

NEW COLUMN: Ask Eddie * 'Rave On Buddy Holly' * 'Frankenstein'

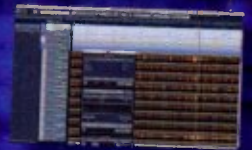


MIX

MUSIC PRODUCTION • LIVE SOUND • SOUND FOR PICTURE

REVIEWED

- STEINBERG CUBASE 6
- RADIAL ENGINEERING WORKHORSE 500
- ADAM A8X
- SOFTUBE TSAR-1R



LET'S GO LIVE!

*Miking Vocals | New Line Arrays
Ribbons on the Road | Yamaha StageMix App*

PLUS!

- Bruno Mars
- Janelle Monae
- Lil Wayne
- HangOut Festival 2011
- Sara Bareilles

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World Radio History

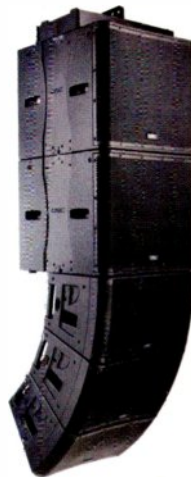
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FOH Magazine June 2010

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MIX August 2010

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Pro Sound News August 2010

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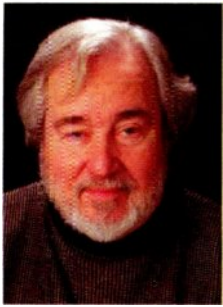
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JACK RICHARDSON, 1930-2011



Canadian producer Jack Richardson (the Guess Who, Alice Cooper, Bob Seger) passed away at London, Ontario's University Hospital. He received 38 Gold and Platinum awards during his career, and is a former Fanshawe College instructor.

His son, Garth Richardson—who works under the GGGarth moniker—has produced albums for Korn and Rage Against the Machine, among many others.

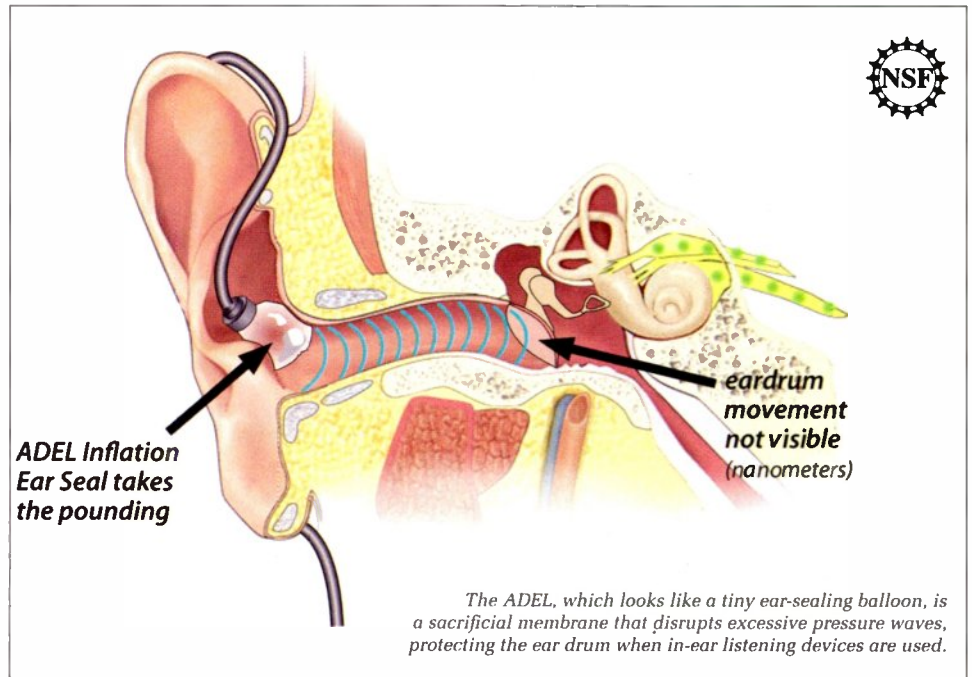
"Jack Richardson was not only a creative innovator, but he also brought a new level of technical expertise to a burgeoning industry, and through teaching and mentoring for over half a century, raised the level of quality of all Canadian music production and programming," producer and work partner Bob Ezrin said in a statement.

In 2002, the Canadian music industry renamed the Producer of the Year Juno Award to the Jack Richardson Producer of the Year Award. He was also a recipient of the Order of Canada. Donations in his memory can be made to the Jack Richardson Music Awards (jrma.ca).

QUOTABLE

“ This amazing collection is a chance to hear history. [It] includes popular music, dance music, opera, early jazz, famous speeches, poetry and humor. It is what our grandparents and great-grandparents listened to, danced to, sang along with. ”

—*Librarian of Congress James H. Billington on newly launched National Jukebox site (www.loc.gov/jukebox), which features streaming-only music and spoken-word recordings in the U.S. between 1901 and 1925 (assets provided by Sony Music Entertainment)*



The ADEL, which looks like a tiny ear-sealing balloon, is a sacrificial membrane that disrupts excessive pressure waves, protecting the ear drum when in-ear listening devices are used.

Potential Solution for 'Listener Fatigue'

At the 130th AES convention (London, May 14), in-ear technologist Stephen Ambrose, along with Robert Schulein and Samuel Gido, entered two papers and a presentation that described a potential solution to "listener fatigue," the discomfort and pain experienced while using in-ear headphones, hearing aids and other devices that seal the ear canal from external sound. Under their Asius Technologies (asiustechnologies.com) brand name, they described how sealing a speaker in the ear canal dramatically boosts sound pressures and how a modified ear-tip can help alleviate, or even eliminate, that effect.

Using physical and computational models, the researchers showed that sound waves entering a sealed ear canal create an oscillating pressure chamber that can produce a potentially dramatic boost in SPLs. Data from the models and laboratory observations suggest that the boost triggers an acoustic reflex, a

defense mechanism in the ear that dampens the transfer of sound energy from the eardrum to the cochlea by as much as 50 dB, but does not protect the ear drum from the excessive shaking.

To counter the oscillations, the team developed a way to use a membrane outside the eardrum to take the brunt of all the pounding. This "sacrificial membrane" disrupts the excessive pressure waves, protecting the eardrum and preventing the triggering of the acoustic reflex, ultimately leading to lower, safer listening volumes.

The papers describe two approaches for introducing the new technology. The simplest involves a retrofit that can be applied to existing in-ear headphones. Asius also developed a small, inflatable seal called an Ambrose Diaphonic Ear Lens (ADEL™), which uses a miniaturized technology called an Asius Diaphonic Pump™ to inflate the polymer membrane. Visit mixonline.com for video examples.

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7.11 Contents

Volume 35, Number 7



FEATURES

The summer touring season is in full-swing, with both major and indie artists trekking across the country filling up venues of all sizes. This month, *Mix* focuses on everything a mix engineer needs to know: from miking and mixing vocals, the newest in line arrays, ribbon mics on the road and more!

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On the Cover: Co-headliners Bruno Mars and Janelle Monae are bringing their savvy blend of R&B and hip-hop under the "Hooligans in Wonderland" Clair Global-provided tour. For more, go to page 36. Photo: Steve Jennings.

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EDITORIAL

EDITOR Tom Kenny tkenny@nbmedia.com
SENIOR EDITOR Blair Jackson blair@blairjackson.com
TECHNICAL EDITOR Kevin Becka kbecka@earthlink.net
MANAGING EDITOR Sarah Benzuly sbenzuly@nbmedia.com
ASSISTANT EDITOR Matt Gallagher mgallagher@nbmedia.com
FILM SOUND EDITOR Larry Blake swelltone@aol.com
SOUND REINFORCEMENT EDITOR Steve La Cerra
CONSULTING EDITOR Paul D. Lehrman lehrman@pan.com
CONTRIBUTING EDITORS George Petersen Barbara Schultz Michael Cooper Eddie Ciletti Gary Eskow Barry Rudolph

ADVERTISING

SENIOR ACCOUNT EXECUTIVE, WESTERN REGION
Janis Crowley jcrowley@nbmedia.com
EUROPE/EASTERN SALES DIRECTOR
Paul Leifer pleifer@media-sales.net
SPECIALTY SALES ASSOCIATE, NORTH
Contessa Abono cabono@nbmedia.com
SPECIALTY SALES ASSOCIATE, SOUTH
Donovan Boyle dboyle@nbmedia.com

ART & PRODUCTION

SENIOR ART DIRECTOR Nicole Cobban ncobban@nbmedia.com
ART DIRECTOR Annmarie LaScala alascala@nbmedia.com
GRAPHIC DESIGNER Adrienne Knapp adknapp@nbmedia.com
PHOTOGRAPHY Steve Jennings
PRODUCTION MANAGER Heather Tatrow htatrow@nbmedia.com

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ASSOCIATE CIRCULATION DIRECTOR,
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YOU CAN'T BEAT LIVE

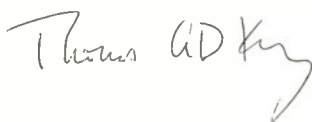
Damn it's fun to go out and see live music. Pick your act, pick your night. Pick your heroes, pick an unknown. I was lucky enough in early June to be in the Fox Oakland audience for one of only six Buffalo Springfield shows in California, leading up to their headlining gig at Bonnaroo. Stephen Stills can definitely still play that ol' guitar, Richie Furay looked like the happiest kid at the dance and Neil Young—well, he is a bona fide rock star. The guitar chops, the voice, the humble swagger and punch of a man who has lived the life. The sweet purity of "I Am a Child," followed by the heart and depth of "Mr. Soul" and the raucousness of "Rockin' In the Free World." You didn't have to be over 40 to appreciate the sound. When it's live, you don't even have to like the genre (though I do). You can just tell when magic is happening.

There's nothing like it in the world when a band is onstage and in the zone. It can happen in front of 70,000 fans jacked-up on a festival high or it can happen at church. It can happen in a dive club in Jackson or at The Pearl at the Palms in Vegas. It can come out of an Asheville studio in front of 30,000 Web viewers or it can happen in a living room. You can pay \$250 for front row or you can see it for free in the park. It doesn't matter. If it's good music and it's live and you're there, then that's a great night.

Think about it. There's no logical reason in today's economic climate that touring should be as strong or as solid as it is. It's something of an anomaly in the crowded entertainment market. We live in a short-attention-span age, with YouTube concert clips and a flood of On Demand performances in hi def. We can watch from home! We can hit Pause! Concerts are a full-day commitment, but we still go out to shows. High ticket prices killed a few acts, but not many. Having an album release doesn't seem to matter as much as long as you have fans. Bon Jovi can still hit it big, and so can James Taylor. Mumford & Sons can hire a train for 10 stops, and Kenny Chesney can still pack a stadium. People predicted the death of festivals five years ago, and here in 2011 we have sold-out weekends from Indio, Calif., to Manchester, Tenn., to Austin. Why? Because it's live. And you can't get it anywhere else. As I write this, my daughter Molly is hitting me up for tickets to see Stephen Marley at the Fillmore in San Francisco. It was Florence and the Machine at the Greek Theater the week before. The next generation wants it, too.

One of the reasons touring continues to thrive, despite a normal cycle of up and down years, is that sound systems are better than ever, and manufacturers continue to innovate through network topologies, remote apps, better steering, more power in smaller packages—constant innovation and, quite simply, better sound. The impact and thrill of a well-mixed show through a powerful P.A., with the energy provided by 20,000 rabid fans, cannot be duplicated. You just can't get it at home.

We are in a Golden Age of Concert Sound right now. Get out there this summer and listen to your favorite musicians playing together, feeding off an audience and turning it up to 11. The acts are out there. The sound is better than ever. And what the heck, it will put you smack dab in the middle of people who love music. What more could you ask for?



Tom Kenny
Editor

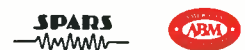
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Give Your Videos a 'Wild Touch'

Based in Los Angeles, Andrew Wild's Wild Touch Productions (wildtouch-productions.com) can help companies and studios promote their business through the use of videos on their sites. In 2004, Wild began producing videos for Euphonix in both the U.S. and in Europe; his new business launched last year. Recent projects include videos for Avid and Solid State Logic. From informative product videos, to in-depth, hands-on demos for training users and for providing additional information to help the purchase decision, Wild Touch Productions delivers.



Engineer Rhys Downing from the SSL AWS 948 console video, produced by Wild Touch Productions

Poetic License Faders of the Lost Art

This was sent to us by Michael Golub, a 30-year recording engineer in New York City. Enjoy!

O console my console I weep for your demise
Behold you've disappeared, before my very eyes
What evil plot is hatched onto my once proud house?
Must music be attached to sound of clicking mouse?

With hammer and with anvil we forged and built
the tracks
Like chisels used in sculpture, the console was my axe
Raw notes raced in like fire and came out the other side
Transformed by coiled wire, they turned to butterfly.

O console my console we rode the sonic wave

The faders were my tiller, it's touch that I do crave
Now faders they lie dormant, silent and forlorn
Faders fade no longer, faders fades get drawn.

One day they'll make a movie that makes it all clear
It's very cinematic, I'll play the engineer
It's all about the eras, and how they soon depart

We'll call the movie Faders...
Faders of the Lost Art.

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I'm a recording artist and producer from Switzerland. Most of my contacts are international, and I've been using Dropbox for more than a year now. Also, management-based online services like BandCentral are part of my daily business. I was not aware of being "in the cloud" before I read Tom [Kenny's] Editor's Note ["Are You in the Cloud," May 2011]. It's definitely the way to go. I use it for everything. Every client has his own folder and I have different folders for songwriting, mixing and production. The working tracks can be accessed everywhere, which is a great plus. If I have an idea, I can just record additional tracks directly with some applications onto the working tracks, either in any studio or via my iPhone. Also, in production it is incredibly useful. Because I have collabora-

tors and contacts at different locations, I can use my samples, plug-ins, presets, et cetera—no matter what studio I'm working in. For the mixes, I'm connected with Bluetooth to my car's radio (and that's where I listen to it like a consumer). Finally, when my material is in the cloud, musicians, arrangers, vocalists, everybody who I'm working with is directly informed and can start to work on the project and develop the idea. All in all, I think that the cloud is going to push creativity and workflow beyond the today's limits, and I'm very happy that *Mix* magazine has made me more aware of that than ever.

—SEBASTIAN PORTILLO
sebastianportillo.com

Got a question? Email us at mixeditorial@nbmedia.com.

SPARS Sound Bite

Welcome to the new SPARS column, where we will inform you of what we are doing to move the industry forward. Last month we spotlighted our new Board of Directors, including five newly elected pros representing Los Angeles, the Pacific Northwest and the Midwest. The geographic diversity is important, as one of the primary initiatives of SPARS in the coming years will be to bring national focus on each and every recording community.

We call this our Local Connect initiative. There have been a couple of local pro audio groups mentioned in the press recently. Regional groups such as EARS (Engineering and Audio Recording Society) in Chicago, PRC (Philadelphia Recording Community) and BARM MAP (Bay Area Mixing Mastering and Production) host meetings and events in their respective areas. There are many other groups that get together informally or through Web conferencing sites such as Meetup.com.

With the growing user base of pros—whether at home

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or in commercial facilities, studio or live, educational or house of worship—this makes perfect sense. SPARS is in the process of reaching out to all of them to link regions and foster more exchanges of ideas and practices. We are finding that we share many common concerns, and the associations and relationships are leading to joint initiatives and collaborative projects. I refer to this as the "SPARS national patchbay." As a first step in bringing groups closer to each other, news items from regional groups are posted on our Website (spars.com) and in our newsletter, SoundBytes.

There are a number of other initiatives getting started, including a student-mentoring program that is in the alpha-testing phase, a white paper that addresses parents' questions regarding their child's career in pro audio, and post-production work on rare video interviews with SPARS founders and key members.

One of the founding principles of SPARS was to build a community of audio pros to preserve and further the craft of recording, foster excellence in the business of recording and provide access to SPARS' wealth of knowledge and resources to nurture the next generation of talent. If you are driven to push the envelope of recording quality and the business of recording, or if you want to help mentor a young audio professional, then join us.

—Kirk Immamura, president/director

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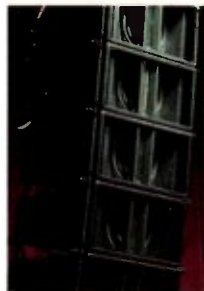
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Studio Unknown Update



We've all been to enough large-scale concerts to expect to see massive speaker systems in stadium venues. However, if you look really closely, you'll find that line array systems are now being incorporated into

the stage design in creative, unusual ways. In addition, just as our cameras, phones and other technology seem to be shrinking size-wise right before our eyes, so too are these systems.

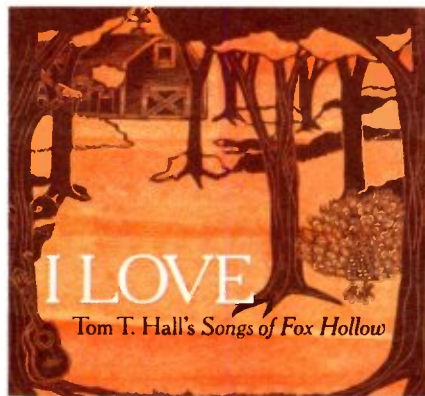
In this month's "Confessions of a Small Working Studio," we'll find out how much of a role the systems play in design and what the compact versions are being used for.

>>mixonline.com/studio_unknown

Cool Spin

Review: *I Love: Tom T. Hall's Songs of Fox Hollow* (Red Beet Records)

Musician/producers Peter Cooper and Eric Brace came up with the brainstorm to re-record Tom T. Hall's classic children's album *Songs of Fox Hollow* front to



back. With Hall's blessing, they brought a wonderful group of like-minded country artists to Hall's personal studio (actually a converted dog kennel on his farm, Fox Hollow) to reinterpret the album that had been a surprise hit for its originator in 1974.

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SoundWorks Collection Update

Marie Ebbing and Jonathon Stevens offer advanced noise-removal services for music and film post-production using a suite of tools by the software developer Algorithmix. These noise-removal tools are divided into two categories: broadband (including surface noise, hiss and hum) and transient, including camera hydraulics, coughs, page turns and other instantaneous noises.



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MUSIC



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Taking Back Sunday is, from left: Mark O'Connell, Adam Lazzara, Eddie Reyes, John Nolan and Shaun Cooper

TAKING BACK SUNDAY

Reunited Band Lets Songs Become Their Own Experience

By Sarah Benzuly

Released in late June, Taking Back Sunday's self-titled fifth studio album marks the return of the band's original lineup from their 2002 debut, *Tell All Your Friends*. Vocalist Adam Lazzara, guitarist Eddie Reyes and drummer Mark O'Connell reunited with vocalist/guitarist John Nolan and bassist Shaun Cooper, who departed the band in 2003. And from the way Nolan recalls their reunion, it was all O'Connell's idea. "As things were winding down for Taking Back Sunday and their last album cycle," Nolan says, "he

started talking to Eddie and Adam about this idea [of reuniting the band] and then got in contact with Sean and I. Everyone was pretty skeptical about it at first—of whether or not this was going to work—but everyone was open and we started reconnecting and talking again, and then little by little, it led to us getting back together again."

That sense of openness pervades the making of this album, beginning with settling down at Sonic Ranch Studio (El Paso, Texas) and enjoying its remote location to sit down in a room

together, rekindle those musician friendships and, once everything began to mesh together, begin to write songs. Nolan says during that week, they wrote about 10 or 11 songs. The group reconvened a short while later at Sonic Ranch for another two weeks of writing and then flew up to Robert Lang Studio (Seattle), where they met with producer Eric Valentine; Valentine had worked with the band (sans Nolan and Cooper) on *Louder Now* (2006). With a slew of songs—almost 30 in all—in hand, Taking Back Sunday looked to Valentine to help refine the songs and take them to a new level. At that point, they started production work in earnest at Valentine's Barefoot Studios in L.A.

"I wanted this record to be more simple," Valentine says. "I wanted to focus more on the compositions themselves and less on dressing them up.



the mix, printing to 1/2-inch. "I took a little more time than usual so I could experiment with the console and see what I could pull out of it," Valentine adds. "I was tinkering with bits of the circuitry in the console and was able to make some refinements through the process. I have a feeling the tinkering will probably never stop."

For the tracking, the band would play together as one, and then individual bandmembers would go back and fix parts later as needed. As for miking instruments, "On

The band worked very hard on the collection of songs for the record. I think it is one of the strongest collections of songs that the band has come up with. The band was very determined to be sure every part of every song earned its spot on the record."

Nolan agrees: "We wanted to have an album full of really solid, well-written rock songs. That was our starting point. But at the same time, the goal became to let each song take whatever shape or direction it needed to make it the strongest it could be. There was a lot of trying to stay open as the song developed; let each song become its own experience."

At Barefoot, Valentine worked on his newly installed custom Undertone Audio console; this is the first album that was recorded on the new board and Valentine says it was "a great opportunity to put it through its paces." He recorded to Pro Tools and then transferred to analog for

LINER NOTES

Producer/Engineer:

Eric Valentine

Studios:

Sonic Ranch,
Robert Lang Studios,
Barefoot Studios

guitar," Valentine says, "I have been using a mic-positioning robot that I control from the control room. I can sit in the sweet spot between my [Yamaha] NS-10s and dial in the position of the close mic on the speaker cab. I also recorded almost all of the lead vocals with two mics: a close mic, usually an SM7, and a room mic, an M49. The room mic was printed with a lot of compression. I could then blend the two differently for different sections of the song. With two lead singers, it's sometimes important to be able to put them in different spaces. So with the room mic, I could make one of them sound farther away with real room acoustics when one singer was playing a supporting role to the other."

The process took about three months of recording, with the majority of time spent honing each song and letting it shape into what it needed to become, both from the band and Valentine's perspectives. "I've never worked with a producer that's brought so much to the process," Nolan says. "I really couldn't believe what a difference he made in what we did. I feel that he could listen to a song and immediately know where it needs to go to improve. And he's got a great way of taking his vision where he sees the song going and working completely with an open mind as to where we saw it going. It ended up being this really collaborative thought process."

GARLAND JEFFREYS 'THE KING OF IN BETWEEN'

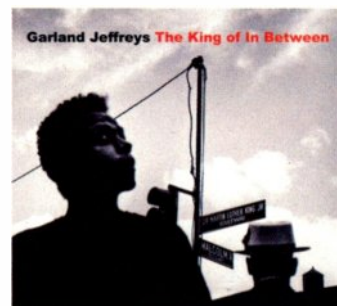
By Matt Gallagher

On June 14, Brooklyn-based singer/songwriter Garland Jeffreys (garlandjeffreys.com) released the rock- and blues-oriented *The King of In Between*, his first album of entirely new work in 14 years. Jeffreys co-produced his latest project with guitarist Larry Campbell (Bob Dylan, Levon Helm) and brought in top musicians Steve Jordan (drums), Mike Merritt (bass), Duke Levine (guitar) and Brian Mitchell (keyboards). It also includes guest artists Lou Reed, Duncan Sheik and Jeffreys' 14-year-old daughter, Savannah. Jeffreys and company recorded basic tracks at Brooklyn Recording, while overdubs took place in One East Recording in Manhattan.

For mixing, Jeffreys turned to longtime friend and collaborator Roy Cicala, the former chief engineer of The Record Plant in Manhattan—whose credits include John Lennon, Aretha Franklin, Van Morrison and Bruce Springsteen, among many others—whom Jeffreys has

known since 1972. "This was my first album in a while, and I thought Roy would be perfect for it," Jeffreys says. "The problem is, he was living in Brazil."

Cicala explains his relocation:



"I came [to Sao Paulo] to stay for two weeks, and it is now going on five years. During this time, I became a resident and had to do something so we started the studio. It's a five-room facility called SA Plant. My partner here is Apollo, a remarkable arranger and keyboard programmer with whom I often collaborate. The studio is fantastic and we're very happy, but my biggest downer is that I miss New York."

"I suggested to Garland, 'Let's try to mix it long distance: Send me your hard drive and let's give it a go,'" Cicala continues; he and Jeffreys exchanged files and comments via email, and had phone conversations. "Garland's CD was mixed on a V3 Neve and transferred to digital. I used Logic because I love the automation; Pro Tools was used first for rough mixes. Mixing from digital to old analog equipment, to tape and back to digital is a time-consuming method, but the end result is well worth the pain."

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WRIGHT'S SOLO OFFSHOOT

What started out as demos turned into a full-fledged solo album. Tokyo Police Club keyboardist Graham Wright has always had songs percolating in his brain—even before TPC was formed—and he finally got his chance. Working again with TPC engineers Jay Sadlow and Dean Marino, Wright snatched whatever free time he had (and cash, as he was self-funding this project) and headed into Chemical Sound (Toronto), Sadlow and Marino's studio. "I basically started recording songs with Dean and Jay in the beginning of 2009, but I thought I was making demos," Wright recalls. "I had written a bunch of songs and I wanted to do something with them. We recorded two songs each day, and when I sent [the demos] to my manager, he said, 'They sound like you're making proper recordings.' So from then on, it became more [a full album]."

more online 



Read more from the engineers and the artist. Visit mixonline.com/july_2011.

With all three playing instruments, Sadlow and Marino focused more on the music and less on engineering techniques. "Instead," Sadlow says, "we'd use performance and arrangement to create interest. We doubled horn parts with distorted



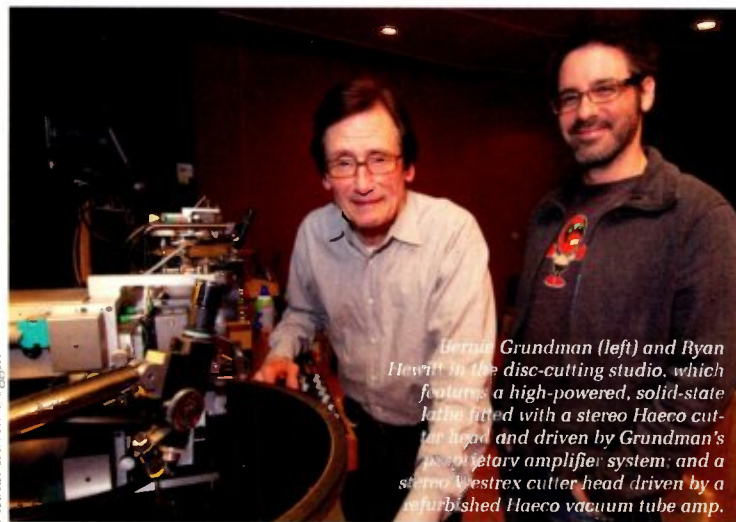
Photo: Vanessa Heins

guitars, we doubled keyboard parts with chromatic bells. If we had an impulse to try a part, we would usually grab the nearest microphone and hit Record. We tried to keep things moving pretty fast because we favored energy over all else."

Adds Marino, "This album was all about spontaneity and having fun, and I think you can definitely hear that." Wright concurs: "I'm so glad we started off not knowing what we were doing because I think it really defined the approach that we took, which was a very light touch and 'let's live in the moment.'" *Shirts Vs. Skins* is now available.

DISC CUTTING AT GRUNDMAN

Recording engineer Ryan Hewitt booked Bernie Grundman Mastering's disc mastering studio for the vinyl release of Flogging Molly's *Speed of Darkness*. Recorded at Echo Mountain Studios (Asheville, N.C.) and Sonic Ranch (El Paso, Texas), the album was digitally mastered at 96k/24-bit for vinyl by Dave Collins at Dave Collins Mastering and at 44.1k/16-bit for CD and online release. "We came to Bernie to cut the best lacquer we can for manufacturing," says Hewitt. "The person who buys vinyl wants to hear the maximum fidelity."



Bernie Grundman (left) and Ryan Hewitt in the disc-cutting studio, which features a high-powered, solid-state lathe fitted with a stereo Haeco cutter head and driven by Grundman's stereo amplifier system; and a stereo Westrex cutter head driven by a refurbished Haeco vacuum tube amp.

Photo: David Goggain

COUNT, DJ SHADOW BACK IN THE GROOVE

Grammy-nominated engineer/producer Count (vertebraeproductions.com) and DJ Shadow are back in the studio working on a new album, with Count at the helm in his space. "Adam [Savage] from *MythBusters* built these things on the side of my Aeron chair that allow me to navigate with my arms down by my side rather than having to reach forward," Count says. "I got all the plug-ins I needed to make things sound the way I wanted. The final component was getting the monitoring situation just right. The Dangerous D-Box and my old Genelecs help the mixes translate really well on other systems and help artists hear things the way they are actually going to end up. Listening down with artists to finished mixes is no longer this ridiculous translation process of me having to explain that things are going to sound different everywhere else. So far the record is turning out very cool. It's got an old-school Shadow sound."



Count and DJ Shadow (seated)

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Classic Tracks

By Matt Hurwitz

THE EDGAR WINTER GROUP

“Frankenstein”

Although multi-instrumentalist Edgar Winter originally had strong interests in science and engineering, the success of his blues-minded brother, Johnny Winter, changed that. At Johnny Winter's behest, Edgar Winter played on his brother's albums and performed in gigs in between sets at his brother's shows.

In between some blues numbers, Winter worked in one of his new tunes, an instrumental to act as a showcase. The song had a distinctive riff at its center, which would later become the signature of “Frankenstein.” “It didn't really have a name, but we started calling it ‘The Double-Drum Song’ because we had two complete drum sets onstage, and I would do a dual drum solo with Johnny's drummer, Red Turner.” Winter played “The Double-Drum Song” around the world and it was forgotten—until 1971, when Winter wandered into Manny's Music in New York City and spotted an ARP 2600 synthesizer. “As a keyboardist, I had always been frustrated,” he says. “You could never mike an acoustic piano well enough to hear it against the guitars and you were locked down in one place.”

The ARP 2600 appealed to Winter. It was connected to the base unit by a single umbilical cord as compared to Moog's keyboard, which had to stay at the base. “When I saw it in Manny's, I said, ‘Whoa, look at that keyboard. That's pretty lightweight. Looks like you could just put a strap on it and play it like a guitar. The first night I walked out onstage and put on the synthesizer, the crowd went wild. It was just one of those rock 'n' roll moments.”

Winter needed a tune that would showcase his new instrument so he turned to his old favorite. “I thought, ‘I'll bet that riff in that old ‘Double-Drum Song’ would sound really great, with that reinforced subsonic synth bottom.’ We tried it out, and it was just killer.”

Over a period of a month, Winter studied and explored the ARP with the help of synth guru Bob Margouleff, with whom he traded piano lessons for synth lessons. “A lot of people at that time used the synth simply to emulate the sounds of already-existing instruments,” Winter says. “My

approach was to introduce the synthesizer as a lead instrument. I wanted to use it to create never-before-heard sounds.”

Winter was like the proverbial kid in a candy store with his new tool as he applied it to the “Double-Drum” piece. “The song just kept getting longer and longer. Each time I would create a sound, I would make a new section of music to incorporate that sound.” Eventually it became a 15-minute favorite that closed every show. “Finally, I could play this keyboard and do it in a new and interesting way, where people can actually see my hands and see what I'm doing,” Winter says. “It was an amazing sense of freedom, and it created such an impact.”



