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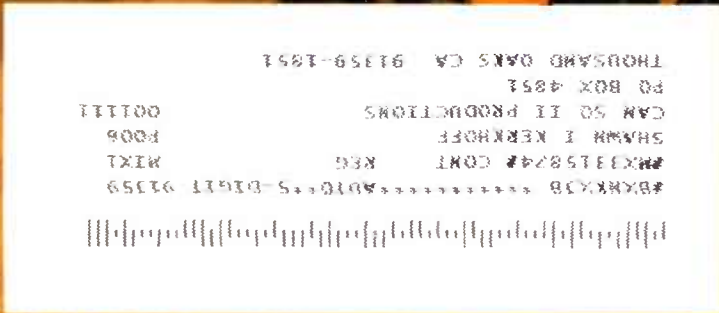
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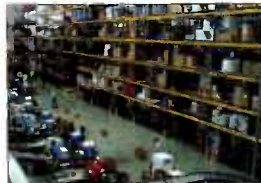
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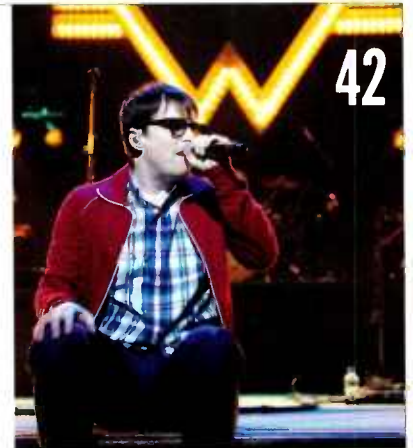
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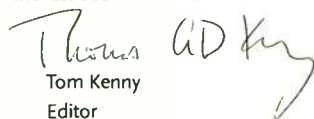
Late last summer, I was invited down to the new DTS headquarters outside of Los Angeles for a look at what they were doing in upmix, downmix, 5.1, 7.1 and delivery over two channels. The *Rocky Horror Picture Show* had just come out on Blu-ray in discrete surround, with a Neural Upmix from the original mono and stereo source material. It was proving something of a calling card for their efforts in giving professionals the tools to deal with both new material and with catalog, and in giving consumers multiple options on playback. I met an impressive audio creative team that included code writers and executives with backgrounds in mobile delivery and cinema, and engineers and mixers who live for music. The demo in the company's mini-home theater was equal parts feature film, games and live music performance. We concluded the two days at Stephen Marcussen Mastering in Hollywood, listening to 5.1, DTS-encoded tracks from the Trent Reznor score for *The Social Network*, mixed by Fred Maher and mastered by Marcussen at full-range 24-bit, 96kHz to be available in Blu-ray, audio-only. Stunning.

Then in early December, I was invited to a mostly consumer and technology press event at the San Francisco headquarters of Dolby. An array of consumer gear, from phones to high-end A/V receivers, was on display, and in a side conference room, Kevin Brennan, senior market manager for the PC segment, was showing a new set of tools to debut at CES that would make the home listening experience whatever the consumer wanted, optimized for IP delivery and decoded in the Dell laptop, with level normalization and a host of other features. After the meet and greet, we were all brought into the Dolby Theater for a premiere of the OK Go viral video sensation, "This Too Shall Pass," remixed from the original tracks in 5.1. It may have had more than 40 million hits on YouTube, but this was the first time it had been heard in 5.1. Again, stunning. (Side note: The members of OK Go later performed on the same stage, just three guys with guitars, and damn were they good live.)

Later that month, smack dab in the middle of the holiday buying season, I saw a TV commercial for a new HTC phone, with HDMI port, touting Dolby Surround. And all the while, *Mix* technical editor Kevin Becka was singing the praises of the new facilities and the research being done at GenAudio in AstoundSound, and bringing up headphone-based products from Sennheiser, Monster, Beyer and many others. Something is going on here.

Whether it's being driven by games, Netflix over IP or mobile downloads doesn't really matter; surround audio is on a roll, and it is not tied to a physical medium. The flurry of products at last month's CES show is a testament to the consumer side, where upmix/downmix and auto-detect functionality have matured to the point of not really being an issue on playback. And the professional tools to create a high-quality encoded bitstream are being made more accessible every day. Purists may argue for delivery of lossless, full-range 7.1 tracks, but consumers are just after the experience. And, as we see in Becka's report in this issue on page 17, that experience is being delivered right here, right now, often over two channels.

The bandwidth is there, and the day is coming when consumers will simply click on their preferred delivery format and pay accordingly. There's no reason that one of those formats shouldn't be 5.1 or 7.1 music; the tools are there. No disc, no fuss. It may just be the last best chance for surround music.


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Ocean Way Recording's Allen Sides

PHOTO: MR. BONZAI



Josh Groban (left, with owner Allen Sides) is currently working on a new album in Ocean Way with producer Rick Rubin.

Allen Sides really should write a book; very few people in the music business have had as interesting a career. Most *Mix* readers probably know highlights of Sides' résumé: He started in the audio business building custom loudspeakers and doing engineering work in a converted Santa Monica, Calif., garage space; he was taken under the wing of L.A. studio owner/audio guru Bill Putnam; took over Studio B in Putnam's United Recording facility and renamed it Ocean Way; and later acquired Putnam's nearby Western Recorders. Sides built Ocean Way into a formidable operation through extensive remodeling, the gradual acquisition of his now-legendary microphone and outboard gear collections, and by attracting top engineers and producers to work there. In the late '80s, he bought the already successful Record One studios across town; later, he made a foray into Nashville, building an Ocean Way space in an old church. His studios have hosted a dizzying number of top musicians—name 'em and chances are they've worked there—and devel-

oped long-term relationships with everyone from Quincy Jones to Rick Rubin to Rob Cavallo; the list is staggering. Along the way, he's also engineered and helped out on countless projects by everyone from Basie to Zappa to Sinatra to Cooder to Clapton to Michael Jackson and dozens of others.

Like Josh Groban, who graces this month's cover with Sides; the duo are captured in the recently renovated Studio B, which has been restored to its Bill Putnam-era glory and improved with the addition of a spectacular 72-input Neve 8088 console and custom Ocean Way monitoring system. Sides has been working on a new Groban album with producer Rick Rubin.

Sides is up for a Grammy this month for his engineering contributions to Bobby McFerrin's superb *Vocabularies* album; more recently, he worked on 13-year-old phenom Greyson Chance's new album. He has studios outside of L.A., a thriving loudspeaker manufacturing business (Ocean Way Monitor Speakers), a hot rental company (Classic Equipment Rentals), a custom studio setup opera-

tion (Ocean Way to Go) and a popular library of drum sounds (Ocean Way Drums); he's certainly come a long way from that first garage. And for a guy who's so busy, he's remarkably calm. We spoke recently about some of the successful tangents that have grown from his L.A. studio base.

I understand that you set up a complete studio in the Hollywood Hills for Radiohead to record their new album. Is that part of your Ocean Way to Go business?

Yes, and Radiohead also did *Hail to the Thief* in Ocean Way Studio B. Nigel Godrich, their producer, has been a great client.

We've been doing this for a long time. The Red Hot Chili Peppers, Linkin Park, we did MGMT—helped them get set up in a house in Malibu. At any given time, we have at least one [outside] studio we've set up going somewhere. I did one for Phil Collins: Rob Cavallo and I went to Switzerland and did a record there in a castle. Those projects are a lot of fun and also an interesting technical

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challenge sometimes.

Tell me a bit about your experiences outside California. You still have Ocean Way Nashville, but it's being run by Belmont University?

It's a great studio! I worked on a Faith Hill album there not long ago. It's a wonderful place and a beautifully run studio, and it's doing very well. I think the Belmont connection has worked out really great. We have a license agreement with them to maintain the Ocean Way name and the staff and to keep the whole place up to our standards.

How about the more recent acquisition in St. Barth's in the Caribbean?

Well, St. Barth's was already a showbiz destination in itself. I mean, here's an island with some of the best restaurants you'll ever eat at, fantastic beaches. The studio is in the premier resort in St. Barth's, which is called Eden Rock, and it's in a

villa on the beach. The couple who own the place and completely redeveloped it, David and Jane Matthews, have been friends of mine for 20 years and are really into music. David specifically built the 16,000-square-foot Villa Rockstar to accommodate my Ocean Way St. Barth's. It's a gorgeous studio with a great discrete Neve with Flying Faders and our monitors. Then there's a theater next door to the control room—"next door" meaning you walk through two glass doors—and it has a stage with musical instruments and everything else. So we can track or record anything there. Also, it's not just established musical artists who have used the studio, but also some fairly well-off people who maybe want to keep their musician kids entertained—so we can provide a package where we provide producers and engineers to make their songs something special. It's an inter-

esting group at St. Barth's.
Do you have plans up the road for other Ocean Ways?

Not at the moment. We have a lot of rooms—six rooms and a mastering room in L.A., and then we have our connection with Ocean Way Nashville and we have Ocean Way St.

Sides with rock guitarist Steve Vai at the vintage Neve console in Ocean Way's St. Barth's studio

Barth's.

Why do you think you've thrived when so many other studios have gone under?

Well, it's hard to say, really. It hurts to see so many friends in the business not succeed. But I've always had a concept that you never play on a level playing field. If you can't do something in a somewhat unique fashion, it's kind of pointless to be in that business. I like to believe that what we do is a bit different. We really do have some pretty amazing acoustical spaces, and we have very unique equipment that's very custom, and we have one of the largest collections of esoteric outboard gear anywhere in the world. Beyond that, we're very sonically driven—we come from a place where sound is the issue. It's been a business to me, but that's not the primary thing. It's always been most about helping people make great-sounding records.

It seems as though the recording studio landscape has drifted toward a few great high-end places like yours and a whole bunch of personal studios that range from funky D.I.Y. places to magnificently equipped facilities owned by popular artists. The middle has gotten squeezed out.

That's true. The middle end kind of went away.

Have you tried to pick up some of that slack?

A lot of those kinds of projects may come into our place for a day to track or a day to mix or a day to do strings. So we still get that kind of business, but frankly we don't do as many new artists, who usually have smaller budgets and that has been a little disappointing to me—Greyson Chance being an exception. I guess Lady Gaga wouldn't be considered a new artist at this point. [Laughs] But we've had an incredibly loyal clientele—artists and producers—who keep coming back and filling our rooms so I can't complain.

But the other thing we've done is, about four years ago we started getting involved in a number of outside projects. We spent so many years building a reputation in the business, we said, "Why don't we make this work for us?" Because, for instance, we always designed and built loudspeakers for clients. I helped Dave Grohl and Rob Cavallo equip their studios, and Trevor Horn's studio in London. We did Skywalker Ranch; we do a lot of different things like that.

So we decided to try to make an even more commercial product and we got into manufacturing high-end loudspeakers. I think what we've cre-

L-R: Arranger David Campbell, producer and president of Warner Bros. Records Rob Cavallo, and Sides in an orchestral session in Ocean Way Studio B

PHOTO: PIA VAI



PHOTO: MR. BONZAI

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Then there's the Ocean Way drum sample library, which also became a very good product for us. In fact, we have a new library coming out. I just felt we had to get into other areas. We needed to have alternate revenue sources, not just the studios. It's funny: Some people get jaded in this business, but I feel like I learn new things every time I work, and I still love finding new ways of approaching things.

I know you did some work on the recent posthumous Michael Jackson album (Michael).

That's right. I recorded the orchestra for and mixed a song called "Gone Too Soon," which was arranged by David Campbell. And there was this other track called "Behind the Mask," which was an 8-minute demo that we cut into a 4-minute piece of music, and then it had a number of things added to it.

Michael was one of my best clients. We did part of the work on *Thriller*. We did drums and strings and various things, and then Quincy and Bruce [Swedien] became some of our best clients and did every album after that. I cannot say enough about Michael as a person; just a wonderful guy and, obviously, a great musician and a fantastic client. He was a delightful guy. I really miss him. I think an incredibly important part of Michael's success was Bruce Swedien's masterful creation of a sonic landscape that simply hadn't been heard before.

Recently, I've been working on the Josh Groban record he's making with Rick Rubin. Rick's been another great client of ours for years and years, but this was the first time I've done a lot of engineering for him. They had recorded a good portion of the album but de-

ecided to change a bunch of things. So I ended up re-recording some of the album and then I mixed it.

Rick Rubin and Josh Groban is not a pairing that would've come into my mind.

Well, Josh wanted to make a more personal album, and he either wrote or co-wrote most of the songs on it, and Rick really understands song structure and how an emotion hits you. In that way, he's a little like Rob Cavallo, who's another guy I work with a lot—in fact, he's one of my closest allies and a fabulous producer. Rick's maybe not quite as deliberate in exactly nailing it down as Rob is, but he always knows exactly when it's on the mark and when it's not.

