uncommon.

During those sessions, Paragano relies heavily on producer Carrasco. “She has a whole different take on it from me,” he says. “I’m usually looking at coverage and I’m listening to sound quality, and to make sure what we’re getting is going to cut through the music and other effects in the scene. I’m listening and thinking, ‘What am I going to do with that later?’ and ‘Do I have what I need to be able to pitch it and do what I need to do properly?’ I know what tools I have and what I’ll be able to get away with.”

Late into the evening after a day of such sessions, Paragano will apply various “voice treatment” tools to the otherwise innocuous recordings to turn them into raise-the-hair-on-your-neck demons. The first step is to synchronize the recordings to whichever character’s lip movement is seen onscreen. In most cases, that involves young actress Hannah Kasulka, whose character, Casey, is inhabited by a demon in the form of The Salesman, played by Robert Emmett Lunney.

“That sort of evolved over the first few episodes,” Paragano explains. “Once we honed in on the fact that the Salesman character was the demon, all of the demon voices became Robert.”

Lunney recorded ADR at Chicago Post & Audio (the series is shot in Chicago), and Paragano would direct the sessions from L.A., typically

The *Exorcist* sound crew: Back row, from left: music editor Nino Centurion, executive producer Rolin Jones, re-recording mixer (dialog) Keith Rogers, showrunner Jeremy Slater, re-recording mixer (music/FX) Scott Weber; front row, from left: sound supervisor Fred Paragano, associate producer Nicole Carrasco, lead sound assistant Eddie Rogers, recordist Brittany Ellis.



using Source Elements Source-Connect. “With Source-Connect versus, say, ISDN, we’re not sending picture and audio over the line—we both have the same Pro Tools session. I can just hit ‘Play’ and drive the other side’s transport, and our Pro Tools systems are completely in sync with one another, without having to run timecode down the line.”

Paragano will then send the recordings to picture editorial to get preferred takes. Using the production track of Kasulka’s voice as a guide, he matches Lunney’s voice to her lips—manipulating the waveforms by eye, and time-expanding or compressing to fit perfectly. “Many times, her performance is extremely different from what editorial has chosen for Roberts,” he says. “So I’ll sometimes grab an alt take for just a phrase or syllable to match an inflection evident in her lip movement.”

In one case, in the season finale, the two speak together onscreen, but Lunney’s voice is heard coming from both. “For that, I took an alt performance and doubled it, with a little bit of pitch-shifter, and then combined the two. If you simply double something, it just sounds like a double. So finding an alt performance with different inflections makes it more real.”

For treatment, Paragano will use a number of tools, a favorite being Krotos Dehumaniser, which he demonstrated with the floating female demon described earlier. “It has various parameters I can play with, such as raising or lowering it an octave, to create a different kind of roar and really turn her into a monster.” He will also sometimes apply backward reverb using Zynaptiq Adaptiverb, a favorite plug-in.

One of Paragano’s main go-to plugs is iZotope RX5, which he will use for general dialog cleanup via spectral repair, and also for separating out unwanted sounds from the set. “If an actor touches a table or slams a door, I can retain the dialog underneath it and reduce or remove the pieces I don’t want,” he says. “Then I can split them out and use them as PFX because now they’re separated.”

EFFECTS FROM THE OTHER WORLD

Blackman, who came to *Exorcist* via fellow LMU grad Mark Camperell, looked to the original William Friedken thriller to guide his approach to sound effects. “One of my teachers at LMU talked about *The Exorcist*,” he recalls. “It’s really just the sounds making you feel uncomfortable—the buzzing of the lights in the hospital, things that suddenly turn on. And there’s very little music. It’s just intense. I tried to bring that same approach. I got myself a gore library, because I knew there would be a lot of that—bone crunching, guts, ripping of flesh, things like that.”

Blackman will provide those sounds in layers to the mixer so that his hands aren't tied and he can select the elements to best fit the final. In one scene, shot on an El train in the Chicago Loop, demonic Casey rips into the chest of a man who is harassing her. "The top layer is the actual scratching, and then I built out other gooey elements, and then harsh, overplayed noise over the top," he explains. "The important thing is to always leave a little room to breathe in between so that it doesn't come across like one muddy sound."

Paragano and sound effects mixer Scott Weber each emphasized their appreciation of Blackman's penchant for providing a LOT of choices. "Typically, we're getting his stuff and we're muting things," Paragano notes. "We're not having to call him and ask, 'Hey, can we add this?' He's given us enough options that we're just muting pieces, and everything else plays very, very nicely."

Upon arrival at Studio F at South Lake on the first mix day, Weber will pop on a pair of headphones and plow through what Blackman has delivered. "Ian delivers them organized in groups, such as dialog effects/demons, hard effects, design effects, Foley and background," he explains. "I know the kinds of things [exec producer] Rolin Jones likes and doesn't like, so I'll mute things I know he won't want to use, so when he arrives, we're ready to offer him the kinds of sounds he's looking for."



Photo: Matt Hurwitz

Voice artist Marco Aguilera summons a demonic growl during a Group ADR session.

Rogers adds, "When we start, we'll watch together with Fred, who, having been at the spotting session, will guide us on what to feature in each scene. So when Rolin hears it, we're already pretty close, and he just gives us little tweaks to fine-tune it the way he wants it."

Because of the presence of other languages and demon voices, Rogers' work is far more complex than on most shows, to allow for mixes to be created for international use. "There might be a scene where a character is speaking with the demon voice—one of Fred's recordings—and another character is going

through trauma, with weird, heavy breathing. We isolate those so that international can use, say, the breathing but not the English dialog."

Rogers will prepare five separate dialogue stems—a 5.0 dialog stem, a 3-channel dialog alternate (e.g., for Spanish-speaking market), production effects (like pitched dialog), a Group stem (Paragano's ADR) and a 5.1 music stem.

Much of the group ADR, being dialog, is in English and, for the most part, it can't be used in international mixes, which means Paragano's finely crafted sounds have to be re-created. But can they? "To try to match what we do is pretty tricky," Rogers notes. "They've got some pretty good people, but they have to try to figure it out," adding with a smile, "You can't give away the trade secrets." ■

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RECORDING VOCALS: MICROPHONES TO CONSIDER

BY STROTHER BULLINS

Unless they are significantly frequency-limited—e.g., a bass drum mic with HF roll-off much lower than 20 kHz—or restricted by a low maximum SPL, most microphones available today can sufficiently translate nearly any acoustic sound source. And yet, particular attention and effort is given to the development and selection of microphones for recording vocals.

It makes sense. The vocal mic delivers the narrative of our songs and our communication, the human connection, whether declarative and stern or emotionally wrenching. It is there at the beginning and, most ofts riding on your vocal chain.

At this point in our respective musical journeys, most of us have heard someone say, “Well, you know, Bono records with an SM58,” or its equivalent. And that’s good for Bono. Drake has a favorite mic on stage and in the studio, so does Dave Grohl. Adele and Gaga, too. Name a singer, A-list or from the local coffee shop. Everyone has a preference.