Edgar Winters (left) still plays “Frankenstein” during his concerts. Rick Derringer is on right.

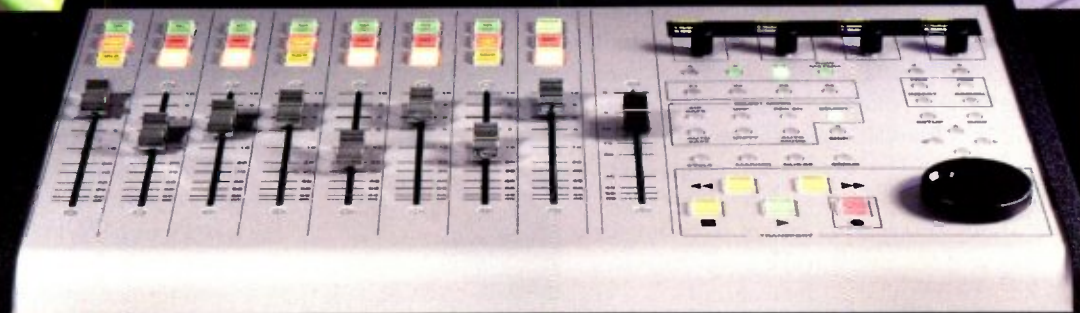
Photo: Rob Shanahan/robshahan.com

About that time, in 1972, Winter brought a new group of musicians, dubbed the Edgar Winter Group—replacing his previous band, Edgar Winter's White Trash—into the studio to record. Winter had formed the new group with guitarist Dan Hartman, hoping to take advantage of the duo's songwriting prowess. They added guitarist Ronnie Montrose, bassist Randy Jo Hobbs and drummer Chuck Ruff, brought in by Montrose.

The Edgar Winter Group recorded two songs: “Free Ride” and “We All Had a Real Good Time.” The former featured Johnny Badanjek on drums and Hartman playing the song's signature guitar riff. But Winter quickly decided that a quartet would be less unwieldy than a quintet. “It just seemed like with four people, it was easier for the audience to focus on all the individual members,” Winter says. So Hobbs left, with Hartman shifting to bass, leaving Montrose as the group's sole guitarist.

Producer Rick Derringer had worked with both Badanjek and Winter, including both White Trash albums. Derringer would also produce the new recordings, which would result in the first Edgar Winter Group album, *They Only Come Out at Night*. Derringer brought in producer/engineer Bill Szymczyk to engineer the album. The two had first worked together on Derringer's *All American Boy* album (which would be released two years after *Night*).

The group booked time at New York's The Hit Factory. “The place was built and owned by Jerry Ragavoy, who is a great producer/songwriter, and who is the guy that taught me how to produce records,” Szymczyk says. Derringer had also recorded there with The McCoys. The control room



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featured a custom console, which Derringer describes as “somewhere between an API and a Trident.” Derringer and Szymczyk recorded *They Only Come Out at Night* onto 2-inch tape using an Ampex 1000 16-track tape machine.

Montrose was set up with his Les Paul and Marshall amp to the left, with Hartman playing a Fender Precision further to the far left, as Szymczyk recalls. Ruff’s drum kit—a Ludwig with a single rack tom and two floor toms—was gobo’d off in the far-right corner. The guitar amp was miked at the cone, though typically pulled back by about a foot or foot-and-a-half, Szymczyk notes. “The louder they were, the further away I’d go. And it wasn’t to protect microphones and diaphragms; it was to get more of the room.” Eight mics covered the drums, bused to four channels to save tracking space. The bass was recorded both direct and miked at the amp, though the guitar was strictly miked. Winter’s ARP was recorded direct and miked at amp.

Derringer recalls, “Bill and I were aware of how well [‘The Double-Drum Song’] went over every time Edgar played it. We were both very into the idea of recording it.” Winter’s label, Epic, was also aware of the piece’s popularity, but didn’t want it on the album. “Some record company reps came to us in the studio, and said, ‘We’ve been thinking about it and this instrumental song may not fit on this album really well; all this stuff’s vocal stuff and pop-sounding, and this far-out-sounding instrumental.’” But to Derringer and Szymczyk, “The Double-Drum Song” was the one they had been most excited to record. “So we told them, ‘I guess we can all talk about it when it’s done, but we’re gonna record the song,’” Derringer says. At least three full takes of the still-unnamed track (“Double-Drum” was just a nickname) were recorded live. All three takes were quite lengthy, varying from about 11 to 15 minutes each.

Winter played his ARP in the studio as he had onstage, moving around with his keyboard attached. He also switched between the ARP’s various patches. The main patch—which Winter used for the song’s signature riff, as well as its bass line and solo—became known as “Frank Solo.” The sound was played straight for most of the song, although Winter used a wah-wah pedal through the solo. For the song’s 6/8 section, Winter used another patch he donned “Acid Bath,” which was just a square wave modulating. Another signature patch, heard about three-quarters of the way through the song, “was done by changing the filter resonance while turning the ARP’s internal clock to give it that pulse,” Winter says. To give the ARP an added stereo effect on the recording, Szymczyk used a device called The Cube. “Bill had this little thing you would plug into that created this little boxy, small-room sound,” Derringer says. “We put Edgar’s main sound on one channel, and then also put it through the Cube and [brought] the processed sound up on the other channel. Coincidentally, the two [sounds] fit together like cogs in a wheel, creating this amazing stereo effect.”

The band performed live for the recording, except for the drum trad-eoff, which was recorded as an edit piece and inserted into the master. “Originally, when I played that with Johnny’s band, we had two drum kits,” Winter says. “But that was so problematical onstage, I switched to timbales

for the recording. And there’s a part of the drum solo I wanted to make certain had a stable timing, so we did that to a click track.”

Once the song was tracked, Szymczyk edited together the best parts of each take by cutting the original 2-inch multitrack tapes. “That’s what was done in those days,” Winter says. “You could work from a safety [copy], but then you’d have generational losses.”

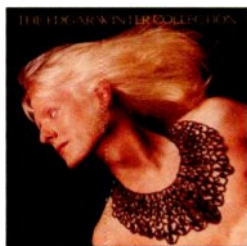
As Szymczyk recalls, “Rick said, ‘Well, we’re gonna cut it like it is, and then we’ll start slashing.’ He marked the tape with a china marker and cut. ‘If it didn’t work, you’d just put it back.’ The main idea was to keep representative portions of each musical section of the song. ‘There were sections that were, like, ‘Well, we gotta have some of this, we gotta have some of this, we gotta have some of that.’ I remember getting it down from 10 or 11 minutes to about seven minutes. And there were nice, really smooth transitions.”

After Szymczyk completed the edit, Winter added the track’s one overdub, playing a second guitar part during the song’s jazzy interlude to create a three-part harmony with the saxophone he had played live during tracking. Clocking in at more than seven minutes, the song was too unwieldy to fit on the disc and was unlikely to be played on the radio. So yet another round of edits took place, this time with the team working from the 2-track stereo mix, with pieces of tape scattered everywhere throughout the control room. “It was a long, laborious, tedious and sort of agonizing process,” Winter says. “It was sort of like cutting a diamond.”

Derringer recalls: “What we had to do was take each section and whittle that section down to its smallest possible length that would still represent what that section was about. The idea was to try to retain the integrity of the whole song.” The team came up with an acceptable edit of 4:45 in length. “I just said, ‘That’s as much as I can take out and still have the song be what it was intended to be, and have it be musically flowing and intelligible,’” Winter recalls. The edit, Szymczyk says, holds up quite well to this day. “I was listening to it the other day, trying to play a ‘spot the edit’ game. [Laughs] I found a few. But there are a whole lot more that went by pretty cool.”

Once completed, everyone listened to a playback. “As the tape was rewinding,” Winter recalls, “Chuck was watching, kind of in a hypnotic state, and seeing all those edits go by. And he mumbled the immortal words: ‘Wow, man, it’s like Frankenstein.’ I wasn’t sure about the negative connotations involved with the monster. But the more I thought about it, the more perfect it felt. The whole idea of Frankenstein was technology running amuck, with me as the doctor, and the song itself, the creation, as the Monster. It took a few minutes to sink in, then but I said, ‘Yeah! That’s it! So the monster was born!’” Radio stations began playing “Frankenstein” in their own crudely edited versions to cut it down to size. Derringer, Szymczyk and an Epic A&R rep returned to The Hit Factory for another round of edits, this time without Winter, creating an acceptable edit length of 3:28.

“Frankenstein” remains a favorite of Winter’s: “I still love to blast it, and I still enjoy playing that song every bit as much as I did when we first started playing it live.”



MUSIC EVENTS IN 1972

January 20: Pink Floyd debuts *Dark Side of the Moon* during a performance at The Dome in Brighton, UK.

February 15: The U.S. gives federal copyright protection to sound recordings.

May 27: Opryland USA theme park opens in Nashville.

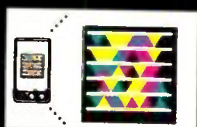
December 31: The first New Year’s *Rockin’ Eve* live broadcast on ABC with host Dick Clark airs. The featured act is Three Dog Night.

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World Radio History

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Sound for Picture

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TRANSFORMERS: DARK OF THE MOON

Big Mix to Match the Big Visuals

By Matt Hurwitz

Greg P. Russell is deep in the world of Autobots and Boomers—and it's his third time around.

It's early June, and the veteran re-recording mixer is fast at work at Sony Pictures Studios with his team completing *Transformers: Dark of the Moon*, the third episode of director Michael Bay's successful visual effects-heavy feature film franchise based on the popular Hasbro toys.

So how has Bay challenged the sound crew with this latest foray into the robot world? "Every film Michael does, he raises the bar, in terms of action and visual effects spectacle," Russell relates. "And each movie that you do, you go, 'Well, it can't get any bigger, more intense and more complicated than this.' And then the next movie, it is," he laughs.

For Russell and his group, most of whom have worked on the previous features—including sound effects editors Ethan Van der Ryn and Erik Aadahl, re-recording mixers Jeff Haboush and Gary Summers, and music editor Alex Gibson—the task at hand is making Bay's visual effects imagery come to life. "Michael's images are huge," Russell says. "They're just so dynamic. So we're constantly asking ourselves, 'How do we bring that image to life and make that believable?' That is our goal: to really anchor what you see onscreen in a way that you buy it. And Michael has said, 'When the sound is put to these visuals is when they come to life.'"

Russell has one constant mantra for the team: "That sounds like what I'm seeing. When it doesn't sound like what I'm seeing, I tell them, 'I need more of a low end, growly, kind of tone for that. And it's

too high end, and it doesn't have the girth.' Terms they know and go, 'Yeah. I get it.' And they'll find me something else."

The challenge with Bay's films, Russell notes, is the presence of incredible numbers of visual effects-heavy set pieces. "You know, it used to be one or two sequences that were just phenomenal, and that constituted 'a large-sound film,'" he says. "Now we have one or two per reel."

The goal, then, is to bring those scenes to life without exhausting the audience with a wall-to-wall battering of sound. "It's my responsibility to do all we can to give these sequences cleanliness and clarity," Russell says. "We want to have a defined soundscape, so it's not just a wall of mess—it's very articulate, with a lot of detail and definition."

One way the team accomplishes that is with a certain degree of authenticity, such as creating the sound of a Space Shuttle launch by the careful recording of a recent military rocket launch this past May. The vehicle was recorded with rigs at varying distances—500 feet away, half-mile, one mile and three miles. "It's a singular track, the sound of this thing ripping through the sky," Russell says. "It's not made up of 15 tracks of something else try-



ing to create that sound. It's the actual sound of this rocket, pure and singular, and you can feel it."

Other sounds—such as those of robots—are created in quite the opposite manner. "There are a lot of stylized moments in the movie," Russell explains. "We try to twist reality so that it's not all visceral. Otherwise, the movie gets exhausting. And there's a lot of action in the movie. So it's all about texture, tones and dynamic range—trying to create shape throughout the entire film, so that it's entertaining, and not just a wall of sounds. The movie is really big and bold, but it's not painful. And Michael likes a big movie."

The sounds of the robots themselves Russell describes as being built of "eight food groups," starting with the creature's feet. "I always start with the feet and build it from the ground up." The "boom" of the robots' steps varies, depending on the size of the robot "so that the biggest guy doesn't also sound like the medium guy."

From there, each element is added: larger metallic motion, medium-midrange tones,

CAST/ CREW

Mixer

Peter Devlin

Re-Recording Mixers

Jeffrey J. Haboush,

Greg Russell

Sound Editor

Christian

Schaanning

FX Editors

P.K. Hooker, Ai-Ling

Lee, John Marquis

ADR Mixer

Michael Miller

ADR Recordist

Courtney Bishop

then whirring motor sounds, followed by servos and eye blinks. Vocalizations are added, and then the robots' varying arsenals of weaponry.

Russell has been enjoying creating a true 7.1 surround mix for the film, something he says only enhances the film's 3-D imagery. "It gives me a much more immersive sound field, having quad surround. When you sweep things around the room, the motion is more articulate in a 7.1 configuration than a 5.1 configuration. And we're better able to emulate the 3-D imagery, as well. It gives it a greater sense of dimension, not just in what's coming toward you,

but in adding a depth of field, sonically."

The goal, Russell says, is to keep the soundtrack fun and enjoyable to listen to, something he feels the team has achieved. "There's no way a kid is gonna come out of this movie thinking, 'I didn't get my money's worth.' But it's something you cannot experience—both visually and sonically—in your home. Go to the movies."

IDEAS ORLANDO

When you bill yourself as an "innovation studio," part of a creative juggernaut of marketing and agency services—from story to shoot to edit to post to distribution—you need facilities and workflow that match the mission. After 20 years in south Orlando, IDEAS was in need of a new home, and in 2009, they found one downtown.

"We had tremendous post audio facilities for 20 years, but the building was from the late '80s," says John Lux, IDEAS president, "and the technologies and philosophies used to design mix rooms have changed. We started building out in 2009, and it was critical that we had a versatile mix room that would allow us to do the same work—feature films, made-for-TV movies, corporate image pieces and Internet-based communications—but do it with the comfort and efficiencies that come with a modern room. It's designed for 7.1 and 5.1 mixing."

Audio A at IDEAS was designed by Bob Alach of Alactronics, who had a previous relationship with senior audio mixer Rob Hill, and built by The Collage Companies. Alach recommended the full-range Bag End surround monitor system as part of the room's acoustic



signature. Lux and Hill selected the Avid ICON as the centerpiece because they have been a Pro Tools house for a long time and because the room must move from ADR to Foley to voice-over recording to 7.1 mixing at any time.

"The new mix room is just one part of the post audio expansion," Lux adds. "On July 1, we will be opening our recording stage, which will allow for voice-over, group ADR, Foley. And it's an insert stage, with multiple acoustic panels, mobile Foley, mobile LED and a 'cove' that is 30 feet wide by 15 feet tall with a curved corner."

Orlando has maintained a relatively small but vibrant post industry during the past 20 years, built mainly around gaming and special-venue audio. The new rooms have been busy, and the team has been signed for the complete post audio package for Season 2 of an animated children's series. With ESPN opening production facilities in town, Digital Domain opening facilities in South Florida and theme parks that seem to keep on expanding, not to mention the boom in corporate work, the future for IDEAS looks bright.

—Tom Kenny

Jim McGorman

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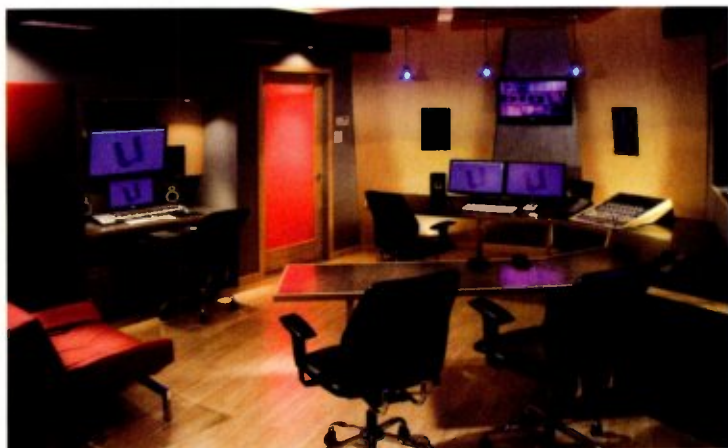


world radio history

In last month's issue, *Mix* spotlighted new rooms to open up across the world. Here, we're putting the limelight on new post rooms.

CORUS ENTERTAINMENT (TORONTO)

Quadrangle Architects designed the new 500,000-square-foot Corus Quay space, which sits in an already-underway office project designed by Diamond + Schmitt Architects; structural changes included accommodating the large double studio in the Atrium, raising the ceiling height of the ground floor for the performance studio and changing the shape of one portion of the building to provide nine radio studios with direct views into the studios from the public promenade. Quadrangle modified the base building to integrate the corporate headquarters, bringing print, animation, broadcast and new-media properties under one green roof. Within the state-of-the-art digital production infrastructure is a master control that distributes 24 broadcast feeds and can hold up to three times that number. Acoustics treatments—handled by Terry Medwedek of Group One Acoustics—include sand-filled floors with double-wall acoustic partitions in the recording booths. Main gear includes a Wheatstone TDM Bridge, Tannoy Reveal 6 and NEC monitors, a Midas Venice 320 and Pro Tools 003 Rack Plus.



BIG U MUSIC SOUND DESIGN (PHOENIX)

Co-owner Sam Esparza achieved an acoustically and aesthetically pleasing control room to commemorate the 10th anniversary of the studio in its current location. A unique design feature was using some wasted space in the splayed walls to create a "Composition Cove," which double as a composer's writing space and a control room for live tracking (Apple Logic). Esparza was also able to create a combo bass trap/rear-wall diffuser by using the wasted space. Four Auralex Space Arrays suspended within the cavity provides the proper amount of rear-wall diffusion. Genelec 1032 monitors are mounted within a splayed 30-degree wall. Primacoustic Recoil Stabilizers placed on top additionally isolates the monitor and tilts it down five degrees to achieve the proper aim to the mix position.

FIGTREE STUDIOS (BARCELONA)

Built within a former motorcycle factory, this new space was designed by Philip Newell (a fellow of UK professional body the Institute of Acoustics) and Eliana Valdigem (an associate member of the IOA) to gain Dolby Premier certification. Select equipment includes a 32-fader Euphonix Fusion S5 with PEC direct and joystick film module, Pro Tools HD3 and a Reflexion Arts monitoring system. According to designer Andrew Galletly, "There is very little electronic 'room' equalization used, as most of the response tailoring is achieved via the loudspeaker design and the room acoustics. It also has a woven screen, which again helps to improve the acoustics by avoiding the acoustic anomalies of perforated screens."



It's Showtime.

Andrew "Fletch" Fletcher

Well respected sound engineer Andrew Fletcher, better known as Fletch, has mixed his share of high-profile shows. When it's "go-time", Fletch relies on Yamaha's PM5D Digital Mixing Console to get the job done and get it done right. We asked Fletch why he favored the PM5D. Here's what he had to say.

"I have been using the PM5D since its release. From concerts and TV shows to major award shows, the PM5D is well designed, flexible and configurable for anything producers throw at me. Mixing multiple bands during an award show is a breeze and I can change configurations without interrupting audio. The internal effects and dynamics have everything I need and the user define keys get me around the console and software pages in an instant. And did I mention that the console is **Rock Solid**? I have never had a problem with the PM5D in all of the years that I've mixed on it!

— Andrew "Fletch" Fletcher

A recent list of shows Fletch has mixed on a PM5D —

- Latin Grammy Awards
- MTV Video Music Awards
- The Voice
- BET Awards
- BET Hip Hop Awards
- Miss Universe Pageant
- Miss USA Pageant
- Miss America Pageant
- Jimmy Kimmel Live!

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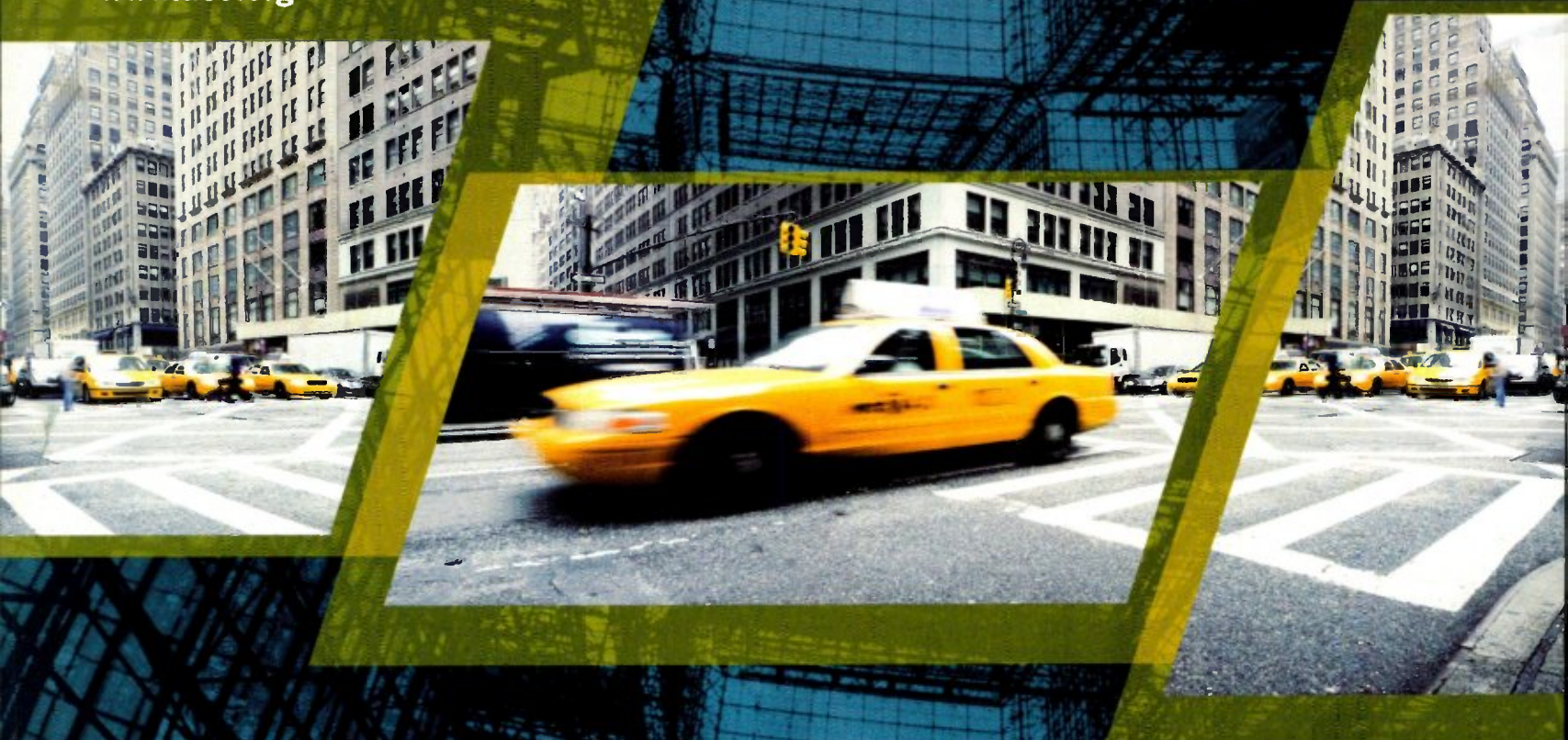
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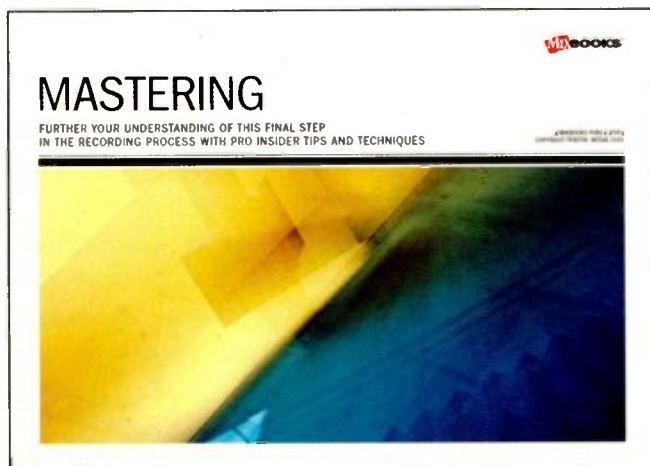
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Live



LIL WAYNE

BY SARAH BENZULY 31

SARA BAREILLES

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NEW WEBCAST NOW ON DEMAND: WIRELESS THEATER: OPTIMIZING SYSTEMS FOR VOCAL CLARITY // VISIT MIXONLINE.COM/WEBCASTS FOR DETAILS



Nicki Minaj is one of many guest performers joining the stage with Lil Wayne.

LIL WAYNE

Blending Album and Stage Into a Tight Performance

By Sarah Benzuly

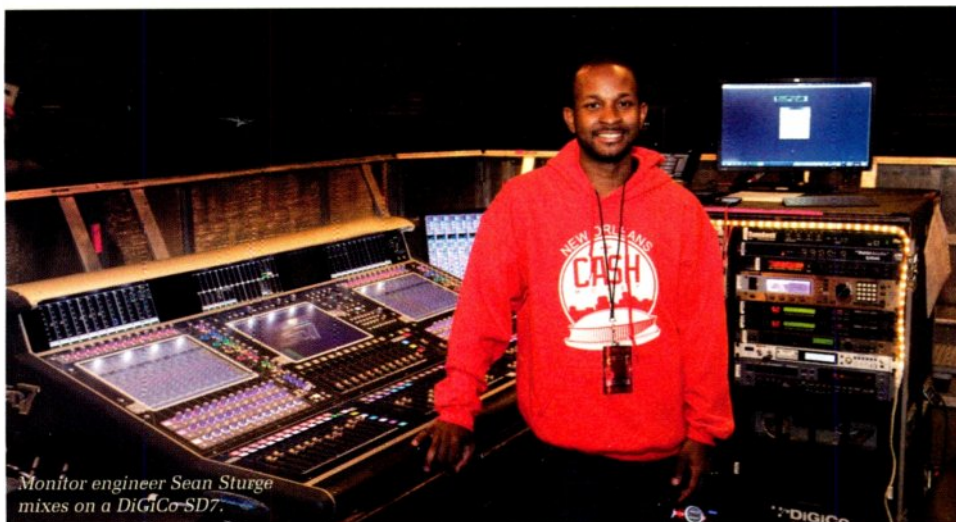
Rap shows seem to carry a preconception that they are loud, non-musical. But that couldn't be farther from the truth for Lil Wayne. Blending his hip-hop vocal stylings with a rock-solid band, Lil Wayne's performance is as tight and dynamic as his smash 2009 multi-Platinum *Tha Carter IV*. In fact, both front-of-house engineer Demetrius Moore and monitor engineer Seau Sturge stick to the album's sound to guide them in creating their mixes.

During rehearsals, both engineers created the snapshots on their digital desks to not only mimic the album, but to also accommodate guests

onstage—including Mac.Mane, Nicki Minaj, Drake and Busta Rhymes. "I'm definitely trying to recreate the album," says Sturge, who is no stranger to hip-hop shows as he's previously worked on the *Up in Smoke* tour, as well as outings for Eminem (the past 10 years), 50 Cent, Jay-Z and the Beastie Boys. "It's what I've found and experienced in the past. Working with the Beastie Boys, a lot of their songs have different effects on their vocals and that is something I'm dealing with for Wayne. We had to make sure that the Auto-Tune [vocal] was how it should be for each song—to make sure that the mix of his Auto-Tune vocal and his [live] vocal are correct. And that's not the easiest thing to do, let

me tell you. It's all about EQ'ing. In Auto-Tune, it's basically feeding back on itself, so when you put speakers and microphones with that, it amplifies itself [as opposed to] a regular vocal. That's the other thing that you wouldn't think to do with monitors, but just the way they time-align the P.A., I would time-align the sidefills with the downstage wedges and put a delay on the sidefill. So when you stand centerstage, the subs—the fills—and the wedges get to that center position at the same time. So if you walk to the left or walk to the right, there's continuity."

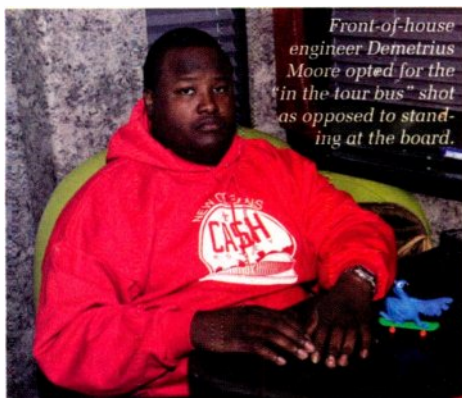
The system—and the rest of the gear—is provided by Eighth Day Sound. Front-of-house engineer Moore feeds Dolby Lake all digital from his DiGiCo SD7 board (with the new DiGiCO SD racks all in a fiber loop), which also runs all digital to all the amps. The main hang is 18 d&b J8s a side with six J-Subs flown offstage of that and 12 B2s on the



Monitor engineer Sean Sturge mixes on a DiGiCo SD7.

ground. Side hang comprises 12 J8s. The 270 hang is 12 Q1s.

"Wayne morphs from rap star on a record to a rock star onstage, so making sure the guitars are present is essential to his live shows," says Moore, who previously held FOH tech position on the artist's 2009 tour; Tim Colvard was FOH engineer. When Colvard couldn't do FOH for these sets of dates (he was on the Usher tour), Moore was asked to step up to the desk. "I rely more on the band than any of the Pro Tools [tracks], so we get a bit of a different sound than what's on the record. I use the Pro Tools just for key signature parts from the record and then use the band to fill up the rest. While the drums and



Front-of-house engineer Demetrius Moore opted for the "in the tour bus" shot as opposed to standing at the board.

keys can create a live version of what's on his recordings, the DJ [D] 4ourfive] plays a couple of songs from his rig, but he predominantly plays intricate samples that add key notes to every song. [Lil Wayne's] songs have a wide range of instrumentation with dynamics, so I try and mix

BACKSTAGE PASS

Sound Company:
Eighth Day Sound
FOH Engineer:
Demetrius Moore
Monitor Engineer:
Sean Sturge
P.A.:
d&b J Series
FOH Console:
DiGiCo SD7
Monitor Console:
DiGiCo SD7

the band as a soulful funk band with a rapper."

Sturge is also mixing on an SD7 with the upgraded 96k racks, finding that the upgrade in snapshots was a wonderful addition. "For hip-hop concerts and considering that rappers generally don't do an entire song, we had a set list of 56 songs where it's one verse, half a verse and then 10 different artists coming on and offstage. That's where the snapshots come in handy, with mics being turned on and off without you

having to do anything."