Rick wants it super-dry. He handed me a couple of Neil Diamond albums he did and they were so dry it was almost like you were sitting with Neil in his living room with some players around him. With Josh, it's like he's in his living room—but so is a 70-piece orchestra! [Laughs] So it's quite unusual. ■■

Read more of Blair Jackson's conversation with Allen Sides at mixonline.com.

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compiled by Sarah Benzuly



NEW PARTNERSHIPS YAMAHA, RUPERT NEVE DESIGNS

Based on both parties' involvement with Yamaha's VCM (Virtual Circuitry Modeling), this new partnership will see Rupert Neve Designs embracing the technology to reproduce Neve's analog sound. VCM re-creates the sound and characteristics of several classic compression and EQ units and tape machines from the '70s, available on most current Yamaha digital mixers.

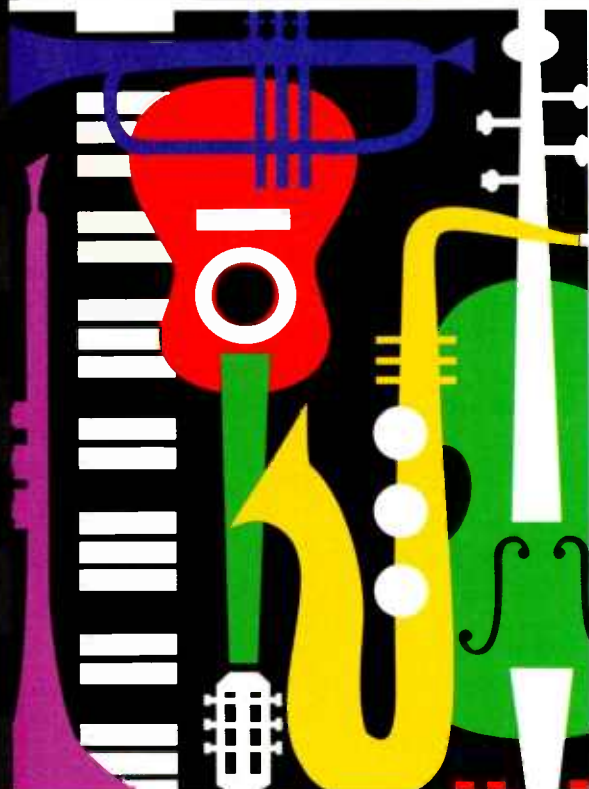
AUDINATE, STAGETEC

Audinate's Dante™ digital media networking technology will be incorporated into a range of StageTec products. "Audio over IP is the future. We have been looking for an integrated solution, and Audinate's Dante is the answer," said StageTec managing director Dr. Klaus-Peter Scholz. "It's important to us that we partner with a company that understands not just audio, but has an expert understanding of IP networking as we develop new products."

CONCERT SOUND WHILE YOU DRIVE



Select 2012 Volkswagen models—beginning with the Jetta GLI—will feature the new Fender Premium Audio System. To create this system, Fender partnered with Panasonic to put out a system that incorporates nine speakers with proprietary Panasonic technology. The sound system covers the cabin with directional sound from front-door speakers that generate imaging beyond that of traditional speaker designs. It cuts through the noise and other distractions with front dual-voice coil speakers, with extended range for all musical genres. The design features lower intermodulation distortion and smooth midrange response to eliminate harshness. It is harmonically complex, with extended-range tweeters and properly voiced 16cm speakers.



COLOR-CODED MUSIC

HORIPRO Music Academy has begun offering music classes for children with Autism Spectrum Disorders (ASD) at its West Los Angeles studio using its ColorSoundation™ teaching method. ColorSoundation uses uncomplicated color-coding exercises and games to introduce essential music skills to children. Created by musician and instructor Shiho Yamamoto, the method is primarily an audio and visual learning process where kids associate sounds (or music notes) with their corresponding color.

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Industry News



Mayumi Martinez

Middle Atlantic Products (Fairfield, NJ) promoted **Mike Baker** to president; Bob Schluter continues as chief engineer/CEO...**Vince Casas** joins International Academy of Design and Technology (Las Vegas) as instructor for the audio production program...Filling the newly created executive VP role at **Hosa Technology** (Bueno Park, CA) is **Mayumi Martinez**...**Symetrix** (Seattle) promoted **Paul Roberts**, VP of sales and marketing, and **Brooke Macomber**, director of business development...**Damon Gramont** joins **Bricasti Design** (Medford, MA) as director of sales...New director of licensing at **Aphex** (Sun Valley, CA) is **Kent Dimon**...**Meyer**

Sound (Berkeley, CA) cinema team news: **Steve Shurtz**, technology director; **Mauricio Saint Martin**, global sales director; **Brian Long**, senior cinema/live sound design manager; and **Jim Sides**, business development director. Other company news: **Matt Ferguson**, digital audio product specialist; **Luke Jenks**, loudspeakers product manager; **John Monitto**, director of technical support worldwide; and **Oscar Barrientos**, Latin America technical services manager...Distribution deals: **Lauten Audio Microphones** (San Jose, CA) signed with **Audio Plus Services** (Champlain, NY) for North America; handling the Middle East for **DK-Technologies** (Copenhagen) is **EMEA Gateway**; **KK Audio Labs** (Huntington Beach, CA) named **Dimension Point Marketing** (Houston) for Arkansas, Louisiana, Oklahoma and Texas; and **Aldridge Marketing Inc.** (Austin) will cover Texas, Oklahoma, Arkansas and Louisiana for **LOUD Technologies** (Woodinville, WA).

From left: Odin Benitez, John Ross and Myron Nettinga

DOLLARS AND CENTS

From Berklee: *Salary Ranges for U.S. Music Positions in Performance, Writing, Business, Audio Technology, Education, and Music Therapy*. This study covers a broad range of specific careers, and was spearheaded by the school's director of Career Development Center who, with a team of staff, conducted research and revised the chart several times during a six-month span. The document will be updated every year to keep up with salary changes and emerging career paths.

Providing some analysis of the data, Spellman says, "Students who can both arrange a jingle and advise a small company on how to incorporate Twitter or Vimeo will find more chances to add value in the new music economy." In the live sound world, "There are plenty of bands and artists building loyal followings and making middle-class livings who have re-defined 'success' for themselves."

Studio Unknown Update

Internet music distribution has created mixed feelings. Many feel illegal downloads have killed the music industry as we once knew it. But there's a bright side. We'll focus on the ways the Web has benefited music-makers, music producers and music supervisors. Visit mixonline.com/studio_unknown.

SoundWorks Collection Update

The SoundWorks Collection recently captured an intimate discussion with the sound team of director David O. Russell's *The Fighter*.

In this 50-minute discussion, we are led through the creative process by supervising sound editor/designer Odin Benitez, M.P.S.E., and re-recording mixers Myron Nettinga and John Ross, C.A.S. The discussion was moderated by Bruce Carse.

About *The Fighter*: As a welterweight from the wrong side of the tracks, Irish-American Dicky Eklund is the pride of working class Lowell, Mass., living in his shadow is his half-brother and sparring partner, Micky Ward. After fighting Sugar Ray Leonard, Eklund plunges into a nightmare of crack addiction, violence and prison. His family's hopes are crushed in the wake of Eklund's decline. Like a real-life Rocky, Ward fights on his own terms and pulls his family out of despair with his meteoric rise in the ring. Freshly paroled Eklund finds redemption in training his little brother, now known as "Irish" Micky Ward, for his Welterweight Championship bout with Shea Neary.



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SURROUND FROM TWO CHANNELS

BREAKING THE BONDS OF STEREO, AND SURPRISINGLY WELL

By Kevin Becka

Taking the stereo image beyond its obvious boundaries has been in the engineer's toolbox since the discovery of mechanically induced flanging in the '60s and the introduction of hardware effects like the phase shifter and Eventide's Harmonizer in the '70s. Later, in the '80s, QSound and Bedini entered the market with their 3-D sound-processing algorithms and the Bedini Audio Spectral Enhancer (BASE), which promised an enhanced listener experience for music and gaming.

In the current age where computers are fast, and portable devices for entertainment and gaming and communication are plentiful and cheap, the questions have changed. Can I create credible 5.1 effects from two speakers for critical listening in the home, at the studio or on headphones? What's more, can I deliver real-time, high-quality surround to portable stereo devices like a laptop, pad, headphones, gaming console, smartphone and auto? As you'll read below, the answers are all yes: The surround-from-stereo game is afoot.

Different Approaches

Because of the popularity of portable formats and the recent upsurge in 3-D TV and movies, the stereo-to-multichannel toolset has grown exponentially. Being that manufacturers are designing these tools for different users (pros and consumers), listening venues and output platforms, the approaches are numerous. For instance, some

methods are playback device-agnostic: Encoding is done entirely at the front end for listening on any device, no matter if they're headphones or speakers large or small. Other methods call for DSP at the back end, meaning you need a specific chip-level encoder/decoder in your playback device, whether it's portable or not. These are often input-agnostic, meaning any source can be upmixed on the spot into 5.1, whether stereo from iTunes, YouTube, MP3 or any other 2-channel source. Other systems call for encoding, then playback decoding to a specific device such as a headworn system. Some of these are not transferable outside the specific gear and are even sometimes specific to a single user. As you can see, the prospect of delivering surround from two speakers is getting pretty thick.

Major Players

There's no argument that Dolby (dolby.com) and DTS (dts.com) have brought 5.1 audio for post, broadcast, music and gaming to literally millions of users across a broad range of devices. On the encoding side, Dolby's professional product set includes DP563 Dolby Surround and Pro Logic II Encoder, which encodes discrete 4- or 5-channel surround mixes into Left total/Right total (Lt/Rt) stereo to be delivered over two channels on stationary and portable devices. In addition, Dolby Pro Logic IIx allows upmixing from stereo or sur-

round 5.1/7.1 to 7.1 Height or 9.1 with the addition of front-height channels.

Dolby also has a range of products found mostly on consumer notebooks priced between \$400 and \$800. The latest chip-level software for this market is Dolby PC Entertainment V.4, just released at CES in Las Vegas, which promises to deliver a cinematic surround experience on portable devices. Kevin Brennan, senior product marketing manager, PC Segment, explains how the Dolby codec works: "If the content is 5.1, it leaves the content alone and does all the other processing we do on that version. If it's stereo content, it upmixes it to 5.1 and does the additional processing to the upmixed version." The additional processing to which Brennan refers to improves the intelligibility of dialog, levels the volume and adds some equalization. Some of these parameters are user-adjustable. "We've spent a lot of time and effort providing a UI set that allows the user to quickly enable, disable and configure the software," explains Brennan. "It is important to have some level of configurability because not all content is created equally."

What about latency for picture or games? Brennan answers, "The technology uses the Intel High-Definition Audio System, which is a standard that Microsoft, Intel and Dolby created. Any audio stream opened within the PC gets processed through the same audio path. In terms of latency between video and audio, it doesn't arise; it's com-

t.c. electronic



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Neural Upmix from DTS is a Pro Tools and VST plug-in that gives the user 5.1 audio from two channels, or 7.1 from 5.1.



"It is important to have some level of configurability because not all content is created equally."

—Kevin Brennan, Dolby

pensated for within the PC."

DTS offers a range of products for surround upmixing, starting with the Neural Upmix plug-in (reviewed in *Mix* October 2010, available at mixonline.com). "It was originally used in our real-time broadcast products, and we developed it into a plug-in after we discovered that it sounded fantastic," says DTS pro audio manager Tom McAndrew. Neural Upmix is a Pro Tools and VST plug-in that gives you 5.1 from two channels or 7.1 from 5.1. The discrete multichannel output is then encoded for Blu-ray or broadcast. The process promises zero artifacts if it's downmixed. "That's been sort of a dirty secret of some competing upmixing products," McAndrew explains. "When you play the mix back in a consumer environment where it has to be downmixed back to two channels, it can create some phase and volume funk. This product does not do that."

For consumer devices, DTS offers DTS Neo and Neural modes for A/V receivers and DTS Pre-

mium Suites for PCs. The suite offers a host of features including surround virtualization, bass boost, and volume leveling and normalizing, all within the suite's sub-processors. For instance, DTS Surround Sensation UltraPC boasts an excellent surround listening experience from two speakers or headphones, whether the original content is stereo or multichannel. DTS Connect combines DTS Neo: PC and DTS Interactive for surround upmixing and digital connection of the PC to the home theater system via a high-quality digital audio connection.

More Solutions

GenAudio (genaudioinc.com) offers a range of current and planned products for consumer and pro. Its AstoundSound! process boasts an unparalleled 3-D listening experience from two speakers or headphones. The downloadable Expander 3 plug-in is targeted at consumers. It runs as a background process on a PC or Mac, encoded right on the com-

puter, creating an immersive experience for movies, gaming or music no matter the content. The plug-in offers a simple user interface that allows you to adjust basic functions according to taste.