Over years of conducting, commissioning and enabling microphone reviews, initiating comparative shootouts, and sometimes by just picking up what’s new and fresh, I’ve learned that there are a lot of vocal-friendly microphones out there at nearly every price point. As all of them impart at least some small characteristic or aural artifact upon the sound source, the key is finding the microphones most flattering upon midrange vocal frequencies—a subjective quest largely dictated by taste and style.

Before buying anything—and especially if you can’t try it first—it’s always wise to look closely at a microphone’s frequency response specifications to see what it will do with in the vocal range.

What follows is a selection and collection of wonderful and interesting microphones well-suited for vocal capture. We have not included handheld, notably small-diaphragm, or traditionally live models, in favor of those more suited to recording applications. However, as Bono illustrates, it’s whatever works for you.

SURE THINGS

As with “microphones for instruments,” you almost can’t go wrong with the de facto classics. Think of any “U” mic from Neumann when it comes to condenser and tube models, not to mention the TLM group, which has its own list of standouts; or Telefunken Elektroakustik’s smooth and open ELA M 251E; sturdy dynamics like the Electro-Voice RE20, Sennheiser MD 421 and Shure SM57/SM58 or Beta Series; and, of course, AKG’s C414 and C12 VR multipattern condensers, a solid investment for use on voice or instrument.

When it comes to flagship large-diaphragm condensers, there are many great choices for vocalists, at any price point. While multipattern condensers are far more versatile in the studio, cardioid versions are most conducive to common close-miked vocal applications and are, as a rule, more affordable. Still, many reside in the \$1k-plus ballpark, while the best can run to six figures.

At the world-class/top-end of LDCs, boutique manufacturers such as Brauner (with its exceptional VMA, a “two-in-one” design), Manley Labs (notably its Reference Gold multipattern model), Mojave’s new MA-1000 and Sony’s modern classic C-800G (with onboard cooling system-augmented tube!) are truly incredible offerings that any recordist would be lucky to have at an arm’s length.

Competing rarities I’ve recently discovered include choices from Russia’s Soyuz (specifically the tube SU-017) and the “affordably priced boutique” offerings from Nashville’s own Luke Audio (notably the AL-X712, a C-12-inspired model) and AL-X767 (a take on the U-67), among others.

Further, the likes of Bock Audio build fine microphones in the style of classic German offerings, providing all the performance and build quality without the maintenance or aging issues of the originals. And companies such as Lauten Audio build impressive microphones that may slightly resemble classic European models but feature a range of modern features and fresh design elements.



Sennheiser MK8



Brauner VMA



Soyuz SU-017

REMARKABLE RIBBONS

Some vocalists have crisp tonalities with arguably edgy hard consonants and wide dynamic ranges. In those instances, ribbon microphones can be especially flattering, perhaps best described as “smooth.” Years ago, in collaboration with engineer Rob Tavaglione, we conducted an in-depth session trial employing some superb ribbon options including top choices of sE Electronics’ RNR1, Shure’s KSM313, Coles’ 4040, and Royer’s R121—each of which are priced well above \$1k street—as well as the AEA R92, also a great performer at a comparably affordable \$765. All of these ribbons are fine choices for vocal work.

Recently, engineer Russ Long introduced me to a new ribbon mic line from Mesanovic—its Model 2 and Model 2S Passive Ribbon Microphones (\$999 and \$1,799 street) are worth consideration.

If those prices are a bit high, there are also ribbons that can get you there for much less, including Royer’s R-101 (\$699 street), the brand-new Royer R-10 (out next month and under \$500) and the ridiculously low-priced Cascade Fat Head (under \$400 street).

SURPRISINGLY AFFORDABLE

CAD’s Equitek E100S is an American-made supercardioid LDC that shines on vocals, holding its own against some models nearly three times its price; the E100S is available at around \$422 street. It’s one of my personal favorites to recommend, as it either satisfies or surprises those I’ve turned onto it.

Other impressive and affordable LDC performers include Sennheiser’s excellent MK 4, a cardioid LDC made at the company’s HQ in Germany for \$299 street, and its multipattern sibling, the MK 8 (\$699 street), also made in the same German factory. The MK Series is a solid workhorse for nearly all potential applications, but it especially shines on vocals. Like the MK 4, the MK 8 isn’t a budget mic; it’s just a bargain. Blue Microphones’ updated Bluebird SL, (\$299.95) and Spark SL (\$199.95) should also be mentioned.

Designed for use as a broadcast vocal mic, the Audio-Technica BP40 is actually quite superb in a broad range of applications where a large diaphragm dynamic (LDD) transducer with a hypercardioid polar pattern can be useful. In both performance and aesthetics, it resides somewhere between an Electro-Voice RE20 and an LDC. Notably, the BP40 features a 1.5-inch diaphragm with Audio-Technica’s patented floating edge design.

Engineer Long frequently uses Mojave Audio

LDCs and has plenty of good things to say about them. He recently reviewed the MA-50, Mojave’s most affordably priced microphone featuring the same 1-inch diameter, gold-sputtered, 3-micron capsule found in the MA-200 and MA-201fet microphones. With what Russ calls “exceptional build quality,” the MA-50 delivers outstanding off-axis rejection, “making it an ideal solution when recording in less than desirable locations—like typical residential environments.”

Meanwhile, Rob Tavaglione has recently endorsed the qualities of the Roswell Delphos LDC, a cardioid featuring a 34mm K67-type capsule and cardioid or omnidirectional patterns. Rob notes, “On both male and female vocals, Delphos is quite capable... [with tone] more crisp and articulate than it is warm, fuzzy or forgiving.”

Another find that recently came across Rob’s desk is the Vanguard Audio Labs V13 Tube LDC, a multipattern that rivals boutique or vintage models far more costly. The V13 features a 34mm edge-terminated, gold-sputtered Mylar dual-capsule assembly with a total of nine polar positions—cardioid, omni, figure-8 and those in between. And, at \$699 street, Rob attests, it’s a find.

STRANGE (BUT BEAUTIFUL) BIRDS

Audio-Technica consistently makes solid, good-sounding LDC mics notably well suited for vocal recording. But out of their relatively straightforward designs, the flagship AT5040 shines, utilizing a four-panel rectangular diaphragm, wired together “like a window pane, two high, two wide,” as Lynn Fuston described it in a review. “All together, this is the best microphone package A-T has ever made.” Sonically, the AT5040 is incredibly frequency-flat with a “remarkably low noise floor,” with a maximum input level of 142 dB SPL.

Another unique vocal-friendly studio microphone is Chandler Limited’s REDD, featuring the built-in vacuum tube REDD.47 mic amplifier circuit developed by EMI’s Record Engineering Development Department for Abbey Road Studio’s classic EMI REDD.51 recording console. The REDD’s preamp sound is Beatles at Abbey Road, circa 1964-68. Also unique to the mic’s design is an onboard gain knob.