Monitoring on this tour includes eight SD2 subs, 20 wedges, eight channels of in-ears, six channels of SKM EM3032 Version 2, SKL 500 (for Wayne and some bandmembers), six channels of Shure UHF for all the Young Money artists and two Q-Subs for the drummer. Sturge handles a combination mix as Lil Wayne is all wedges and the band is all in-ears. "The band was upstage under his set, so the band was literally 30 feet upstage from the downstage edge. Each individual had a mix of themselves. Wayne sings everything live. With a hip-hop artist, they enjoy it being loud for the simple fact that he wants to feel the beat and hear himself. We had as many speakers on the stage as we had on one side of the stage.

"As a monitor engineer working with speakers, you have to know the music you're working with and your re-creation of it because you have to put it all together, especially working with a band. You have to know in the snapshot when to make the guitar go up, make the bass highlighted. You need to know the music you're working with."

AVID, MIDAS ON BAREILLES TOUR

Opening for country rockers Sugarland and getting in a couple of headliner shows herself, Sara Bareilles is out in full force this summer, as is an Avid/Midas custom package, thanks to sound company Spectrum Sound. When front-of-house engineer Trey Smith (pictured below-right with monitor engineer/systems engineer Kevin Twist) posed the question of achieving the Midas sound on an Avid interface, the sound provider headed straight to their techs to get the job done.

"Our technicians are constantly striving to adapt various technologies to provide mixing engineers with options so that those engineers can achieve the sound their artist desires while using interfaces the engineers have grown accustomed to," explains Spectrum Sound's Bobby George.

For the Bareilles tour, Spectrum Sound built a system around the Midas DL 431. "After receiving the microphone inputs, the DL 431 uses one set of its AES50 outputs to feed a Midas PRO 9 at the front-of-house position," George explains. "The second AES50 output of the DL 431 is connected to the Klark-Teknik DN 9650

Network Bridge. The DN 9650 is specifically designed to allow simple and efficient networking between Midas I/O hardware and many different digital audio networks. Using the MAD1 inter-



face option on the DN 9650 and the Avid MAD1 Option Card, the monitor engineer is able to seamlessly integrate his Avid VENUE Profile system with the Midas DL 431. The outputs of the VENUE system are routed back through the MAD1 network to the DN 9650. Using the other AES50 port on the Network Bridge, a Midas DL 451 configured with output cards routes all of the outputs to their desired location.

"Using this system, we have allowed the engineer to use the flexibility of an Avid VENUE system and all of its plug-in options while still giving him the 'Midas Sound,'" he continues. "In the coming weeks, software will be released by Midas to provide even more flexibility for Midas system users. Using the Network Control ports on the DL 431, an engineer will be able to access settings on the 431 remotely through a simple laptop interface."

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World Radio History



FIXIT | NEON TREES MONITOR ENGINEER MIKE BANGS

We are sharing preamps between monitors and FOH and doing a digital split from the monitor console's [Allen & Heath] iDR-32, so our FOH snake is just one Cat-5 cable. The second iDR-32 MixRack is currently being used for the FOH console's DSP. That will change when we start headlining on our next tour. We will go with more stereo instruments for Neon Trees, and we will use the second iDR-32 to handle support band inputs without having to unpatch anything. Since the iDR-32 is basically the brains of the console, it's all I need for a fly date. Everything else goes in my carry-on bag. I did the first couple shows with just the laptop and iPad, using the Allen & Heath iPad app. Then I added the PL-6 so I could have some physical faders. That gives me hands-on control of the channels I'm constantly massaging: the crowd mics and vocal. The PL-6 is the perfect solution. I use the iPad app on every show, not just fly dates. It lets me stand onstage with the artist and hear what they're hearing. I was amazed with the lack of latency on the iPad app. When I touch the screen and push the fader, I hear the change in real time—a great tool.

SYSTEM FIT FOR A PRINCE

It was extremely difficult to get a ticket for Prince's "Welcome 2 America" tour, what with announcing show dates just a few days before an actual gig. And that quick turnaround was also laid in the laps of sound reinforcement provider Rat Sound, or as sound company president Dave Rat says, "Rat got a call on the Thursday and by Sunday we had three semi-trucks of prepped gear headed to Oakland [Calif.] for a 2 a.m. load in." Since then, the company has supplied the sound system for Prince, including his 21-night run at the Los Angeles Forum.

The system comprises six hangs of 10 L-Acoustics K1 in the round, with 42 dV-DOSCs and 40 SB28 subs powered by L-Acoustics LA8 amplifiers. Front-of-house engineer Majid Malki (pictured) and monitor engineer Fred Lucas both man a Midas Heritage 3000. The rest of the crew includes production manager Chris Reynolds and system techs Ronnie Kimball, Milk Arnold, George Squires, Tommy "LBC" Caraisco, Taka Nakai, Manny Perez, Roz Jones, Phil Reynolds, Tim Engwall and Peter Baigent.



SECURE SOUND FROM 75 FEET

When The Grovler, the technical director/guitarist for band Liquid Blue, needed a behind-the-scenes solution for live access to audio equipment in a back-stage rack from an onstage laptop, he opted for the Gefen USB 2 Extender. It comes with a sender (connected to the audio equipment) and a receiver connected to the stage laptop. One Cat-5 cable feeds the audio to the laptop, reaching distances up to 75 feet.

"We performed at the after-party for a major industry awards ceremony and thanks to Gefen, we had no glitches, hiccups or crashes, even running the audio data 75 feet in distance," says The Grovler. "There was even more pressure to have a flawless show as we had just accepted the award for Entertainer of the Year [ensemble] about an hour before our performance."

The group holds the official world record for "Most Traveled Band" (more than 2,000 shows in more than 400 cities) and is also recognized by the *Guinness Book of World Records* for "Song Sung in Most Languages."

CHEERS!

Gerald Stanley, Crown Audio senior VP of R&D, celebrates 45 years with the company, a tenure that has led to his responsibility for 42 patents. Stanley's work during the past five decades can be seen in the DC 300, Marco-Tech, K, CTs, I-Tech, I-Tech HD and ComTech DriveCore Series amps, as well as many other products. In 2008, the Audio Engineering Society awarded Stanley with the distinguished AES Fellowship Award for his significant contributions to power amplifier design.



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Guitar effects routing system lets you add excitement, spice and creative spark to any recording by combining lo-Z tracks with hi-Z guitar effects pedals. Front panel send and return patch points make it easy!

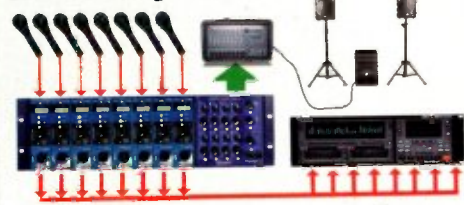


Workstation Interface



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The Radial Workhorse™ - advancing



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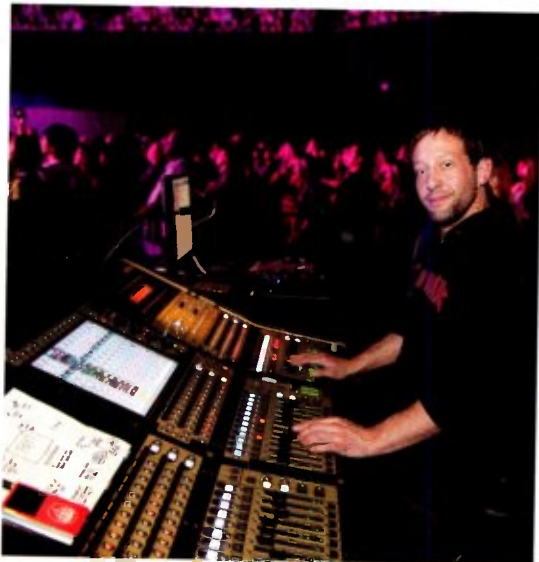
Photos and Text by Steve Jennings

BRUNO MARS, JANELLE MONAË



Skyrocketing to the top of the charts, co-headliners Bruno Mars and Janelle Monáe's brought their crowd-pleasing blend of old-school R&B and hip-hop with their "Hooligans in Wonderland" tour. *Mix* caught up with the crew when they stopped by San Francisco's Bill Graham Civic Auditorium in early June.

Mars' FOH engineer, [Name], is mixing on a [Name] 8, citing its dynamic [Name] as. "Bruno's performance is incredibly dynamic," [Name] says, "giving control over [Name] frequencies and [Name] on multiple [Name] shows me to get [Name] being abrasive, [Name] being thin. I [Name] and de-mud [Name] guitars in [Name] plug-ins [Name] on guitars [Name] on vocals [Name] comprises [Name] and bass,



Bruno Mars sings through a Shure UFR handheld with a Telefunken M80 capsule.



Reggie Griffith, Janelle Monáe FOH engineer, mans an SD8 and a Yamaha 5D. "The SD8 with dynamic EQ in various configurations is made to handle shows with multiple playback channels with live performers." Onboard, his secret is out: C4 insert on vocals. "I must mention our production manager, Joel Foreman. This production with all the diverse venues does not work without Joel's hand at the helm. Challenges from day to day are handled with aplomb and a sense of gracious camaraderie."

Monáe monitor engineer Alex MacLeod is on an SD8, using a Waves C4 inserted on her vocal. "It really helps me take the edge off her voice," he says. All processing is done internally on the SD8 and Waves bundle. Monáe has a combination of Ultimate Ears UE11s on Sennheiser IEM300 G3 units and two Clair SRM wedges and sidefills. "The whole experience on this tour has been awesome—from the Clair crew to the challenge of never having used this console before, and having to dial in a 14-piece band wearing 14 stereo in-ear mixes on 52 input channels."

Monáe sings either through a Sennheiser MD 5235 wireless or a hard-wired MD 431. "Both sound really good," explains MacLeod.



Pictured at left (L-R): Janelle Monáe FOH engineer Reggie Griffith, support act FOH engineer Aron Msound, system engineer/crew chief Ben Rothstein, P.A./monitor tech Matt Patterson, Monáe monitor engineer Alex MacLeod and Mars monitor engineer Mike Graham.

Graham is also on an SD8, using numerous Waves plug-ins, a multiband comp to round out some spots on Mars' vocal, and vocal verbs for BGVs and drums; and an S1 stereo imager on the mix. A Lexicon PCM96 vocal verb is the only outboard on Mars' mix. The entire band is on Future Sonics MG6 in-ears; Mars is on a combination of ears (UE11s), wedges (two pairs of Clair SRM) and (Clair R4s over Prism subs). "Bruno is a true talent. The fact that they are all genuinely nice guys makes my job easier."

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2017 HANGOUT FESTIVAL



By Sarah Benzuly
Photos: Dave Vann





THE SECOND ANNUAL HANGOUT FESTIVAL was held May 20-22, 2011, in Gulf Shores, Ala. Thousands flocked to the festival to hear such great performances as those from Paul Simon, the Foo Fighters, Widespread Panic, Rich Aucoin and so many more. Created by Concerts for the Coast, the festival is part of a larger plan to bring much-needed economic support to the Gulf area after the effects of the Deepwater Horizon oil spill.

According to Gulf Shores-Orange Beach Visitors and Convention Bureau officials, 35,000 tickets were sold to fans from across the country, making it the sixth largest music festival in the U.S.



Clockwise, from top-left: Paul Simon and band, Drive-By Truckers and My Morning Jacket's lead singer/guitarist Jim James

Sound company StagePro Inc. (Ottawa, Kan.) provided sound, lighting and stage packages for the second stage, which included a JBL VerTec array (4889 tops and 4880A subs with Version 4 presets) with Dolby Lake processing and Crest power. Consoles included Midas Pro-6 digital and an analog Heritage.



*StagePro
Danny Herman*

"Every one of the artist's engineers was very happy, the comments were great all weekend," says StagePro's Danny Herman. "The combination of the Crest power, the VerTec with the 4880A subs and Midas consoles seemed to please everybody."

Nine techs handled the system—Jay Waller (sound), Herman (sound), Jon Northrup (sound), Jeff Bryant (sound), Craig Ahneman (lighting), Jason Dominguez (lighting), AJ Avery (lighting), Conner Ivey (lighting), Cole Crockett (lighting)—whom Herman is quick to applaud. "The staff deserves most of the praise. You can have the best gear in the world, but if you don't have people around you that can operate that gear correctly, there's no point in hanging your rig. It was a well-run festival and everybody on-site was happy to be involved with it."

VIEW FROM FOH: PRIMUS

As Primus was in the middle of a tour when they stopped by the festival, FOH engineer Jason Mills brought his Pro Media/Ultra-sound-provided Avid Profile. "Because the festival was on the beach," Mills explains, "they had pre-buried a co-ax digital snake for us to use. Since we're carrying a Meyer MILO P.A., I use a Meyer Galileo for system optimization. I simply patched a few outputs of the Galileo to feed an XLR panel on my DriveRack, then tied into the festival's P.A. The way the festival was set up, with two main stages that alternate performances throughout the day, we had time while the band before us was performing on the 'A' stage to set up and run through a line check. I didn't hear the P.A. until Primus played their first note."

Carrying their own mics and stands, Mills employs LP claws or "clip-on"-style mics to minimize the amount of stands onstage. Drums took Shure SM57s, KSMs and Betas; Sennheisers; and a Telefunken M80 on snare. Guitars had Sennheiser e 906s on a



Jason Mills



Primus' Les Claypool

guitar cab. Les Claypool sang into a Shure Beta 57A and a Shure 520DX "Green Bullet," while guitarist Larry LaLonde used a Shure Beta 57A and drummer Jay Lane had a Shure Beta 56.

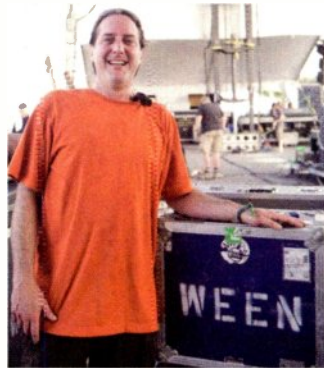
"These guys spend a lot of time working on their instruments' tones and dynamics," Mills says. "I don't try to effect the input signal too much. Many of my input EQs are flat because the sound coming to me is exactly what the band is trying to create. My dynamics processing on the inputs is very minimal to allow the band to create a little more dynamic depth."

Does it change when he's in a festival situation? "Maybe for the first song or two as I start to digest the environment and the sound of the P.A.," Mills replies. "Especially if I haven't heard the P.A. at all before the set, I'll push or pull a fader or two that I don't usually go for. I let it settle for a song or two before I do anything to the P.A., unless something is terribly wrong."

VIEW FROM FOH: WEEN

Because Ween travels fairly erratically, FOH engineer Kirk Miller relies on house-provided boards. At the festival, he mixed on the Heritage 2000. In

Ween (right) and FOH engineer Kirk Miller



his outboard rack were dbx, Drawmer and Klark-Teknik compressor/gates; as well as Eventide, Yamaha and TC Electronic effects. He also brought along a Korg SDD2000 delay and a Yamaha SPX-990.

Miller says the festival rig was one of the best-sounding he's been on. "Stage Pro uses Crest 9001 and 100001 amps, so I'm fairly sure there's no other VerTec rig out there that sounds like it." Miller carries most of the mics, including Audix and Shure models on drums. Blue Ball and Audix D3 are on Gene Ween's guitar amp; D3 and Sennheiser 421 for Dean Ween's amp; Audix OM6s for front-line vocals; Shure Beta 58A on keyboard vocals; and SM58 on drum vocals. Dave Dreiwitz's bass is DI.

With about 20 years mixing for the group, Miller has a good sense of how the band should sound, with the most important being Gene Ween's vocals and Dean Ween's guitar. "The only



other big difference [at a festival] is that I usually don't have my rack with me; I miss my Empirical Labs Lil Freq and BSS Audio 901 lead vocal insert-chain, as well as the various effects I've honed down over the years."

Sarah Benzuly is *Mix's* managing editor.

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Peruse Dave Vann's photo gallery from the festival. Visit mixonline.com/july/11.

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START AT THE SOURCE

Getting the **BEST** Vocals Onstage, Through the Board

BY EDDIE
MAPP

Reproducing the human voice in a concert situation can range from extremely easy (throw up the fader and go) to quite complex, depending on a number of situations surrounding the vocal. Are you mixing a soft-spoken singer, an aggressive rock group with multiple lead vocalists, or a pop artist whose crowd comprises 20,000 young teenage girls screaming at SPL levels higher than anything you'd ever want to compete with mixing-wise? In all of these environments, getting the vocal out there and on top is key to your mix.



THE VOCALIST

Choosing the right microphone is critical to your signal path. There are a number of quality mics from which to choose, with the defaults being either cardioid or hypercardioid, of the dynamic or condenser ilk.

You'll want to isolate the signal of the vocalist from any other background noise as much as possible so

that you have a greater ability to control and shape the vocals as much as needed, without affecting the surrounding instrumentation.

Standard cardioid mics have a maximum cancellation of 180 degrees from the front of the mic's diaphragm, which helps with bleed from stage monitors placed directly in front of the singer, as well as the crowd. Hypercardioid mics have a tighter polar pattern and focus on picking up what's directly in front of it; as a result, their cancellation is

around 135 degrees from the front of the mic, and a small lobe appears directly behind the mic, allowing for some ambient sound to arrive at the back of the mic. With a hypercardioid, make sure that you have a pair of monitors positioned to either side of the vocalist while leaving a small gap in between to help with feedback issues that can occur from having a speaker pointed directly at the rear lobe of the mic.

Handheld condensers can be wonderful-sounding due to their ability to capture much finer nuances and quick transients, but they can sometimes create an issue with extremely loud stage volumes. Cardioid vocal mics generally take a higher SPL level and can be a bit more isolated in noisier environments. However, many manufacturers have

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Derek Snyder (left)
GC Pro Business Development
Western Region

Allen Sides (center)
Four time Grammy Award winning
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With Stone Temple Pilots' Scott Weiland, I recently switched to a Waves C6 compressor—you'll probably want to break the manual out for this one. It has four bands of multiband compression, but also includes two additional bands that act as parametric filters, which can be very narrow or wide bandwidth. I use one of the bands set fairly narrow to help control the signature megaphone that Scott uses during several songs, which sticks out very strongly around 1.7 kHz. The other band is set around 4 kHz to help soften up this range, which can become a little fatiguing toward the end of the night.

developed incredible-sounding handheld cardioid/hypercardioid condenser mics that not only sound great, but can take a beating, too!

WALK ON DOWN THE SIGNAL PATH

In addition to bleed between other onstage instruments, fighting feedback can be a challenge depending on your singer and his/her position onstage. During the 2008 Stone Temple Pilots reunion tour, lead singer Scott Weiland was very energetic—many times climbing up the P.A. or stage trussing, as well as standing in front of the main P.A. for entire songs. This made it extremely difficult to keep his vocal on top of the mix while battling feedback from the main system, and I took many different directions before finding a solution. Using a combination of channel EQ, dynamic EQ, graphic EQ and even a Sabine feedback suppressor, I was able to maintain a reasonably consistent vocal with minimal feedback.

Next up is the preamp. In most cases, you'll work with the one onboard the desk. To keep your signal intact, make sure you've got a very healthy signal at your input without clipping the preamp. Too little gain will also get you into trouble because adding EQ and compression/limiting brings up the noise floor as each piece is inserted. Generally, before I EQ or insert anything, I'll start by highpassing the vocal channel at 100 Hz (a good starting point) to eliminate unwanted stage rumble or bleed from low-frequency instruments, which just get in the way sonically. If your vocalist sings in a predominantly higher register, you can move your highpass upward from 100 Hz, possibly even to 250 Hz or above. Remember, what you're trying to do is clear up what the mic is hearing so that you end up with a much clearer picture of the vocalist.

HOMING IN ON EQ

When EQ'ing a vocalist, look into how the vocal is to be perceived in the mix. Does it stand out first and foremost over everything, or is it tucked away a little to give a better blend with the rest of the group? Live engineers usually rely on cutting offending feedback frequencies first and then focusing on what's left. Many times scooping a little 400 to 800 Hz can make the vocal sound smoother and it won't poke out as much by itself, but in the context of the band, it can easily get buried.

If your vocalist likes to "cup" the mic, the wonderful polar pattern that you selected is skewed as most of the phase ports near the diaphragm are covered up. One quick frequency to reach for is 1.6 kHz on your graphic EQ. This can tend to feed back pretty easily, depending on your mic. After this point we reach the 2 to 5kHz range,

which is important for intelligibility but can also become very aggressive and fatiguing at high SPL levels. Pay attention to these frequencies so that the vocal cuts through the mix and doesn't become too harsh. A similar situation occurs from 6 kHz on up, where you need these frequencies to be present but still kept under control. Because higher frequencies are more directional than lower ones, you'll want to keep this in mind because some cardioid mics can become very omnidirectional around 8 or 10 kHz. (A little cut on your graphic EQ can help solve these issues.)

LET ME PRESENT DYNAMICS

If you're mixing an aggressive hard-edged rock/metal group with screaming nonstop vocals, there may not be much dynamics to the vocals; it may simply be turn them up till they don't feedback and just hold on to your fader! Other types of musical styles may have a very wide dynamic range that needs to be tailored to consistently sit in the mix without overcompressing within an inch of its life. There are dozens and dozens of analog compressors available, and even more plug-ins. Rather than go into specifics on each type of compressor on the market, let's focus on what I consider to be an extremely overlooked type: multiband compression and dynamic EQ.

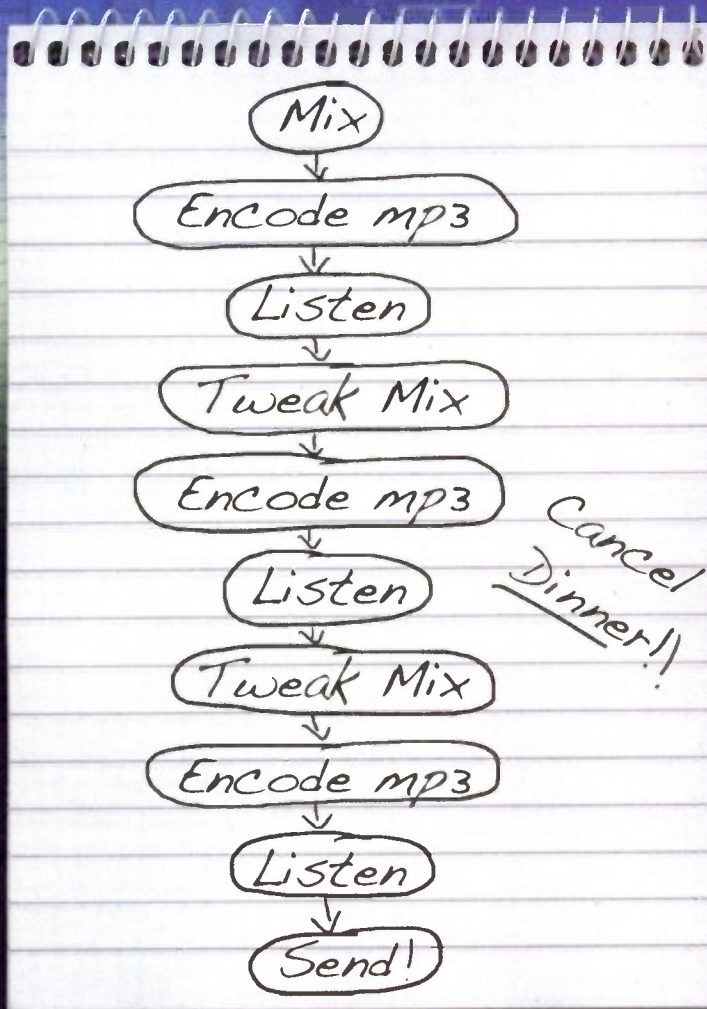
These two types of compressors split up your audio into several different bands, which allows you to compress each band independently. Multiband compressors are usually set up more like a crossover that you would use to separate different signals to different components in your P.A. While the signals are split up for independent dynamic control, all of the bands remain intact at the end of the compressor. With dynamic EQ, you have the same controls as you would a normal parametric EQ, but with the added features of being able to either compress or expand at the selected frequency. This type of control can be very confusing and even frustrating until you get the hang of it.

PUT IT ALL TOGETHER

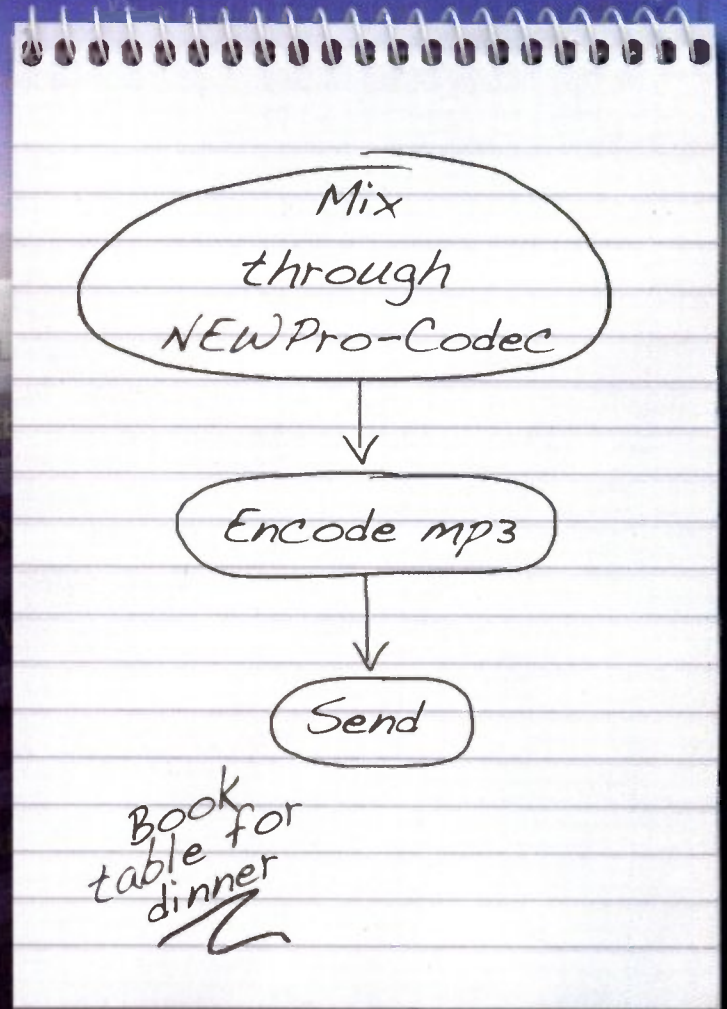
I take a very hands-on approach to keep the vocal under control and intelligible. First, I get a starting point for how the vocal channel should sound after basic EQ'ing at a decent volume without feeding back, and then I listen to how it fits in contrast to the rest of the band. If it's a reasonably dynamic band, you may want to leave a little extra room dynamically so that the vocal rides along with the other instruments and works together with the band. Setting a moderate compression level with a ratio of 4:1, attack at 40 ms, release at 300 ms with

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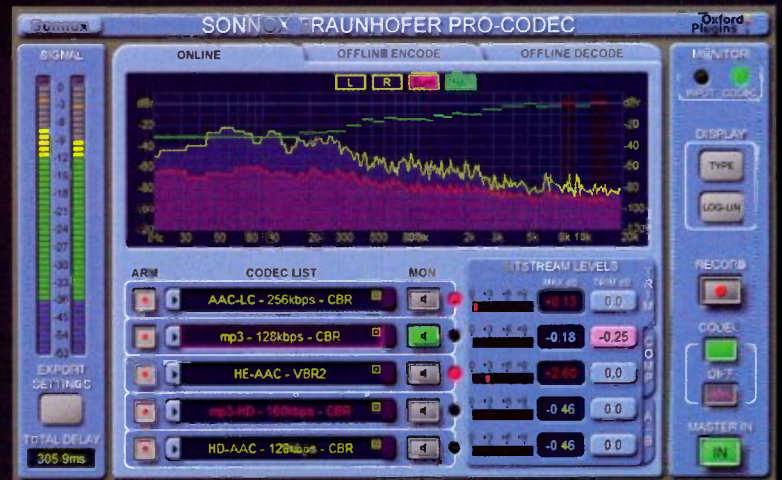
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4 to 6 dB of gain reduction should get you in the ballpark.

I save multiband/dynamic EQ for more aggressive rock-style vocalists, but the concept also applies to other genres. I use these types of compression to maintain my basic vocal sound, even when the singer is whispering or belting it out directly into the mic, with lips touching the windscreen. I tend to set my attack times very fast (3 to 5 ms), ratios pretty high (over 12:1) and release times starting around 300 ms in the low band and shorter times as the frequencies move up. Listen closely to each band because using too

high of a ratio and too fast of a release time can cause distortion in the compressor. Essentially, I end up using each of these bands as a separate limiter for whatever specific frequencies I've chosen, and then follow this up with a separate compressor to smooth out the result.

FEMALE ROCK VOCALS

When mixing Evanescence Amy Lee's vocals, it can be tricky to make sure that she stays on top of the mix while hard-hitting drums, bass, dueling guitars, keyboards, choir and strings are all flying around the room. There are times

where everything drops out except her and the piano, and this must also cut through. Using a McDSP MC2000 multiband compressor in 4-band mode, I set the first band to compress the lower frequencies from 400 Hz and below so that during the softer moments, the lower register of her vocals doesn't get lost. When she is singing in the upper registers, this band doesn't compress until she drops down to softer and lower parts, at which point the compressor may be doing as much as 8 to 10 dB at the lower frequencies.

I don't mess too much with the midrange band because it is essential for most vocalists. I concentrate more on 1 kHz to 4 or 5 kHz as it is the most sensitive range of human hearing and can get out of hand pretty quickly. Setting the compressor in this band so that it knocks back the loudest parts just a touch can make a dramatic difference. At 5 kHz and up, I generally use a de-esser with a very fast attack time around 1 ms or less, as well as a superfast release time of 10 ms or less, once again listening for any distortion artifacts.

BRINGING IN EFFECTS

I don't use too much effects for processing and believe that they should be used sparingly and only when necessary. A little reverb can help the vocal sit in the mix a bit better at times, but it can also be distracting and cause problems in large rooms. I tend to find a nice-sounding plate reverb with a decay in the neighborhood of 1.2 seconds and the pre-delay set back just a few milliseconds to give the vocal a little more presence.

Pitch shifting can help give a sense of space to the vocal, as well as sometimes mask pitch issues to an extent. You want to apply this very sparingly and not overdo it—just a few cents down (-8) on the left and a few cents up (+8) on the right should work; also, adding a slight delay of 30 ms on one side and 50 ms on the other can help spread this effect out to give you a larger vocal.

RIDE THE FADER

As a mixing engineer, it is your job to be attentive and deliver the best and most consistent show night after night, and this means paying close attention to the artist. Your knowledge of the artist and your ability to make split-second decisions cannot be replicated.

Front-of-house engineer Eddie Mapp has mixed for Evanescence, Stone Temple Pilots and Taking Back Sunday.