On the pro-encoder side, GenAudio has plans for DAW plug-ins that will be "open to the public" for purchase, but the main way of getting GenAudio's process into a production for release for CD, Blu-ray or DVD media is to have the audio encoded at the company's studios in L.A. or another of its sanctioned locations. This process is being used for the Monster Audio CD release of the Daft Punk soundtrack from *Tron*, which comes with a top-grade headworn listening device.

SRS (srslabs.com) has been a leader in the field of virtual surround games for a while, offering products for home entertainment, headphones, PC, smartphones, portable devices and auto. SRS' HD Audio Lab (HAL) plug-in promises maximum compatibility over a wide array of media players and soundcards. It lets the user select audio content, choose the speaker type (internal PC, external or headphones) and then further adjust the audio through the use of advanced controls. The company's latest offering is TruMediaHD, which promises a cinematic listening experience over a mobile device's built-in speaker(s) or headphones. Features include psychoacoustic 5.1 surround sound over headphones, improved tonal clarity of compressed audio, volume maximizing and leveling, and a user-adjustable graphic EQ.

QSound (qsound.com), one of the originators of products for surround from two channels, offers products for mobile devices, headphones, Bluetooth devices, TVs, PCs and more. Its products are available exclusively through a licensing agreement with the company, and they vary in features, depending on the delivery platform. The surround family of products comprises QSurround HD, a multichannel virtualizer designed for playback over stereo speakers; QSurround 5.1, a multi-

surround from two channels

channel virtualizer that works with any multispeaker configuration; and QSurround Headphones, a multichannel virtualizer offering HRTF algorithms for headphones.

TC Electronic's (tcelectronic.com) Up-Con HD, for its DB4 and DB8 processors, is stereo-to-5.1 upmixing software with functions and settings suitable for broadcast programming. Promising 1 ms of latency, it's compliant with downmix to stereo or mono. On the film side, the UnWrap HD for TC's S6000 is an up-conversion stereo-to-5.1 processor for dialog, music and sound effects.

"[Neural Upmix] was originally used in our real-time broadcast products, and we developed it into a plug-in after we discovered it sounded fantastic."

—Tom McAndrew, DTS



On Your Head

Designed for the critical listener wanting to replicate physical speakers in a particular space while wearing headphones, Smyth Research's (smyth-research.com) Realiser A8 freestanding processor

combines multiple channels of surround sound, adding the directional signatures that would be imposed on each channel by the positions of the loudspeakers. It comprises the desktop processor with controls for setup, operation, audio I/O and more. Also included is the RC-1 remote control, HTM-1 miniature mics for in-ear measurements, TU-1 wireless rechargeable head tracker for attachment to any headphones, TR-1 head-tracking reference for placement in front of the listener and Stax SR-202 headphones.

To set up the system, the listener wears the HTM-1 in-ear mics while the system produces tones in a particular audio space through its regular speaker system. A profile is then stored for that room and that listener, and the profile can be reproduced over headphones. Users can model and store different rooms for specific listeners. The TU-1 and TR-1 follow the listener's head movement and adjust the audio so that the listener's experience is similar to moving his/her head in the room. Profiles are user-specific, making it the priciest and least-portable headworn system available.

Targeted for armchair enjoyment of music, film, TV and computer-based entertainment, beyerdynamic's (north-america.beyerdynamic.com) Headzone surround headphone system comprises the HBC 1 base station and the DT 880 headphone. It is compatible with Dolby Digital, DTS or Dolby Pro Logic streams, and has drivers for use with Mac or PC. It offers user-adjustable room-modeling controls of ambience and room size from a single dial, and volume control from the headphone cable. DT 880 headphones have a hybrid semi-open design that combines the strengths of open, transparent 'phones with those of more powerful, closed models. It also features head tracking, in which integrated, ultrasonic sensors keep the acoustic image centered no matter how the listener's head is moved.

The options are many for the producer and the consumer. HTC has begun advertising phones on TV with a Dolby Surround hook, and no doubt there's great interest from mobile gamers. And these developments in surround playback just might stimulate the music surround market. We'll be listening. III

Kevin Becka is Mix's technical editor.

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INNOVATION AND ACCURACY

NEAR-FIELD REFERENCE MONITORS COME IN COMPACT NEW DESIGNS

By George Petersen

In 1937, when James B. Lansing unveiled the Lansing Iconic—the world's first recording studio monitor—he probably had no idea that nearly three-quarters of a century later, that original notion would have developed into an industry of its own, with dozens of companies creating reproduction systems for the control room environment. Today, that quest for sonic perfection continues with higher-power, more accurate monitors designed for near- and midfield listening. In the past 18 months, we've seen an increase in new models—some three dozen in this report alone—intended for studio applications.

The Models

ADAM Audio (adam-audio.com) recently launched two new lines of powered monitors covering a wide price point. The AX Series touts new woofers, amps and the X-ART ribbon tweeter for 4dB greater efficiency and expanded bandwidth to 50 kHz. These range from the ultra-compact A3X (4.5-inch LF driver, 25Wx2; \$299) to the high-performance A5X (5.5-inch mid/woofer, 50Wx2; \$449), A7X (7-inch mid/woofer, 50W/100W; \$599) and A8X systems (8.5-inch mid/woofer, 50W/150W; \$899). All models have beveled upper corners to minimize reflections and front porting.

ADAM's SX Series has six models ranging from small near-fields to larger midfield models, all with redesigned transducers, drivers and electronics, promising wideband, transparent reproduction with the new X-ART tweeter. Also new is an ultralow-distortion, broadband Class-A/B amplifier with 1MHz internal bandwidth and

Hexacone™ woofers for more linear excursion. Prices (each) range from the \$1,295 S1X (two-way, 6-inch woofer) to the \$4,795 S4X-H (three-way, dual 9-inch).

Founded in 2000, AEX Labs (aexlabs.com) has a new AX line of studio monitors that range from compact two-way near-fields to three-way 12/15/18-inch midfields and large mains with dual 15- or 18-inch woofers—out to the no-holds-barred, 555-pound model AX-28.5. Large or small, all models in the line are based on the company's HF1 ribbon driver, which offers flat reproduction from 400 to 40k Hz. Options include a choice of passive (unpowered) or Computer Controlled Amplification System (CCAS) bi/tri-amplification. Besides the convenience and matched performance of the CCAS module, the option also adds access to system control parameters via a USB link to any computer.

Retailing at \$2,000 each, the AX-1a near-field mates a 6-inch woofer with the HF1 in a 30-pound, 12x17x9-inch (HxWxD) package for a 70 to 40k Hz bandwidth. The 35-pound, 12x22x12-inch AX-1 steps up to an 8-inch LF driver paired with the HF1, which takes bass response down to 60 Hz. MSRP is \$2,250 each. The largest near-field—the \$2,500 AX-1.1—doubles the bass component with two 8-inch woofers that flank the HF1 ribbon element in a 27x12x12-inch, 40-pound enclosure that boasts a 45Hz bottom end. The CCAS powering option adds 15 pounds, two inches of additional depth and \$1,500 to the price of any AX near-field.

The RPM8 from Akai Professional (akaipro.com) is a two-way, bi-amplified design with an

8-inch woven-Kevlar woofer driven by an 80W amp and a 40W amp pushing a 1-inch silk-dome tweeter on a custom waveguide. Rated response is 39 to 20k Hz, and inputs are combo XLR/TRS that accept balanced or unbalanced sources. Retail is \$699/pair.

The three-way SCM25A (\$8,500) monitors from ATC (dist. by transaudiogroup.com) feature ATC's 3-inch soft-dome midrange, a 1-inch soft-dome HF unit and a custom, 7-inch carbon-paper cone woofer with high-excursion capability. Onboard amplification is via ATC's Class-A/B MOSFET output stage, delivering 150W to the woofer, 60W to the mid and 25W to the HF driver. All three stages are fed by fourth-order, critically damped, phase-compensation crossover filters. The unit's ported enclosure measures 10.4x16.9x16 inches, and can be rackmounted for broadcast/remote applications.

The MicroMain35 from Barefoot Sound (barefootsound.com) puts dual force-canceling, long-excursion 7-inch woofers, a 5-inch mid-bass driver and a 1-inch dome tweeter into a single, compact enclosure. Beneath the machined-aluminum front baffle is a tri-amped active electronics complement with 200, 100 and 50W amps. Response is spec'd at 35 to 30k Hz (±3 dB).

The first Blue Sky (abluesky.com) monitor designed to be used with or without a subwoofer, the SAT 6.5 EXR is two-way, bi-amplified near-field with dual 100W amps and two independent XLR balanced inputs—one for full-range operation, the other with an 80Hz highpass filter for use with Blue Sky's SUB 12, SUB 212 and SUB 15 Univer-



From left: Fostex PM0.4n, Trident Audio Developments HG3, Mackie MR8mk2, Pelonis Sound and Acoustics Model 42 and ADAM Audio S3X

sal. The monitor's 6.5-inch, cast-aluminum-frame woofer has a hemispherically shaped, mica-filled polypropylene cone with rubber surround, paired with a 1-inch dual-ring radiator tweeter with integral waveguide. Retail is \$949 each.

The next evolution of Blue Sky's EXO stereo monitoring system, the \$499 EXO2 package combines a 110W subwoofer, two 35W satellites and a controller. Like the original, the EXO2 combines true full-range monitoring with the convenience of a desktop remote-control hub. Each 3-pound (7.2x4.8x5-inch) satellite has a 3-inch cast-frame neodymium woofer and a 1-inch fabric-dome neodymium tweeter.

The redesigned BM5A MkII (\$715) from Dynaudio Acoustics (dynaudioacoustics.com) features a new 7-inch driver, high-resolution soft-dome tweeter and a dual 50W amplifier delivering 117dB SPL. Three integrated analog room filters allow for adjustment and compensation at low, midrange and high frequencies, and there is a (60/80Hz) HPF and a +/-10 sensitivity switch.

At NAMM, we got a sneak preview of the Direct 5, the next release from Equator Audio (equatoraudio.com), a 5.25-inch coaxial, direct-field design with matched transducers, silk-dome tweeter, onboard factory-preset DSP and 100W of onboard amplification, all within a front-ported enclosure just more than nine inches tall. Street pricing is approximately \$299/pair.

The latest addition to Focal's (focalprofessional.com) Compact Monitoring System line, the CMS 40 (\$465 each) is targeted for broadcast and post-production environments, and allows near-field listening from as little as 16 inches without compromising sound balance. An aluminum/magnesium inverted-dome tweeter provides high frequencies to 28 kHz, while its 4-inch polyglass woofer extends LF to 60 Hz. Dual 25W Class-A/B bi-amplification has analog XLR and RCA inputs. The optional CMS Sub is \$1,095.

The Focal SM9 puts two independent speaker systems within the same cabinet. The SM9 features a 1-inch inverted beryllium dome tweeter (100W), a 6.5-inch midrange driver (100W), 8-inch woofer (400W) and an upfiring passive radiator. The system boasts a 30 to 40k Hz (± 3 dB) response

and can be switched into two-way mode, which shuts down the woofer and radiator but reconfigures the crossover for two-way use.

Fostex (fostexinternational.com) has updated its PM0.4 studio monitors. The new PM0.4n (\$199 pair) models feature a high-efficiency, bi-amped design, with twin internal 18W amplifiers driving the 4-inch woofer and 0.75-inch dome tweeter. The dual-ported enclosures (available in five high-gloss colors) feature smooth, radiused edges to minimize diffraction effects, and threaded inserts on the speaker base accommodate optional wall-mount brackets.

Genelec (genelecusa.com) expands its 8200 Series of DSP-driven monitors with the 8260A, a three-way design incorporating a proprietary Minimum Diffraction Coaxial (MDC™) mid-high driver on a Directivity Control Waveguide for smooth, flat on/off-axis response. With the MDC, the mid-range driver cone forms a continuous surface for the tweeter output, coupling both drivers into a single coincident point source. Genelec Loudspeaker Manager software manages crossover filters, driver EQ, driver alignment, room-response correction, calibration filters and distance-compensating delay so the 8260A can be used with other 8200 Series DSP monitors and 7200 Series subs in the same setup. Genelec's AutoCal automated room-calibration/system alignment provides accurate response for multichannel audio systems in varying room environments.

The redesigned M-v2 Series active studio monitors from iKey (ikey-audio.com) feature a front-firing bass port, soft-dome tweeter and glass-aramid composite woofer. There are four different models: M-505v2 (5-inch woofer, 50W/25W bi-amped; \$209), M-606v2 (6-inch, 65W/25W; \$239), M-808v2 (8-inch, 100W/25W; \$319) and the 175W M-10Sv2 10-inch subwoofer (\$399). All have HF or crossover adjustment and a rear panel volume control.

Designed for its LSR2300 Series monitors (but operable with virtually all other monitors, as well) is the MSC1 Monitor System Controller from JBL (jblpro.com), a desktop "monitor section" that's ideal for use with DAW-based studios. The MSC1 was originally offered with Con-

rol Center Software for XP and Vista PCs, but JBL has recently released a new version of the app for the Mac.