For the ultimate in modular flexibility, Blue Microphones offers its Blue Bottle Locker Tube Mic Kit, a package built around the legendary Bottle mic, which Tavaglione notes is “quite possibly the largest mic I’ve ever seen (16 inches in length and nearly four pounds).” This “bottle’s” patterns



CAD Equitek E100S



Vanguard V13



sE Electronics RNR1



Lewitt Audio LCT 640 TS



Blue Bottle Locker Kit

committing to one polar pattern at the time of a recording, it allows engineers to select any other polar pattern—omni, wide cardioid, cardioid, supercardioid or figure-eight—after the recording; according to the company, this is possible due to the independent circuitries delivered to the LCT 640 TS's front and back diaphragms. In addition to a standard XLR output, an included adapter cable allows dual outputs to capture the entire

are changed by selecting the appropriate capsule then attaching it to the Bottle's shaft via sleeve and locking pin. Featuring nine hot-swappable capsules, the Bottle Locker kit offers large-diaphragm cardioids in a variety of frequency responses and flavors, as well as omni, figure-8 and small diaphragms—ideal for capturing any voice that may come into your studio.

Finally, Lewitt Audio's LCT 640 TS LDC aims to be a multipattern studio microphone operable within another dimension. Rather than

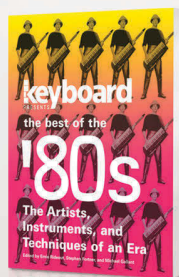
multipattern session—the chosen pattern via XLR and all other options via the secondary adapter cable; Lewitt Audio's Polarizer plug-in allows the post-recording polar pattern change within any DAW.

TV composer and colleague Rich Tozzoli notes that “the mic has a nice forward presence and sounded excellent on [any] source. It's very versatile—not only because of its ability to change polar patterns, but because by pointing the side of the LCT 640 TS to the source, you can capture MS Stereo.” ■

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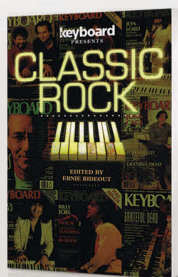
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GENELEC "THEONES" MONITORS

Three-Way, Coaxial Smart Active Monitors

Genelec's 8351 Smart Active Monitor is joined by the new 8341 (\$2,950 each) and 8331 (\$2,250 each), the world's smallest three-way coaxial monitors. Innovations include a motor assembly that sees both the midrange and the tweeter share the same compact magnet system, reducing size and weight with no reduction in response. The unique midrange coaxial driver cone is now composed of concentric sections, optimizing midrange linearity—as does the DCW, which covers the entire front face of the enclosure. Other features include Class D amplification, and Smart Active Monitoring, based

on Genelec Loudspeaker Manager (GLM) 2.0 software for PC and Mac, incorporating AutoCal.



ACOUSTIC GEOMETRY CORNERSORBER

Consistent, Mountable Low-Frequency Absorption

Acoustic Geometry's CornerSorbors (\$799.98 per pair) feature tested low-frequency MLV membrane absorption. The combination produces consistent bass-energy absorption from 45 Hz to over 200 Hz. The CornerSorber is tested separately for low-frequency absorption (per ASTM C423 protocol) at NWAA Labs in Elma, Wash., with the world's largest absorption test chamber (approx. 738 cubic meters), allowing accurate testing with better than 95% precision and bias

(variation) down to 40 Hz. The units weigh 33 pounds and are 42x24x6 inches (HWD).



LINDELL AUDIO 354E

Multiband Model of Legacy Compressor

The Plugin Alliance and Lindell Audio have collaborated on the release of the multiband 354E compressor (\$199), a model of the venerable Neve 2254ETM. Features include an independent five-step Ratio ranging from 1.5:1 to 6:1; switchable Nuke mode for over-compressing tracks; Link Mid-Side mode for focusing compression on a mid or side channel; and Mix control to promptly provide parallel processing. The plug-in is available in AAX Native, AU, VST2 and VST3 for Mac OS X (10.8 through 10.12), Windows (7 to 10), and Pro Tools 10.3.10 (or higher).



SLATE SATURATOR PLUG-INS

Vintage-Inspired Tube Circuit Emulations

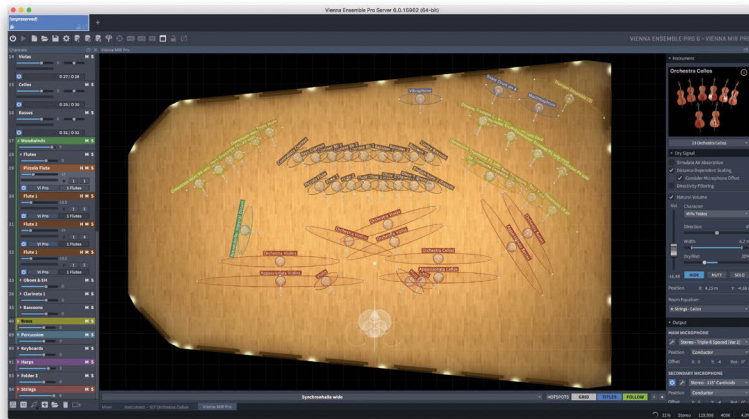
Slate Digital has released three new emulation plug-ins taken from classic circuits from all over the world. London is big, warm and bold in the lows and low-mids and is inspired by vintage circuits from Europe. New York is aggressive in the mids and tighter in the lows, adding focus and punch. Hollywood adds plenty of low end, plus air at the top. All three units come with meters and adjustments for Saturation, High Pass Filter, Output and Mix. They can also be used in Pre-amp, Console, Push or Normal modes for even more tonal variations. All three are part of Slate's Everything Bundle for \$14.99 per month.



PRO TOOLS 12.8

Dolby Atmos Support, Workspace/Project Updates

Pro Tools 12.8 adds Dolby Atmos support (HD, 48kHz-only) including 7.0.2 and 7.1.2 channel widths for Input, Output and Bus paths, Object view for mono and stereo audio, a new object panner, control surface integration and more. The Workspace Browser has been greatly improved, including a "Keep On Top" option for multitasking from the Edit or Mix windows. Project enhancements include options for local storage only and backup to the cloud. All versions of Pro Tools, including Pro Tools First, now feature Track Freeze and cloud collaboration with up to 10 participants. See Avid's website for purchase options.



VIENNA SYMPHONIC LIBRARY ROOMPACK 6

Digital IRs for MIR Pro and MIR Pro 24 Verbs

The Vienna Symphonic Library announces the release of Vienna MIR RoomPack 6 (\$195), an impulse response-based digital representation of the company's newly revitalized scoring stage, Synchron Stage, built in Vienna in the 1940s. The facility's 5,813-square-foot Stage A is large enough to accommodate a 130-piece orchestra and features a reverb time of 1.6 to 1.8 seconds. It has been used for recording film music for *Inferno*, *The Crown*, *Lego Batman* and *Ghost in a Shell*, in addition to video games, commercials and classical recordings.