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A man with glasses is playing a trumpet in a recording studio. He is wearing a dark shirt and a watch. A vintage-style microphone is visible on the left side of the frame. The lighting is warm and focused on the man and his instrument.

RIBBONS ON THE ROAD

BY STEVE LA CERRA Ask an engineer if they've used a ribbon microphone in a live setting, and you're likely to get a reaction that goes something like "Are you out of your mind?!?" Old school. "Too delicate!" Hogwash. "Figure-8 patterns are impossible to deal with on a stage with loud instruments!" Pop-pycock. "Phantom power will blow it up!" Um, maybe if your cables aren't up to spec. It was only a matter of time until the studio ribbon revival that started in the late 1990s would reach the stage. But is it really possible to use ribbons on a tour? Can they survive? Is their meek output level a problem? **READ ON.**

Opposite page: Arturo Sandavol's trumpet is miked with a Royer R-122. Here, he's playing live at Blue Note in New York City. Photo courtesy: Donald Lopez



Brian Setzer Orchestra's engineer, Jimbo Neal (inset), places an R-121 a quarter-inch from the grille, roughly a half-inch off the dome, angled toward the paper cone about 30 degrees.

BACK TO SCHOOL

Remember when you were bored in class, and you separated the foil from the wax paper of a gum wrapper? That foil is roughly 10 times thicker than a ribbon. It may not be as robust as a kick drum head, but show a little respect. SPL per sé is not as much an issue as wind, which can stretch a ribbon and compromise the frequency response; wind is, in a manner of speaking, a low-frequency sound wave. No ribbon mics in the kick drum (especially my RCA 44BX, thank you very much).

The same qualities that endear ribbon mics to studio engineers make them a great choice onstage. According to Jim Ebdon—front-of-house engineer for Aerosmith, Matchbox Twenty and Maroon 5—“Joe Perry from Aerosmith had been using Royer R-121s in his studio and decided to take them on the road. We used a mixture of the Royers, [Shure] 57s and [Audio-Technica] AT4050s. His guitar sounded phenomenal. I didn't realize how good the 121s actually were until I started working with Matchbox Twenty. We did some critical listening with various guitars, amps and combinations of mics. After a few days, we came to realize that the best guitar sounds featured an R-121, whether it was

mixed with another mic or on its own.”

LET IT BLEED

Ribbon mics naturally produce a figure-8 pickup pattern, but don't worry about leakage from the rear lobe. Wayne Trevisani mixes FOH for Maxwell and uses sE Electronics RNR1s for overheads. “We were multitracking in [Pro Tools] HD using the VENUE,” says Wayne. “We put up the RNR1 as an overhead, about three feet above the snare drum, picking up the cymbals but EQ'd to be more of a snare mic. We had the front of the RNR1 pointing straight at the snare, with the back facing the ceiling, one on each side of the

kit. I time-aligned the close snare mics [57s] to the overheads to complete the snare sound. The ribbons sound great on the snare from three or four feet away: smooth and fat, and the cymbals don't get in the way. The backs of the mics don't create leakage problems in arenas, but if you are in a small room with a low concrete or metal ceiling, there could be issues.”

Jimbo Neal, who has been mixing the Brian Setzer Orchestra and Stray Cats, was “sold on the Royer SF-24 for overheads. I have never felt so comfortable pushing overheads where they should be into a live mix. Sometimes when you bring up the overheads you get this sort of white noise, but I think there's two reasons that doesn't happen with the SF-24. First is the fact that it is a ribbon and second is the fact that since it is a stereo microphone, the two mics are phased correctly.”

What about situations when the rear lobe of a ribbon is capturing leakage from other instruments? Meticulous engineers strive to reduce leakage for two main reasons: control over the mix and off-axis pickup anomalies. Before we discuss the latter, let's check out how FOH mixer Bryan AllinSmith mikes the Gin Blossoms guitarists Jesse Valenzuela's and Scotty Johnson's guitar amps. “John [Richardson, drums] liked the sE Electronics VR1s in his studio and brought them out on the road for me to use,” says AllinSmith. “They changed my concept of miking and mixing the Gin Blossoms. Each guitarist uses two amps: Jesse uses a Marshall and a [Roland] JC120, Scotty uses a [Fender] '65 Reissue Twin and a



Front-of-house engineer Bryan AllinSmith

Vox AC30. What I want to hear in the house mix is mostly the Marshall and the AC30. In the past, I'd put a little of each player's secondary amp into the mix, then bring the guitars up and down for solos using VCAs to control both mics [for the respective player].

"A great deal of their signature sound is the vocals and that jangly 'harkening back to the '60s' guitar tone. The VR1 made that happen," he continues. "They sound huge partially due to the complimentary leakage from the back of the mic, but you also hear the definition of every note. Now I double-mike each amp with a 57 and a VR1. I place the VR1 about three-quarters of the way to the edge of the cone, face-on, and place a 57 next to it. I set my rhythm sound using the VR1 and pretty much leave it there, then use the 57 to bring out the guitar solos. I rarely even put the secondary amps into the mix anymore."

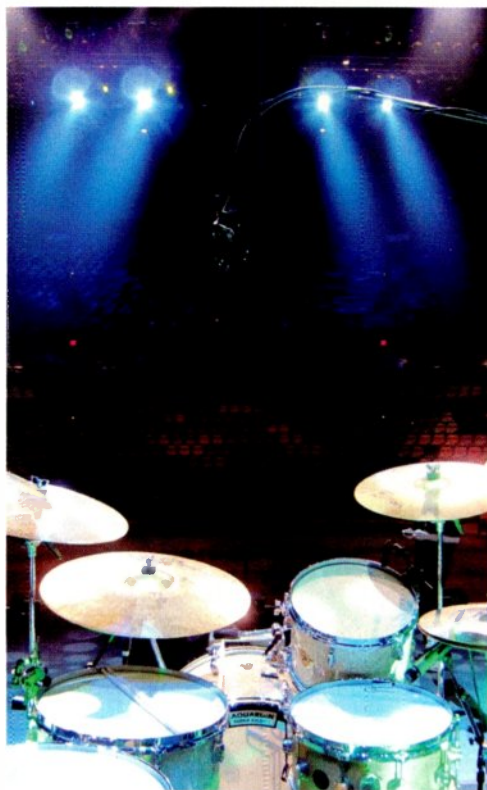
Miking guitar amps is a big strength for ribbon mics, complementing the somewhat bright nature of the typical P.A. system. Engineer Marc Carolan was sold six years ago on using ribbons for Muse guitarist Matt Bellamy: "I've used Royer and only Royer for Muse's guitars going on six years now. For Matt's guitar sound—which everyone raves about and wants to know how we get—I have to explain it's a Royer 122 and flat channel."

"Brian [Setzer] plays through early 1960s Bassman amps, and initially I used mics that had been spec'd previously," explains Neal. "I'd listen to his amp, then listen to what I was getting in the P.A. system, then listen to the headphones, and I thought, 'How am I going to fix this?' I tried the Royer R-121 on Brian's amp, and it was like, 'Are you kidding me?' This is what I wanted. I have the R-121 a quarter-inch from the grille, roughly half-inch off the dome angled toward the paper cone about 30 degrees. Lately, I have been mixing that with a Mojave Audio MA-201 FET condenser, and I am getting really good results."

more online



Listen to ribbon mics in action. Visit mixonline.com/july.11



Royer SF-24s are used as overheads for Brian Setzer Orchestra's drum kit.

GET OFF MY AXIS

Ribbon mics possess very natural off-axis pickup. This is easily demonstrated with David Royer's "hiss test": Hiss at a condenser mic while moving around the microphone. The result is stunning: It sounds like someone is sweeping a parametric midrange EQ. (Listen to Web Clip 1 at mixonline.com.) This is due to changes in the mic's frequency and phase response as the sound is moved off-axis. Now try the same test with a ribbon. (Listen to Web Clip 2.) As you move around the mic, the hissing drops in the nulls at 90 and 180 degrees, but you don't hear the drastic change in timbre that you do when you try this with a condenser mic. This is a testament to the smooth off-axis response characteristic of most ribbons. The point? You may get more leakage with a figure-8 ribbon than you might with a cardioid condenser, but who cares as long as the leakage sounds good? Many experienced engineers have learned that bleed can pull a mix together, as long as the bleed doesn't sound bad, and an experienced engineer who understands the strong side-rejection of a figure-8 pattern can use it to great advantage, facing the nulls at sounds approaching the mic off-axis.

There are a few ribbon characteristics worth mentioning. They tend to have a very fast transient response due to the low mass of the diaphragm (the ribbon), resulting in enhanced detail. Good ribbon mics tend to not "overshoot" transients, a characteristic that can make HF sounds brittle. (You can easily hear this by

A/B'ing a ribbon vs. a condenser on a tambourine.) Because ribbons can exhibit an exaggerated proximity effect, I recommend careful placement and judicious use of a highpass filter.

The mythological danger from phantom power is somewhat real but requires a perfect storm. Most modern ribbon mics are phantom power-protected while many require phantom power for onboard preamps. Phantom can become an issue when cables are mis-wired (for example, pin 2 on one side of the cable is mistakenly wired to pin 1 on the other side of the cable) or where patch panels are involved. Visualize in slow motion a connector being inserted into a TT or TRS patchbay. As that connector is inserted into the jack, there is a very brief moment when the tip touches the ground and phantom flows onto the ground wire. This can fry a ribbon, so complete all patching and then turn on phantom power.

However, ribbons for the most part have just as long a life expectancy on the road as condensers. Cam Beachley, currently mixing monitors for the New Kids on the Block/Backstreet Boys tour, is using Audio-Technica AT4081s for overheads and guitars, and he's "close-miking as you would with any dynamic mic. Our drummer on this tour has a sea of cymbals so I opted for left-center-right overheads. They are approximately 18 inches in front of and four to six inches above the cymbals. I've found them to be very transparent, requiring zero EQ. On windy days I'll use a windscreen, but these mics are built like tanks."

Consummate trumpet player Arturo Sandoval reveals that he first used a ribbon on his trumpet "when I recorded *Trumpet Evolution*. We used a Royer R-122 and I loved the way it sounded. Since then, I have used it every day of my life. My road manager/sound engineer has been carrying it on the road with us for years now. Some ribbon mics can be sensitive, but we don't really give it any special treatment. The thing I like about it is that through that microphone, it sounds like me in the monitors. Trumpet is not an easy instrument to capture. There are a lot of subtleties and complex timbres that some mics have difficulty translating, but the Royer gets it all. I am working on a new album and we recently compared it with some serious vintage microphones. The R-122 was the winner. That's my sound."

Steve La Cerra is *Mix's* sound reinforcement editor and FOH engineer for Blue Öyster Cult.



5.1 Precision Level Control

Control your 5.1 or stereo monitor levels with 0.1 dB accuracy!



The system consists of a 1 RU unit which contains all system input and output connections, and a table top controller (pictured above).

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World Radio History

YAMAHA'S STAGEMIX IPAD APP

Top 10 Tricks to Get the Most



Yamaha's StageMix is an Apple iPad app that allows live sound engineers remote control of a Yamaha M7CL Version 3 board's mix functions via graphic interface from anywhere in a venue within a wireless range. To assist those new to using such apps for mixing or who want to dig deeper into what this app can do, *Mix* turned to Chicago-based audio engineer Aaron Patkin, who has used the StageMix on many shows—from live concerts to corporate events—at Viper Alley.

1 KNOWTHY NETWORK: Using StageMix is only plausible if you have your networking in place. Because the app doesn't work to its fullest potential when on an improperly setup WiFi, your first step is to check the network every time. I recommend that the WiFi network you use for controlling your console from your iPad is both password-protected and invisible. This way, you run a smaller risk of the punters or acts trying to log onto Facebook while you are trying to operate the desk.

2 KEEPIT CLEAN: As with any digital console, I'm always conscious of the fact that it is just a computer, and using a machine that is connected to the Internet leaves the opportunity for something to go wrong. Though not always feasible, it could be considered "best practices" to use the iPad you have StageMix on just for that purpose.

3 LABEL EVERYTHING: It's hard to keep board tape where you want it and still see everything on the screen, so taking that extra minute or two to label each input and output expedites the ability to quickly get around the app. For example, instead of trying to remember which monitor mix is which, label them with titles like "SL," "Drum," "Ears" or (if you're friendly with the act) "Pete." Making sure that the labels are easy to read on both your inputs and outputs will help speed up the process of using StageMix to its fullest.

4 CONSOLE FIRST: Make sure you spend some time with the console before you dive in. Because you are unable to access dynamics, gain, delay

and several other features from the app, be sure you are comfortable with your other console settings before you walk away.

5 COPY/PASTE: The Copy and Paste features on digital consoles are part of the reason why some engineers enjoy using them. By using this feature on either the console or the app, you can paste EQs from the PEQ for a channel or output and/or a GEQ. This can help speed up the process of ringing out wedges or tuning auxiliary

zones such as delays, frontfills or outfills. Say, for example, all your singers are using the same mic. You can ring one out, and copy and paste that EQ setting to another channel or wedge before you fine tune it for that particular performer. This is a feature I find myself using to get set up, especially on outputs for delay or fill zones, as well as wedges.

6 TAP-TAP: In StageMix, if you double-tap on an EQ point or GEQ band, it resets to flat or zero. This can be a useful tool when you are in a hurry (when aren't you?) to test your idea of whether or not the EQ point you're dragging is making things better or worse.

7 FREQUENCY AND GAIN LOCKS: At the top of the screen in the PEQ window, there are buttons for frequency and gain locks, which lock in the setting of those two functions, respectively. This is one of my favorite features of the app because it allows you to change just one, the other, or Q. Because the touchscreen GUI can sometimes be a little picky about the exact direction your fingers move, locking your frequency or gain allows you to use just one or the other aspect of the EQ—without worrying about losing the setting you're already happy with. I've found myself often flipping through pages quickly so much so that I tend to lock EQ points that are in place to fix glaring issues in an input, or are in place to eliminate feedback so I don't bump it accidentally.

8 COMMUNICATE: One of the biggest advantages to using StageMix is the ability to communicate directly with your clients. It affords you the op-

portunity to stand onstage with the band and hear exactly what they are hearing, or to walk the room with a client and make tweaks to keep them happy. Keep open lines of communication and don't spend the whole soundcheck with your face buried in your iPad. Playing with the board (especially via iPad) is equivalent to playing with a compressor all night in some client's eyes. Keep your head up and pay attention, no matter how shiny the GUI is.

9 TWEAKFEST: Due to the limited functionality of StageMix, make sure that everything is as close to "all systems go" as you can get it at the console before you step away. Having to run to the side of the stage during a soundcheck because the guitar channel is clipping when the player hits a distortion pedal is quite embarrassing. I've found that the best experiences using StageMix have been making tweaks to mixes I've already set at the console. It allows for a finesse you cannot get without standing at different points of the house/



Viper Alley concert club creator Scott Greenberg (left) with Aaron Patkin and the StageMix

stage, but will not make up for mistakes or miscalculations made beforehand. I've found myself trying to EQ or balance out something in StageMix that should have been taken care of by mic selection and placement, or a point in the signal chain set incorrectly.

10 TRUST, BUT VERIFY: I am an admitted skeptic, and as such make it a point to never trust any piece of equipment entirely; I do my best to never be too far committed to mixing on the app. WiFi networks, iPads and computers all have their hiccups from time to time, and it is important to remember that for best results, you should always be conscious of what has the possibility of going wrong ahead of time. This could mean that you make sure to have the charger for the iPad (yes, I know the battery lasts for weeks), that you always have a spare router in case yours goes down, and be sure to plan out a quick path back to the front-of-house or monitor desk.

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VERSATILE Sound

d&b T Series
T10 cabinet

New Loudspeaker Arrays for All Venues

Whether hanging from an arena, installed in a house of worship or on a stand for a local coffee-bar gig, P.A. systems are an essential element in any live performance. When looking to upgrade a system, safe and easy rigging, advanced digital control, amplifier integration and great sound are high on the features list—and manufacturers are responding in kind. Here, listed in alphabetical order, is what's new in line array products for your listening pleasure.

By Sarah Benzuly

Aiming, speaker curvature and amplification are calculated for each **A-Line Acoustics** (a-lineacoustics.com) Custom EMMA Curve installation. The company customizes the color, shape and rigging.

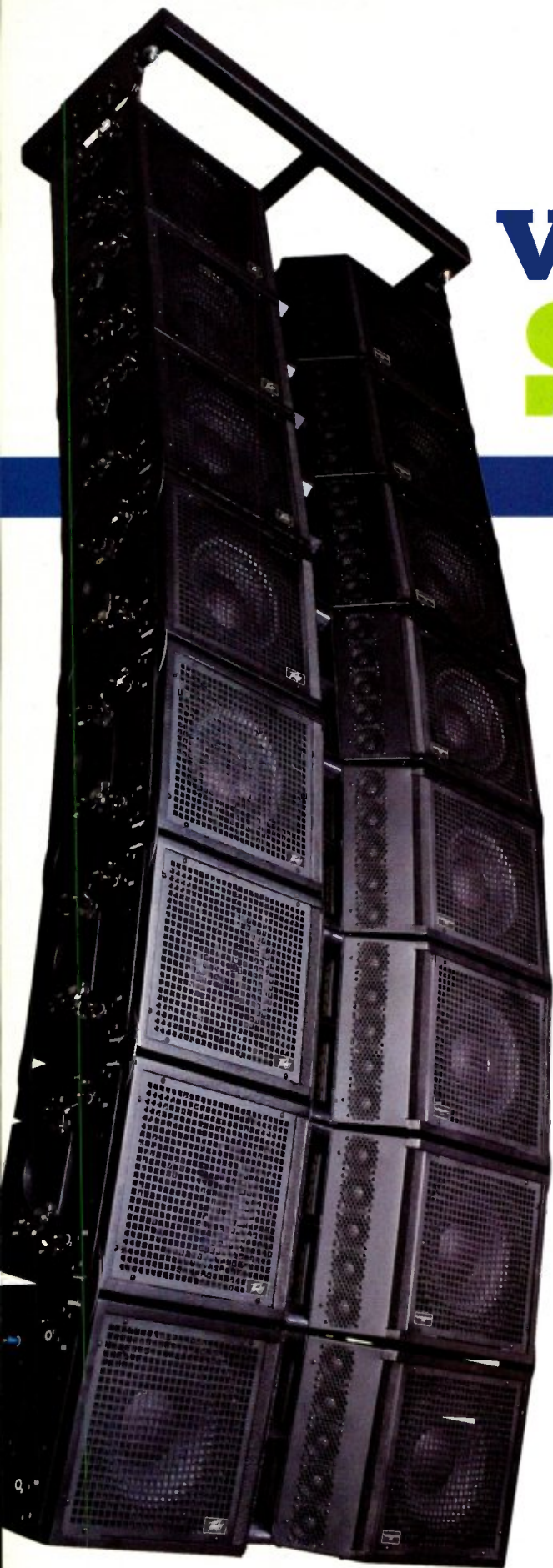
The **Adamson** (adamsonsystems.com) Metrix W two-way line source array features a 15-degree trapezoidal cabinet design. It has an Adamson ND8-ML 8.5-inch Kevlar neodymium low-mid frequency driver and B&C DE800 1.4-inch HF compression driver with Adamson's patented HF wave-shaping chamber. A convertible cardioid Sub (a single-sided box that can be arrayed conventionally or in back-to-front pairs) uses the AIR™ System with the Metrix Frame Link Adapter to fly subs behind the array.

Alcons Audio's (alconsaudio.com) LR7 passive two-way line-source system features 90-degree dispersion with seamless coverage due to the ribbon's all-natural cylindrical (isophasic)

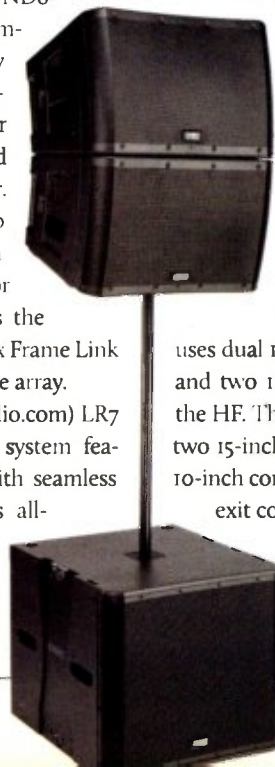
wavefront. Transient response and high peak power handling are 800W/200 ms. It is available in 90- and 120-degree configurations, and can be combined with a pressure-bass or deep-sub system. The LR7Bass double-tuned band-pass bass system features a 12-inch long-excursion woofer with Neodymium magnet structure. The concentric bandpass configuration offers LR7-tuned bass response in full-space (flown) and increased efficiency in half-space (stacked) applications.

The **Apogee Sound** (apogee sound.com) bi-amped, two-way ALA-3's modules incorporate two 10-inch cone-type drivers for the LF and dual 1-inch exit compression drivers for the HF. Sharing the same compound trapezoid vented design but larger is the bi-amped, two-way ALA-5, which uses dual 15-inch cone-type drivers for the LF and two 1-inch exit compression drivers for the HF. The tri-amped, three-way ALA-9 uses two 15-inch cone-type drivers for the LF, two 10-inch cone drivers for mids and three 2-inch exit compression drivers for the HF.

The **D.A.S. Audio** (dasaudio.



Peavey Versarray



QSC KLA 12, part of
the KLA Series

Ray Kennedy, Buddy Miller and the Miktek™ CV4.

“The CV4 sounds better than all my vintage mics with none of the headaches.”

Buddy Miller

Producer, Engineer and Guitarist

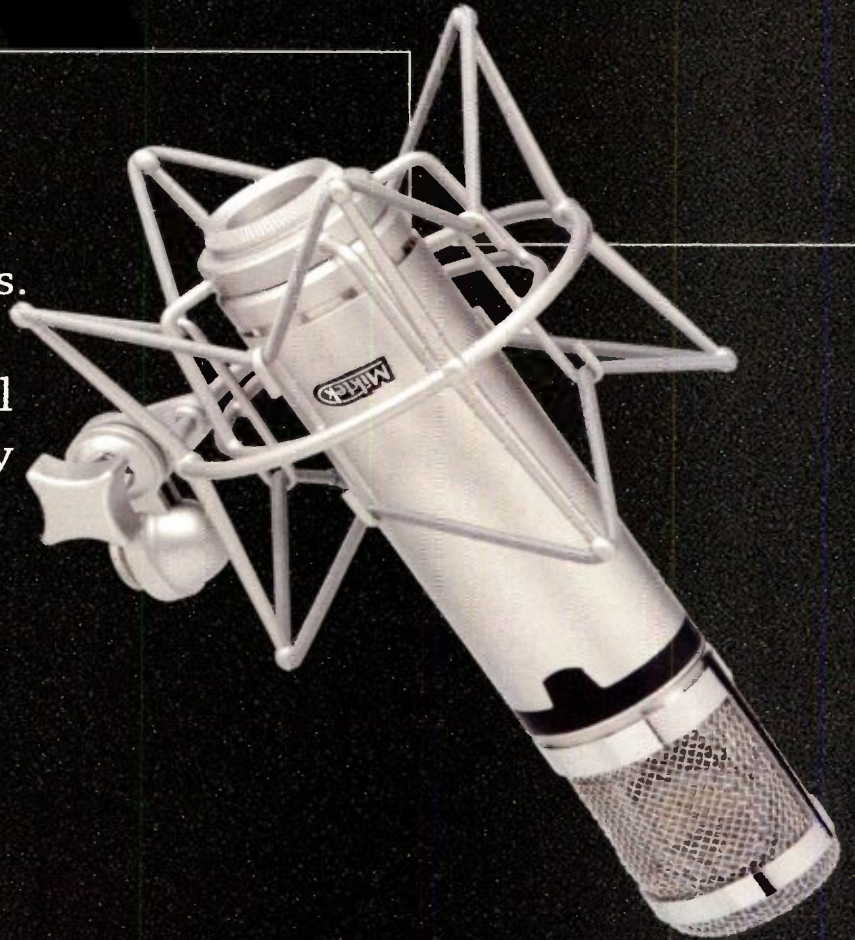
Robert Plant's Band of Joy, John Fogerty, The Majestic Silver Strings, Patty Griffin, Steve Earle, Emmylou Harris, Jimmie Dale Gilmore, Willie Nelson.

“The CV4 has the soul of a vintage classic. Deeply smooth yet crisp and clear with sweet harmonic textures. There's a feeling that there's no mic in the way of the vocal being recorded, total accuracy and full emotional impact.”

Ray Kennedy

Grammy Award Wining Producer and Engineer

Ray Davies, Steve Earle, John Mellencamp, Delbert McClinton, Lucinda Williams, Nanci Griffith, Joan Baez, Billy Joe Shaver, Todd Snider, Greg Brown, Ron Sexsmith, Reckless Kelly.



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com) Aero 8A ultracompact enclosure offers a third-generation Class-D power amplifier and digital signal processing. The amplifier offers 250W for the LF loudspeaker and 100W for the HF driver. A two-position HF EQ compensation switch adjusts the HF response for arrays of four, or eight or more units. Low-frequency reproduction is handled by the D.A.S. 8MN 8-inch transducer.

d&b audiotechnik (dbaudio.com) T Series includes the T10 cabinet, a passive, two-way design with two 6.5-inch drivers and a 1.4-inch exit HF compression driver. The HF driver is fitted to a waveguide horn, producing vertical line source directivity with a 90-degree horizontal pattern maintained down to approximately 600 Hz. An acoustic lens placed in front of the horn widens horizontal dispersion to 105 degrees; rotation of the horn by 90 degrees relative to this produces an accurate point-source dispersion.

Comprising CROMO 8, 10 and 12 with a power output of 100W, 180W and 300W, respectively, each model from **dbTechnologies** (dbtechnologies.com) features asymmetrical CD horns and a mic input on XLR and jack sockets. The Opera 610D compact full-range loudspeaker features a 600W/RMS digital digipro power amp, neodymium components and 24-bit sound processor.

EAW's (eaw.com) KF200NT comprises a 10-inch woofer with 2.5-inch voice coil and a coaxial mid-high driver (8-inch cone MF with 2-inch voice coil and 1.75-inch voice coil compression driver HF), and features a 1,500W amplifier. The module has EAW Focusing™ processing, software-accessible DSP and U-Net™ network.

The XLC full-bandwidth three-way line array system from **Electro-Voice** (electrovoice.com) is an axis-asymmetrical design: Within each XLC cabinet, mid- and high-range drivers are arrayed vertically. The design includes a passive crossover for bi-amp operation.



Palace Theatre's installation of a Nexo GEO S12 system

A 12-inch E-V speaker is used for LF/mid-bass. Two 6.5-inch custom-designed drivers in a vertical array comprise the mid-frequency bandpass. For high-frequency summing, the Hydra plane-wave generator can be tuned to produce optimal wavefront geometry for any design.

The **JBL** (jblpro.com) VT4886 subcompact, passive, three-way line array element has an integrated mid/high waveguide for vertical wavefront control and 110-degree horizontal dispersion. Other features include four midrange transducers with Thermomaster® cooling and Radiation Boundary Integrator® technology, and an LF diffraction absorber.

KS Audio's (ksaudio.com) CPD LINE AutoCurve® offers built-in hang-angle re-adjustment motors and an automatic FIR processing/EQ-compensation program. The AutoCurve system comprises CPD top-enclosure units (each with two 8-inch MF drivers and 1-inch HF compression driver); FIRTEC DSP; and rear-mounted, self-powered, 1,000W amplification driven by MOSFET PWM (Class-D) FET power.

L-Acoustics' KARA (l-acoustics.com/KARA) offers the SB18 subwoofer for reinforced LF contour applications and the company's Wavefront Sculpture Technology. Features include added LF resources for increased bandwidth and coherence, improved directivity control in the horizontal plane, vertical coverage capability and improved ergonomics. Also included is LA-RAK touring rack and LA8 amplified controller preset library.

Martin Audio's (martin-audio.com) MLA multi-cellular loudspeaker array's methodology uses numerical optimization of the array's output based on an acoustic model. The multi-cellular format has six individual cells in each enclosure, each with its own DSP and powering capability. Each 24-enclosure array has 144 cells, and the company's Display 2 system design soft-

ware automatically calculates FIR DSP filters for each cell.

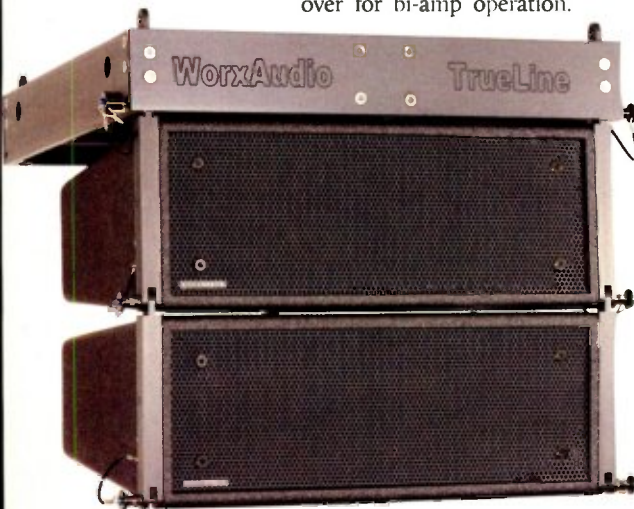
Three new modules join **McCauley Sound's** (mccauley.com) MONARC system: the full-range MLA6 and mid-sized MLA3, and the MS6 sub. The MLA6's Integrated Rigging System allows a MLA6 column to be rolled into place, interconnected, set to angle and lifted into the air without the need for any tools, additional parts or special hardware. The MLA6's Intercell Summation Aperture™ and Adaptive Density Inverse Flat Lens™ technologies work with the cell's mid/high complement to integrate mid- and HF energies into a single, vertically continuous wavefront.

MINA from **Meyer Sound** (meyersound.com) produces up to 128dB SPL over its 100-degree horizontal coverage area. MINA can be used as a curvilinear array system, as well as in frontfill and under-balcony applications. Options include weather protection, custom color cabinets and low-profile rigging pins.

The **NEXO** (nexo-sa.com) GEO S1210/S1230 speaker cabinets are based on a 12-inch low driver and 3-inch compression driver, and can be stacked or positioned in a horizontal or vertical array. The NXStream DSP algorithms provide mid- and HF response and increased control and protection of the LF drivers. When using GEOSoft2 (a NEXO 242ES digital controller) with sensing protection, the models offer predictable coverage and comprehensive protection.

The **OAP Audio** (oapaudio.com) VS8 Series "Vertical Stack" system comprises the VS8-215 long-throw sub and three bi-amped, two-way, mid-high modules: VS8-60 (60-degree dispersion), VS8-90 (90-degree) and VS8-120 (120-degree). The VS8-215 uses dual 15-inch LF drivers with horn-loaded porting.