A company founded by speaker designer Keith Klawitter, KK Labs (kkaudiolabs.com) announces the DS-8, a powered studio monitor that includes DSP/Ethernet control with either analog or 24-bit/48kHz AES/EBU digital audio input connections. The two-way design features an 8-inch LF driver and a 1-inch inverted-dome titanium tweeter. The DS-8's Acoustic Cabinet Control™ (ACC) design aligns and tunes the low frequencies for a linear sound with quick transient response. Its new DS-6 is a two-way powered speaker system with a 6-inch woofer and titanium-composite tweeter housed in an ACC enclosure. All DS Series monitors feature onboard 350W and 200W bi-amplification and four tuned DSP presets that allow the units to function in almost any listening environment.

Unveiled at NAMM and shipping next month are Mackie's (mackie.com) MRmk2 Reference Series studio monitors. Both the 5.25-inch woofer MR5mk2 (\$199 pair) and 8-inch MR8mk2 (\$329 pair) are powered two-way designs with a 1-inch soft-dome neodymium tweeter on a custom, wide-dispersion waveguide. Inside the rear-ported cabinets is a Class-A/B amplifier section with XLR, TRS and RCA analog inputs, and user-adjustable controls for acoustical correction.

Neumann (neumannusa.com) has rebranded the Klein & Hummel speaker line and offers its first studio monitor. The Neumann KH 120 features a Mathematically Modeled Dispersion waveguide, flexible acoustical controls (three four-position switches for bass, low-midrange and treble bands) and analog/digital inputs. Two 50W Class-A/B amps power the 5.25-inch woofer and 1-inch tweeter, providing a 52 to 21k Hz (± 3 dB) response. It's offered in either a standard model (with analog and digital inputs) and as the KH 120D, a version with digital inputs only. A KH-810 subwoofer is optional and takes LF down to 18 Hz.

The Model 42 from Pelonis Sound and Acoustics (pelonissound.com) is the newest release in the Pelonis Signature Series. The system puts 4-inch, two-way dual-concentric coaxial drivers into compact, rhomboid-shaped enclosures fed from a companion rackmount DSP controller/crossover/200W bi-amplification unit. The angled front baffles point the speakers slightly upward in a desktop setup, downward when used on a high meter bridge or inward toward the user when at ear level.

near-field reference monitors

PMC's (pmc-speakers.com) AML2 powered monitors supersede the AML1 model with an upgraded power supply and an enhanced cabinet structure. The AML2 combines a flat-piston, 6-inch, carbon-fiber/Nomex woofer capable of extreme 33mm excursion and a 1.5-inch soft-dome tweeter, both driven by Bryston-designed Class-A/B (100W/80W) amps. Response is stated as 33 to 25k Hz.

The V2108 reference monitoring system from Quested Limited (quested.com) is intended for near-field applications. It applies an 8-inch woofer and 1-inch dome tweeter to designer Roger Quested's well-known driver layout, along with the company's new current-driven, floating drive stage Class-A/B amplification with two channels of 200W to each of the drivers. The compact cabinet delivers LF response down to 40 Hz.

New from RCF USA (rcf.it) are the Mytho 6 and Mytho 8 active two-way, near-field reference monitors. These combine an aluminium/magnesium alloy (with high-excursion soft-polymer surround) dome tweeter and either a 6- or 8-inch neodymium woofer in a front-ported, all-aluminum enclosure. Power is via 200- and 100W Class-A/B bi-amplification to the LF and HF drivers with onboard DSP crossover and equalization.

New from Tannoy (tannoy.com) are the Reveal 501a (\$249) and 601a (\$349) active and 601p (\$179) passive studio monitors. All feature a front-ported design with a wideband tweeter that extends response to 30 kHz. The 501a has an integrated 60W amplifier driving its 5-inch LF/MF driver and 1-inch soft-dome tweeter, and a stated 64 to 30k Hz response. The 601a has a 6.5-inch

LF/MF driver and 1-inch soft-dome tweeter for a 60 to 30k Hz bandwidth. The 601 is also offered in a passive, nonpowered version, the 601p.

Legendary speaker designer Harvey Gerst worked with noted amp designer Russ Allee to create the new HG3 powered close-field monitors for Trident Audio Developments (trident-audio.com). The HG3 speakers combine a midrange and HF driver in a separate swiveling enclosure set into a ported subwoofer cabinet, with the swiveling action greatly reducing diffraction distortion while letting users adjust directionality for improved imaging. Three sets of inputs allow for balanced (XLR and TRS) and unbalanced (TS and RCA) connections. ■■

Mix executive editor George Petersen also runs a small record label at www.jenpet.com.


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Lindsey Buckingham is currently working on a new solo album in his home studio.

By Blair Jackson

Lindsey Buckingham in Two Worlds

LES PAUL AWARD WINNER PREPARES NEXT SOLO ALBUM

When Lindsey Buckingham and I hook up by phone one morning in the late fall of 2010, he apologizes for sounding tired, noting, "We did this corporate in Phoenix two nights ago and I got in late from that and I have kids who wake up at six in the morning." The "corporate" was essentially a large private party, and "we" is Fleetwood Mac. When I express surprise that Fleetwood Mac would play that sort of gig—after all, the re-formed band (sans Christine McVie) has been touring (if sporadically) very successfully in big arenas—he replies, "Well,

we're living in the new world of the music business and we've got this little window, so there's no reason not to," and you can almost hear the shrug on the other end of the line.

Buckingham and I were speaking because it had just been announced that he would receive this year's Les Paul Award at the 26th annual Technical Excellence & Creativity (TEC) Awards, held January 14, 2011, at the Anaheim Hilton, in conjunction with the NAMM convention. The Les Paul Award honors musicians "who have set the highest

standards of excellence in the creative application of audio technology"—a description that certainly applies to Buckingham. Best known for fronting Fleetwood Mac on and off for the past 35 years, and writing and singing many of their best tunes, Buckingham has also made a handful of intriguing, somewhat idiosyncratic, solo albums; in fact, another one, tentatively titled *Seeds We Sow*, should be out in the not-too-distant future. From the beginning of his career, he's been deeply involved in recording—he's been cutting the new



album in his home studio, engineering it himself. We thought this might be a good time to catch up with this restless and endlessly creative musical great.

Fleetwood Mac has become a "legacy band" at this point. Are you guys getting along okay?

You know, it's been a long, emotional road with the band and I think we're entering a time when we can appreciate each other in a way that was

maybe not very likely for a number of years. A lot of it had to do with the hit-or-miss quality of how often we would even see each other. During those periods when we're apart, everyone sort of goes through their own personal journey of making sense not only of what's going on now, but what went on then. Maybe we're better able to approach everything from more of an overview now. I think that's where we are.

The last time we spoke, you had just finished Say You Will (Fleetwood Mac's most recent album) and were about to go on tour. I'm wondering whether you still play material from it on the Fleetwood Mac tours you do. There were some good tunes on there, but no "hits," I guess.

Let's see, when we went out last year, we didn't have a new album and we were going out and doing a body of work that we thought people would want to hear. And that's something you come to terms with—that when you have been around long enough, there are a lot of songs people really want to hear and they are perhaps less interested in new material.

Sad but true.

Well, it isn't really sad. For me, it's like having the small movie and the big movie. You can do the solo stuff and it keeps you growing and it keeps

you vital on certain levels, and then you can go out and work the big machine and actually just have fun with what that is and take it for what it is.

So the answer would be, no, on the last tour we didn't do anything from that album because I think it didn't fall into the preconception of playing what we thought people wanted to hear. On the tour before that, when we were actually supporting the *Say You Will* album, we did a few songs from that record.

You've been pretty prolific since then, putting out two very different solo albums—Under the Skin, which felt very personal and intimate, and then Gift of Screws, which showed a more raucous side.

Under the Skin has a very specific vibe, with all those acoustic textures and all that.

After we got done with the *Say You Will* tour, I said to the band, "Look, I want to take about three years, I want to do two solo albums if I can and tour behind both of them. So give me the time to do that and I can guarantee you I will come back into the fold with a renewed sense of community and a renewed sense of myself, which will hopefully bring something new into the mix." And I did just that—that three-year period was a really positive time of growth for me, camaraderie

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with my own band and confidence-building. And it's great to be out there playing for maybe 2,000 people and really connecting with the audience in a way that you can't in a giant arena. I'm not knocking what we do with Fleetwood Mac. Those shows are really fun in a completely different way, and the level of connection with the audience is also certainly very special.

How did *Under the Skin* affect *Gift of Screws*, if at all?

Actually, I'm going through the same schizoid thing right now with the new album. *Under the Skin* didn't really have lead guitar and was pretty much an acoustic-feeling album, whereas *Gift of Screws* was the opposite, and I think it was not just a reflection of my own sense of the range that's there, but also a reflection of doing one [album] for me and one for... Well, as soon as I turned in *Gift of Screws*, Tom Whalley [now-departed CEO of Warner Bros.] called and said, "This is exactly the album we wanted before!"

"Thanks, I guess."

[Laughs] "Glad you liked *Under the Skin*, man!" I don't think they really "got" *Under the Skin*, to be honest, because they're looking for things that somehow resonate with the Fleetwood Mac brand. And that's kind of the onus under which you have to function—or not. I've done pretty well at undermining that over the years.

I can't believe I just heard you say "Fleetwood Mac brand."

Yeah, well, this is what we have to rail against to some degree. That was the psychology behind *Tusk*—taking what was clearly a point at which we might get branded and never be able to find our way out of that, and to pull the rug out from under it before there was a chance for it to take [root]. You could argue whether that was a wise choice or not. I was saying to Irving Azoff recently, "There are times I sort of kick myself around the block on a financial level for not working the franchise more." But that's the trade-off. I'm the person I want to be now, so I have no qualms about some of those choices. I think *other* people might have qualms about some of those choices.

But it's not their life.

That's exactly right.

Tell me about the new album.

It's still coming together. I did it here at the house. When we got off the road with Fleetwood Mac last December [2009], I wasn't really planning on making another solo album. I had a lot of ideas, but I didn't necessarily feel the great urge to do that. And there was some talk about Fleetwood Mac continuing after the first of the year, but that didn't come together, and suddenly I found myself with this time. At one point, I thought about doing shows where

it would be a whole hour of just me doing what I do on guitar, and maybe at the end you bring out Brett [Tuggle, bassist in his solo band] and Neale [Heywood, guitarist] or something. I thought that might be something people would find interesting, so I was basing a lot of the approach on this album in a way that would resonate with that kind of show. Then, of course, as time went by, drums started to creep in on a few songs and it got more and more schizoid.

Are you playing the drums?

No, it was machine drums and some [Apple] GarageBand stuff. And then there is also Walfredo Reyes [Jr.], who was on our last tour; he played on

a few things. Some of it, there's no drums at all. Then, once you start playing little bits of things for people, they tend to gravitate to the tracks with drums, so I said, "Okay, I'm gonna hedge my bets here, make sure that I'm covered if that's where this album wants to go." I wanted to be open-minded. It may very well be an album that's closer in spirit to *Under the Skin*, but in a slightly rawer way. But I've also got other things that have some lead guitar on them. It'll be interesting to see how it comes out. But I think it could be as good as anything I've done in a while. III

To read more of this interview, go to mixonline.com.

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SESSIONS

Airshow Serves the Live Recording Market With FestivaLink.net

Ever since opening Airshow's (airshowmastering.com) facility in Boulder, Colo., in 1997, company co-founder and chief mastering engineer David Glasser has mastered live releases for top local acts. "In the case of String Cheese Incident, we must have mastered about 150 of their shows," Glasser says. "They were one of the first bands to do a quick-turnaround CD issue for their concerts.

com, Amazon MP3, iTunes and HDtracks; and partners with festival organizers to record shows—often with the help of front-of-house engineers or P.A. companies—as well as market tracks and collections to the concertgoers. Its stated mission is "to capture 'festival moments' and...help keep memorable music alive by releasing recordings from the archives of festivals, clubs and radio shows." Recordings are packaged as MP3s, FLAC downloads and on CDs.

"We took what jam bands were doing in a very ad-hoc fashion and created a digital record label model," Blonston says. "We do timely post-production [that] is fully approved by the artist before it is released, and full mechanical licensing. [Festivals] are a revenue partner; everybody gets paid."

Blonston heads up FestivaLink's management team while Glasser oversees its audio team, which comprises Airshow engineers James Tuttle, Charlie Pilzer, Jason McDaniel and Anna Frick. John Koehler of Klondike Sound is also a FestivaLink owner.

FestivaLink recently released tracks from the Fourmile Canyon Revival concert held in Boulder on October 9, 2010. Proceeds from the concert and sales of recorded tracks benefit the Boulder Mountain Fire Relief Fund following September's devastating Fourmile fire in the Boulder foothills, which destroyed 169 homes and more than 6,000 acres.