IK MULTIMEDIA ARC SYSTEM 2.5

Room Correction Mic, Software and Plug-in

Version 2.5 of the Advanced Room Correction System from IK Multimedia (\$149.95) combines a new MEMS measurement microphone, measurement software and an auto-correction plug-in for Mac/PC DAWs. The Audyssey MultEQ XT32 technology captures acoustic information at multiple locations throughout a listening area in both the time and frequency domains, then combines this information so that acoustic problems are accurately analyzed. MultEQ XT32 then calculates an equalization solution that corrects any problems and performs a fully automated system setup. Current ARC 2 users can upgrade to software version 2.5 for free (Mac/PC); ARC 1 and ARC TDM users can upgrade their software for as low as \$49.99.



SOFTUBE TAPE MT PLUG-IN

Emulation Models of Three Tape Machines

The Tape MT Plug-in from Softube (\$99) displays three distinctly different tape machine characteristics in one plug-in: Type A is based on a classic Swiss high-end reel-to-reel design; Type B is a transformer-based machine that adds weight and creaminess to the low end; and Type C is based on a British tape machine with a visible vintage vibe. Controls are simple once the Type is chosen: just adjust the Color and Amount to taste. Users can also control Tape Speed, Speed Stability (wow and flutter), Channel Crosstalk, wet/dry balance, and High-Frequency Trim Filter.

New Sound Reinforcement Products



DPA LIMITED EDITION MICROPHONES

Branded, Nickel-Finish 25th Anniversary Vocal Mics

DPA has released 250 limited edition, 25th Anniversary microphone kits featuring a d:facto 4018V vocal microphone in a nickel finish with a handle that features the 25-year logo. Also included is an SL1 adapter for Sony, Lectrosonics and Shure, also in a nickel finish. Fifty of the kits come in an exclusive suitcase with the 25-year logo engraved with the additional 200 delivered in a traditional black zip case. The anniversary offer also includes the traditional black d:facto 4018V with a free SL1 adapter included. Prices: AK4018V-EX \$1950; AK4018V-N \$1950; AK4018V-B \$1105



PLAYBACK CONTROL SHOW SYNCHRONIZATION

Live Show Automation Timed Perfectly From One Rig

The Playback Control System synchronizes background vocals, pyro, lighting, video, guitar switching & effects, electronic percussion, backing tracks and more, all automated to the millisecond. Integrating trusted gear from Apple, MOTU and Radial Engineering, the scalable system may also include add-ons including virtual keyboard and drum triggering systems, timecode, MIDI, and DMX control, and onboard HD video controlled from MOTU's Digital Performer.



GALAXY AS-1400 WIRELESS SYSTEM

All-Inclusive Transmitter, Receiver and IEMs

Galaxy's new AS-1400 wireless personal monitor (\$499.99) has 275 selectable UHF frequencies over a 42MHz range. A single transmitter can feed an unlimited number of bodypacks for an extremely economical, high-performance wireless monitoring system. Other features include "mixed mono mode," which converts stereo operation into a 2-channel mono mix using the bodypack's pan control to balance the two channels. Users can hear "more me" and "the band" in both ears using their pan control to balance the mix. Both transmitter and receiver

feature easy-to-read LCD screens and operates for up to seven hours on a pair of alkaline AA batteries.



MEE M7 PRO IEMS

Universal Fit, Dual-Driver Monitors

Fit for studio or live use, the M7 PRO (\$149.99) features two driver types, combining a moving-coil subwoofer and a full-range balanced armature covering the full audible range. Other features include flexible over-the-ear memory wire, seven pairs of eartips, and detachable, replaceable cables with MMCX connectors. The spare headset cable (included) incorporates a microphone and remote for use with phones and tablets.

ROSTEC LMA8 PREAMP

High-Performance Microphone and Line Amp



The LMA8 includes AD/DA converters that work at up to 192 kHz/24-bit, offering 8 channels in and 4 analog channels out.

Rostec is a full-service audio company out of Denmark that offers studio install, service and maintenance, with custom design and modifications. In addition, they make a line of products for the broadcast and recording industries, including the LMA8 preamp tested here.

Straight out of the box, the LMA8 offers eight mic inputs on a 25-pin D-sub at the back of this 19-inch 1U device. The rear panel also holds the eight balanced high-level line outs, eight additional balanced insert points (both on D-sub, too), the IEC connector and an extra slot that allows for either an optional AES module or a USB card.

The front panel sports a well-organized and clutter-free layout. Each channel has a gain pot, offering smooth, continuous gain adjustment from +10 dB to +70 dB, a balanced ¼-inch line input jack, switched 48V phantom power and an insert activation switch (gold contact, hermetically sealed relays), both with clear LED indicators. And finally, three more LEDs showing Sync, Comm and Power status.

YOU'VE GOT OPTIONS!

Before we get into how the LMA8 performed in a real life recording session, we should have a quick look at the optional cards that are available to customize this unit into a machine that works for your specific setup. The USB module turns the LMA8 into an 8-by-4 interface. The onboard, high-end AD/DA converters allow you to work up to 192 kHz/24-bit, with eight channels in and four analog channels of output. So, the preamp's eight analog inputs are linked directly to the USB card, which in turn converts the eight inputs into a serial USB stream that shows up directly in your DAW.

You can set the analog levels of the four outputs individually to either +20 dBu or +6 dBV at digital full scale by the DIP switches on the back panel. An additional feature of the USB 2.0 card for the LMA8 is the internal word clock generator. If you're using an external clock, the card will detect this, generally in less than 0.3 seconds, and gently glide from the internal crystal reference to the supplied clock without glitches.

HOW DOES IT SOUND?

I can hear you already thinking: "Oh, here we go. Another preamp that claims it's the best." We are constantly being inundated with new products, and of course the marketing

blurb tells us we have to have them. Audio tools are subjective. Some of us like that vintage warmth, others go for the ultra-clean signal path, and still others use the tools for their strength, depending on the job at hand.

I was working on a couple of tracks for the Welsh artist Hannah Grace at RAK Studios in London, a room that I am intimately familiar with. I had the Neve VR Legend that came out of Abbey Road at my disposal, along with a handful of preamps. The LMA8 had drums, piano, strings, Hammond and percussion thrown at it. And I have to say, I was pleasantly surprised.

For the drums and percussion, the LMA8 handled the transients like a dream. Every beat and hit came out exactly the way it was played in the room. The piano and Hammond had lots of definition and punch, and it really shone when it came to recording the 10-piece string section.

I used the Rostec as the preamp for the Decca tree, amplifying the M50s, and also for the vintage RCA 44 and Advanced Audio CM251 I had on the cello.

It was a really cool experience walking between the control and live rooms. The sound I heard coming over the monitors and the acoustic sound in the room were virtually identical. This preamp is so clean but without sounding cold. It simply translates what the microphones hear in the room. Lock up your family, plug in the Rostec LMA8 and enjoy the pure clarity, detail and openness of this new and flexible microphone preamp. ■

PRODUCT SUMMARY

COMPANY: Rostec

PRODUCT: LMA8

WEBSITE: www.rostec.dk/

PRICE: \$1,800

PROS: Ultra-clean and defined sound. USB/Interface standalone functionality. Direct to AES conversion. Amazing amount of headroom: Even when the signal is hot enough to bring digital clipping in the DAW, the mic pre still has 16dB of headroom!