When used with the TOC™ R2 processor, the FT.LA from **PAS** (pas-toc.com) provides consistent off-axis performance. The standard FT.LA



WorxAudio TrueLine V5

frame is 18.5 inches deep, allowing for arrays up to eight deep. The 12.LA 12-inch coaxial system features the same qualities as the FT.LA, with a passive network containing dividing filters, time-correction delay and equalization.

Peavey's (peavey.com) three-way Versarray 212 enclosure offers two 12-inch Black Widow® woofers with dual 4-inch voice coils and a symmetrical-drive neodymium magnet design; 10 2.5-inch Neo midrange drivers; four waveguide-mounted planar ribbon drivers; and the company's patent-pending Ram Air Cooling design, a dissipation process that radiates heat away from the voice coil and speaker cone.

QSC's (qscaudio.com) KLA Series active line array system comprises the KLA12 12-inch, two-way element and KLA18 18-inch direct-radiating sub. The KLA12 is an 18-degree fixed-arcuate line array element; installers can create a 90x90 degree array using five KLA12 enclosures. It features Ar-Q™ tuning and configuration and the SOLO™ rigging system.

The **RCF** (rcf.it) D Line speaker series comprises HD10-A and HD22-A active two-way monitors, HDL20-A active module and HDL18-S sub. All transducers offer lightweight neodymium magnets. Features include a high-power woofer, and 1- and 2-inch neodymium compression drivers with a pure titanium dome.

Renkus-Heinz's (renkus-heinz.com) IC² features four 8-inch LF neodymium transducers and 1-inch titanium nitride-coated HF drivers. Each two-way 8-inch module can be used as a stand-alone loudspeaker, a small ground-stack or a flown array of up to 20 cabinets.

The **SLS** (slsaudio.com) LS6600CP full-range module features a new HF waveguide, coplanar mounting and D-fend technology. A coplanar driver arrangement uses a proprietary 6.5-inch cast frame, while a neodymium composite-cone woofer with a symmetrical axially mounted planar ribbon driver produces symmetrical pattern control. LASS software allows users to predict coverage.

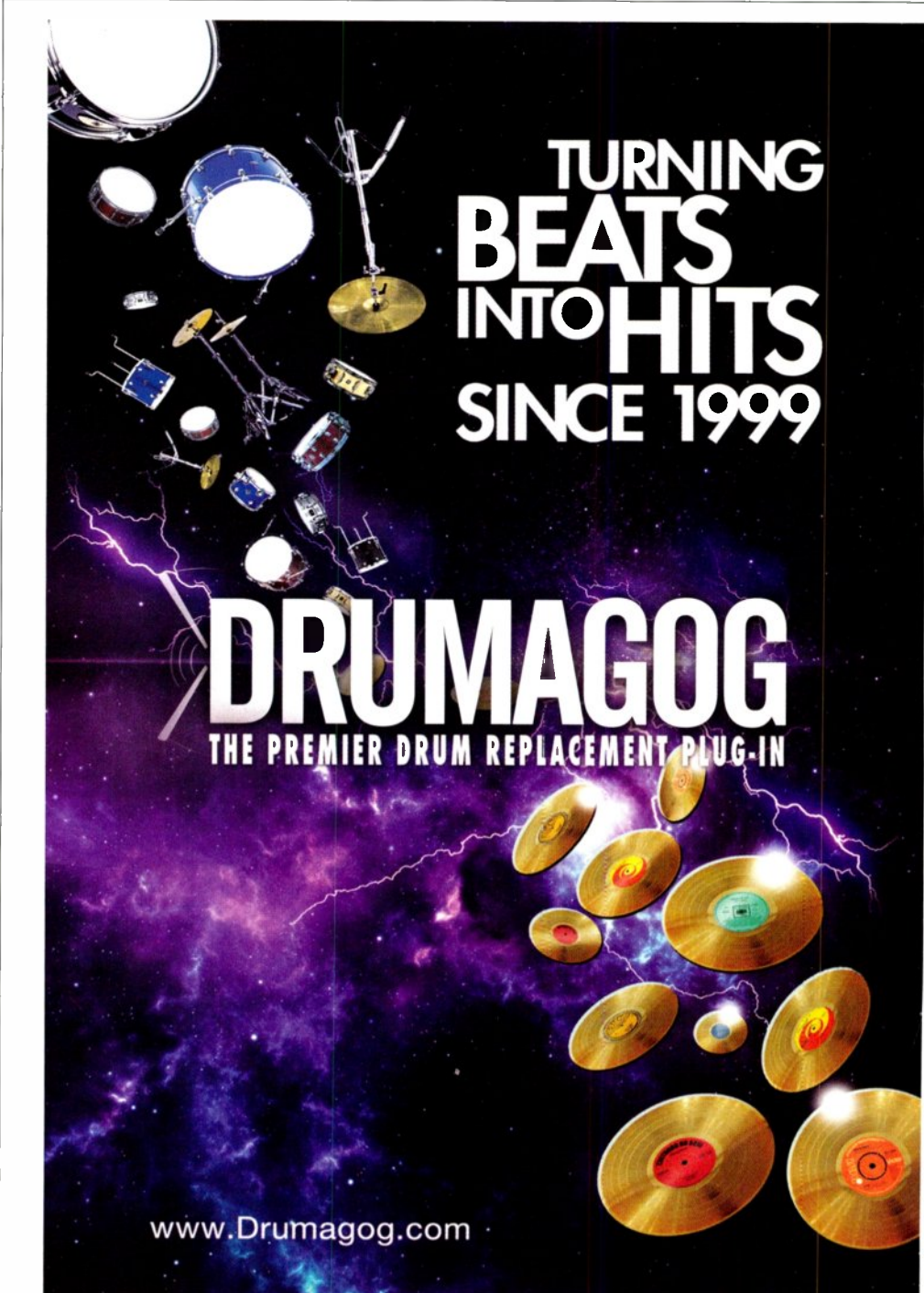
The **TCS Audio** (tcsaudio.com) TM10X has a 10-inch B&C neodymium coaxial transducer mounted in a vented enclosure. The TM112 offers a 12-inch B&C neodymium LF transducer in a vented enclosure with a 1.4-inch exit B&C titanium HF compression driver coupled to a rotatable 80x60-degree horn. The TM115 features a 15-inch B&C neodymium LF transducer in a vented enclosure with a 1.4-inch exit B&C titanium HF compression driver coupled to a rotatable 80x60-degree

horn for controlled dispersion. The TM206 dedicated fill loudspeaker features dual 6-inch neodymium low-mid frequency transducers and a 1-inch exit, HF driver coupled to a 90x60-degree rotatable horn. The TM215S sub has dual 15-inch B&C LF transducers mounted in a bandpass enclosure.

TOA's (toaelectronics.com) Type H speakers feature Sync-Drive technology that keeps the audio in phase with its sources. The series comprises shorter designs SR-H2L (straight) and SR-H2S (curved), and longer designs

SR-H3L (straight) and SR-H3S (curve). The short models contain nine vertically connected speakers; the long models have 16 speakers.

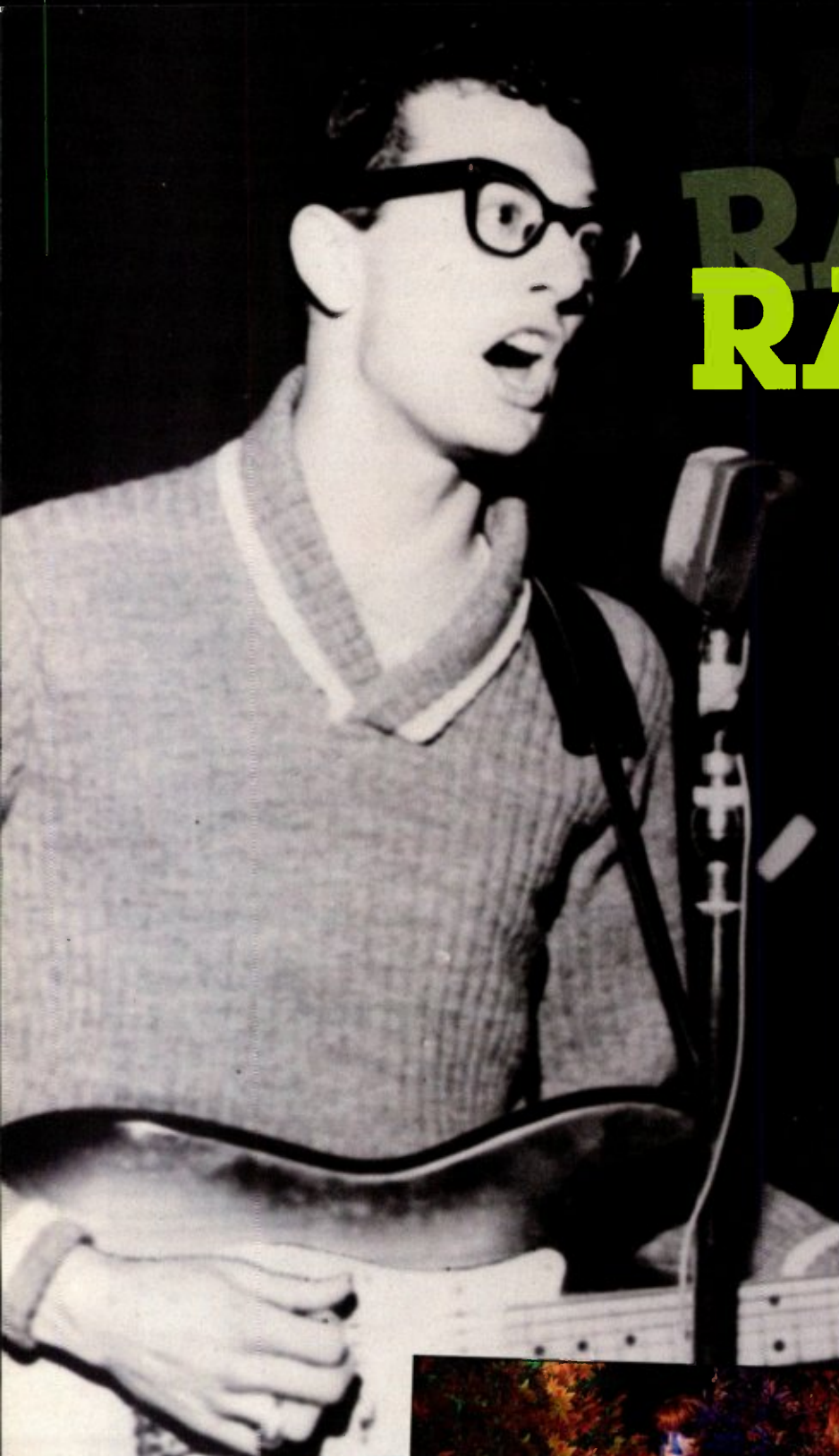
WorxAudio Technologies' (worxaudio.com) TrueLine V5 includes a medium-form, 1-inch exit compression driver coupled to a stabilized, FlatWave™ Former (wave-shaping device) that delivers clear high frequencies over a controlled coverage area. Dual 5-inch neo-magnet cone transducers coupled to the Acoustic Intergrading Module (A.I.M.) minimize cone filtering.



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RAVE ON

RAVE ON

Buddy Holly

New Interpretations Honor Pioneer's 75th Birthday

By Barbara Schultz

No one can say what styles of music rock 'n' roll icon Buddy Holly might have recorded had he lived to see his 75th birthday this year. Would he have been into New York art-punk when Lou Reed and Patti Smith came along? The electronic blues of Florence and The Machine? The neo-soul of Cee Lo Green? No telling, but we do know that these artists and countless other have been inspired by all the music Holly put out before he died at age 22.

Rave On Buddy Holly isn't the first tribute to Holly's legacy, but it celebrates him in spectacular, eclectic fashion. Collection producers Randall Post and Gelya Robb assembled a variety of performers who stretched their own musical boundaries to reinvent 19 unforgettable songs. "The impetus to do this came through Paul McCartney's publishing company," explains Post, who has developed a relationship with MPL Music Publishing through his work as a top-end film music supervisor. "Paul has been a fan of Buddy Holly since there first was Buddy Holly."

Post and Robb say that musician/producer Matt Sweeney also helped with A&R on this project, signing and producing three of the artists who participated: Julian Casablancas, who performs a cool, gritty rendering of the title track; Kid Rock, who has a surprisingly soulful take on "Well All Right"; and the Black Keys, who offer a spare reggae styling of "Dearest" to lead off the album.

MCCARTNEY MAKES IT "EASY"

The low-key Black Keys effort is followed by Fiona Apple and Jon Brion's true-to-the-original version of "Everyday." And then McCartney really tears things up with a hard-rocking, distortion-heavy version of "It's So Easy," a song the former Beatle has performed in concert. The McCartney track was recorded live in Avatar Studios' (New York City) A room, with producer David Kahne and engineer Roy Hendrickson behind the Pro Tools rig. "It was set up as a traditional rock recording gig," says Hendrickson, "where you would have everyone play together. Paul was playing and singing in his own booth—a large one—the guitar amps were in other iso booths and everybody else was in the main room."

McCartney's bandmembers are those Kahne brought together to play on the album *Driving Rain*: guitarist Rusty Anderson, bass



Buddy Holly. Photo courtesy Popperfoto/Getty Images. Below from left: Cee-Lo Green, photo courtesy Julian Broad; and Florence Welch of Florence and The Machine.

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Roland

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V-Mixing System www.V-MixingSystem.com

Digital Snakes **REAC**



S-40005-3208



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Digital snakes couple high quality preamps with REAC technology enabling source signals to maintain pristine sound through the entire V-Mixing System all via Cat5e/6. Roland Digital Snakes are immune to hums, buzzes and general impedance and capacitive losses that plague analog snakes and splits.

Personal Mixers **REAC**



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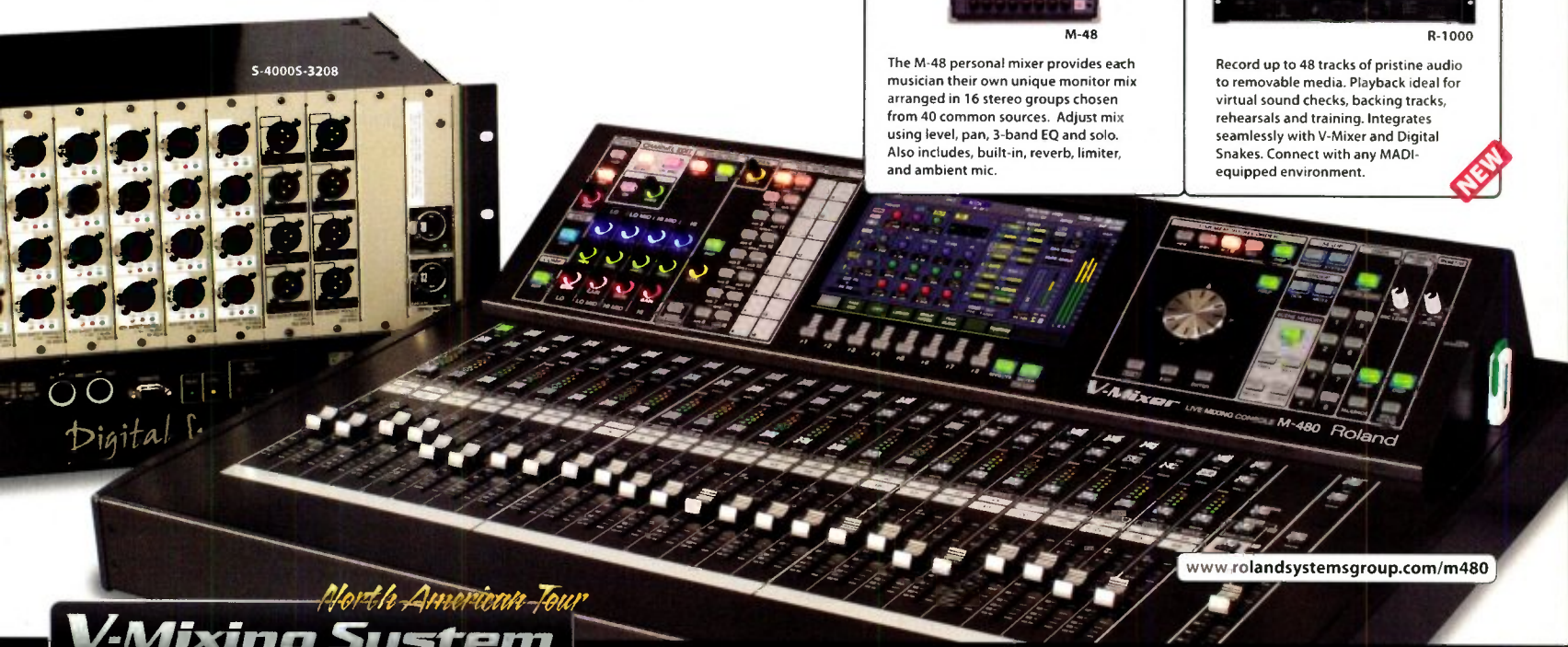
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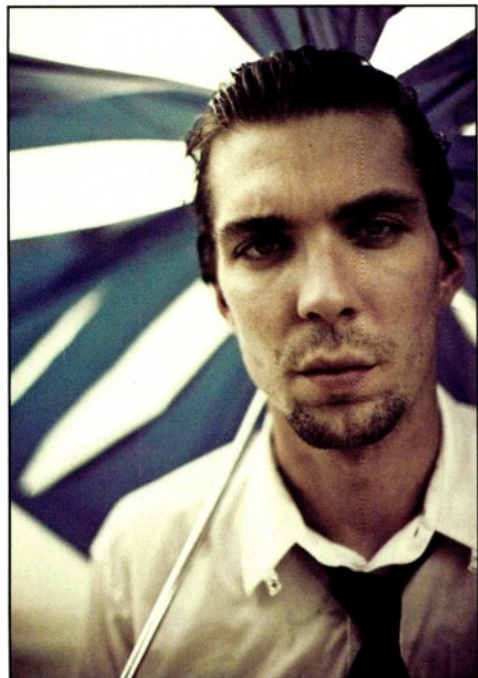
player Brian May, drummer Abe Laboriel Jr. and keyboardist Paul “Wix” Wickens.

Hendrickson says he set up the usual miking scheme that he uses in A: Sennheiser 421s on toms, Shure SM57 and AKG 451 on snare, 421 on bass drum, a pair of 451 overheads and a couple of Neumann U87 room mics. He captured guitars with 57s and a Royer ribbon mic; bass went direct. McCartney’s vocals went into a U47; his voice is clear and unmistakable despite copious amounts of distortion. “We recorded his voice that way,” Hendrickson says, laughing. “That is just the U47, a mic pre and the [Neve 8088] console turned up really hot.

“That whole session was so inspiring to me,” Hendrickson says. “Everybody was so full of energy, super-focused, and it was just a really great time. I’d be in the control room, just laughing, smiling from ear to ear.” Producer Kahne then took the tracks upstairs to his Cubase/Sequoia-based studio at Avatar to mix. His setup allows him to access his racks of vintage outboard from his computer, though he says this was a pretty straightforward mix. “It was great to see Paul and all the guys having so much fun in the studio,” he says.

FLORENCE IN NOLA

Florence and The Machine’s slow-grooving march



Justin Townes Earle performs “Maybe Baby” on Rave on Buddy Holly.

Photo: Joshua Black Wilkin



Left: Roy Hendrickson’s setup for the Paul McCartney sessions. Inset: close-up of Lou Reed’s vocal channel during tracking at Avatar.



to “Not Fade Away” begins with a couple of bars of “lko lko”-style percussion and gradually adds layers of drums, guitars, keyboards, sousaphone and Florence Welch’s magnificent, interpretive vocals.

The foundation of this song was laid when the band visited New Orleans’ Piety Street Studios with producer CC Adcock and engineer John Porter. Porter says he got a call from Adcock on a Friday night, asking if he could do the session the next day. “I said, ‘Sure, what’s the plan?’” Porter recalls. “And he said, ‘They’re having a great time in New Orleans; let’s just have some fun and give them a taste of what goes on here.’”

So on that Saturday, Porter grabbed one of his racks of Neve 1073 mic pre’s and headed to Piety Street, where the studio’s chief engineer, Wesley Fontenot, helped him set up. Adcock then brought in the bandmembers and drummer Terence Higgins (Dirty Dozen Brass Band).

Higgins and band drummer Christopher Hayden walked the room, playing shakers and tambourine to set up the tempo. “I recorded that and found a 4-bar chunk that was really happening and made a loop of that,” Porter says. “Then we set up two drum kits facing each other in the room with CC and their guitarist [Robert Ackroyd] on acoustic guitars. They played a groove that was sort of a New Orleans-y/Bo Diddley kind of groove. They played along to the percussion loop for about 10 minutes, and at that point, we were thinking, ‘This is sounding kind of cool.’ We made another loop out of that, and then Terence did a whole snare drum track on top of that. I think it was at that point CC and Robert played the song sequence to the loop.”

Porter and Adcock continued molding the track, editing the pieces into a more finite shape before having Welch sing in the main room into a mic Porter calls “the Avatar mic”—a modified Chinese microphone that he purchased from the studio. “I plugged that into an [UREI] 1176, and I think what you hear on the track is actually the first or second take,” Porter says. Added after the main tracking date were Matt Perrine’s

electric bass and a sousaphone part. Added still later were three keyboard parts; the final mix was done at Mike Napolitano’s The Nappy Dugout studio (New Orleans).

“I thought that we could take it back to Bo Diddley—whom Buddy obviously was tipping his hat to here—and maybe even further to a Louisiana parade thing,” Adcock explains. “And mostly, as it was now going

to be from a female perspective, I was thinking that cock-sure lines like ‘My love’s bigger than a Cadillac/I’ll take a’ you there and bring a’ you back’ should take on a larger message of love and fidelity. It’s kind of set up as a duet between the pure-hearted Flo and the worthless, no-good, back-talkin’ sousaphone, who had been doggin’ around town and come draggin’ in to answer her allegations and affirmations guiltily, and line for line.”

SHE & HIM

M. Ward of She & Him produced the adorable song “Oh Boy” at Type Foundry (Portland, Ore.), the home base of engineer Adam Setzer. “Usually what we’ll do is start with rhythm guitar and a minimal percussion track and build on that,” Setzer says. “We just keep adding and layering; on this track, we added percussion, guitars, keys, and then when we have everything up, we start making choices and stripping it back.”

Setzer recorded to an Otari MTR-90 2-inch and used a lot of old-school mics, including an RCA BK1 for vocals, AEA R84 ribbons on the drum kit and a Coles 438 on guitars. “I’ll sometimes add a small-diaphragm condenser on guitars, probably an A-T 4051, just for a little more high end,” Setzer says. Zoey Deschanel’s vocals were recorded in one evening, with her singing the lead and backing “Oh Boys” in one take: “Oh boy (oh boy) when you’re with me/Oh boy (oh boy)...”

“She came in and it was one of those serendipitous things where it was perfect timing; we had just finished the rest of the track. We got her vocal on maybe the second or third take,” Setzer says.

PEGGY SUE ONE AND TWO

Toward the end of *Rave On Buddy Holly*, Lou Reed got his hands on “Peggy Sue.” Like McCartney, Reed and his producer Hal Willner did their

tracking in Avatar's Studio A, in this case with engineer Marc Urselli. "I had listened to the original a dozen times to be prepared," Urselli says. "But I knew we were going for the Lou Reed sound." That means it's dark, distorted and guitar-heavy, with pounding drums and Reed's unmistakable half-sung/half-spoken vocal on top. "It was basically recorded all live, as Lou likes it," Urselli says. "Lou doesn't like iso booths so we set up his station facing the drums and we had Sarth Calhoun's bass-synth station to the side. The guitar was too loud in Lou's mic so we re-did the vocals in the control room."

Many of the mics came from Reed's collection: a Manley Gold Reference on vocals, and Shure SM57 and Coles 4038 ribbon on his guitar amp. Urselli tracked through the custom Neve in Studio A, using the onboard preamps for "everything." A violin part by Laurie Anderson was overdubbed later. Urselli mixed the track on the Harrison 10B console in Studio A at EastSide Sound (New York City). "I used a little bit of compression [McDSP Channel G and DE555 de-esser], but I did all my EQs on the board," Urselli says. "That Harrison board just sounds fabulous."

Holly's sequel song, "Peggy Sue Got Married," fell to singer/songwriter/punk pioneer John Doe, who visited producer Joe Henry's Garland House studio this past January. Doe and Henry arranged and recorded a powerful version where the moody music track and Doe's voice build dramatically; the line about Peggy Sue getting married isn't used until the end of the song, so that this somewhat lightweight update actually finishes with a huge emotional impact.

"Covers can be tricky when you try to make it your own," observes Ryan

Freeland, who engineered the session. "I think that structural decision to put the 'Peggy Sue got married' chorus bit only at the end, instead of repeating it where it would normally go, creates more of an arc."

Henry assembled a band of some of his favorite musicians for the date: guitarists Val McCallum and Greg Leisz, pianist Keefus Ciancia, bassist David Piltch and drummer David Kemper. On electric guitars, Freeland

combines a 57 and Royer 121. "On this song, I think the electrics are both hard-panned left and right," he says. He records to Pro Tools, using Apogee converters and his trusty racks of pre's and processing. "Joe and I use a real old-school approach to record-making: Put a great singer and a great band in a room and let them go," he says. "It was a luxury to focus on just one song with musicians who are so great and give their all on every take."

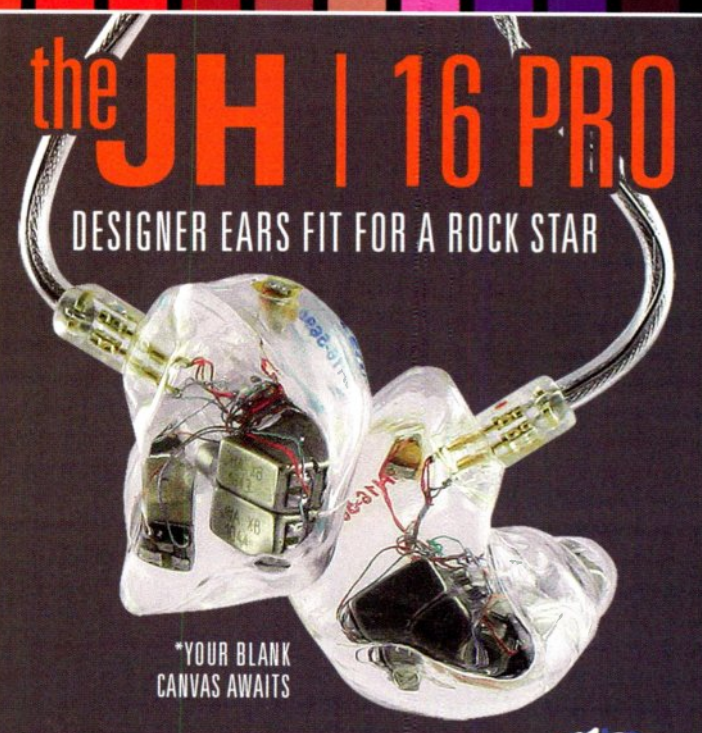
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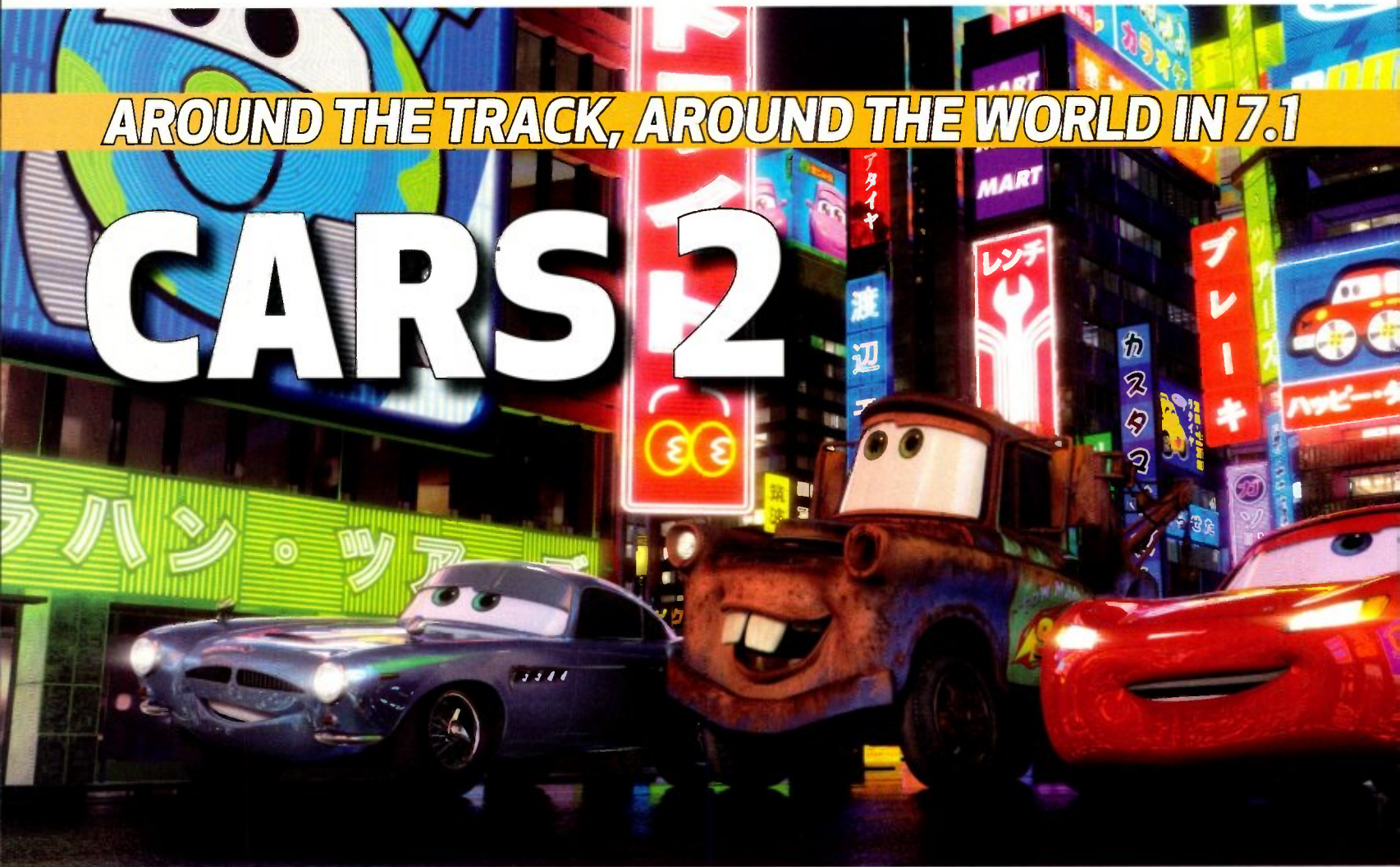
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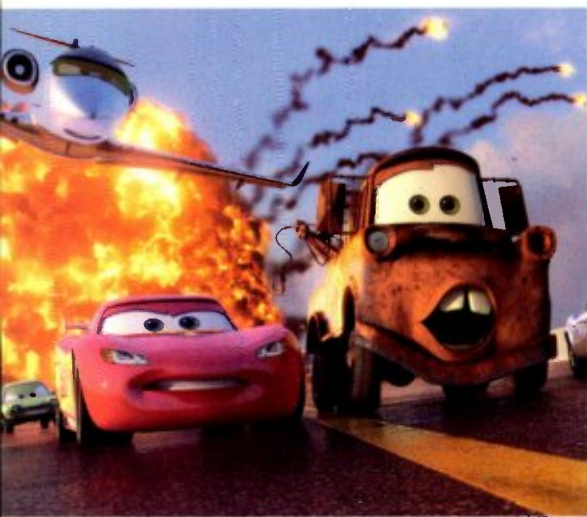
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AROUND THE TRACK, AROUND THE WORLD IN 7.1

CARS 2



Rather than just being a formulaic re-tread (sorry) of the mega-successful 2006 **CARS**, Disney/Pixar's **CARS 2** ups the ante by being much more than a racing movie.