—Matt Callagher

Welcome to Eusonia ::

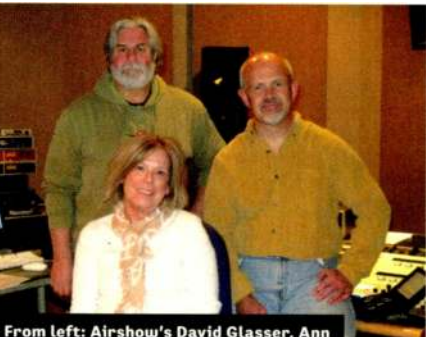


Scott Jacoby of Eusonia Records mixes in Pro Tools HD3 in Eusonia Studios

Grammy-winning composer/producer/engineer/label owner Scott Jacoby started the Eusonia Records label in 2007 after four of the R&B and pop artists he was working with—as composer and/or producer—were dropped by the majors. "This was a way for me to ensure that the records I believed in would actually see the light of day," Jacoby says. His first Eusonia release was Maiysha's Grammy-nominated *This Much Is True* album, a project that exemplifies Jacoby's depth of talent and involvement in his artists' projects. Working in his own Eusonia Studios, he played a huge percentage of the musical parts—bongos, bass, clavinet, djembe, drums, acoustic and electric guitars, organ, piano, vibes and more—in addition to co-writing all of the original tracks and serving as the engineer and producer.

Now, Jacoby and his business partner, VP Alex Bilowitz, are building a strong music-centered label and recently welcomed another partner, Grammy-nominated producer/composer/musician James McKinney, who will work with Jacoby to discover and sign new artists. New additions on the artist front include Silya and Zach Deputy. And Jacoby is busy in Eusonia Studios, a recording-in-the-control-room-type facility centered around Pro Tools HD3 and Genelec 1031A monitors. Also in his arsenal: Avalon, API, Manley and Neve mic pre's; numerous newer and custom mics; and a toy chest of keys, synths, guitars, etc. Jacoby still works with major-label acts, but almost all of his projects pass through Eusonia Studios at some point. He says his favorite role is "control freak," where he can write and mold a track with real instruments, but also employ virtual methods that will best serve the song and the artist.

—Barbara Schultz



From left: Airshow's David Glasser, Ann Blonston and James Tuttle.

They went to a more economical model when [Internet] downloads became the way to go."

In 2006, Airshow's partners created a sister company, FestivaLink.net, "to [provide] the marketing and business overview" for distributing live releases online, explains Ann Blonston, who is general manager of both companies. FestivaLink.net offers Airshow's audio services to artists; works with online distribution platforms LiveDownloads.

Studio Profile Meadows Joins Mayfield

by Barbara Schultz

Glenn Meadows, the revered mastering engineer whose name was long synonymous with Masterfonics Studios, joined Mayfield Mastering several months

ago and recently went online with a new room within the facility. Meadows worked with Mayfield associate Mike Poston and contractor John Poston (Mike Poston's son) to maximize the usability of an 18x16-foot room, and employ the acoustical prin-

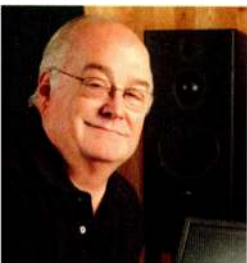
ciples that Meadows has learned after decades of working in Tom Hidley-designed studios.

"It's a minimalist approach," Meadows says. "It's a table with a granite top and two LCD monitors in the front, and a keyboard and monitor controller on it. It's open underneath so the sound goes under the desk and is not obstructed by the console. We used a lot of specialized baffle trapping—what Tom [Hidley] calls his active trapping and flanking blankets. We used a lot of front-wall rigid surfaces so there's no resonance in the room."

Meadows monitors via PMC IB-1 speakers powered by Bryston 7B amps, and he works almost exclusively in the box, using Sadie V. 6 and Weiss con-

verters. "My plug-ins are iZotope Ozone," he says, "and I'm playing with the new Slate FX-G, using Paul Frindel's Dynamic spectrum mapper at times. I also have access to the analog gear John has in his room, which is a rainbow assortment of Avalon EQs and Prism compressors, et cetera, so if I need something like that, I can go and grab it."

Meadows has been busy with a variety of jazz, gospel and contemporary Christian projects. "John has been open to whatever I needed to get re-established," Meadows says. "I've also helped him sort out some issues with his room and covered projects for him when he's overloaded. The clients have been very happy, and that's the bottom line." ■



Glenn Meadows' studio centers around Sadie V. 6 and PMC IB-1 monitors.

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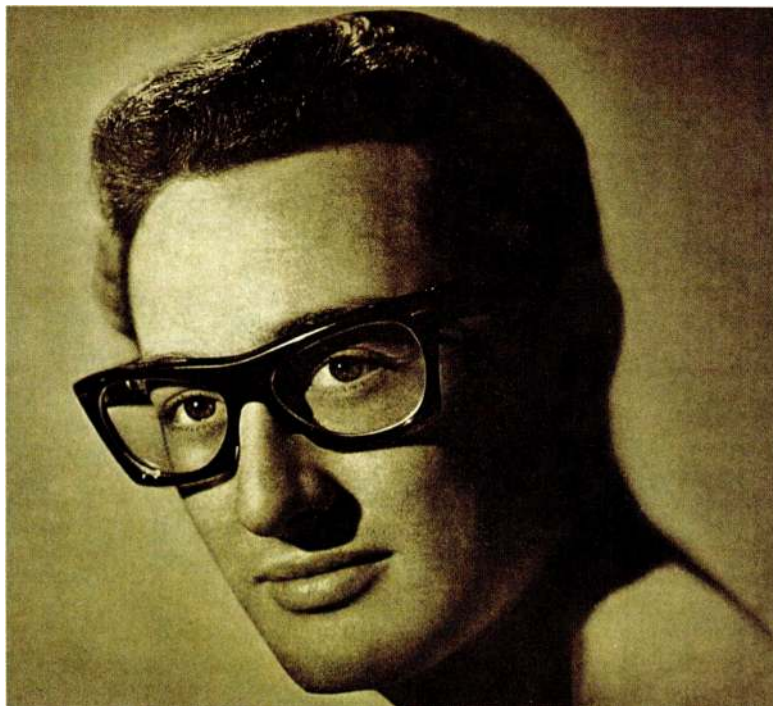
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World Radio History

CLASSIC TRACKS



Buddy Holly

"THAT'LL BE THE DAY"

By Ron Skinner

There are two lessons to be learned from this month's "Classic Track": First, persistence pays off; and second, sometimes the master is the demo and the demo is the master.

In the winter of 1956/57, Buddy Holly was an artist in transition. After being discovered by talent scout Eddie Crandall in the fall of 1955 and signed to Decca Records in Nashville, by late 1956 Holly found himself without a hit and without a contract. Prior to this, Holly had had three separate recording sessions for Decca between January and November 1956 with legendary country music producer Owen Bradley at his Quonset Hut studio on 16th Avenue in Nashville.

For Holly's first Decca session, he was told to put down his guitar and concentrate on his vocal, and his band was filled out with Nashville session men. His first single, "Blue Days, Black Nights," garnered some positive reviews, but it didn't sell. On his second visit to Nashville in July 1956, Holly insisted on playing guitar and singing. He also insisted on having members of his band back him and on recording original material. It was during this session that a master take of "That'll Be

the Day" was recorded. When the Decca executives heard the fruits of this session, they were unimpressed—so much so that, according to drummer Jerry Allison, one of the execs proclaimed that "That'll Be the Day" was the worst song he'd ever heard. "The people in Nashville didn't like it at all, which hurt my feelings, of course," says Allison more than 50 years later.

When Holly returned for what would be his final Decca session in November 1956, Nashville session musicians once again backed him, and Holly was again told to set down his guitar. After the failure of Holly's first single and the disastrous "That'll Be the Day" session, Decca was not taking any more chances. At this session, the Holly single "Modern Don Juan" was recorded—it flopped.

While Holly was going through his trials and tribulations with Decca, another development was under way: Musician/composer Norman Petty had set up a recording studio in Clovis, New Mexico, a small town just west of Holly's hometown of Lubbock, Texas. Petty financed his studio with royalties he had earned from his trio's hit recording of the Duke El-

lington song "Mood Indigo." At first, the studio was intended to be for private use, but word quickly spread and it became a hot spot for recording local talent.

While still signed to Decca, Holly decided to record some demos in Clovis with Petty. Holly was in search of his sound and perhaps a more comfortable place to record. His first attempts were a seven-song session of mostly original songs in the spring of 1956, followed by a session of two cover songs that winter. At this point, Petty shied away from further developing Holly's music—possibly because of Holly's recording contract with Decca or because Petty didn't feel that the material that Holly brought to the sessions was strong enough. Either way, by the time Holly showed up for a third demo session on February 24, 1957, both of those circumstances had changed.

Petty had suggested that Holly get some more original songs and a band together. When they were well-rehearsed, he should come back and cut a demo that they could pitch to record companies. After being released from his contract with Decca in December '56, Holly was determined not to fail; he had developed strong ties to many musicians in Lubbock, and by the time of the "That'll Be the Day" session with Petty, he had put together a cohesive group. On the session were longtime friend and bass player, Larry Welborn, and guitarist Niki Sullivan, who also sang backing vocals for Holly with husband-and-wife team Gary and Ramona Tollett. Holding it all together on drums was Allison, Holly's best friend and co-writer of "That'll Be the Day."

"That'll Be the Day" had been written in the spring of 1956 in Allison's bedroom after Holly and Allison had seen the John Wayne film *The Searchers*. In the film, Wayne's character repeats the phrase "That'll be the day" several times. "We started writing the song one day when we were practicing," Allison recalls. "I had a big bedroom at my folks' house where I kept my drum set, and Buddy had his guitar, and we were just practicing and fooling around with the guitar. Buddy said we ought to write a song, and I said, 'That'll be the day,' and Buddy said, 'That's a good idea,' and in about 30 minutes we wrote us a song."

At the time of the session at Petty's studio in February of 1957, "That'll Be the Day" seemed quite old to Holly. He had unsuccessfully recorded it for Decca eight months earlier, and while the band had rehearsed the

song and had it ready, Holly's focus was on a newer song called "I'm Looking for Someone to Love," which he thought would make a better A-side.

Sessions at Petty's studio usually started in the evening. The studio, at 1313 7th St., was in a building that had once housed a family-run grocery store. Its proximity to 7th Street, the main thoroughfare in and out of Clovis, meant a lot of traffic noise during the day, so recording at night was the only practical way to use the studio. This, coupled with the fact that electricity was more reliable at night, made all-night recording sessions the norm.

The recording space was hand-built by Petty in the early 1950s. It measures a cozy 20x24 feet and features individually tuned polycylindrical walls that run vertically on one wall and horizontally on the opposite, with no two surfaces in the room running parallel. Plush curtains cover the cement outer wall, while fabric and carpet are used to diffuse reflections throughout the room. Tall sound baffles, referred to as "drum walls" by Gary and Ramona Tollett, were used to isolate singers and instruments. Double-paned windows provide views between the tracking room and the small control room, between the tracking room and an additional iso booth/waiting room, and between the control room and iso booth. Down a narrow hall that runs behind the studio floor are three more rooms: a kitchen, bathroom and sleeping/living quarters. Petty's studio was a fully equipped residential retreat recording studio—a concept that was decades ahead of its time.

Recording "I'm Looking for Someone to Love"/"That'll Be the Day" began around 9 p.m. on that cold Sunday evening in February. "I'm Looking for Someone to Love" was new, and the band needed several hours of rehearsal and a number of takes to record the song; they got the final take somewhere around 2 a.m. With Monday-morning responsibilities looming back in Lubbock, the group began recording what was to be the demo's B-side: "That'll Be the Day." Luckily, that song was well-rehearsed; the song had become a standard for Holly and his group, and Allison says it was a hit with the kids of Lubbock long before it was a hit record: "We had played it in between [sessions]; we played it at dances. They liked to dance to it, and we got a good feeling and reaction from it." Because the song was so familiar, the B-side only took two takes to record.

Some of the gear used to record "That'll Be the Day": RCA 77 (below) and RCA 44 ribbon microphones and Norman Petty's Ampex 350 tape machine



PHOTOS THIS PAGE: JOE BEINE

For the recording of "That'll Be the Day," all of the musicians and singers were on the main studio floor: drums, acoustic bass, electric guitar, Holly singing the lead and the trio of backing singers. Knowing this while listening to the recording is evidence that a great deal of work and thought went into the building of this acoustic space.

A 5-channel Altec broadcast mixer was the heart of the small control room. The mixer had been modified to allow signals to be sent to an echo chamber in the attic of the service station next door. The echo chamber featured no parallel surfaces and a concave plaster ceiling with tiled floor and walls. It had been built by Petty with Holly's father and brother, who owned a tile business. The studio's main tape machine was a mono Ampex 350 purchased in 1955. A secondary portable Ampex 350 was used for playback when sound-on-sound overdubbing was required, and monitoring took place via Altec 604 speakers. On the studio floor, classic ribbon and tube microphones were used to capture the instruments and vocals. RCA 44 and 77 models, Bang and Olufsen Fen-tone, Altec M-11 and Telefunken U47 mics were all used by Petty at this time.