CONS: I always miss Mid and Side switching on multi-mic input units. No USB 3.

FOCUSRITE RED 8PRE

Software-Controlled Preamps with High-End Conversion



The Red 8Pre offers 64 channels of I/O over Thunderbolt 2 with sample rates up to 192 kHz.

There was a time when you would walk into a studio control room and be guaranteed to see at least one piece of the Focusrite Red range, be it a preamp, compressor or the EQ. The company's consoles were famous for their sound, and if you've watched the documentary on the development and lineage of the Focusrite Studio Console, you get a taste of why that sound was and still is so sought after. The brand left such an impression on me that, not only do I own the gear (the three dual compressors), but their old company logo, the double F, is permanently inked on my shoulder!

RED IS BACK

Once Avid opened the door to third-party I/O for Pro Tools, Focusrite unleashed a range of interfaces that were affordable for everybody and allowed users to access network connectivity over a Dante backbone; at the same time, the company was developing the RedNet range. It wasn't going to take long for the High Wycombe team to design something that was going to combine all the qualities of the company's past and present, with the addition of Thunderbolt.

The Red 8Pre feels just like the heritage Red products: sturdy, chunky metal work and the classic Focusrite look. Whatever the future holds for the Thunderbolt protocol, manufacturers need to provide the tools to interface with the current format. Focusrite's philosophy with this range of preamps/interfaces is to make the process of making music more straight-forward, faster and much easier. With that in mind, let's have a look at what this box delivers.

The Red 8Pre gives you 64 in and out over Thunderbolt 2 with sample rates up to 192 kHz, and also sports mini-DigiLink to

interface with Pro Tools|HD. This configuration allows you to work in pretty much any way you choose. You can link straight into your DAW via Thunderbolt if you're relying on the Core Audio system, or you can plug into Pro Tools HDX via Mini-DigiLink. The fact that Mini-DigiLink connectivity comes as standard with the unit is a major plus; generally that is an optional card that needs to be purchased in addition to your hardware.

The back of the unit gives you a plethora of ins and outs. The 16 analog line inputs and outputs and eight microphone inputs are on D-sub's. There's also a set of monitor outs on balanced TRS jacks, S/PDIF in and out on phono, and two pairs of optical in and outs.

Thunderbolt is handled by two Thunderbolt 2 ports and the Pro Tools connectivity on a pair of mini-DigiLinks. Loop sync and word clock in and out works on two pairs of BNC 75-ohm connectors, and to top it all off you can get an additional 32 channels of I/O via a pair of Dante Ethernet ports.

The front panel of the Red 8Pre is neatly laid out so that all the unit's functionality is easily accessible with a press of a button. Everything is centered around a set of three OLED screens to access the menus and metering and a pair of continuous encoders for menu navigation and channel functions—such as Gain, phantom power, HPF, Air, input switching, and monitor and headphone levels.

Eight of the 12 switches select each microphone preamp's functions and highlight those to the first screen. Two additional switches on the right of the screens deal with the metering and the monitor sections like Mute and Dim and meter source. The last two switches give you access to both independent headphone outputs, where you can change the levels, Dim and Mute.

PRODUCT SUMMARY

COMPANY: Focusrite

PRODUCT: Red 8Pre

WEBSITE: focusrite.com

PRICE: \$3,499.99

PROS: A lot of functionality in a 1U box; great, clear Focusrite sound; straight-forward to install and easy to use

CONS: A little pricey for entry-level buyers; no additional non-Thunderbolt connectivity like USB 3

THE RED IN ACTION

Producer Jonathan Quarmby and I recorded a cover of Fatboy Slim's "Praise You" for Hannah Grace. The label liked it so much they wanted an acoustic version of the track, which meant recording a piano arrangement of the song. I got called into RAK Studios for the job, but unfortunately, the room that holds the piano was booked. Since it was a

of AKG 414 EBs on the hammers and a Royer SF-12 for the room. Because I had to be in the same space as the piano, I was monitoring the input signals through my Ultimate Ears UE Pro Remastered in-ears. Instantly I heard a fabulous clarity and definition, and the piano was picked up as it sounds in the room. Setting gain and phantom power were super easy, either via the front-panel controls or within the control software. Having both headphone amps work independently from each other is a plus. It meant I could have a nice balance set up for the performer while monitoring individual mic signals without affecting the other monitor mix.

Of course, I had to check out the AIR setting on the preamps. Engaging AIR will alter the impedance of the preamp and turn the pre into Focusrite's classic transformer ISA sound. It worked extremely well with big tube mics and gave me that clear, low-distortion character. The recordings translated perfectly to the mix room, and we had a happy producer and artist and an impressed engineer.



I/O includes Dual Thunderbolt 2 ports, Dual DigiLink connectivity, and Dual Ethernet ports for Dante networking

mix session, the live room was free, but it meant that we needed to come up with a mobile rig. This was the perfect scenario to test drive the Red 8Pre.

Installation couldn't be more straight-forward. After downloading and installing Focusrite control, we hooked up the unit to the computer and it showed immediately in Logic. When I do have access to Studio 3's control room, I'll use the Neve VR's preamps and a pair of vintage APIs, so I was looking forward to seeing how the Focusrites were going to hold up against my usual setup.

I plugged up two Brauner VM1s as the main piano pair, supplemented with a pair

IS RED 4U?

To sum it up, having an 8-channel preamp that features both the Red and the ISA characteristics and doubles as a multiplatform interface in a neat 1U box is an awesome deal. It's a great unit to have as a go-to system on the road and stands up to the classic preamps you may have available to you in the studio. If you're looking for a flexible preamp/interface combo, you should give the Red 8Pre a spin. You'll like it! ■

Wes Maebe is a UK-based audio engineer and producer.

Mojave MA-1000



mojaveaudio.com



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ZYNAPTIQ WORMHOLE

Sound Design Plug-in for Multi-Effects Processing



Wormhole combines pitch and frequency shifting, spectral warping, reverbs, delays, and wet/dry morphing.

Zynaptiq's Wormhole is a sound design plug-in that includes a pitch and frequency shifter section, a positive and negative delay line, two assignable reverbs, and Warp—an unusual and proprietary time-domain spectral inverter. Wormhole is capable of sonic treatments ranging from radical up/down pitch shifts to otherworldly and surrealistic alien/monster/robotic voices, but also beautiful and delicate doubling/widening studio mix effects.

The GUI is clean and well-organized excellently with Zynaptiq's unique Trackball slider control and circular "halo" value display taking center stage. There are also conventional sliders, bipolar sliders (with +/- extremes), and text fields for direct parameter entry. Besides toggle switches and pull-down selector menus, there is the clever Randomize button.