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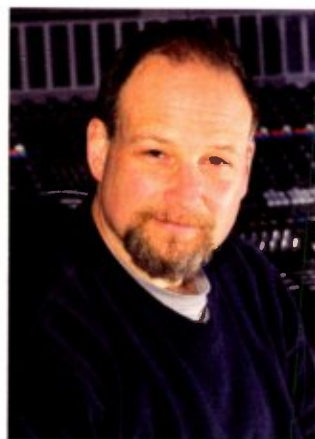
"It's an action/adventure, a spy movie, it's a comedy and it's racing all folded into one, so it's much more intricate than the first one," comments Michael Silvers, the film's co-supervising sound editor, along with Tom Myers (also lead sound designer and FX re-recording mixer). Myers adds, "The opening is completely disconnected from what your expectation is. You start with this set piece that's like something out of a *Bond* movie or the *Bourne* films." That opening segment, which takes place out on the ocean, at night, is one of several exotic locales that required imaginative thinking from the sound crew; there are also race scenes in Japan, Italy, France and England, and a chase through a market in France. Another wrinkle: *Cars 2* joins Toy

Story 3—also supervised by Myers and Silvers, with Michael Semanick mixing music and dialog—as the second animated feature from Pixar to be mixed in the Dolby 7.1 Surround format (as well as conventional 5.1 theatrical and home surround).

"We were much more aggressive with the 7.1 this time and were really encouraged to use it by [director] John Lasseter, who's a big surround fan," Myers comments of the format, which adds two additional rear speakers to a standard 5.1 setup. "We were cautious not to put any super-important dialog or anything we didn't want to lose as a story point solely back there. But in terms of effects, we tried to go whole-hog and use it as much as possible and create as much space, and also use discrete side and back stuff.

"There's a scene in a casino where we wanted to create this active space," he continues, "so there are all these different sound effects back there and we moved a lot of things around. In the races, as well: There are all sorts of interesting car-bys—we designed it so we have things flying by, coming out of the surrounds onto the screen to off the screen into the surrounds."

BY BLAIR JACKSON



Crew photos: Brooke Livingston

Part of the audio crew, from left: supervising sound editor Michael Silvers, sound designer/re-recording mixer Tom Myers and re-recording mixer Michael Semanick

Myers says that because *Cars 2* is also being released in 3-D, this affected his and Semanick's surround mixing decisions, and that the 7.1 provided more sonic real estate with which to work. "Because of where they were with picture, the 3-D was not completed until fairly late," he notes. "Originally, we wondered if we would want to do a separate mix [for the 3-D prints], but we decided that we did enough aggressive surround stuff to begin with and we were conscious of trying to anticipate it—'Oh, that's going to be a big 3-D effect so let's pull that off the screen into the surrounds.'"

Did the 7.1 mix pose any technical challenges? "It was more on the creative level," Myers says. "It's two more speakers, another region to work with, but you also have to think about how you get there. Sometimes, console panning is not as facile as it could be, so you have to think, 'I want it to go from here to here. How do I make it do that?' You can often sort of ride it through, but sometimes splitting it between the front and the back is difficult, or you have to set up another aux send to do that." The film was posted at Skywalker Sound in

Marin County, Calif., and mixed on a Neve DFC.

"We did the 7.1 mix first," Myers notes, "then a fold-down pass from our 7.1 stems and made 6.1 discrete stems and the 5.1 EX print master from that. A lot of that involved Michael [Semanick] trying to figure out how to do the music—putting a delay into the surrounds because you're folding four surround channels into two and you want to avoid phasing. Most of my surround information was fairly discrete. I had some ambient stuff in the sides and the back, but mostly it was discrete information so I didn't have to worry as much about phasing."

Silvers, who specializes in dialog and ADR issues, found himself having to, in effect, follow the characters around the world, amassing crowd and other material in Japanese, French and Italian to make the film's foreign settings come alive. Contracting with ADR studios in those countries (and in England),

CAST & CREW

Sound Re-Recording Mixers:

Tom Myers, Michael Semanick

Supervising Sound Editors:

Myers, Michael Silvers

Assistant Supervising Sound Editor:

Mac Smith

ADR Recordist:

Simon Diggins

Sound Effects Editor:

Teresa Eckton

Supervising Foley Editor:

Pascal Garneau

Original Dialog Mixer:

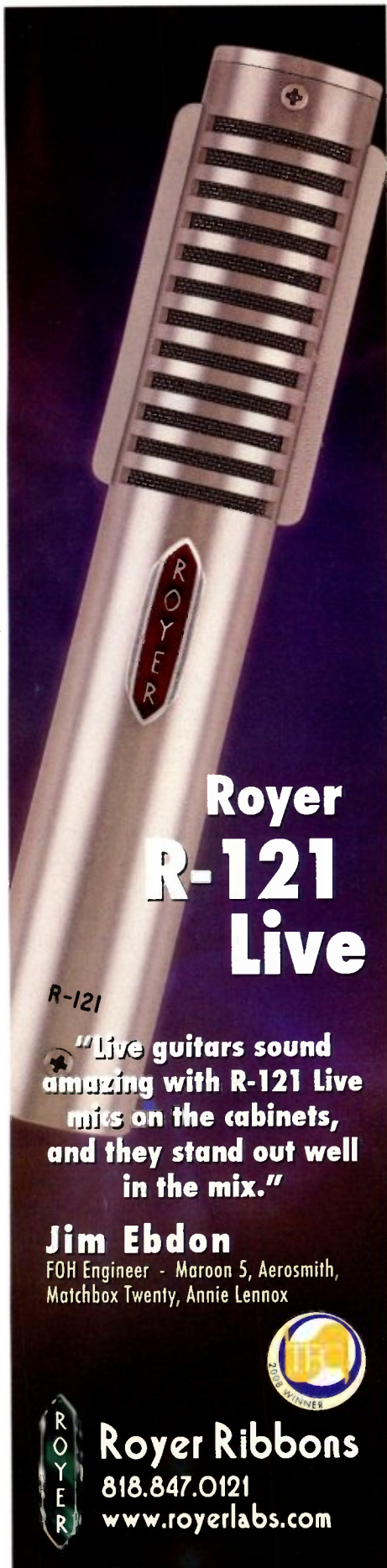
Michael Miller

Sound Designer:

Tom Myers

"We got French walla, Japanese walla, we got Italian walla, we got English walla," Silvers says. "I'd ask the loop group, 'What would be typical chanting at a sporting event in that country?' And then they'd send it to me. We have announcements and scenes in restaurants and various wallas in these locales. They had to send me translations of everything, and they were very good about that."

On the FX side, a plethora of new cars demanded "a ton of new recording," Myers says, including a slew of Formula 1 race cars, a fabulous \$200,000 Aston Martin V12 Vantage (which Myers got to drive around Skywalker Ranch to capture some engine sounds) and even some funky old Gremlins and Pacers. "Because there are so many different cars in this one," Myers says, "the race sequences are more elaborate, so it was important to make the cars more unique-sounding, to have their own personalities."




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The sound designer/editors also liberally employed library engine FX they've accumulated over various projects, particularly handy for recurring lead characters Lightning McQueen and Mater, the dilapidated redneck tow truck. "We have a big library of Mater sounds," says Myers, who also works on the *Cars* shorts. "John sees Mater as kind of like Goofy: You can put him in any situation and he'll be funny, whether he's a private eye or an astronaut."

Lasseter has always been a sound-conscious director, but he was even more involved with the final mix. "I've worked on 10 Pixar films and this was the only time he's ever been in the mix the whole time, though he's certainly always paid attention before," says Silvers. "We final mixed for about four weeks, screened it and then refined the mix for seven days. We made some major leaps."

Lasseter would often sit at the console between Myers and Semanick as they worked out the balance of music, FX and dialog, an untold number of Pro Tools sessions at their disposal. There were new FX and vocalizations that came in during the final and, as Silvers mentions, the subtractive process was as important: "In all the races, Brent Musburger ['Brent Mustangburger' in the film] is doing the announcing, and we actually dropped lines in certain places because we realized we were losing some of the energy of the race. We also dropped score, and in other instances we dropped car effects in favor of score. We wanted to make sure we weren't overwhelming people with too many things."

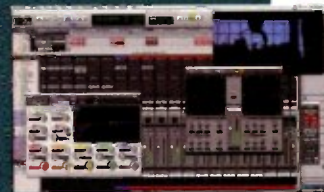
"One of the things we learned starting with the first *Cars*," Myers adds, "is that we want it to be more quality over quantity in terms of not trying to cover every last thing before we get to the stage, because then you spend half your mix trying to weed it all out. We talked to John early on, and said, 'We're going to try to cut the stuff we absolutely think we need, and then if there's something you want that you don't hear, we'll cut it there.' He's a very smart filmmaker. I was reminded what a great grasp he has of the tools we're using. He knew that there are certain things—like crowd and ambient wind and dirt or whatever; white noise-y, shush-y effects—that he might want, but once you put the music in, it's taking up frequency range. So with each progressive film, we've tried to be more precise about what it is that we're doing with the sound—in other words, trying to be selective and pick things more precisely."

Blair Jackson is *Mix*'s senior editor.

Avid, Dolby, 7.1

It's hard to predict right now just how the 7.1 rollout will take place on the playback side, either in the home or in theaters. Yes, it is part of the Blu-ray spec, and, yes, there are thousands of theaters equipped for it today. High-profile 3-D films are embracing the technology, and studios no doubt see dollar signs with the re-release of catalog material. But will consumers put in additional speakers and buy new hardware? Will they adapt and adopt to the new format as quickly and assuredly as they did 5.1 playback in the '90s?

Dolby is betting they will, having shown a slew of new playback options at the recent NAB show, everything



from mobile phones to optimized PC chip sets to consumer A/V devices and headphones. And, of course, theatrical playback. DTS is also pushing the technology, having done very well in the still-early stages of Blu-ray authoring/encoding and with the limited titles in theatrical release. There will no doubt be many more options—from other manufacturers, too—and the broadcast industry will have to chime in eventually, as will the videogame industry.

Every new format introduction presents its own "chicken-egg" scenario: It's hard to sell the systems if there isn't content, and studios are loath to invest in the content without some indication that there will be a payback. But that sorts itself out in the marketplace and doesn't really matter to the creatives, the sound editors and re-recording mixers who must deliver the 7.1 track. They just want the tools that allow them to push a more immersive audio experience.

It's not surprising then that Avid and Dolby have informally partnered up on delivering the tools for creating and delivering 7.1 audio. Pro Tools is the dominant format in Hollywood, and Dolby maintains market share in encode/decode. In April, they announced Dolby Surround Tools for TDM systems, a new plug-in for 7.1 panning in Pro Tools 9 (pictured).

"As more and more of our customers have transitioned to mixing 'in the box,' the need for 7.1 panning support in Pro Tools has continued to grow," says Max Gutnik, senior director of product management at Avid. "We began to implement 7.1 solutions into our workflows with Pro Tools|HD 9 and Complete Production Toolkit 2. At the same time, we updated the monitor section of our HD OMNI interface to include 7.1, and extended that support even further by updating several of our plug-ins to be compatible with the new format."

Look for a lot more action in the 7.1 space, definitely from the creative side.

—Tom Kenny

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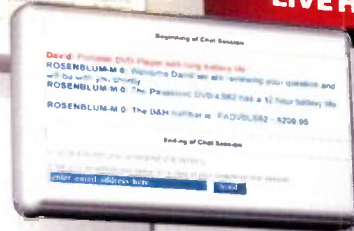
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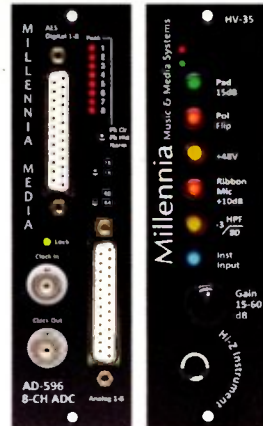
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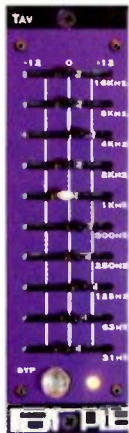
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IT'S CLEAN-UP TIME

How One Audio Question Goes Tangential



By Eddie Ciletti

Isometimes help people solve problems by remote control. When it's stuff I don't know intimately, my clients and I learn together.

From there it seems a natural progression to bring this private interaction into the light of a public forum—my new blog at mixonline.com—the essence of which will be distilled into this new monthly column, “Ask Eddie.”

This inaugural article is a composite of several related email questions and is typical of the many “tangential threads” that a single question can generate. Be sure to check in at mixonline.com for the blog and watch for regular answers in your MixLine e-newsletter. As they say in *O Brother, Where Art Thou?*, “We’re mass communicatin!” Let’s start the show.

Q: I just got a '70s (or '80s or '90s-era) analog recording console. What's the best way to prioritize the resurrector process?

A: The simple answer is to have a trusted tech advisor onsite to determine the condition and then discuss the challenges. Trust the tech to differentiate the essential repairs from the wish-list upgrades. Be sure to get a price breakdown so that everyone knows the limitations of the budget. Be sure to factor in the “unseen costs” by your multiplier of choice. When passion drives the purchase, you need to be extra cautious; you need to know what’s under the hood. Pull a module and look for signs of damage and sloppy repairs. Once powered up, a few custom cables may have to be fabricated to get signal in and out of each module.

Consider the common user-interface components—faders, pots and switches—as they are most likely to require service or replacement. If you hear “scratchiness,” then the “Device Under Scrutiny” has audio going through it. Faders that provide a control voltage to a VCA will not sound scratchy because the control voltage is filtered. If a fader sounds okay but feels funky, take it apart. A switch that controls a relay doesn't have to be super-clean, just reliable, so go

through an entire module's worth of switches to be sure you didn't pick the one switch that works.

AMPLIFIERS: That certain pieces of recording gear have their own unique sonic character implies that amplifier design is a key player, along with the equalizer type, frequency options and dynamics processors. Nowhere is that more true than the early '70s classics. Each manufacturer's design was unique back when each amplifier was built from discrete transistors sandwiched in between an input and an output transformer.

Each technological development improved specs, but many would lament that the reduced distortion sometimes robbed recording electronics of its desirable and unique sonic character options. There are times when we need our audio signal to be transparent-clean from start to finish, and times when it's okay to “distress” it!

THE OTHER STUFF: Routine maintenance includes cleaning pots, switches and faders when possible, replacing when not. The other electronic components are passive (resistors and capacitors) and active (vacuum tubes, transistors and integrated circuits). Finding replacements is an art, knowing when it's necessary to get the exact part to being creative with what's available. More often than not, the physical size and footprint has changed, but the quality is often better.

The “fun” in repairing a recording console is that the problems from module to module will be very similar. Akin to wiring a patchbay, replacing the same components on each module is a repetitive process.

Resistors are the least-likely components to be replaced or upgraded unless they are stressed from heat or in a critical, low-noise gain stage. Use metal-oxide and metal-film in these respective applications.

Capacitors come in many shapes, sizes and



The Electrodyne 711 module includes a discrete transistor amplifier, input transformer, 2-band-selectable EQ, one aux/FX send (three routing options) and “Gliss” wire-wound glass fader.

types. Electrolytic capacitors are the most likely to degrade and fail with age. Axial-lead types have mostly been phased out because Radial types are more space-efficient. (See the figure below.) Replacing Axial with Radial requires cleverness at minimum and occasionally a bit of boldness, as I often drill a new hole so the cap can stand as intended.



Integrated Circuit (IC) Operational Amplifier (Op Amp): At their best, modern IC op amps are transparent (colorless) building blocks, but initially it was their size that provided the vision of the future—more possible features in a smaller space for less money. In many cases, IC op amp circuitry allowed a “transformerless” option (eliminating the need for input and output transformers), further reducing weight, cost and sonic character. There’s nothing particularly desirable about that vintage IC op amp sound, and modern op amps offer considerable room for improvement, if you’re willing to do the homework.

Upgrading IC op amps is not plug-and-play. Unless someone has done it before and can provide detailed plans, the process requires test equipment (an oscillator and oscilloscope), and reasonable knowledge of available IC op amps and their suitability. There are several considerations.

Power Supply, and power-related considerations, lead us to the most technically challenged portion of this exercise. Everything in the console requires voltage and draws current. (Just in case you’re curious, voltage x current = power, in watts.) And, just as the goal of proper gain structure is to minimize distortion and maximize headroom, the same relationship applies between the console’s total power requirements and the capabilities of its power supply; the power supply should have more available reserve current than the console requires.

In the U.S., wall power is 120 volts alternating current at a frequency of 60 Hz. Audio circuitry runs on Direct Current (DC)—what batteries make—and amplifiers need clean, quiet DC power to manipulate sound, which also happens to be a form of AC. The typical console power supply converts AC into a handful of voltages required by the audio circuitry. Voltage is only half of the power equation.

In between the power supply and the console could be many feet of cable. Inside the console, the

voltages are routed to each module—or channel strip—through ribbon wire or a motherboard out-fitted with connectors. However, the more affordable mixers tend to push their power supplies to the limit. Better IC op amps often draw more current than the parts they are replacing, so an op amp upgrade implies a potential increase in power requirements.

IN CLOSING

Obviously, each one of these tangents could be its

own, so you tell me, “What do you want to know more about?” Whenever possible, please provide links, schematics and images in advance. I’ll do my best to fill in the gaps by hunting, gathering, annotating and hopefully answering your question.

Eddie Ciletti is a former New York studio tech, longtime contributor to *Mix* and an instructor at the Institute of Production and Recording in Minneapolis. He can be reached through his Website, tangible-technology.com.

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"I've used various monitors for my computer work before, but never of the caliber of the A3X series... Highly recommended."
(Jon Chappell - Senior Editor - Harmony Central)

The AX Series

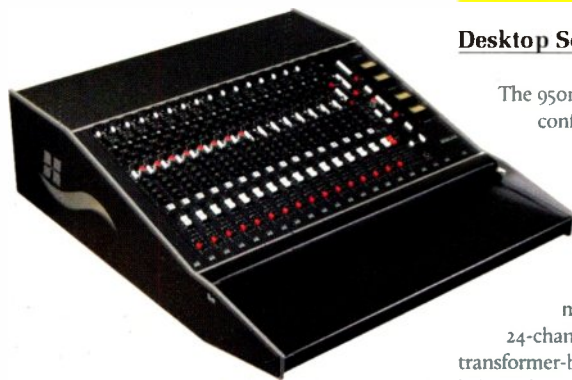
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Tech // new products

HARRISON 950M CONSOLE

Desktop Solution for DAWs



The 950m from Harrison (harrisonconsoles.com, priced per configuration) is geared to meet the unique requirements of a DAW-based studio. It provides all features necessary to link professionals on both sides of the control room window. The console incorporates a massive linear power supply, robust ground-plane design, all balanced connections, gold-plated switches, through-hole components and high-headroom summing buses. It comes in three standard sizes: 12, 16 and 24-channel frames. There are two master buses: 1 "32-Series"-style transformer-balanced output, and one "Series 12"-style electronically balanced output. Other features include two studio feeds, talkback, oscillator, headphone feeds, manual PCB layout, gold-plated switches, conductive plastic potentiometers and summing buses carried via PCBs (no ribbon cable summing buses).

KRK KNS SERIES HEADPHONES

Comfort, Fit and Fidelity

Voiced to remain true to the character of KRK's (krksys.com) studio monitors, the KNS6400 (\$199) and KNS8400 (\$249) Series professional headphones use the latest in acoustic memory-foam technology, promising top performance in reproduction and isolation. Features include high-efficiency neodymium drivers; 8.2-foot, single-sided straight cable with oxygen-free copper wires; and adjustable, foldable driver enclosures provide comfort and portability. The 1/4-inch plug can be unscrewed to reveal an 1/8-inch plug for laptops and portable media players; the cable, head and ear cushions are replaceable to ensure product longevity. Both come with a soft carrying case embossed with the KRK logo for travel or storage when not in use.



NEUMANN KH 810 SUBWOOFER

Boom for Your Room

The KH 810 (\$TBA) from Neumann (neumann.com) is a 7.1 High-Definition Bass Management™ system meant to team up with the KH 120 near-field two-way monitor. It can be used either as a subwoofer dedicated to reproducing the LFE channel or as a means of providing LF extension with an increased maximum SPL. The integrated 7.1 High Definition Bass Manager™ is compatible with all formats, from mono to the latest 7.1 high-definition systems. Eight electronically balanced analog XLR inputs ensure flexible interconnectivity. Four-mode LFE channel processing guarantees maximum compatibility across all formats, while fourth-order crossovers and flexible acoustic controls allow seamless system integration. Built-in volume control permits centralized system adjustment of replay levels, independent of the source. The electronics can be located remotely to reduce cabling and to allow the cabinet to be mounted flush to a wall.



CEDAR CAMBRIDGE VERSION 7

Major Upgrade

Based on the latest CEDAR (cedaraudio.com) Cambridge Series III hardware, Version 7 (free upgrade for Cambridge owners) boasts a hugely improved file-processing system; a powerful new module, Resped; a unique new de-click algorithm, Manual Declick "B"; the introduction of Reporting; and dozens of improvements to existing modules, including Retouch, DNS, NR-4 and NR-5, the Adaptive Limiter and Vintage Decrackle. Other improvements include a Spectrogram view to augment the existing Waveform view, improved transport controls, improved channel mapping, the ability to perform transparent sample rate conversion while saving files, and the introduction of user-definable hot-keys, which allow operators to control the system from a keyboard and from devices such as foot pedals that map to the key commands.

BLACK LION SPARROW MK2 A/D CONVERTERS

Better, Better and Better

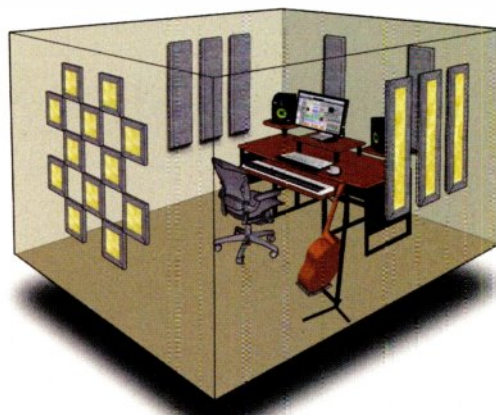
The completely redesigned Sparrow mk2 converters from Black Lion (blacklionaudio.com) are housed in a 1U half-rack chassis and feature XLR and 1/4-inch balanced inputs, LED metering, BNC word clock I/O, AES output, co-ax and optical S/PDIF output, and user-selectable signal calibration accommodating nominal input signal levels from +11 dBu down to -10 dBV. They operate at sampling rates from 44.1 kHz to 192 kHz, with a clocking architecture that features low jitter and wide Q third-harmonic crystal oscillators, and because of the quality of the clock multiplier and PLL recovery stages, performance will not degrade should the converter be synched to a lower-quality word clock reference. The units come in three versions: Black (\$895), which is comparable to the conversion quality and sonic characteristics of the company's Digi 002R/003R Signature Series modification; Red (\$1,295), which is comparable to the FM192 modification; and White (\$1,895), which outperforms the FM192 modified converters.



PENDULUM DS-500 OPTO DE-ESSER

Ssso Sssweet!

Pendulum Audio (pendulumaudio.com) has made its second foray into the 500 Series game with the release of the DS-500 (\$749.95) de-esser. The DS-500 is a single-channel, non-tube version of the de-esser in the Pendulum Quartet Tube Recording Channel. It uses the same inductive detector and opto-inductive notch filter as the de-esser in the Quartet, as well as very fast response. By pairing it with a unity gain Class-A solid-state line stage, the DS-500 retains the transparent character of the de-esser action while keeping the signal path clean and uncolored. The DS-500 is fully compatible with any rack that adheres to the API spec.



PRIMACOUSTIC LONDON 8, 10 ROOM TREATMENT KITS

Tame Your Space

Primacoustic (primacoustic.com) has developed two room treatment kits. The London 8 (\$199) is a starter kit that includes all the fundamental tools required to treat a home recording studio. This kit promises improved room acoustics, and more Primacoustic panels can be added at a later date as needs expand. The London 10 (\$499) takes treatment to the next level by increasing the panel count for more control and adapts to larger spaces. All Primacoustic Broadway panels are made from premium 6-pound glass wool. Edges are resin treated, and the surfaces are encapsulated in micromesh. The panels are then covered in a durable acoustic fabric and offered in a choice of three colors. Each London kit comes complete with hanging hardware, screws and wall anchors.



AAS 4MINX RECORDER/MIXER

Portable Powerhouse

The 4MinX (\$5,795, 8-channel) multitrack recorder and mixer from AETA Audio Systems (aeta-audio.com) is powered by a DV-type Li-ion battery (7.2V, NP-F970) and has an integrated charger. It uses SDHC cards for recording, with the option of connecting external hard drives via a USB 2 port for greater storage capacity. Other features include file transfers via Ethernet, 48V phantom power, low-cut filter, analog I/O, 24-bit BWF file recording, AES3 and AES 42 digital inputs (AES3 output), M/S encoding/decoding, and timecode recording and synchronization. A 3-inch TFT color display provides information and menu choices; rotary encoders, soft buttons and four programmable buttons offer navigation and operation.

New Sound Reinforcement Products

SOUNDCRAFT SI SERIES UPGRADE

More Ins and Outs

The Soundcraft (soundcraft.com) Si Series now offers more inputs on the Si1 and Si2 versions, plus added functionality and options. The Si1+ has 16 additional mic inputs fitted as standard, bringing the number of onboard mic inputs to 48 and processing capacity of 72 inputs to mix; the extra 16 mic input module may be replaced by an 8-in/8-out module if required. The number of option card slots increases to four, and there is now a space for an optional second (redundant) PSU. The Si2+ has the 16 mic input module as standard (also swappable with the 8-in/8-out module), which extends the onboard mic input count to 64, with an input-to-mix capacity of 80. All three models, including the Si3+, gain a word clock output connector, and all models can use the range of Si optional interface cards including MAD1 (optical or Cat-5), AES/EUB, CobraNet and Aviom A-Net.



MACKIE PROFX16, PROFX22

All-In-One Solutions

Geared for mid-sized venues, the Mackie (mackie.com) ProFX16 16-channel and ProFX22 22-channel mixers feature low-noise, high-headroom preamps with LED metering and 60mm faders on each channel. Each channel also offers 3-band EQ. Integrated 32-bit RMFX™ effects processor with 16 "gig-ready" FX and 7-band graphic EQ allow for tuning of mains or monitors. The built-in USB interface allows the user to record the show and stream back music for breaks or for integration into the mix. A solid-steel chassis with protective ABS sidecheeks offers impact resistance.

AVLEX MIPRO ACT-82A

Expand Your Range

The new Avlex (avlex.com) ACT-82a (\$TBD) dual-channel encrypted digital diversity receiver offers expanded 120MHz bandwidth, second-generation DSP technology and 24-bit/44.1kHz audio quality. Carrier frequency range of UHF is 482 to 602 MHz. System latency is less than 2.9 ms, while THD is less than or equal to 0.04 percent @ 1 kHz. Audio frequency response extends from 20-20k Hz. For signal stability, it offers MIPRO's DigitnamicPlus™ technology to eliminate compander noise, as well as integrated SmartEQ™ preset and user-defined mic capsule EQ. It is expected to be available Q3, 2011.



POWERSOFT M SERIES DSP+ETH

For Your Amping Pleasure

The new M Series DSP+ETH amplifiers provide access to Powersoft's (powersoft.com) digital signal processing engine technology, Ethernet connectivity, and system monitoring and control through the company's Armonia Pro Audio Suite™ software. The unit features 24-bit/48kHz AD/DA converters with 56-bit for internal processing. With two inputs and outputs each for the 2-channel version, and four inputs and outputs each for the 4-channel version, the system offers per-channel five bi-quad filters for system equalization, eliminating the need for outboard equalizers, plus two crossovers and eight bi-quad filters. Each channel has dual dynamic processors with arbitrary input/output curve and adjustable time constants. To accommodate speaker time alignment, a range from zero to 10ms adjustable delay makes timing the LF vs. HF speakers easy. The DSP engine delivers up to 114dB(A) signal-to-noise ratio with a 1ms processing delay time. It also provides such limiters as peak with variable ratio, RMS and frequency-shaping RMS.



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Hans Zimmer



Scope XITE-1

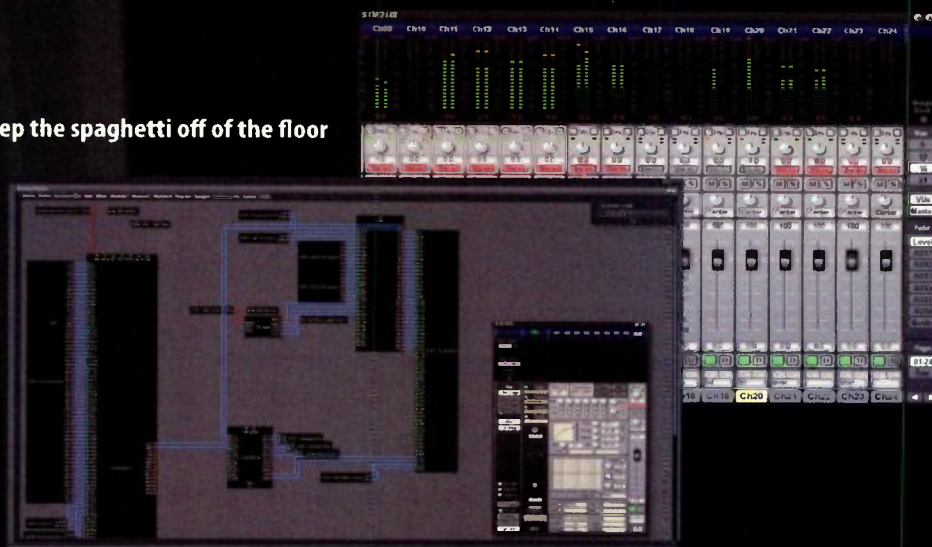
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Tom Keane (Writer/Producer for Patti La Belle, Chicago, Chaka Kahn, Celine Dion, and now Anita Baker)

"I love the unlimited routing capabilities of the Scope Software, whether live recording or Mixing out of my computer to outboard analog gear and back into the computer. Whatever you can imagine you can patch through the Scope Mixer and routing modules... Working 64 bit Scope is Awesome!"
William Goldstein (Scored over 50 film and TV projects including Fame, The Miracle Worker, Twilight Zone)

Keep the spaghetti off of the floor



SCOPE XITE-1
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Third party devices available from:

- John Bowen (Sound designer of the Prophet 5 and Korg Wavestation)
- Digital Audio Soft (Creator of SL-9000 EQ and former SSL engineer)
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- G.O.S.T. (Creator of Harmonic & Mastering Effects)



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Tech // reviews

STEINBERG CUBASE 6

Upgrade Offers Many Essential Features and New GUI



Cubase 6 features a redesigned GUI with mouse roll-overs presenting parameters instantly.