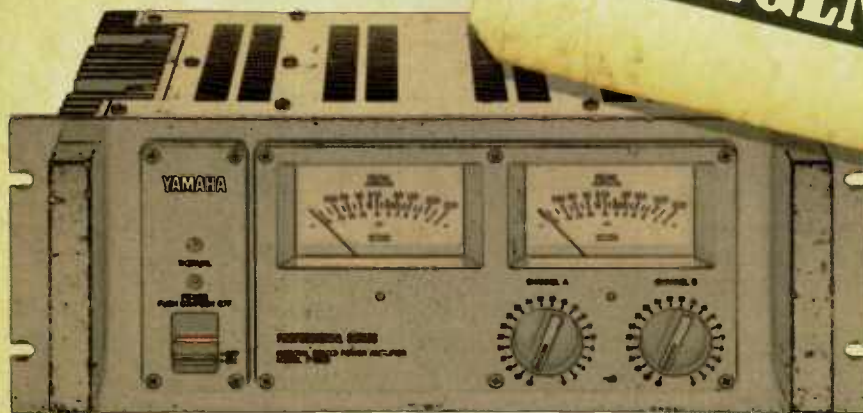
With the demos recorded, the next step was to take them to record companies in hopes of landing a contract. When attempts to interest Roulette and Columbia in the songs failed, Petty brought the recordings to Mur-

ray Deutch, who worked for Southern Music, Petty's publisher. Deutch gave the demo to Brunswick Records' Bob Thiele, who saw potential in "That'll Be the Day." In May 1957, Thiele convinced Brunswick to release the demo as a single by The Crickets. The terms of his previous deal with Decca prohibited Holly from re-recording the song for another label, so Petty and Deutch hatched the plan to release it under a group name in place of Holly's name alone.

The record took a little while to catch on, but thanks to Thiele's support, "That'll Be the Day" became a Number One hit and a million-seller in the fall of 1957, and Holly became a rock 'n' roll star of the highest order. Today, more than 50 years after Holly's tragic death in the plane crash that also took the lives of the Big Bopper and Ritchie Valens in 1959, you can find the original Decca master of "That'll Be the Day" on YouTube. On it, Holly sang high above his customary vocal range, and the reverb-y sound seems like an attempt to turn the singer into a Gene Vincent type. It took the faith and perseverance of Holly, Petty, and then Deutch and Thiele to deliver Holly's authentic, unique sound to the public. III

Ron Skinner is a producer/recording engineer for CBC Radio. This article is part of a planned book about the career of composer/producer/studio owner Norman Petty.

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SOUNDCHECK

Todd Snider

It takes an amusing singer/songwriter performer to command an audience's undivided attention, armed with little but a guitar and his own songbook. But Todd Snider makes it look easy—even accidental. Singing, picking and story-telling his way through songs like "Beer Run," "Looking for a Job" and his anthem of sorts, "Conservative Christian, Right-Wing Republican, Straight White American Males." There's no stacks, no racks, no effects and often no rock 'n' roll band to blow people away.

Brian Kincaid is Snider's right-hand-man on tour, overseeing soundcheck and merch sales, mixing FOH and recording every show. "The past couple of years, our touring schedule consists mostly of long weekends or week-long runs," Kincaid says. "Since

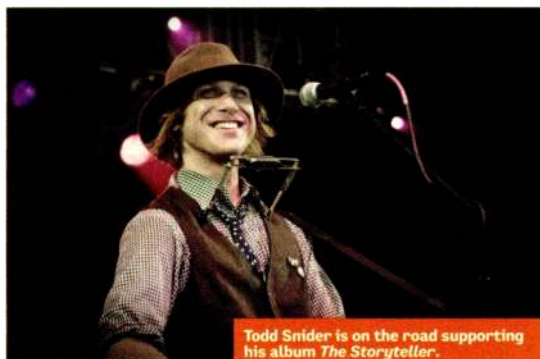
are great, too. Mixing Todd live is really simple as it's just guitar and vocal channels. He also almost mixes himself by pulling away from the mic, and by his mix of finger-picking and strumming. He can bring the house to utter silence and have them up on their feet dancing in a moment's notice."

Because Snider's superb showmanship takes his songs to a totally different place live vs. on studio recordings, fans are eager to own the live sets. Kincaid posts recordings of all of the artist's performances online to toddsniderlive.com, where MP3s of full-length shows can be downloaded for about \$7 each. Kincaid has developed a consistent system of capturing the dates: "I take separate guitar and vocals channels or a stereo soundboard feed, which

I record to two tracks. I run a pair of Peluso CEMC-6 microphones that I record to an additional two tracks in my DAW, which includes an M-Audio interface running to my PC, capturing the files in Cakewalk SONAR. Post-production normally consists of these four tracks being mixed and mastered to a stereo matrix mix."

Recently, Kincaid and Snider, working with Snider's frequent studio engineer Eric McConnell (based in Nashville), selected 24 tracks that McConnell mixed for a double CD, *The Storyteller*, out this month on Snider's Aimless Records label. Snider and Kincaid are on the road this month, supporting *Storyteller* with short runs in New York, Nashville, Boston, L.A. and San Francisco.

—Barbara Schultz



Todd Snider is on the road supporting his album *The Storyteller*.

we fly so much, it's not practical for us to bring any of our gear. Aside from our recording equipment and stage setup, we normally use a house-provided DI, and only travel with cables, tuners, harmonicas and two Epiphone EJ-200s."

For Snider's vocal, "We like to use the most beer-soaked mic available—or an SM58. Audix OM5s

Dante Out With Gabriel

Peter Gabriel's New Blood, Scratch My Back Tour saw the artist and a 54-piece orchestra performing cover songs in amphitheaters and arenas throughout Europe. Due to the complexities of delivering orchestral sound to a large arena audience, Brit Row Productions chose Audinate Dante to help control the zones. Front-of-house engineer Richard Sharrat used nine sends from the DiGiCo SD7 to Dante-enabled products; a Yamaha DME 64 with a Dante-MY16-AUD transferred the AES outputs of the console to the Dante network. Final system EQ was via two Dolby Lake Processors running MESA EQ modules to an additional five Lake Processors and a Lab.gruppen LM26 acting as crossovers for the P.A.—all distributed via Dante over single-mode fiber.

Dante was also employed in the multimedia and video aspects. When an audio feed was required, the sound engineers plugged an Ethernet cable into a conveniently located switch, set up the patch on Dante Controller and gave the video crew a clean feed without having to consider complex routing or topology issues. "Using Dante on a tour of this size makes load-in and load-outs much faster, is easy to use and understand, and, most of all, gives me the kind of audio control I could only dream about a few short years ago," says Brit Row Productions systems tech Josh Lloyd.



fix it Flyleaf FOH Engineer Rich Caldwell



Flyleaf originally wanted a recording truck or mobile setup to come out, but we felt confident that we could capture the audio ourselves and then just hand them a hard drive of the whole tour. Using existing budget, we purchased a Pro Tools HD rig and added a MADI-to-Digilink interface. That instantly turned the [Soundcraft Vi6] desk into a 64-track mobile studio with full virtual soundcheck capability. We hadn't seen anyone else use this setup before and we were eager to take it for a test drive. We captured a few shows at the end of the previous tour and then took the desk home during the break to start building FOH mixes from Pro Tools. The Vi6 went to FOH mix-ready without ever seeing a bandmember. At the beginning of this tour, it yielded an unexpected benefit—the band was able to write and record an entire EP on the Vi6/Pro Tools rig during the time previously allotted for soundcheck. We were able to load up the producer's [Mark Lewis] show file, have the band play their regular live rig and capture the whole performance on HD. He was floored at how well it worked and the band never got bogged down in technical delays. Almost everything on the EP was recorded on the Vi6. The EP will be released in December so you can listen for yourself. III



GET THAT GUITAR!

TIPS FOR MIKING AND MIXING THE ONSTAGE AXE

By Pete Kepler



The sheer number of different amps, amp simulators, direct-input systems and acoustic pickups on the market today for guitar is pretty staggering—probably not that far from the number of musicians who are out there actually plugging into it all. In the world of gui-

tar amps alone, dozens of boutique companies have sprung up in the past 10 to 20 years, not to mention the major manufacturers that keep cranking out new models every year and bringing out various re-issues of their classic amps from the 1950s, '60s and '70s. With so much

gear out there, the quest for a killer guitar tone in your live mix may seem a little daunting. It will take a bit of experimentation, but assuming your player has settled on a rig that they're comfortable with onstage, it's relatively easy to zero in on your options and make a choice for the best method of capturing that sound.

When selecting mics for a guitar amp, a good first step is just to listen. Because much of the sound from any non-synthetic instrument is shaped by the player's style and tech-

nique, try to get the actual player (not their tech or other substitute) to play through the entire rig, including wireless systems, pedals and all lengths of cable being used. Make a mental note of the overall sound of the rig, whether it seems balanced, overly bright or dark, thin, muddy, etc., and base your initial choice for a mic and its placement on that. The number of instrument mics on the market is growing, too, thankfully more slowly than the inventory of amps! My usual palette includes the Shure

SM57, SM7, Beta 98 and KSM 32; Sennheiser 421 and 609 (or 409 if you can find one); Audio-Technica 4050 and 2500; Electro-Voice RE-20; and the Royer 121. These mics all have their own unique character when placed close-up on a speaker. In general, the larger-diaphragm mics will have a fatter sound, but in the case of the larger condenser mics, they may also have a brighter, extended top end. Still, four out of five engineers agree: The 57 is always a good (and inexpensive) place to start.

Most engineers believe the best placement for a mic close-up on the speaker cone is off-center. Find the center of the speaker (use a flashlight if you can't see directly through the grille cloth) as a starting point and set the mic about halfway between that point and the edge of the cone. Keep in mind that the higher, harsher frequencies tend to emanate from the center and the lower, fatter frequencies from the edge.

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With so much gear out there, the quest for a killer guitar tone in your live mix may seem a little daunting...[but] it's relatively easy to zero in on your options and make a choice for the best method of capturing that sound.

How far away you place the mic from the speaker will also have a significant effect on the tone: The closer you are, the more low end you'll pick up due to most mics' proximity effect. In live situations, you don't usually have the luxury of more distant miking, but even the difference of moving the mic a few inches out can produce a very audible change. Another way to make a difference at the source (often the best place to make a correction) is to angle the mic with regard to the axis of the speaker. Assuming your speaker is facing out horizontally and the mic facing it directly, try angling the mic about 45 degrees toward the floor. This will often calm harsher tones a little without changing the overall sound. In the case of ribbon mics, the 45-degree angle is often recommended by their manufacturers to avoid stretching or breaking the ribbon—a costly repair. Ribbon mics,

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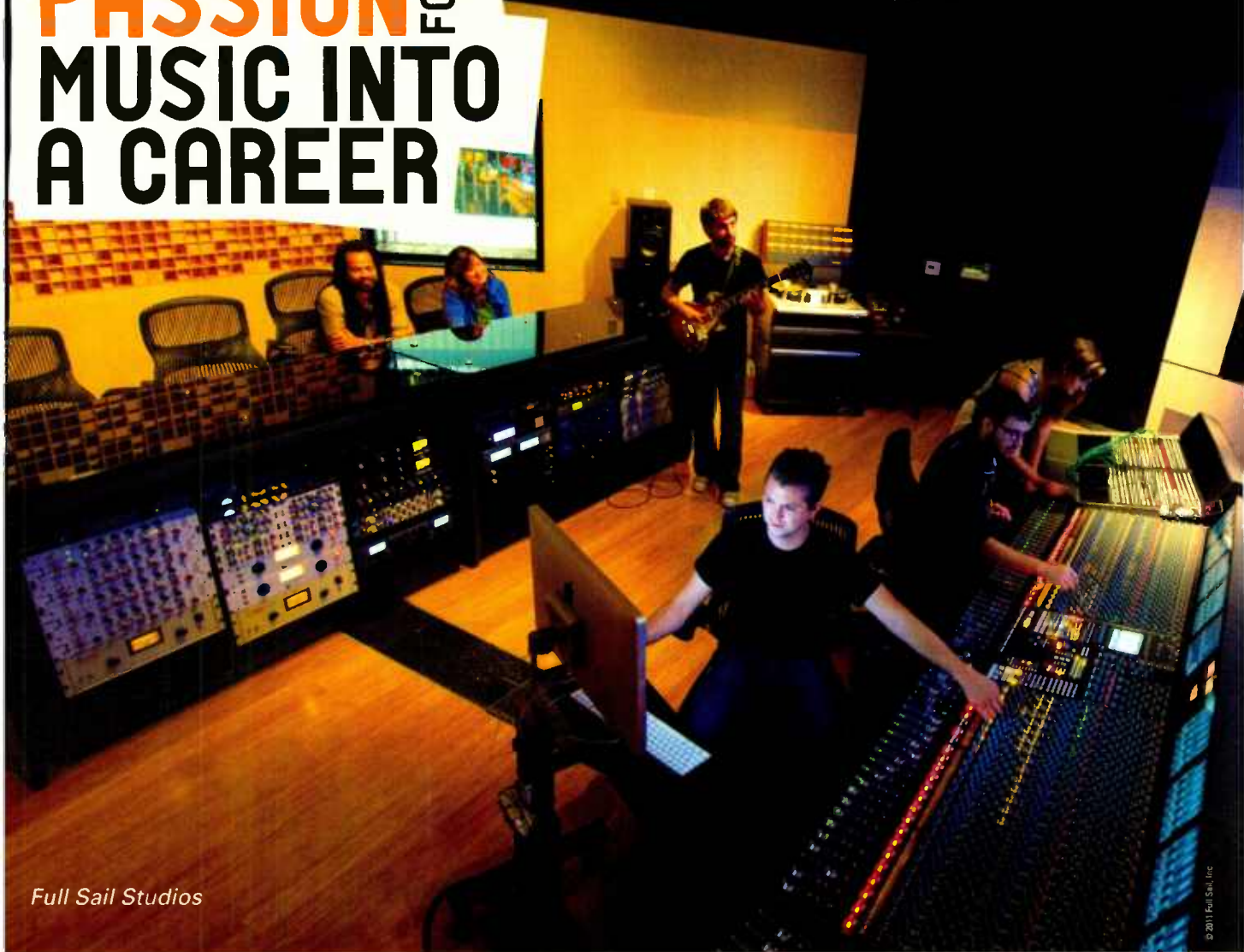
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while often significantly more expensive, tend to give you the most honest rendition of what's actually happening at the speaker, if that's what you're after. They are more delicate though, and don't take well to rough handling.