When you click the Randomize momentary button, a seemingly random set of parameter settings invades Wormhole. The resulting changed settings could be something wonderfully unexpected, or not. Either way, I found this unusual feature a great starting point for creating unique custom presets.

WARP, SHIFT, REVERB

The Warp, Shift and Reverb sections are the three main features of Wormhole and can be used all together or in any combination. The chain order of Warp and Shift can be swapped, and the Reverb section can be used before, after, or before and after the Blend section at the same time. Clicking on the block diagram

icon shows the plug-in's signal path.

The large Warp Tilt Trackball knob shifts the "spectral features" up (CW) or down (CCW), as the manual says: "somewhere between formant, frequency and pitch shifting." The Warp Depth fader adjusts the range of frequencies to invert, with low values affecting the high frequencies for lo-fi effects and higher values invert fundamental frequencies upwards.

On first listen, Warp sounds like a very good ring modulator or a Bode frequency shifter; it will produce inharmonic metallic tones and other sonic oddities. As spacey as Warp can sound, it produces timbres more musically useful and stable than an analog ring modulator.

I liked the "portamento" effect caused when Warp slews to the inverted pitch and there are big jumps in the input source's dominant pitch. I had a guitar part that slid up into the note on the downbeat, and Warp inverted it to sound like a bass guitar downward slide.

Warp's Poles fader adds a series of resonant points (peaks). Along with the Low Pass filter, I found Poles to add a tight, filtered doubling effect to percussion instruments such as finger-snaps or drum hits—most of the good settings are at the bottom of its range. I liked holding down the Shift key for fine-tuning the Filter and Poles parameters; the slightest changes can be dramatic.

There is interaction between all the controls in the Warp section, and when creating a new preset, I start with the Warp Mix fader at 100% to completely hear what is going on. I then backed it down to taste.

FREQUENCY/PITCH SHIFTING

The Shift section combines a frequency shifter, with $\pm 4,000$ Hz of clean frequency shifting, with a pitch shifter capable of a range of ± 48 semi-tones. This frequency shifter has no aliasing artifacts, and with 96 dB of carrier/sideband suppression, there are no weird tones or shortwave radio-like noises.

I liked being able to choose between shifting frequency either linearly in Lin mode or in MAP mode. MAP is a mapped curve where the first 25% of shift is gradual, in 0.1Hz steps up to ± 10 Hz. Using the Shift key, MAP mode is better for adjusting subtle doubling and widening effects, whereas Lin mode is useful for big shifts such as octaves for guitar parts, drum down-pitching, scary vocal effects and much more.

The Decay Time parameter determines how long pitch-shifted tones last—critically important for short percussive hits like toms, snares and kick drums; you can also experiment to create sustaining

treatments for plucked instruments.

The Pitch Shift section can be used separately—just put the Frequency Shifter to zero and maximum Decay Time. I would like to see separate bypass buttons for both the Frequency and Pitch Shifter sub-sections within the Shift section.

The Smooth, Tight, Detune A and Detune B modes are four different pitch-shifting algorithms. Smooth is for vocals and chords; Tight uses less CPU and is better for drums and effects. Detune A and Detune B each use the L/R channel outs for modulated stereo micro pitch-shifter effects. This section is the ultimate pitch shifter effect for vocals—very beautiful!

REVERB, BLEND, DELAY

Wormhole's Reverb section is so awesome and unique-sounding that I often use it on its own! I like its simple controls for reverb size, damping and wet/dry mix—it sounds very much like the reverb in Zynaptiq's Adaptverb. When the reverb section is placed before and after the Blend section, a second instance of the reverb comes in and is handled by the same set of controls.

The Blend section has three modes, with X-Fade a simple wet/dry control. Morph A and Morph B modes use some of the input signal and the wet signal as a hybrid to meld the source and processed sounds together more evenly. This is unlike conventional wet/dry controls where the processed and source can sound like two sounds playing at the same time rather than a real blending of the two.

I set up the reverbs both Pre and Post Blend and used Morph A. The

PRODUCT SUMMARY

COMPANY: Zynaptiq

WEB: <http://zynaptiq.com/wormhole>

PRODUCT: Wormhole Plug-In

PRICE: \$179 MSRP

PROS: Sound design core tool and music mixing marvel

CONS: It takes some time to master it

Blend knob now controls the reverb amount but also widens the stereo image with what sounds like early reflection coloration.

Just changing to Morph B sounds like a lower-density and more subtle reverb. Adjusting the reverb parameters changes the sound of the Morphs considerably, and switching the reverb to either Pre or Post Blend changes everything again.

Located just after the Input to Wormhole is the Delay section with up to 500ms positive or negative delay. Positive values delay the effect output while negative values delay the dry path,

so it is possible for the effect to play before the input signal! Wormhole makes maximum use of delay compensation in Pro Tools, and I had no problem with multiple instances in big track count sessions.

I tried using the Delay on a quantized 75 BPM drum loop with a loud snare on beats 2 and 4. I set the delay time to -400ms—a negative eighth-note delay. What a wholly new effect this is!

Finally, there is the L/R Invert button. With the L/R button down, the left channel will have the effect delayed and the right channel will have the dry channel delayed. Yet another expansive-sounding effect.

With its large factory preset library, MIDI control of main settings, and 27 parameters automatable, Wormhole is definitely another Zynaptiq wonder, and no worthy sound designer or modern mixer should be without it! Every time I open Wormhole in a session, I fall into the “event horizon” and spend extra time creating and saving new presets for this captivating and mesmerizing plug-in! ■



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YAMAHA TF-RACK MIXER

Compact Live Console with Touchscreen Control



The TF-Rack comes with many reverbs, delays, modulation and pitch shift algorithms, all of which sound great

All of Yamaha's TF-Series of powerful digital mixers feature touchscreen control, but the recently introduced TF-Rack, the most compact in the line, is the first without an accompanying hardware fader control surface. A stock TF-Rack features 18 analog ins and 16 analog outs; I/O may be expanded with Yamaha's NY64-D Dante card and Tio1608-D stage boxes. Mix tested the basic "solo" configuration.

The TF-Rack is housed in a solid 3 RU chassis. Occupying about half of the front panel is a color touchscreen with three navigation buttons below; to the right of the screen are soft keys for Fader Bank, six User Defined keys, four User Defined knobs, Tap Tempo, Clear Cue, Input and FX Mute buttons. A Touch And Turn knob facilitates adjustment of a selected parameter, and there's a headphone jack with volume control at the lower right. USB ports allow connection of an iPad for music playback or a USB drive for stereo recording.

Rear-panel connections include 16 balanced Combo and a pair of unbalanced RCA inputs, plus eight XLR and eight TRS assign-

able "Omni" outputs. An Ethernet port is provided for network control, and there's a card slot for the NY64-D. A USB port enables the TF-Rack to act as a 32x34 audio interface (which worked seamlessly with Pro Tools and Digital Performer).

TOOLS APLENTY!