At first glance, Cubase 6 looks and feels different, but not too different. It has a more transparent, cleaner look, and you have additional options to customize the appearance of the controls and meters. That's all for the good, but alone it's not enough to ask users to upgrade. Today's DAW owner wants more features, more power and more interoperability, and Cubase 6 delivers.

I immediately liked the fact that when I moved my mouse over the parts (regions), they became active instantly. No more clicking first, then doing part-based editing: Rolling your mouse around a part highlights your edit options. I can't speak highly enough about this instant gratifica-

tion. There also is a quick-control window that gives direct access to about every track parameter you might need, and it's become much easier to directly access MIDI Learn with VST3 plug-ins.

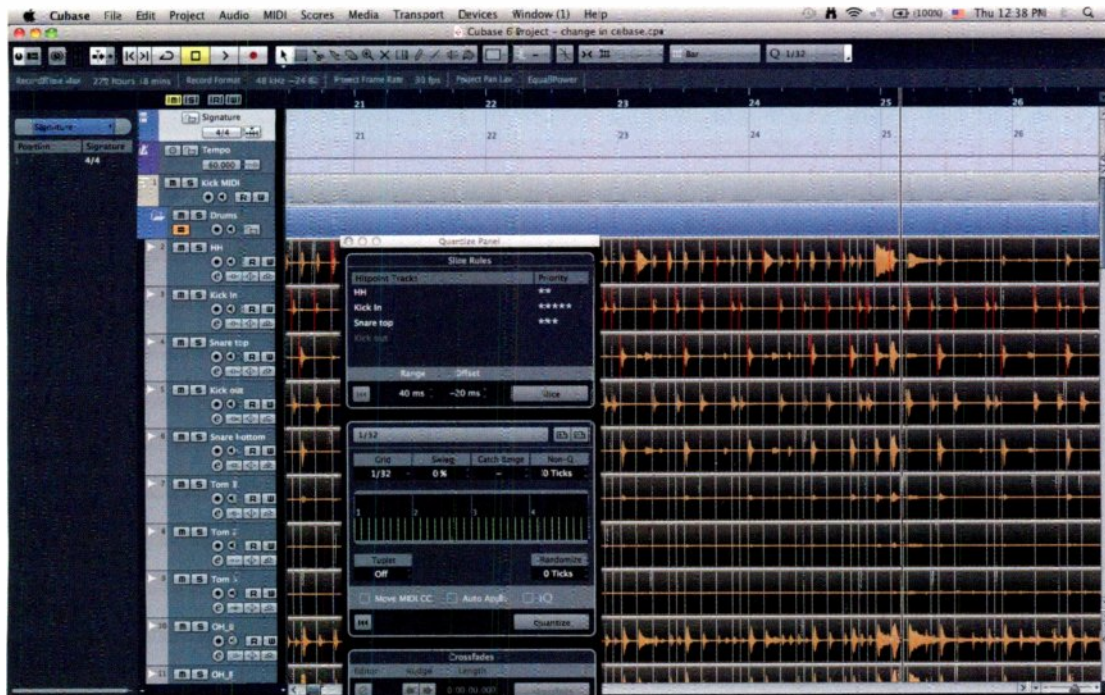
The big kick is not only the interfacing, but also the addition of extensive drum-editing features. Steinberg has worked hard at improving transient detection, allowing for better and more accurate drum editing. With this comes edit grouping to keep your live drums in phase—something that has been missing for far too long in Cubase. In addition, Cubase 6 adds easier vocal comping, a slew of guitar amp simulations and one of the most impressive MIDI features I've ever seen: VST Expression, which allows different MIDI

articulations on individual notes.

YOU START WITH DRUMS

Cubase 6 now has the tools necessary for improving drum performances and sounds. It has a new "phase-accurate" drum-editing workflow that incorporates several new features. Pro Tools users will find all of this familiar, and maybe that's the intention.

When working with drums, grouping a live kit into an edit group keeps all of the drums in phase. This is easily accomplished in Cubase 6. You simply make a Track folder, select all of your drum tracks and drop them in. Better yet, select the drums, right-click and select "move selected tracks to new folder." On your fold-



Drum quantizing in Cubase 6 offers great results without large gaps between slices.

er track, you now have a new button for making the tracks in the folder an edit group. Any editing done to the tracks will be applied to all the tracks in the folder and keep them phase-accurate.

Now that we have an edit group, let's test out the new multitrack drum-quantize feature. The panel is very intuitive and easy to use. Enabling hit points on at least one track allows Cubase 6 to use this as a reference. This also gives users the ability to apply varying quantized "strengths" to multiple tracks.

On a song I used for testing, it worked best to move my kick, snare and hi-hat to the top of the group. Adding hit points was simple and streamlined, with great graphics, making it easy to set a threshold for detection of transients and away from drum bleed. As the kick, snare and hi-hat are the most solid beat indicators in this song, I applied hit points to them. Once this was done, the rest was easy. The top section of multitrack quantize has "slice rule," whereby you can set the strength/detection priority to tracks. So when you quantize, Cubase looks at those tracks as a starting point for all of the slices created in the grouped tracks. (This is similar to generating beat triggers in Pro Tools' Beat Detective.)

Next I selected Slice (region separate), which cuts the parts into smaller parts from the hit points. Quantize (region conform), which has several user options, will move these new parts and line them up to the grid. Of course, doing this will leave gaps in-between some, if not all of your parts. To compensate for that, your final step is to Crossfade (edit smooth),

eliminating the gaps and chances of pops and clicks that happen when cutting parts.

It worked great, though it already feels like old-school technology, especially once you have worked with the likes of Elastic Audio. (Cubase 6 has new algorithms for its Elastique audio.) The problem is that you still need to work in song sections. Be very careful with drum fills and especially cymbals. Once you chop room tone, decay or cymbals, etc., this older way of cutting regions just doesn't work. To get the best results, I broke the song into song form, separating each section into its own set of parts, including drum fills, and dealt with each section individually with different quantize settings, then dragged out any parts that were being cut off too soon.

TEMPO DETECTION

I've had a serious need for tempo detection due to authoring songs for *Rock Band*. I've tried everything on the market, and nothing works as well or as accurately as Cubase 6. Cubase 5.5 only offered the Time Warp tool where users manually defined the tempo, which was tedious.

To try it out, I loaded a cover-song session where the band used the original as the click track; I felt this would be a good attempt at creating a usable tempo map and giving me a click in time.

The key was deciding which track to use as a reference. I would have liked to select both kick and snare, but I am only allowed one. So I decided on the kick because it usually hits once on the first beat of every

bar. With this kick track highlighted, I selected Analyze from the Tempo Detection window. This 6-minute song took about 25 seconds to analyze on my MacBook Pro. So I had a tempo map; however, when played back, the metronome was playing on the offbeat. (I tried this on several other songs and half were on the offbeat. A bit of sleuthing determined that it was songs with a pickup note.) No problem. I selected the "off beat correction" in the Tempo Detection window, and it was fixed. I then noticed my whole song was in $\frac{1}{4}$ so I created a time signature track, found the first beat of the song and put in my time signature on the first beat of the first measure. Cubase 6 instantly set up the whole song—it's

that easy. If you have multiple signatures, it's as easy as going to those bar/beats in the song and inserting your time signature.

DRUM REPLACEMENT

First, this is MIDI conversion, not "sound replacement" or real-time trigger conversion. You have to take each track into the wave editor and set hit points. (This would be a good thing to do before using "multitrack drum quantize.") Once you feel that

PRODUCT SUMMARY

COMPANY: Steinberg
PRODUCT: Cubase 6
WEBSITE: steinberg.net
PRICE: \$499.99
SYSTEM REQUIREMENTS: Mac OS X V. 10.6, Intel dual-core CPU, 2GB RAM. Windows 7, Intel or AMD dual-core CPU, 2GB RAM.

PROS: Fills feature gaps, very stable, includes 32-bit and 64-bit. Faster workflow, great tempo detection, accurate MIDI conversion.

CONS: Snow Leopard and Windows 7 only.



Inside Cubase 6

your threshold looks correct, select convert to MIDI. You are prompted with a window to select note, dynamics and destination. Transcription, layering and the flexibility of using MIDI make this feature a real winner. But remember, it's MIDI. If you use external modules, you will have MIDI delay. And while this isn't the fault of Cubase itself, V. 6 does a good job of compensating for this, but it's not perfect. If you use anything other than virtual instruments, you will need to manually compensate for the delay after recording. I have tried this similar feature in several other programs with marginal success. Cubase 6 is extremely accurate, but it still comes down to the threshold setting. One setting rarely works throughout an entire song. Again, my best results were separating song sections with more dynamics and converting the MIDI from those. Better yet, Cubase 6 has VST Expression: Use this, and you will have an incredibly accurate and

dynamic MIDI drum track.

VST EXPRESSION

We audio engineers and producers are all skeptical when it comes to demonstrations, so I decided to test Steinberg's. The company's demo converts a sax solo into MIDI and then applies the new VST Expression. The song I used for drum quantizing has "real" saxophone and flute, so I used that.

It's a very quick process. Open the track in the wave editor and select Vari-audio. Then use Send MIDI to a track. I selected the best HALion sample I could find for playback. The notes were surprisingly accurate, but the feel was very sterile. Apply VST Expression, which incorporates controller data, per note, giving the MIDI an incredible similarity to the original. It is a sample, but I can see that by using an excellent multisampled VST instrument it will become hard to tell the original from the MIDI version. (Think layers, effects, lead sheets.) After trying it on other parts like flute, bass and vocals, it was amazing. However, this works well on monophonic material only. When using Vari-audio, you can also clean up pitch and quantize notes before converting it to MIDI. The demo is real.

Also, VST Expression allows you to add controller data to each individual note rather

than a linear controller progression. Your MIDI becomes more expressive than you ever thought possible.

WRAP IT UP

I am, and always have been, a fan of Cubase. From great customer service, a huge user base, incredible features and mind-blowing MIDI operations, Steinberg always seems to pack in a few more options that ease the creative flow. The question you may ask is, 'Do I really need it?' And the answer is yes. Cubase 6 adds the last few things needed to make it an all-in-one package. The app didn't skimp or throw a bug at me once: I never had one crash while running it for nearly a month every day. If Steinberg's goal is to keep you in its DAW, the company is succeeding.

Atom Troy is a professional recording and live front-of-house mix engineer, recording artist, and director for songwriting and development at Full Sail University.

TRY THIS

If you own Steinberg WaveLab 7 and Cubase 6, you now have an option to send your mixdown directly into WaveLab. First, you must have Cubase 6.0.2 and WaveLab, 7.1. In Cubase, go to File/Export/Audio Mixdown. With both programs installed and updated, you will now see a new Post Process option on the bottom of the window. It defaults to WaveLab. Export, and Cubase will automatically open WaveLab, bringing in your mixdown. Plus, you can continue to bring in multiple exports, and WaveLab will make additional tabs and names for each mix, allowing you to edit, master and create your CD master.

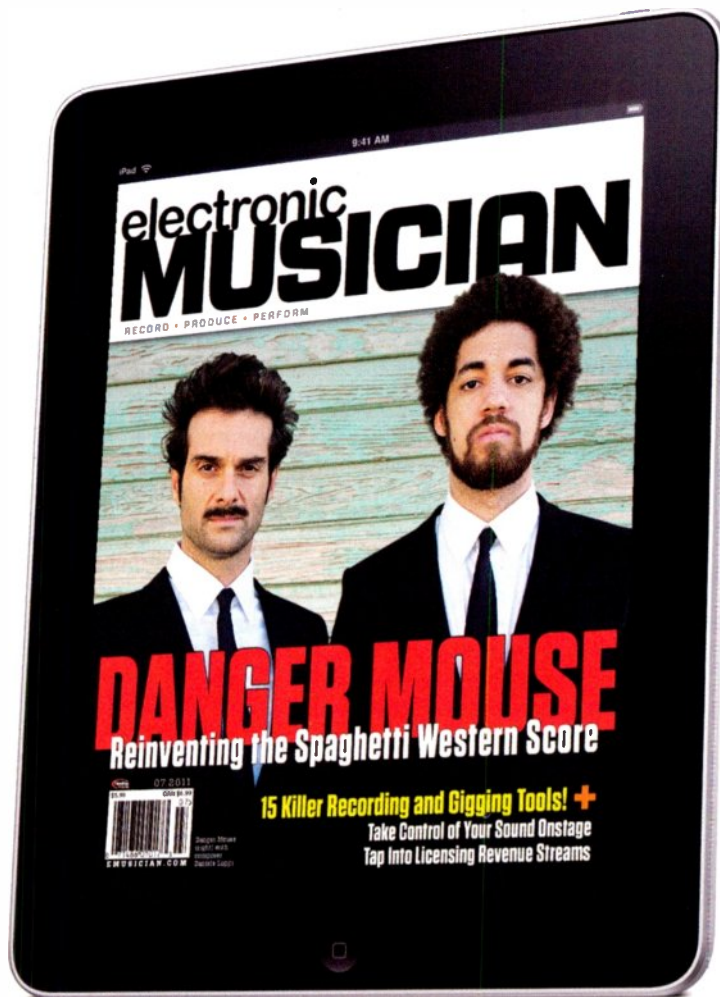
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Watch "Tracking, Comping and Editing Drums, and Maximum Note Expression With Cubase 6" Webcast. Visit mixonline.com/july2011..

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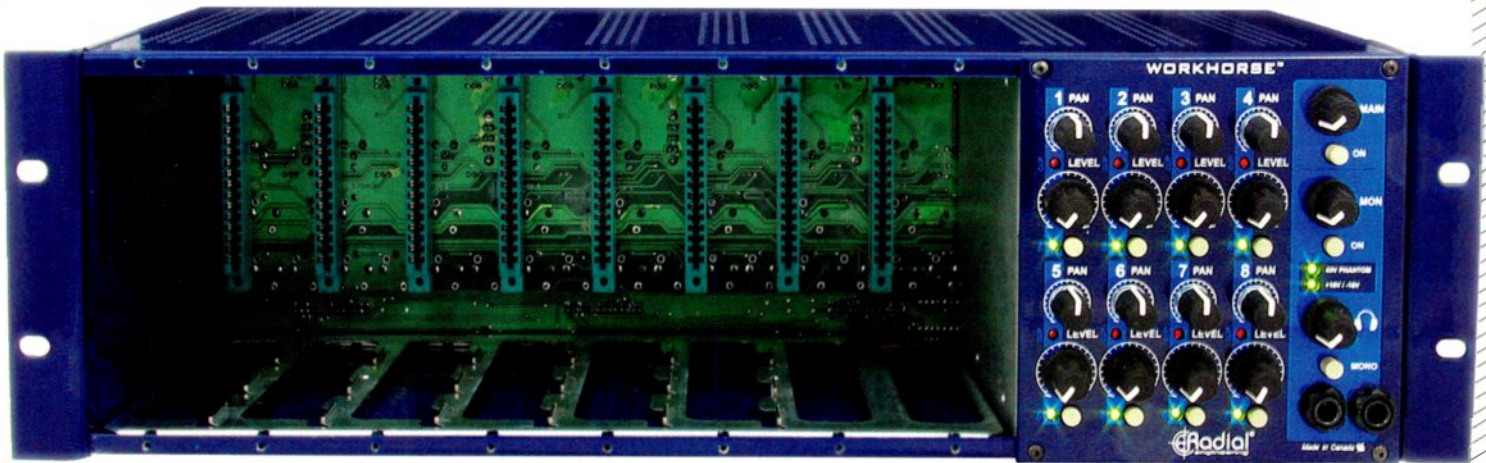


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RADIAL ENGINEERING WORKHORSE 500

Eight-Slot, 500 Series Module Rack With 8-Channel Mixer



The Radial Workhorse 500 offers eight 500 Series card slots.

Radial Engineering has a knack for creating practical, solidly built, problem-solving gear for stage and studio that are both innovative and fairly priced. The company's DIs, reampers, splitters, switchers and acoustic stabilizers come in a variety of configurations that offer engineers plenty of creative options. In this lineage, the Workhorse 500 takes two simple ideas and marries them in a single unit. The Workhorse is an 8-channel mixer with panning, main, monitor and headphone outs, housed in an 8-slot, 500 Series rack-mountable unit.

ZOOMING IN

What takes the Workhorse beyond your standard 500 Series rack are the little extras that expand the interactivity between the mixer and rack modules. For instance, on the back of the unit, the I/O sections for each card slot includes a Feed switch that takes the output of one unit and sends it internally to the input of the next unit over. I used this with great results with preamp/

compressor combinations using modules from three manufacturers. Each module can also feed the mixer internally (with reservations), and the Omniport uses a ¼-inch TRS plug on the back of each module section and extends the capabilities of each module, depending on its function. For instance, when used with a Radial PowerPre, the Omniport acts as an instrument input.

Some features (like units auto-feeding the mixer and the Omniport) are only available on modules developed for the Workhorse or purchased from Radial; other features work as advertised across all manufacturers' modules. For example, the Stereo Link option allowing odd/even modules to work in tandem on odd/even slots operates in standard API master/slave configuration. In addition, the ¼-inch TRS input and output on each module works with any unit

In addition to the standard XLR and TRS I/Os, the Workhorse also supports 8-channel, balanced D-Sub I/O for all card slot I/Os, and there is another D-Sub that lets you feed eight channels of balanced audio directly to the mixer for summing.

Finally, the Workhorse also includes external lugs on the back for setting up a star-grounding scheme in high-end installs.

THE MIXER

The Workhorse mixer is a clean machine providing low-noise operation and a solid design using Jensen transformers on the main output. Each channel offers an on/

(continued on page 81)

PRODUCT SUMMARY

COMPANY: Radial Engineering
PRODUCT: Workhorse 500
WEBSITE: radialeng.com
PRICE: \$1,600 retail

PROS: Solid construction, clean and versatile mixer. Omniport, Feed and Link switches are a bonus.

CONS: Some companies' modules have minor compatibility issues with the Workhorse.



Inward Connections Magnum Preamp/DI

The newly retooled Magnum Preamp from Inward Connections (inwardconnections.com) features two VF600 all-discrete amp blocks, balanced Cinemag input/output transformers and 80 dB of gain. Magnum has the usual features onboard such as DI input, polarity flip and phantom power, plus three highpass filters (70/100/200 Hz). Gain is adjusted in 5dB increments, plus a 0 to 10dB output level trim for fine tuning. All switches are solid, and the unit is built like a tank. I was lucky to have Inward's Vogad VCA compressor and Brute Optical Limiter on hand, which rocked in combination with the Magnum. The Magnum/Brute combo was my favorite overall, offering plenty of great transformer-colored gain tastefully crunched by the Brute on both vocals and guitars. The Brute is easy to operate and very musical with no pumping. Where the Brute is an "up is more" type of gain reducer, the Vogad is a full-featured compressor offering rotary controls for ratio, threshold, output gain, attack, release, HPF (250 Hz) and a 10-segment LED meter. These units are easy to love.

I used the Magnum on kick drum (Beta 52), snare (SM57) and vocal (SE Voodoo VR1) with excellent results. You can definitely hear the punch the transformers offer on drums, which were solid. The downside for me on this unit is the lack of any kind of metering. And while this is not a deal-breaker, it would be nice to see at least a signal-present indicator for peace of mind when troubleshooting. (Inward is soon releasing a version of Magnum with a VU meter.)

Besides the lack of metering, the Magnum sounds great and is a solid contender for your high-end preamp needs. At \$825, it's expensive but is justified based on the sonics and build. It sounded great across a range of applications, especially high-transient recordings like kicks, toms and snares. Personality-plus are the two words in play here. If you've got the ducats, the Magnum would be a preamp any engineer would relish.

—Kevin Becka



Grace Design m501 500 Series Preamp/DI

Grace Design's (gracedesign.com) foray into creating products for the 500 Series is the m501 preamp, a vertical version of its m101 preamp. The unit is priced at \$625, streets at \$545 and boasts super-clean transformerless design with nearly flat operation up to 72 kHz. Features include gain control in 5dB increments from 10 to 65 dB and a 0 to 10dB rotary trim pot, switchable highpass filter (75 Hz, 6dB/octave), Ribbon mode and phantom power, the last three each carrying a confidence LED. There is a two-stage LED level meter with the green threshold at -12 dBu; red kicks in at +16 dBu. There is also a hi-Z input on the front offering a quick solution for instrument recording.

I used the m501 on a range of applications with great results, including on kick (miked with a Royer R101), snare drum (SM57) and powering an AKG 414 recording a hi-hat. The Ribbon mode is brilliant. Its relay bypasses the phantom power-coupling capacitors, kills phantom power and ups the input impedance from 8.1 k-ohm to 20 k-ohm. When the ribbon light was on, I could rest assured my mic was safe.

My only gripe with the unit is the mounting system. Instead of standard 500 Series rack-screws, the m501 comes with longer hex-key screws to accommodate the thicker faceplate. While the design ethic can't be challenged (it looks fantastic), I'd rather have deeper counter-sunk holes allowing the use of standard screws. Not only does it necessitate carrying a tiny hex wrench around, the screws didn't want to sit in the standard screw slots without applying a lot of pressure. While I did have a problem using standard screws with the Radial Workhorse, Grace claims that standard screws can be used with the API Lunchbox, Purple and Atlas 500 Series racks.

That said, the Grace m501 is a solid, great-sounding and clean preamp at a fair price. How clean is it? My APx525 audio analyzer revealed an unbelievable 100dB S/N ratio. If you're looking for a lot of color, don't go here, but if you want a pristine preamp with lots of gain, this is your box.

—Kevin Becka



DACS MicAmp 500 Preamp

DACS (dacs.com) MicAmp 500 is operationally styled after DACS' MicAmp 2 horizontal rack preamp with minimal differences in the circuitry. Features include gain in 4dB increments, with a rotary trim pot offering 0 to 8 dB of additional gain. The phantom-power switch bypasses the input capacitors when defeated, and the three-stage high-pass filter can be set to flat, 30 Hz and 80 Hz. The four-stage LED meter kicks in at -15 dB, +5 dB, +13 dB and Over.

I used the MicAmp 500 on a number of sessions on a drum kit and guitar amp, and it did sound very good. However, on low-level applications like acoustic guitar, it did have a bit of noise when I boosted the gain to the upper ranges available. My APx525 audio analyzer revealed an 80dB S/N ratio, the poorest noise performance of any of the preamps tested here. In service, the preamp represented transients very well and sounded smooth in most applications.

Although I liked the sound of the MicAmp 500, I did have a few reservations. For \$1,122, I would expect a DI input and a few more features. I found the LED meter annoyingly slow during tracking, and missed having a pad. For instance, I used the MicAmp 500 to power an SM57 on a snare drum and was always riding dangerously close to distortion, even with the level and trim set to its lowest setting. If I needed to bring down the gain in a situation where I was using a dynamic mic, I'd have to use an inline pad, which is unacceptable. I also think that the settings for the HPF could be better placed at 60 Hz and 100 Hz, for instance, not 30 Hz and 80 Hz. While it's nice to have any HPF at all, I'd prefer a setting where I could better control the frequency content at the low end. Maybe a two-button scenario that could give you four choices, including flat, instead of a three-position switch?

All in all, the MicAmp 500 is a very good-sounding preamp; however, the price and lack of extended features offered on competitive units costing less may deter all but dedicated DACS fans from jumping onboard.

—Kevin Becka

Radial Engineering PowerPre

The Radial Engineering (radialeng.com) PowerPre lists for \$600, streets at \$499 and offers the best metering and feature set of the four preamps tested here. Features include phantom power and polarity flip, plus a Hammond output transformer, -15dB pad, highpass filter (150 Hz), ground lift (rear-mounted) and a two-stage, gentle boost-only EQ called Breath and Punch. The phantom, pad and polarity all carry a confidence LED.

The 10-segment meter is very good with little light leakage between segments. The three-position Vox setting is very usable across a range of applications. I used both Breath and Punch when recording drums and bass with great effect. Punch gently boosts frequencies between 50 and 100 Hz, while Breath does the same between 5 kHz and 10 kHz. Smart design is evident: The phantom power switch is recessed, a DI input is implemented via the Omniport (provided you're using the Radial Workhorse), there's a front-mounted XLR mic input and the one-stage "Accustate" gain control automatically optimizes signal-to-noise at all levels.

I used the PowerPre for recording vocals, guitar amps and drums with great results. It is especially good in high-transient, high-SPL situations where you can drive the output hard for more transformer color. My APx525 audio analyzer revealed a respectable 87dB S/N ratio. The single-knob Accustate gain control is smooth and linear. The downloadable manual goes deeper into the mechanics of Accustate and is worth a read.

The downsides? The ground lift works with the front XLR only and is a great feature, but the rear-mount makes it a bit impractical. You could also argue that the front-mounted XLR is redundant, but it does offer a quick plug-and-record option for live and desktop situations. These minor gripes are overcome by the fact that this preamp sounds great, offers much character and visual feedback, and costs less than \$500. The PowerPre is an affordable, feature-packed unit that's a must-hear for anyone shopping for 500 Series preamps.

—Kevin Becka



(continued from page 78)

off switch, panner, confidence meter and rotary level control that feeds the main output bus, monitor bus (both switchable on/off) and the volume control for the dual headphone outs, which carries a mono/stereo toggle. The main and monitor output section uses balanced XLR or 1/4-inch TRS connectors, with the main out featuring an unbalanced TRS insert. To move beyond 8-channel summing/mixing capability, the expansion bus allows you to strap two or three units together for 16x2 or 24x2 operation via 1/4-inch TS cable.

ability to feed the mixer internally. Alas, all features are not always available when using third-party modules.

ON THE BENCH

The Workhorse's mixer was put to the test using an APx525 audio analyzer with great results. The first trial run was to run signal through a Radial PowerPre at mic level and then out at +4 dBu. The signal was automatically fed to the mixer on the same channel number, then out of the mixer at +4 dBu and back into the APx525, which read S/N at a very respectable 87 dBu. To see what happens at the

I only had two negatives come up during my time with the Workhorse. One involved the new Millennia HV-35 preamp, which would not fit into the Workhorse without removing the HV-35's outer steel housing. A call to Millennia revealed that its units do work with the API Lunchbox but hadn't been tested with the Workhorse. A look at the manual revealed that slots 1 through 4 are set up for single-wide modules while 5 through 8 are double-wide. I was able to fit the HV-35 with its outer housing on the double-wide slots without a problem. Also, the card tray can be completely removed if the need arises.



The Workhorse 500 also features an 8-channel mixer; back panel shown here.

PLAYING NICELY WITH OTHERS

I was able to test a variety of Radial's 500 Series modules with the Workhorse, as well as modules from other manufacturers. During a variety of sessions, I used a pair of Millennia's HV-35 preamps; the Magnum preamp, Brute optical compressor and Vogad VCA compressor from Inward Connections; Grace Design's m501 preamp; and the DACS MicAmp 500. (See the accompanying reviews of four 500 Series modules.) Once I loaded up the rack with a variety of components, my first wish was that all third-party companies accommodated the Workhorse's added feature set. Although essential operations such as in/out work as promised, I missed the Omniport, Link function and

extreme, the preamp gain was raised until the first red light was lit (before clipping). The mixer's channel output was also maxed, providing 49 dBu of total gain at the mixer's output, which tested well again at 0.004 THD+N.

CAN DO!

The Radial Engineering Workhorse 500 certainly lives up to its name. It is a versatile tool for live and studio use. I found it easy to get excited about using 500 Series modules with the Workhorse—I used the Feed switch often and liked how individual modules worked within the unit's framework. The mixer is superclean; I wouldn't hesitate to use it as my main summing mixer out of my DAW.

Another third-party module issue came up with the Grace Design m501 preamp. Instead of using standard 500 Series rack-screws, Grace went with longer hex screws that proved difficult when trying to thread them into the Workhorse. In both cases, I was able to work around the problems, but be aware that 500 Series modules are manufactured by a range of companies and aren't tested across all platforms.

Despite these minor issues, the Workhorse is a great unit and reasonably priced for what it offers. The feature set is deep, the system is scalable, construction is solid and it sounds great. What's not to like?

Kevin Becka is *Mix's* technical editor

ADAM A8X POWERED MONITOR

8.5-Inch, Two-Way Unit With Ribbon Tweeter

ADAM speakers have been employed in pro audio applications for more than 10 years, having grown and evolved out of Dr. Oskar Heil's highly original concepts—namely, the Air Motion Transformer, aka the ribbon tweeter. Since then, ADAM has become a pre-eminent supplier of this technology to the pro audio (and now home audio) world. I have been most-impressed with the higher-priced models, most significantly the now discontinued S3A and S2.5A. The A8X brings this technology into a more affordable arena.

The heart and soul of an ADAM-designed speaker is its tweeter. This technology, known as X-ART, or eXtended Accelerating Ribbon Technology, is explained on the ADAM Website: "The X-ART membrane consists of a pleated diaphragm in which the folds compress or expand according to the audio signal applied to them. The result is that air is drawn in and squeezed out, like the bellows of an accordion." All of the technical indications point to a more efficient and accurate reproduction of the upper frequencies. These motors do sound different than conventional dome tweeters or horn-based transducers and "take some getting used to."

CONSTRUCTION ZONE

The A8X is a two-way, front-ported design comprising an 8.5-inch carbon/Rohacell/glass-fiber woofer and a 56mm X-ART tweeter (equivalent to a 2-inch conventional diaphragm). The woofer gets 150W RMS, with the ribbon receiving 50W RMS



The ADAM A8X features a 150-watt amp for the woofer and a 50W amp for the ribbon tweeter.

from the onboard amplifiers. The conventional woofer reproduces all information below the crossover frequency of 2.3 kHz, with the tweeter extending the upper range out to 50 kHz—most impressive. This transducer definitely represents the "air" in your recordings. Its front-loaded, dual-port design significantly extends the LF response down to 38 Hz. The woofers have a good thump; right out of the box, I noted how "fast" they sounded with kick drums and percussive-style bass guitar. This is no doubt attrib-

uted to the woofer cone's lightweight design.