Note: A situation that I've run across concerning more recent "boutique" amps is that some manufacturers and custom builders have found that installing two types of speakers in their combo amps or speaker cabs will give them a unique sound. Quite often, the two speakers will have significant sonic differences and you may find that one is more "mic friendly" than the other.

Another technique is to use two mics (or more if there are multiple amps and speakers); a dynamic and a condenser usually make a good combo. If you want to try this and you're on a tighter budget, or don't have access to the more expensive condensers, try using an SM57 and the Sennheiser 609. The key here is to make sure that the mic diaphragms, not just the grilles, are the same distance from the speaker cone—the reason being, a difference in distance will cause problems with time alignment, which may come in the form of decreased high frequencies and comb-filtering. An easy way to check for this is to set your mics at equal gain at the console, set the channel EQs flat and bring the first mic up for a listen. (For this process, I usually pan all the mics to one side of the P.A. or listen in headphones.) Then add in the other mic to an equal level and listen for any anomalies.

If the sound gets louder without any loss of frequency response, you're in good shape. If the volume gets lower or the tone thins out substantially, check your phase buttons on the console's mic inputs. If that doesn't correct the problem, head back up to the stage and see if someone's kicked your mics out of place or there's a blown or out-of-phase speaker. (See the "Idiot Check" sidebar.) The Audio-Technica AE2500 mentioned earlier was originally designed to be a bass drum mic, but is becoming a favorite for guitar amps. It has two discrete mic capsules in one body: one dynamic and one condenser. And because they're in the same body, they're perfectly time-aligned, which is an added benefit. Audio-Technica provides a special cable that terminates in dual XLR connectors to plug into the console, one for each capsule. Plug them in, blend as you like and you're good to go—quick and easy.

I've dealt with some thin-sounding open-backed speakers and combo amps (or a player

IDIOT CHECK

THIS MAY SOUND SILLY, BUT...

If you're miking a multiple-speaker guitar setup (2x12, 4x12, etc.), have someone play at a low volume or use a pink-noise generator at a low level to see if all the speakers are working and in phase. I have found on several occasions that one speaker in a cabinet may have been replaced but was wired out-of-phase (one time from the factory!).

Another common problem is too much cable. The more cable used in a setup, the more potential signal and frequency loss you'll encounter. If you're using more than 50 total feet of cable and the sound of the rig seems weak or dull, bypass the longer lengths of cable in the setup (or even plug directly into the amp with a normal 20-foot cable) and see if the sound improves. If it's necessary to use long cable runs, you may want to look into preamp/buffering devices. Certain stomp-box pedals can also degrade the signal (even in Bypass mode), so make sure you remove them from the signal path as part of your troubleshooting.

—Pete Keppler

that puts an amp on the floor, cranks the mid-range and treble controls, and tells you, "That's my tone," even though they can't hear all the nasty high frequencies aimed at their knees). A great solution for this situation is another two-mic method: front and rear. Just remember to phase-reverse the rear mic and try to keep the distances equal between the mics and the speaker. The rear mic will give you more bottom and less of the harsh overtones than the front mic.

An important factor when using multiple mics on a rig, especially on tour, is consistent placement. Mics on stands are easily bumped and moved, wrecking the time alignment and phase you worked so hard for. I've seen and used several semi-permanent mounting systems that work well. The LP Claw can often be used to mount a mic securely from the side of a cabinet, and there are many systems from Atlas, Audix, On-Stage

and Z-Bar that also work well. The added bonus is that if the cabinet gets moved (intentionally or otherwise), the mics stay put, saving you from running to the stage to reset them (or fishing a union stagehand out of the break room to do it, depending on the city you're in). For consistency's sake, it's also a good idea to mark your mic placement on the speaker grille with a thin strip or two of gaff tape.

Going Direct

Other techniques for capturing electric guitar involve using a direct input in the form of speaker DIs, load boxes and amp-simulation software, either on their own or with a miked speaker. While not exactly like a speaker moving a volume of air against a mic to produce the sound, you can often get very good results using speaker-emulating DIs on their own. The Palmer PGA-04, the Hughes and Kettner Red Box, the Marshall SE-100 and the Radial JDX all do a good job of filtering the signal post-amp to realistically mimic the effect a speaker has on the amp's output. And used on their own, they'll remove the clutter of mics, stands and cable from your stage if that's a concern. When used with a miked speaker, the time/phase alignment can get a bit tricky. The speaker-emulating DI signal will almost always arrive slightly earlier in time than the signal from the microphone due to the air gap between the speaker and mic. If you're mixing on a digital desk, it will be an easy fix: Using the channel delay function set to its highest resolution (either in samples or tenths of milliseconds) and the same environment as before (listening through one side of the P.A. or using headphones), slowly add a very small amount of delay to the DI signal. You should hear the signals "line up" in time as you do this. Using pink noise as the source can be helpful here as it may allow you to hear high frequencies more easily. It may also be easier to flip phase on one of the channels and adjust the delay until you hear the most cancellation, then flip it back and listen.

The isolation cabinet is yet another method for miking the amp/speaker system. They are a favorite for players that need to keep the stage volume low but want to crank up their amp to get the tone they like. Iso-cabs can be purchased ready-built and loaded with a speaker and mic mount (for example, the Randall Isolation 12C), but many musicians prefer to have them custom-built to accommodate a combo amp or 4x12 cab. An important note: The best-sounding isos I've used were all "vented" in some way. It seems when you seal a speaker and mic inside a totally airtight box, the

sonic result can get pretty weird. If you're putting a combo amp in an iso, you'll definitely need some air circulation for the tubes and electronics, but sound pressure is also an issue. While venting the box does allow a bit of sound to get out, the resulting improvement in sound far outweighs a little noise leakage.

There are plenty of software-driven units out there now that claim to take a guitar and make it sound like it's been run through a hot-rodged Marshall Plexi, a 1967 Tweed 4x12 cab with Celestion Greenbacks, and miked with a Neumann U87 three feet away and slightly off-axis, or many thousands of other combinations, all with chorus and plenty of vintage plate reverb. These boxes do have their merits: For the artist doing promo radio and TV shows, flying internationally on a tight schedule without time or a budget for freighting a lot of gear or hiring consistent rental equipment, these units can be very handy. For the artist on tour, it's a lot cheaper and easier to use as a backup instead of carrying a duplicate amp and speaker just in case the main guitar rig dies. I have not heard one that can replicate the sound of real tubes and a 4x12 stack—that just can't be beat.

Acoustic guitars can pose some challenges on a live stage depending on a few factors: the equipment you're using to monitor them (IEMs vs. wedges) and the volume at which you may want or need to mix them out front. In general, a decent microphone will sound better than almost any pickup, but the risk of feedback is far greater. For the engineer mixing a solo or duo acoustic artist or a low-volume show, using a system that blends a mic and a pickup can give you excellent results: Use the mic to get the more natural midrange and high-frequency tones from the pick and strings, and the pickup to fill out the rest. If you are dealing with an acoustic that has no pickup installed, there are several systems like this available: Fishman, L.R. Baggs and Barcus-Berry all make mic-and-pickup systems complete with preamp, mix, phase and basic EQ controls, and an XLR output. As with any instrument being picked up by more than one source, you'll need to adjust placement and controls for a good phase relationship between the two sources.

As for bringing an acoustic guitar into the mix from a louder stage, you may not be able to get away with using the mic input very much due to feedback and leakage. In the case of a guitar that already has a pickup installed (usually a piezo-type under the bridge saddle), the easiest technique is to use the pickup on its own with a DI, and correct as much you can at the con-

sole. The L.R. Baggs Para DI and the Fishman Pro-EQ DI are both great for this if you want to have more control: Each has a preamp and EQ tailored for dealing with acoustic guitars and their pickups, leaving your console EQ more available to enhance instead of correct. If you're still having difficulty trying to compete with amplified instruments and drums onstage, or you want to go the extra mile and get the killer rock-acoustic-guitar tone, try adding a separate magnetic pickup (usually mounted in the sound

hole) and blend it and the saddle pickup either onstage with a mixer/preamp system or at the console. The magnetic pickups usually will give you a lot less of the buzzy top end that some piezos are famous for. If you're dealing with a nylon-string guitar, the magnetic pickup is obviously not an option; the piezo-and-mic system would once again be a good solution. Piezo technology hasn't changed much since its inception, but the electronics have come a long way, and several guitar manufacturers now install good,

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FOH Effects

As for processing at the console, if you've been successful at capturing a great guitar sound at the stage, there's often little that needs to be done other than a little EQ. With electric guitar—depending on the player's style and technique, and the type of music—I have sometimes used a little gentle compression (1.5:1 or 2:1 ratio and just a few db of gain reduction) to keep a guitarist more present in the mix. I have also used multiband compression (also called "dynamic EQ") in a few cases where the player may have some radical changes in tone from the stage. Set properly, this will compress an offending frequency range only when it becomes too loud, leaving the rest of the spectrum uncompressed. For digital consoles, Waves, Serato and McDSP all make great software for this. In the analog world, the BSS 901 and XTA D2 are great hardware versions.

With a few exceptions, an acoustic guitar can be treated similarly. Some highpass filtering may be necessary to catch loud "thumps" or to help clear up the bottom end of a mix. A little compression can be useful, too, but be aware this may increase the risk of feedback. Using a slower attack time (20 to 40 ms) can be great for giving an acoustic more of a percussive edge in the mix.

An effect that can sound good on acoustic guitar is a stereo pitch processor or harmonizer. With the left pitch offset at -3 to -9 cents (not semitones) and the right at +3 to +9, feed your acoustic channel to it through an aux send and mix in the stereo effect return to taste. The higher the number of pitch offset, the more "chorus-y" this can sound. It is a great tool for making the acoustic sound larger and giving it more spread in the mix. This can also be great on an electric guitar solo for a slightly larger-than-life effect.

A lot of what I've described here requires time for setup and experimentation, and often a willing and patient guitarist. If you can get some time in a rehearsal space or during a few soundchecks, you will ultimately reap the rewards: better-sounding shows and a lot fewer headaches! III

Pete Keppler is the front-of-house engineer for David Bowie and Nine Inch Nails, and has mixed FOH on tour for Steve Earle, Suzanne Vega, Rufus Wainwright, The eels and many others. He is currently touring as the FOH engineer for Katy Perry.