The TF-Rack's DSP is an embarrassment of riches. Every I/O incorporates a 4-band parametric EQ except the two FX Returns and two Stereo Inputs (2-band EQ), and the Subwoofer out (2-band EQ plus LPF). Each input includes a recallable D-PRE preamp with

TRY THIS

Auxes 9-20 have an insert effect that is bypassed by default. These Auxes can act as effect return channels by inserting an effect and routing the Aux channel to the L/R bus. Press the TF-Rack's Output button, then scroll to, for example, Auxes 9/10. Double-tap the scribble strip to open the Channel View. Then, Double-tap "InsFX" to open the Configuration window. Turn off the Bypass, select an effect from the library, and set Wet/Dry to 100%. The Aux Channel now acts as an effects return. To ensure that the send does not reach a physical output, you can set the output to None on the Omni Out page (Tools>Omni Outs).

gain control, phantom power, HPF and polarity reverse; gate, compressor, 20 Aux Sends plus a Subwoofer send, and sends to two internal effects processors.

Auxes 1-8 and the Stereo L/R bus have 31-band GEQ and a compressor. Auxes 9-20 are paired (9/10, etc.) and feature a compressor and an assignable insert effect. The Matrix outs provide a line delay. If you need outboard gear with the TF-Rack, see a doctor.

I connected the TF-Rack to a Bose P.A. system consisting of two F1 Subwoofers and two F1 812 Line Array cabinets. Omni Outs 7 and 8 fed the L/R bus to the tops, and I fed the F1 subs via Aux send assigned to Omni Outs 5 and 6. I feel that using an aux send to feed subwoofers provides more control: channels that don't have low-frequency information—hi-hat for example—simply don't get sent to the sub output.

This is where the TF-Rack started flexing its muscle. I was able to link the Subwoofer and Main L/R buses, accomplishing two things: muting the Main L/R output also mutes the subwoofers; and the subwoofer output fader level can track the Master fader, so that when you raise or lower the Master, the Sub remains proportional. Well-done Yamaha. This cannot be done when using an aux send to feed a subwoofer.

Navigating the TF-Rack is easy. Pressing the Home button shows the Overview screen with banks of eight channels (16 on TF Editor for Mac or PC). Swiping left or right scrolls horizontally through banks of eight channels. Pressing Home again scrolls vertically, showing the top of the channel strip. Tapping the scribble strip once selects the channel; tapping twice opens the Channel View, where you can see Input Source, Head Amp, the status of EQ, Comp, Gate, and Send levels. From this screen, you can bypass the EQ, Gate or Comp—a feature that I liked because I didn't have to go another layer deep just to bypass them. Double-tapping on a section opens the Configuration screen, where you can access all parameters for that function.

The TF-Rack comes with a library of channel presets for specific mic/instrument combinations. When I recalled preset channels for a Sennheiser e602 on kick and Shure SM57 for snare, the EQ curves and input gain settings were spot-on. There was no preset for my toms, so I tried the “generic” tom channel, but it was a bit bright for my taste. Nonetheless, it was a good starting point, and I was impressed by the usefulness of the presets.

For a spoken word event in a church with two mics and music playback, the TF-Rack was perfect. After setting up the main speakers, I dropped a pair of smaller fill speakers about halfway into the room. The Matrix made it easy to route the L/R mix to another pair of outputs, then delay them to the main speakers for increased intelligibility. When I loaded the channel preset for “Shure Beta 58/Vocal” to the two vocal channels, the EQ was pretty close to where I'd have set it, and the com-

PRODUCT SUMMARY

COMPANY: Yamaha

PRODUCT: TF-Rack Digital Mixer

WEB: www.yamahaproaudio.com

PRICE: \$2,100 MSRP

PROS: Clean, quiet preamps; QuickPro presets speed setup of input channels; network control; expandable I/O; powerful processing; elegant apps for wireless devices

CONS: Sample rate is fixed at 48 kHz unless using NY64-D Dante expansion card; subwoofer output bus is mono; no dedicated talkback facility

pressor needed little more than a change in the threshold. Turning on the One Knob function for EQ or Comp wasn't always exactly what I wanted, but I could use One Knob mode to get started, switch out of it, and then adjust a single parameter separately.

Output channels have a Configuration window called Send From, which is akin to “sends on faders,” but the Send From window is easier to read because you can always see the send master and its name. When you enter “sends on fader mode” in StageMix (the iPad app), channel faders pulse and change color for Aux, FX or Matrix—making it clear that you are not working the L/R mix. The TF-Rack provides individual on/off sta-

tus for each channel per mix, meaning you can mute a channel in one Aux send while it remains active in another.

FX AND NETWORK CONTROL

There is Dan Dugan Automixing onboard and a plethora of reverbs, delays, modulation and pitch shift algorithms available, all of which sound great. When I first started using the TF-Rack, I thought that it had only two FX buses, but as I dug deeper, I noticed that Auxes 9-20 have an insert that can be used to create additional effects (See Try This Now.)

Network control is more important for the TF-Rack than for its siblings; while it's possible to mix from the front panel, you're better served by connecting an iPad or laptop. I connected a router to the Ethernet port, turned on the TF-Rack, and when I opened StageMix on my iPad, the mixer appeared as an option for control.

The app is beautifully designed and supports gestures such as pinching to adjust Q on the parametric EQ. If you allow access to the iPad's microphone, the app runs spectrum analysis behind the EQ window. Multiple iPads may access the TF-Rack simultaneously, but there's no way to designate a “master” or create permissions. The front-panel iPad port recognized my iPad as an audio source and can be used to connect a hard drive for stereo recording or playback (the port labeled “USB” is for saving or loading scenes, or for firmware updates).

When evaluating the TF-Rack, it's important to keep in mind its intended use because its processing capabilities invite comparison with consoles costing thousands of dollars more, designed for large-scale music production. The TF-Rack may not have the user interface to support mixing such productions, but that's why Yamaha offers the TF1/3/5.

The TF-Rack, however, is an incredibly powerful mixer that's a smart choice for bands who handle their own sound and is an invaluable problem-solver for installs and corporate events where system flexibility is paramount. Definitely small to mid-sized houses of worship. Highly recommended. ■

Steve La Cerra is a NY-based live sound and recording engineer.

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The Cost of Quality



By Kevin Becka

Question: How much does “good” cost? Answer: More than great! I’ve proved this to myself over time with trial and error in my career and now pass the knowledge along every time I get the question: What’s the best <gear here> under \$<amount here>. I always respond, “You’re asking the wrong question.” Instead ask: What is the best product for me at this time in my career?

It may seem a small difference, but if you go at it from the price, you’ll never get what you need. The reason? Buying on price alone is a losing strategy. You will acquire the thing, then quickly, or worse, slowly realize you’re making bad listening decisions, slowing your workflow, or treading water in your process because of this “thing.” Then, you’ll sell it at a loss, buy the thing you should have bought initially, which now costs much more when you add in the first purchase.