Rear panel inputs are balanced XLR or unbalanced RCA. Both are active so you'll need to use one or the other; there is no switch to select XLR or RCA. The back panel also offers EQ and tweeter gain controls. The high shelf is set at ± 6 dB @ 5 kHz, while the low shelf is ± 6 dB @ 300 Hz. The tweeter gain is ± 4 dB so there should be enough control for fine-tuning your listening position. The front panel also offers an input-sensitivity potentiometer that has a variance of ∞ to +14 dB.

PLAY THAT FUNKY MUSIC

After playing different sources and types of music through these speakers, I have good news and bad news. The good news: These speakers have really good imaging and a large sweet spot. I didn't have to

place my head in one position and stay there. Virtually all instruments' upper harmonics sounded exceptional, but this could be because the critical midrange is slightly receding.

I like the extended bass response; it really fills the room. You can feel the air coming out of the dual front ports. This low-end response will make many mix engineers very happy because 38 Hz from this sized box is quite a feat. When playing The Beatles'

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LOVECD and DVD-A version, downmixed via a MultiMAX, the speakers reproduced the lower octaves with aplomb, yet vocals and guitars seemed to recede from the soundstage. The bad news: Piano fundamentals and percussion also appeared to recede. To my ears, the tweeter “whistles” at certain upper frequencies. I also noted this in the original series, which is a reason I stayed with conventional titanium designs. Some may say this is simply the original audio being reproduced with more accuracy, but I found a majority of the other speakers I referenced did not reproduce these anomalies.

While listening to opera, primarily female sopranos, the definitive fundamentals were not as pronounced. Midrange strings recede as the cellos fall into the background and the vocalists seem slightly distant. However, low-register horns—tubas and trombones—were faithfully reproduced. With electronica, there was an exceedingly great kick drum response, which is attributable to this speaker's extended low end. When listening to heavy-metal guitar work, there is a definite difference in midrange reproduction as compared to my conventional titanium-designed tweeters: Guitars recede with the ribbon while they are much more forward with the titanium. Your artist may ask for more guitars and vocals, causing you to add more of those “presence frequencies” than your mastering engineer would like to hear.

I tracked drums against a film cue using the ADAMs and found them to be very punchy—they simply move a lot of air. The toms were reproduced accurately and the kick was fast, with plenty of low end and snap. The upper cymbal harmonics sounded like what was happening in the room. The artist was very happy with the representation of his kit. Another engineer in the room thought they sounded a bit too bright in comparison to the speaker system he had been using. He also noted that same “missing midrange.” The cymbals' initial hits were missing the LF swells, with the upper harmonics being a bit more emphasized, giving the overall sound a brighter soundstage.

Oddly enough, I like listening to these speakers. As a hi-fi listening experience, they sound classic; as a critical tracking tool, I'm hesitant to make recording decisions based on the recession of the critical midrange. There's that classic dip in the middle that a novice mixer or casual listener will revel in. This

PRODUCT SUMMARY

COMPANY: ADAM Audio USA

PRODUCT: A8X

WEBSITE: adam-audio.com

PRICE: \$999/each

PROS: Fast, extended LF response. Extended HF response. Narrow, front-baffle footprint.

CONS: Critical midrange is under-represented on playback. No networking or digital inputs.

could lead to a more experienced engineer attempting to compensate for “what they're used to hearing” in a conventional design.

AND IN THE END

The A8X is a very modern-sounding speaker that can be easily learned and is easy on the ears. I experienced no ear fatigue after hours of continuous listening. There is no question that its design will reproduce sound differently than conventional dome- or horn-based tweeter designs because it does. This doesn't make it a bad speaker, only different, and worthy of a good, critical listen. Find a dealer, take your favorite references with you, compare these speakers with your favorite conventional design, and you just might like what you hear. Many award-winning professional engineers have made the switch to ADAM, working with them on a daily basis. The A8X shares some of the legacy of the company's higher-priced models, and, in some regards, it sounds very similar. This could become your next favorite speaker in this price range.

Bobby Frasier is an educator, audio engineer and Beatles fanatic.

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Download a product spec sheet on the A8X. Visit mixonline.com/july2011.

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SOFTUBE TSAR-1

Great-Sounding Reverb in a Heartbeat

TSAR is shorthand for True Stereo Algorithmic Reverb, but it might as well stand for “Tweak Simply And Relax.” The plug-in’s minimalist control set (only 11 controls) is so fast and easy to use that you won’t break a sweat getting terrific reverb sounds.

TSAR-1 (Mac/Win) uses four audio engines that crossfeed stereo input signals between its left and right channels in a way that’s similar to how natural reverberation in an acoustic space propagates; mono and mono-to-stereo modes of operation are also supported. The plug-in supports AU, RTAS and VST formats, and sampling rates from 44.1 to 192 kHz. It requires an iLok. (A first-generation iLok will do.)

A “lite” version of the plug-in, TSAR-1R, is bundled with TSAR-1 and focuses on producing only natural-sounding reverbs. I reviewed the TSAR-1 (Version 1.0.2) in Digital Performer V. 7.21 on an 8-core Mac Pro running OS 10.5.8.

O SOLO MIO

TSAR-1 uses only one algorithm and relies on your parameter-control adjustments to mimic plates, chambers, rooms and halls. Use the three-step Early Reflections control to choose very short echo patterns based on a small, medium or large space. The reverb tail (late reflections) can be fashioned to taste using separate controls for diffusion, density, modulation and decay time. A “random” modulation setting emulates the chaotic progression of natural reverbs over time. Two periodic modulation settings are also provided

for very subtle chorus effects. Reverb decay times range from 0.15 to 15 seconds.

The Reverb Tone slider is deceptively named: It doesn’t adjust static filter settings but is actually a damping control for the reverb tail. A Bright setting applies damping to bass frequencies; that is, the high frequencies decay more slowly. The darker settings damp the highs. Although you can’t adjust crossover frequencies with such a simple design, it makes for lickety-split timbral adjustments. You can also apply a high-cut filter to both the reverb tail and early reflections; and adjust the corner frequency from 200 Hz to 20 kHz.

The pre-delay control adjusts the amount of time between the early reflections (not the onset of dry signal) and the start of the reverb tail; it ranges from 0 to 1,000 ms. Adjust the blend between early reflections and the reverb tail using the Early Reflections Mix control. Output level and wet/dry mix knobs complete the control set. Stereo I/O meters are provided.

A display area in the middle of the GUI shows current parameter values and is the gateway to the TSAR-1’s innovative Undo/Redo protocol. Clicking on a parameter value’s readout alternately toggles its associated control between its previous and current settings. This design gives you

one step of independent Undo/Redo for each of 10 reverb parameters (all controls except output level) at any point during your tweaks.

SPACE CRAFT

TSAR-1’s overall sound is bright, clear, uncluttered and nuanced. That said, you can certainly create dark-sounding spaces by plunging the tone and high-cut controls. To get you started, the plug-in offers more than three-dozen presets, many of which sound excellent. Fashioning my own presets was easy as pie due to the relatively lean control set.

TSAR-1 sounded awesome on trap drums. I crafted explosive plate reverbs by using high amounts of diffusion, lowering the relative level of early reflections, dialing in a bright reverb tone and setting the densi-

The Softube TSAR-1 is designed to get great reverb sounds quickly.



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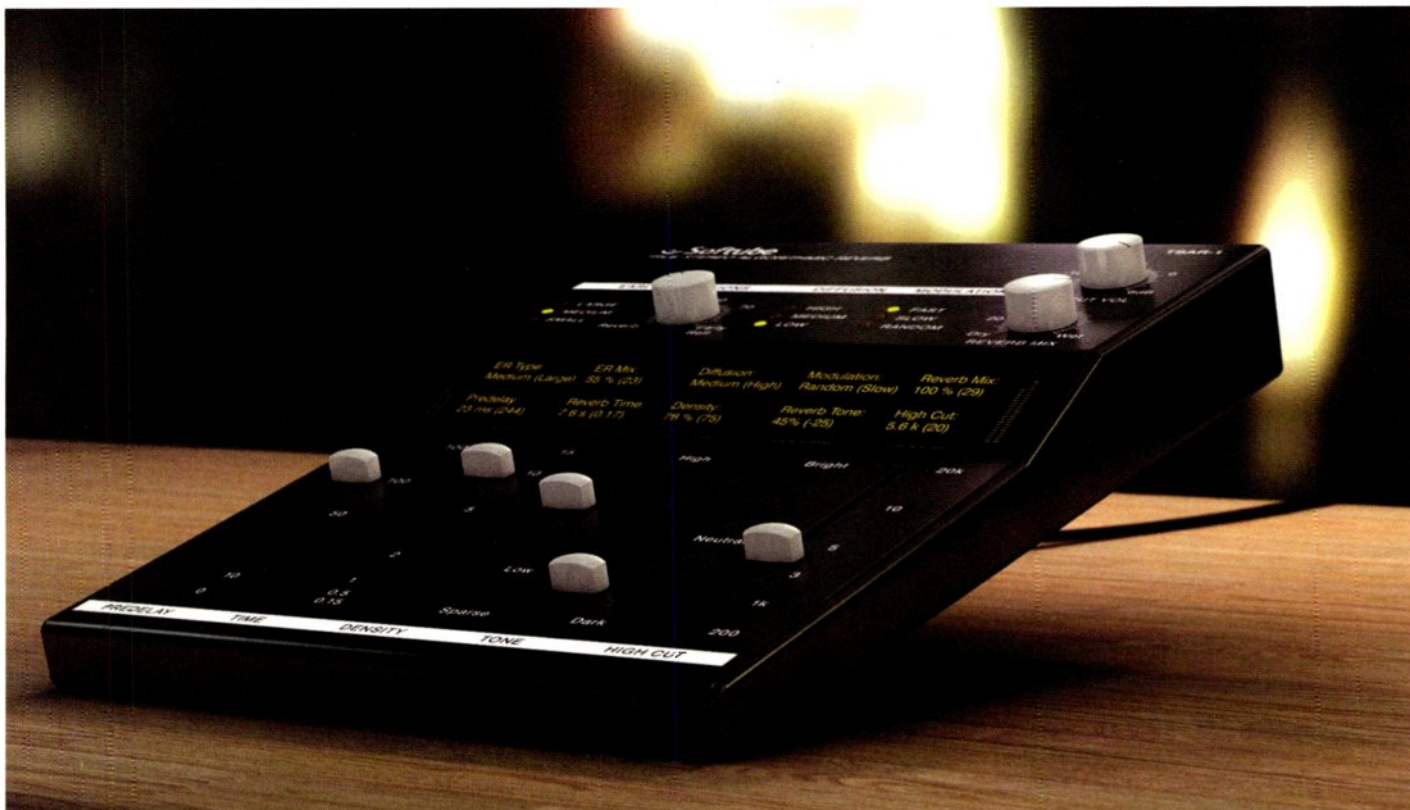
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ty control between medium and high values.

Cranking the Early Reflections Mix control to the max completely eliminated the reverb tail and created outstanding ADT (automatic double-tracking) effects on lead vocals. Additionally, I could craft convincing concert hall settings by adjusting controls for low density, high diffusion, “large” early reflections, and relatively long pre-delay and decay times. The resulting sound bestowed very

clear, airy and expansive acoustics on vocals and violins. Small room reverbs lent plausible ambience to close-miked electric guitars and could be produced by choosing a few milliseconds of pre-delay, short reverb time, high density, and a neutral or dark tone.

On the downside, the few “gated reverb” presets that were offered sounded like discrete early reflections and were thoroughly unconvincing. I wished I could lock the output volume control so it didn’t change when cycling through presets for inspiration. And while you can automate the TSAR-1’s control settings, doing so can cause the reverb to mute its output or introduce unpleasant artifacts, and parameter adjustments are often erratic on playback in Digital Performer.

I also wish that the pre-delay control adjusted how soon early reflections voice after dry signal (instead of setting the delay time between early reflections and the start of the reverb tail). There is currently no way to adjust the onset of early reflections to match a song’s tempo. In fact, because the start time for early reflections is not accounted for in TSAR-1’s pre-delay readout, tweaking the reverb tail’s onset to match a song’s tempo must

be done completely by ear. There is no sync-to-host function that would allow automatically setting the pre-delay for either the early reflections or reverb tail to note values for the song.

IS IT RIGHT FOR YOU?

TSAR-1 sacrifices deep programmability for breezy ease of use. For most users, it’s a good trade-off. True reverb aficionados will want control of more parameters in some situations. And while I wish there were more algorithms included, the one that’s provided is a beauty. TSAR-1 gets great reverb sounds at jack-rabbit speed.

Mix contributing editor Michael Cooper (myspace.com/michaelcooperrecording) is the owner of Michael Cooper Recording in Sisters, Ore.

TRY THIS

Use this reverb trick at mixdown to make your lead singer sound like he’s walking off into the distance: Bus your lead vocal track pre-fader to the TSAR-1 and dial in reverb settings for a large hall in the plugin. During the outro to your song, progressively lower the fader for the lead vocal’s track. The dry sound will fade but its reverb return will not, creating the impression that the singer is moving farther and farther away from the listener’s position. To make the effect more realistic, you would normally automate the reverb’s high-cut control. Specifically, you would lower the high-cut’s corner frequency as you lower the vocal track’s fader. Doing so mimics the high-frequency “transmission loss” that naturally occurs when sound moves over long distances through air.

PRODUCT SUMMARY

COMPANY: Softube

PRODUCT: TSAR-1

WEBSITE: softube.com (dist. by MV Pro Audio, mvproaudio.com)

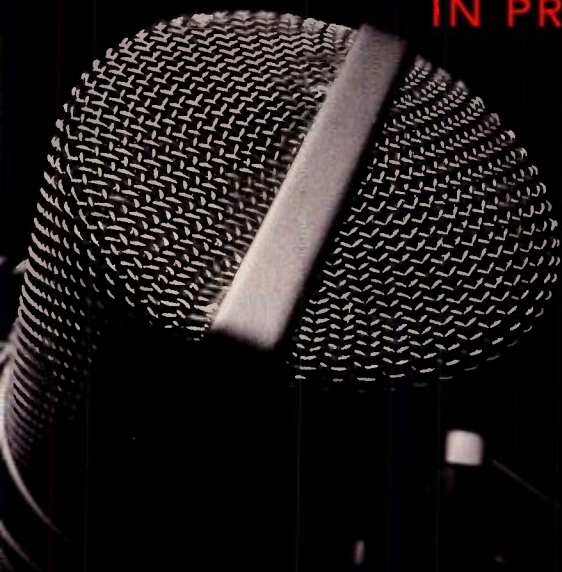
PRICE: \$329.99 list, \$299.99 MAP (includes TSAR-1R)

PROS: Excellent sound quality. Very easy to use. Can adjust blend of early and late reflections.

CONS: No gated-reverb algorithm. Can’t sync time parameters to host DAW. Can’t lock output-level control when switching presets.

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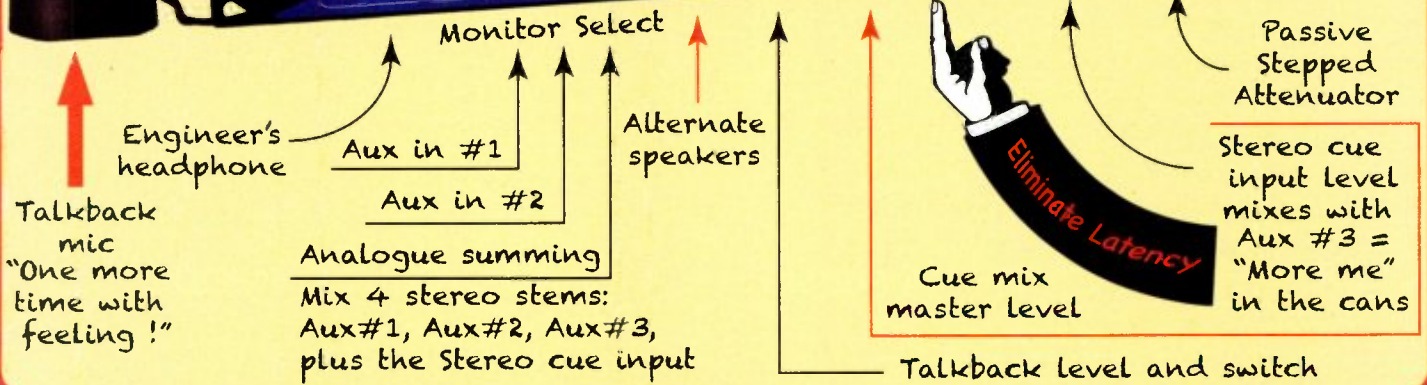
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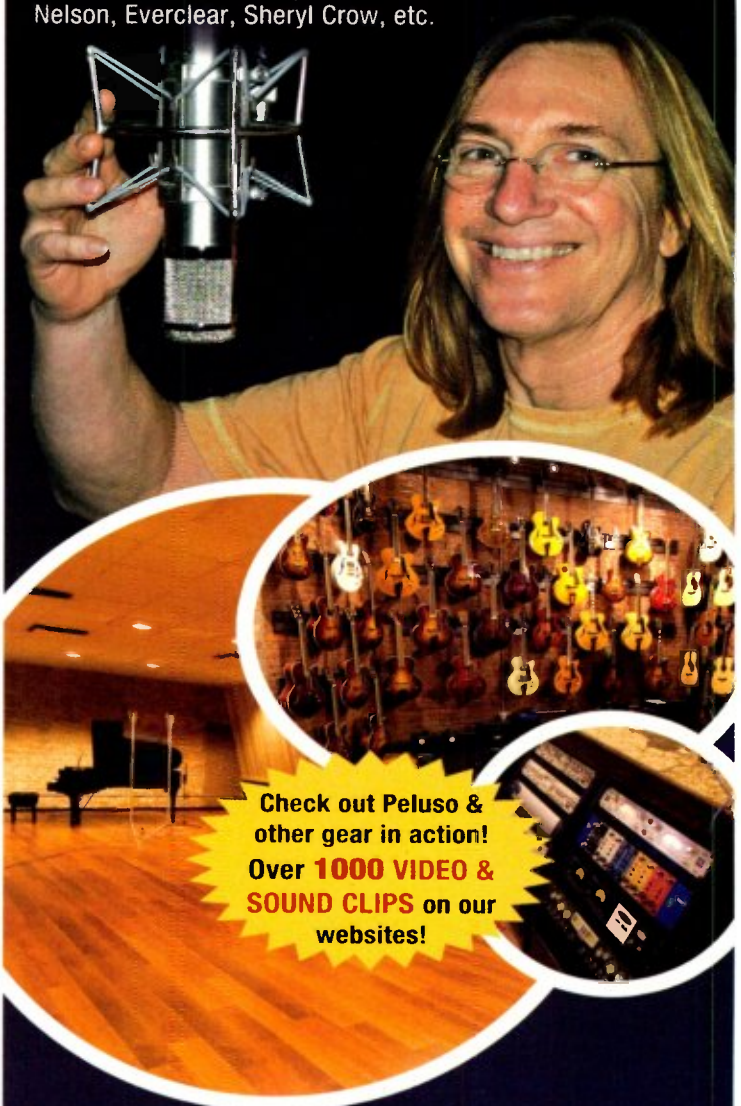
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CONNECTIONS



By Kevin Becka

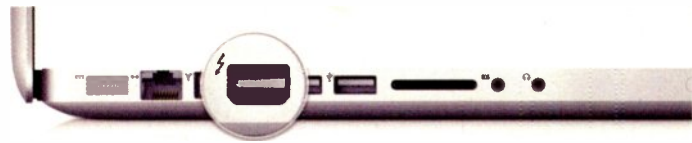
Modern culture is all about connections: social, wired and wireless. Social networking has changed the way we interact with our friends, family and even professionally, and it can evolve overnight. I'm currently looking at tumblr as a way to get product news and reviews out because of its hockey-stick growth, which is increasing by a quarter-billion impressions a week (not a typo). I've also been finding it easier to get questions answered about products, company news and technology through Facebook rather than email. For me, it's just a "follow the river" experience; I'm just floating along, keeping my eyes and ears open.

While I'm adapting to expanding social networks in an effort to improve my journalistic workflow, I'm also excited about how faster physical connections will change the way I record and mix audio. According to the Organization for Economic Cooperation and Development, U.S. Internet speed lags far behind many other countries. But what if we had 60Mbps Internet speeds in our homes like they do in Japan? The most obvious bump would be in efficiency, and that means more money for the freelancer—the new normal in audio.

In the May 2011 issue, Blair Jackson outlined how the "cloud" is changing the way audio pros work. Apple just released iCloud at last month's WWD Conference, which integrates with your apps and pushes info to all of your devices. And although I'm sick-to-death of all things "cloud," I have to admit I use Dropbox, MobileMe and YouSendIt at least once a week, and if I had a faster hookup, it would be more.

Physical connection speed is not just about the Internet. Last month, I wrote about a laptop-based mix rig I've been putting together that was made possible through the release of key products like Pro Tools 9 and the UAD-2 Satellite. The next step for me is going to come from Apple's Thunderbolt, which offers bi-directional support for 10Gbps data speed on a single connector. Apple is rumored to be upping the ante by offering Thunderbolt plus Intel's second-generation core "Sandy Bridge" processors on the new MacBook Air computer, so its commitment is strong.

Thunderbolt holds promise in two directions: system stability and throughput. For instance, a hiccup in my current setup is that I'm sharing my hard drive and UAD-2 Satellite pipeline over a single FireWire 800 bus. Although it's not a deal-breaker, it does get operationally sketchy as I load on the plug-ins. While Thunderbolt shouldn't make a difference in the number of instances with regard to my UAD-2 Satel-



lite, having unique buses (FireWire and Thunderbolt) for my hard drive and DSP accelerator, or even sharing both on the faster pipe, would make my system more reliable.

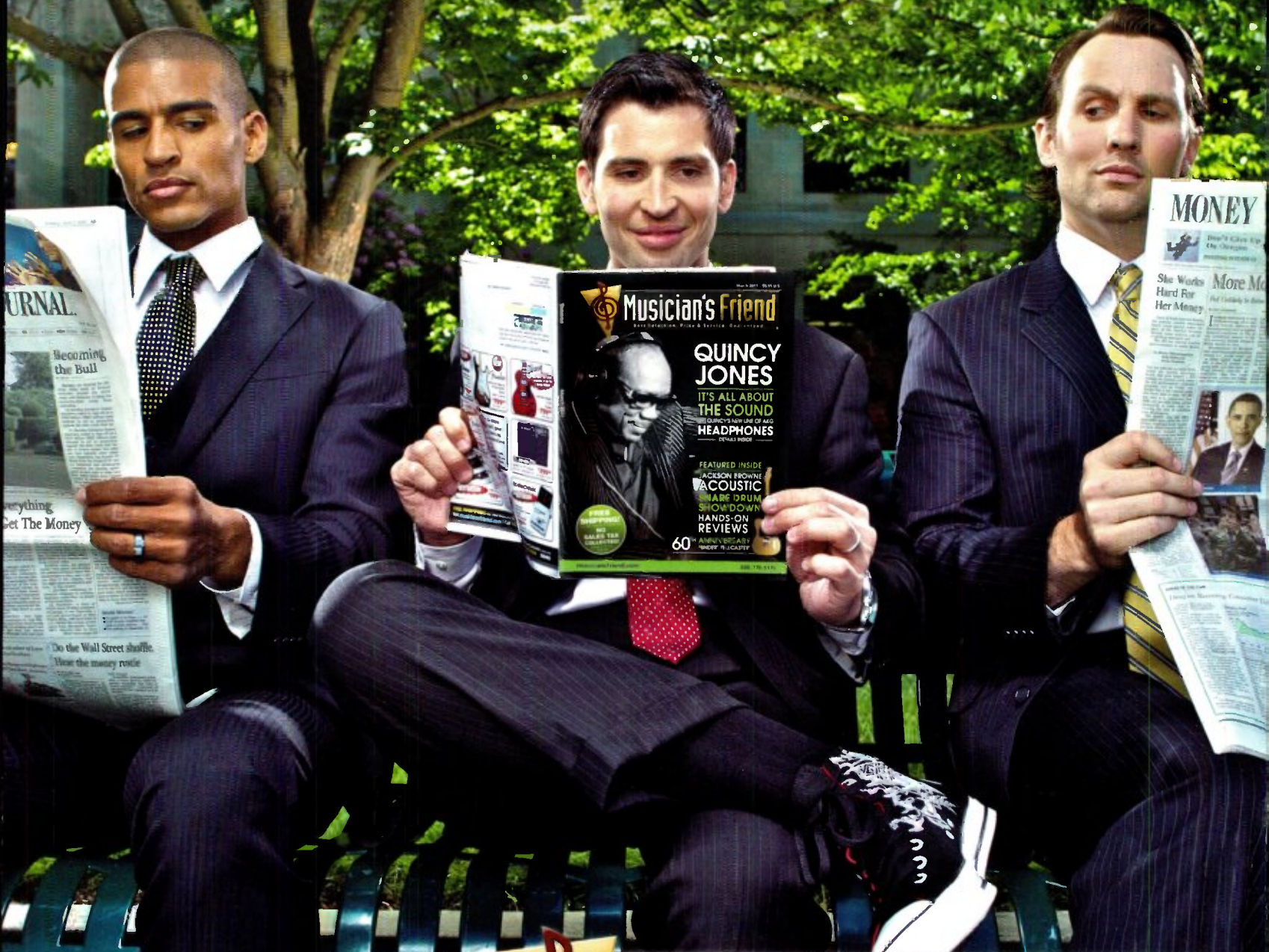
Where Thunderbolt will really rock is when it's used for AD/DA conversion. Thunderbolt should offer a glitch-free, low-latency operation supporting many channels, along with a hard drive and DSP accelerator, not to mention a large video display that is supported in parallel to Thunderbolt's audio pipeline.

Some companies are eagerly onboard and developing product right now. Apple, Apogee, Avid, MOTU and Universal Audio have all chimed in on their plans to quickly develop products for Thunderbolt. Others, off the record, are understandably more reserved; the reason being how tight Apple has been in releasing the spec to developers—releasing it to audio companies after those who show broader sales potential. Also, according to CNET News, Intel just went on record in April with its intention to support USB 3 (5 Mbps) and Thunderbolt on client platforms in 2012. I can see how a company would want to see the whole picture before they commit and possibly miss the boat on something like USB 3, which is wicked fast in its own right and backward-compatible.

What's next? Thunderbolt for iPad? Why not? It's much like the MacBook Air in that it has no hard drive, offers limited Flash memory and is pitched heavily to wireless users. As it is now, its single, clunky I/O connection is fast and wide enough to stream HDMI and interface with USB devices while charging itself. I'm already chomping at the bit for Rational Acoustic's 2-channel Smaart to become available for my iPad 2 at the end of summer, which means I could run playback diagnostics on a system I can sling over my shoulder. But bring Thunderbolt to this game, and you've got a whole new box that could drive a large display while offering large-scale multitrack recording and more. And it can grow in capabilities as processors get faster.

So whether it's faster Internet connections in line with the rest of the world or broad-based support for Thunderbolt across a range of audio products, the bottom line is that it's going to make me a better engineer and put more green in my pocket, and I'll bet the cloud on that.

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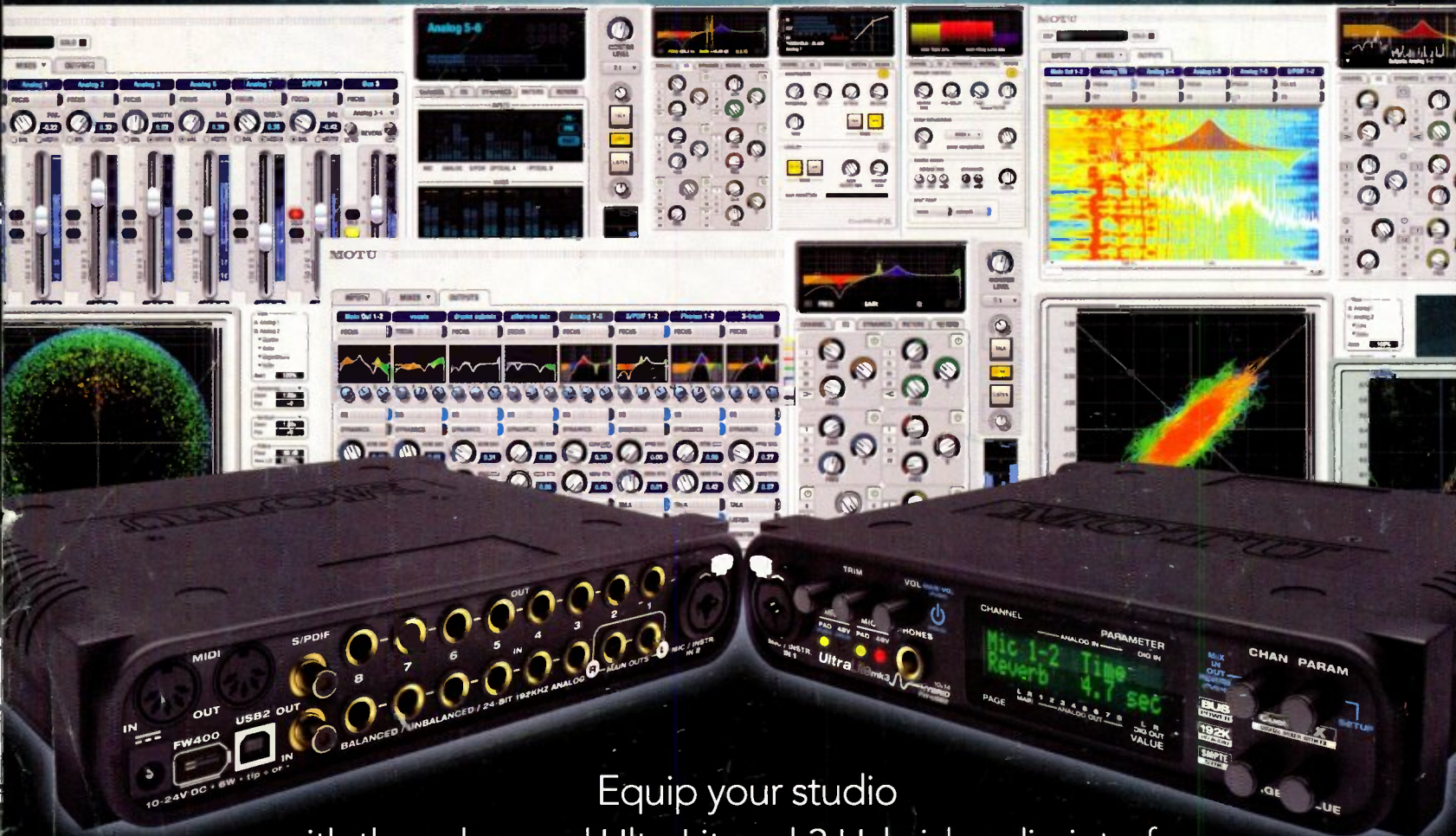


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