Let’s take DAWs as an example. Mine is Pro Tools 12 HD. I use it myself and teach on it every day. I’ll show students some rocking new feature like clip-based processing, and they inevitably ask, “Is this HD only?” When I say yes their eyes hit the ground and they groan, “But it’s \$2,500!” Cue my race car driver speech. When is the last time you saw Sebastian Vettel or Lewis Hamilton driving a Kia Soul on a Formula One track? Now, the Kia Soul is an excellent vehicle, but it’s not a race car. If you want to compete on that track, you have to have the SF70H Ferrari or F1-Wo8 Mercedes.

The same goes for audio, especially if you’re building a career. Speed is king for everyone, and it’s the one thing that newcomers lack when inadequate tools and lack of experience suck the life out of your lap time. Just as in racing, the faster you are, the sooner you’ll finish and move on to the next project; and HD can help. In this case, the cost of good, although comfortable, will end up taking money from your wallet.

How about manufacturing? I had an eye-opening conversation with Mike Dias from Ultimate Ears at Summer NAMM just a couple weeks ago. We were talking about the number of IEM companies, which Mike estimated at 250-plus—even more when you add in the Kickstarter and Indiegogo IEMs that abound. Mike said that it’s easy to make one thing, but try and make 1,000 things of the same quality, and you’ll quickly find out how hard it is.

As a consumer you may save money buying a cheaper product in any category, but how does #1 differ from #400? Would you ever know? And which one did you get? Mike told me UE’s process is to individually test each driver and put them into subgroups, even within already tight manufacturer tolerances. For example, ten versions of driver A may fall into spec, but some in the lower, middle or higher range. UE then takes the tested units, puts them into subgroups and uses them where they will perform best with other drivers and products.

This attention to detail is labor-intensive, adding up to \$\$ spent. The outcome? Products across a production run in each category that are consistent and sound great. The result is high customer satisfaction, fewer returns, and fewer dollars spent making up for your initial “sins.” Then, take those savings and develop new products. It’s a long-term view but that’s what wins in the end. How does that effect the consumer? The products are higher priced than other company’s, but you are buying by quality and not price.

Can you buy up in quality aftermarket? Yes! Black Lion Audio started a company by making a few products but offering scalable mods of existing gear. For example, for \$795, they’ll take your Antelope Orion 32 or 32+ and upgrade the op-amps on every line output, upgrade signal-path capacitors on every analog input and output, and perform proprietary decoupling on all A/D and D/A converters. The promise is to reduce noise and improve the performance of the unit while tracking, mixing and mastering. That’s an affordable upgrade with tangible, promised results. The company’s menu of upgradeable gear includes over 90 units from lots of manufacturers, including Universal Audio, Behringer, Digidesign, Focusrite, MOTU and others.

So back to the initial question: Does the best thing for you at this time have to be expensive? Absolutely not. But you have to do the research and put in the ear-time to find the right piece of gear. Might it be more money than you have? Yes. But this is where the commitment and long-term view comes into play.

It may be painful now to put that extra money into your quality buy, but over time you’ll make that money back, plus more. The truth is that good is the enemy of great. I can’t take credit for that last sentence, Blackbird’s John McBride says it a lot, and all those who work with him see it every day. It’s the truth. Look at quality first and dollars second, and you’ll always come out ahead. I promise. ■

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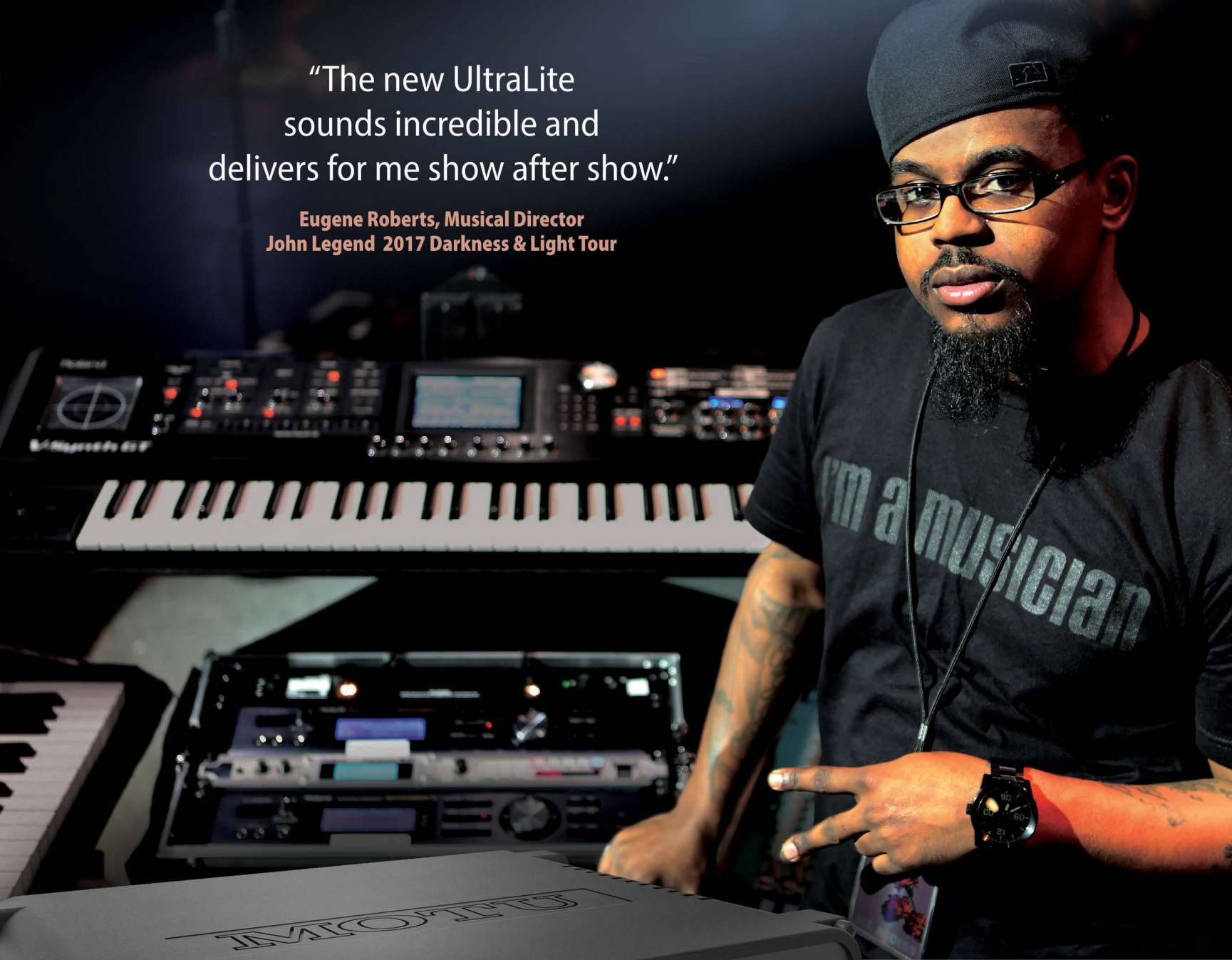
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