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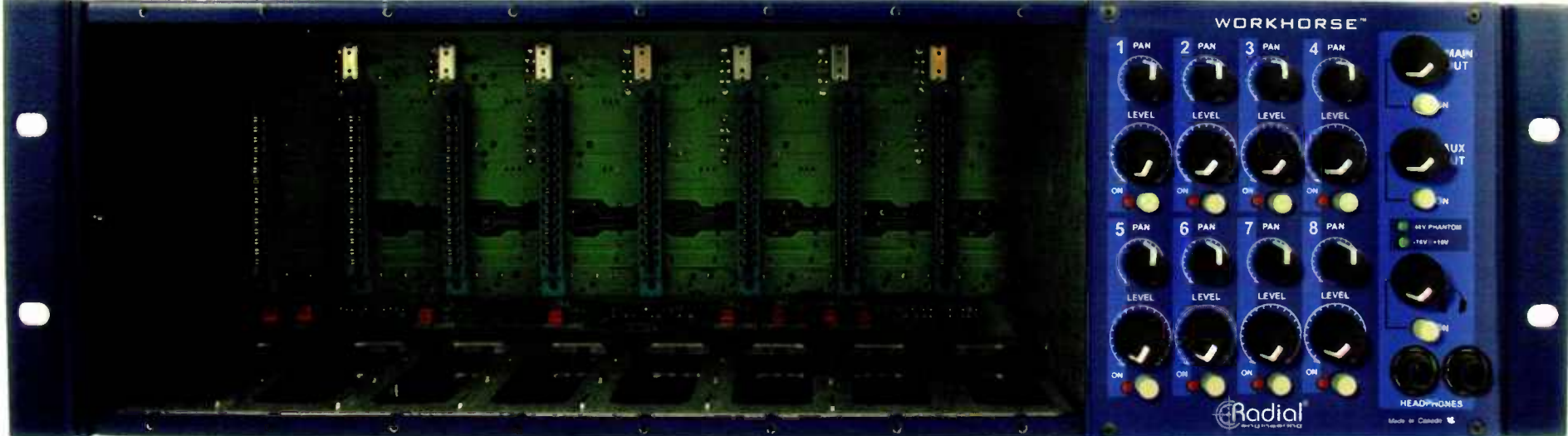
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PHOTOS: STEVE JENNINGS



Roger Waters (far right) performing with the rest of "The Wall" band

By Sarah Benzuly

Roger Waters The Wall Tour

RESURRECTING THE ALBUM WITH A LIVE TWIST

It's been 30 years since Roger Waters penned Pink Floyd's mind-blowing album *The Wall*. Fast-forward to today, and the same political issues, fear and stress on global matters that formed the basis of that album are still quite relevant—and Waters demonstrates this in his jaw-dropping, two-hour (with half-hour intermission) show. The double-disc album—played in its entirety on this tour—concentrates on the walls people build around themselves for survival. While this may seem like a purely philosophical topic, Waters also brings it into physical reality: By the

time the first-half of his performance is complete, a 36-foot wall made of cardboard boxes has been erected on-stage. Of course, the wall comes crashing down at the end of the second-half. As each box is put into its place, the audience's view of the band and Waters is slowly blurred out. Each box also displays occasionally chaotic video images, some of which include pictures of armed forces casualties, snippets from the original *The Wall* video, and B-52 bombers dropping crosses, stars of David, Islamic crescents and logos of Shell Oil and Mercedes Benz.

It's a visually stunning experience with top-notch sound, helped out by the incredible backing band: guitarists Dave Kilminster, G.E. Smith and Snowy White; background vocalists Mark Lennon, Michael Lennon, Kipp Lennon and Jon Joyce; keyboardists Harry Waters—Waters' son—and Jon Carin; drummer Graham Broad; and, of course, Waters on bass. Taking care of David Gilmour's vocal parts is second lead singer Robbie Wyckoff.

Tour manager/front-of-house engineer Trip Khalaf has been mixing for Waters since 1999, watching the artist



Top: FOH engineer/tour manager Trip Khalaf (right) with crew chief/system engineer Robert Wiebel. Below: monitor tech/RF tech Kevin Kapler.



become more comfortable in the limelight. “In 1999, he hadn’t done a show in 10 years and nobody knew what to do with it,” Khalaf recalls. “It was odd because Pink Floyd always tried to avoid the spotlight, so no one really knew who was in the band, except for the real diehards. It has been interesting watching it grow to what it is now.”

Analog Rules at FOH

For this run of 94 dates, Khalaf is manning three boards: a Midas XL4 to handle the stereo P.A. (more on that later), another XL4 to cover the band and the end of the second-half, and a Yamaha PM5D for surrounds and effects. “For the analog side of it, it’s because of the number of inputs,” Khalaf says. “There are two bands, really. The front XL4 does all of the main stage—which is behind the wall—and the one on the left [another XL4] does all of the surrogate band, the forestage.” Inside the effects rack are Lexicon 480s and PCM91s, TC Electronic D-Twos, an H3000, a Helicon vocal double, Aphex gates on drums, Crane Song STC8 on basses, TLA100s on vocals and dbx 900 on background vocals. Why XL4s? Khalaf replies: “Because I’m tired of pretending that digital audio sounds as good as analog. It doesn’t. This record was made when people cared deeply about sound quality. These days, that is not as important as the size of the video screen on your console. If it comes at me analog, it will stay analog.”

Those surround speakers are Clair R4s clustered in three configurations—left, right and rear—that handle the playback and sound

of the surround effects need to be controlled all the time, mostly because the height of those surround clusters varies from building to building. I have the VCAs linked between the two XL4s so that I can more or less control that left-hand board from the main board.

“I actually have snapshots in the analog board using the VCAs and the mutes,” he continues. “But you have to turn up the guitar solos and maybe the drummer’s laying out a little bit. It’s mixing the show; things aren’t always the same every night. I always change my approach a little bit. ‘Okay, I mixed it this way last night and it was pretty good, but let’s feature this a little bit and pull it out.’ It’s a constant rethink where you are and reacting to different buildings. I’m trying to maintain the balance of the chaos that is with mixing any band. This one’s a bit less chaotic than most; actually, not that chaotic—they’re a great band.”

The forward-thrusting P.A. is a prototype Clair i5D. Explains Khalaf, who has been a senior engineer at Clair for the past 37 years: “We’re the guinea pig. I like it a lot; it’s a bit more coherent. The original i4 was one 18, four 10s and a couple of horns. There’s two philosophies to this. You can either put a lot of low end into the air, which really pisses off lighting designers, or you stack a bunch of sub-lows on the floor and beat the people in the first 10 rows half to death. Clair’s philosophy has always been to put as much of the low end in the air as you can and use the sub-lows simply as an add-on to move a bit of the air and couple more ef-

fectively with the floor. Putting all that stuff into one box gave us the opportunity to smooth out a lot of the anomalies with the original cabinets. The problem with it is that it’s big. We were a bit worried about it when we first started, but we found it’s smaller than a staging dolly, so no one really cared. I wouldn’t want to push one of those across a field in Montenegro...actually, keep me out of Montenegro.” In addition, there are eight i5s for side coverage, 12 B218 subs under the stage and eight FF2s as front-fills. All of this is powered by Crown analog amps.

All Digital on the Monitor Front

Whereas FOH is a mostly-analog affair, monitor world maintains a purely digital approach. Monitor engineer Robin Fox mans a DiGiCo SD7, working with around 60 inputs for all 16 ear mixes (on JH Audio in-ears) and the 42 12AM Series 2 wedges; monitor amps are Lab. gruppen 20ks. Monitor tech/RF tech Kevin Kapler says that they are scanning for about 42 operating channels of wireless, though he calculates for about 54. Kapler uses a TTi handheld analyzer with an A04 8200 scanner. For the Sennheiser 2000 Series transmitters, he uses a Pro Wireless IE5 program to coordinate the frequencies, citing that the beauty of this system is that he can sync it.

Included in his wireless roundup are the mic models, which include a Shure U4D (though both Waters and Wyckoff will also sing through a hard-wired 58) and wireless Shure mics for background vocals. “We’ve got about a half-dozen wireless just for the acoustic instruments,” Kapler adds. “This includes all the wireless for the end of the show, where the musicians will come out with an accordion, ukulele, et cetera.”

While Waters is very involved in the sound of his show (they record a DVD each night that he’ll review for any tweaks; in fact, Khalaf says they haven’t nailed down the arrangements quite yet), the artist and FOH engineer have a great working relationship that allows Waters to do what he does best and to give Khalaf the air to mix the show as he sees fit. “He’s absolutely involved, but the great thing about being a front-of-house engineer in the final analysis is that the artist has no idea what you’re doing out there; they just have to trust you,” Khalaf says. “He lets me do what I want to do. This is one of the last great traditional rock ‘n’ roll tours. I sometimes wonder if I’ll ever be able to do something this rewarding again.” III

Sarah Benzuly is Mix’s managing editor.

ALL ACCESS

Photos and text by Steve Jennings



Vocals/guitarist
Rivers Cuomo sings through a Beta 58 capsule on a Shure UR2 handheld transmitter. The other seven vocal mics are Audix OM7. According to guitar and keyboard tech Tracy Robar, Cuomo's setup comprises a Diesel VH4 head through a Marshall 412 with Celestion 25-watt, miked with an SM57 and a 409 condenser.

WEEZER MEMORIES TOUR



At each stop on their Memories tour, Weezer holds that city hostage for two nights—one for each of their chart-topping '90s albums: *Weezer (The Blue Album)* is performed from top to bottom on the first date, and *Pinkerton* on the next. While the crowd is rocked down memory lane, the band also throws in some other hits, B-sides and songs from their latest, *Hurley*. *Mix* caught the *Pinkerton* date at San Francisco's Nob Hill Masonic Auditorium.

As the tour is not carrying boards for this run of dates, front-of-house engineer Ted Keedick specs a Yamaha PM5DRH or an Avid Profile. "The mix with Weezer is pretty straight-ahead so I would generally not use additional plug-ins," Keedick explains. "As for outboard rack gear, I like to have an Avalon 737 for my lead vocal and an Eventide H3000 for vocal effects."

The tour relies on house-provided (or rental) P.A. systems; Keedick prefers a Clair i5, Martin W8LC, d&B J Line or a JBL VerTec. "There are a lot of good boxes out there these days," he says.

According to Keedick, monitors are generally mixed on either a PM5D or Profile. Each performer has a stereo IEM (Sennheiser G2 systems with AC 3000 eight-way antenna combiner and an A 5000-CP helical antenna) mix. There is also a sub cabinet on the drum riser and stage-left key riser. There are stereo IEM mixes for each performer plus a sub cabinet on the drum riser and stage-left key riser.



From left: Tracy Robar, stage-right guitar/keyboard tech; Eric K Sanger, drum tech; Doug Forsdick, stage-left guitar/keyboard tech; Ted Keedick, FOH engineer; and Narci Martinez, production manager



According to drum tech Erick Sanger, Josh Freese (left) plays the kit during the first set and Pat Wilson (below, left) comes in for the second set. Mics include Beta 52 (kick drum outside), SM91 (kick drum inside), SM57 (snare top), Audix D2 (snare bottom), Audix D4s (toms), SM81 (hi-hat, percussion) and AKG 414 (overheads).



Pat Wilson, who plays guitars on the first set, uses a Peavey 5150 head through a 5150 Fender 4x12; mics include SM57 and a 409. He also plays a Nord Lead virtual analog keyboard.



Brian Bell plays a '63 Gibson SG and a Gibson Explorer through a Matchless Independence 35 amp. "The mics vary with the revolving FOH chair, but the SM57 is almost always there with some kind of condenser, usually a 409," says guitar tech Robar. His footpedal gear comprises a BOSS Acoustic, Distortion DS-2, FS-5L and Chromatic Tuner TU-2; Pro Co Rat distortion; Electro-Harmonix Holy Grail Nano; and a Heil Sound Talk Box. He also plays a Moog Little Phatty analog synth through a Line 6 DL4.



Bassist Scott Shriner plays through a variety of models including a Mesa Boogie 400 head, Ampeg SVT Classic, Mesa Boogie 4x12 cab and Ampeg 8x10. According to stage-left guitar/bass/keyboard tech Doug Forsdick, "These setups vary all the time. We use the Evil Twin bass DI and a 421 mic on the cab. The Roland 404 sampler (inset) is used on the songs 'Greatest Man,' 'Pork and Beans' and 'Troublemaker.'" On "Greatest Man" and "Hash Pipe," Shriner uses Moog Taurus pedals. His pedal gear comprises three gain/overdrives by Wren and Cuff, a Line 6 Blue pedal for a rotary effect and a new Electro-Harmonix POG. Shriner also plays a Dave Smith Prophet '08 8-voice analog synth and a Moog Voyager.



Tech

ROAD-WORTHY GEAR



Mains or Monitors

Mackie TH-12A Powered Loudspeaker

Unveiled at last month's NAMM show, Mackie (mackie.com) expands its popular Thump Series with the TH-12A (\$389 MSRP), a powered, two-way, 12-inch Thump Series loudspeaker. Onboard Fast Recovery™ Class-D amplification provides 400W of total system power to the 12-inch woofer and 1-inch compression driver. A rear panel 3-band EQ lets users adjust for simple room correction or system tone. The active crossover includes transducer alignment, while protective circuitry prevents overload and thermal shutdown. The pole-mountable enclosure can also double as a stage monitor.



Fingertip Control

PreSonus

StudioLive Remote iPad App

The StudioLive Remote software for the Apple iPad from PreSonus (presonus.com) offers wireless remote control of any PreSonus StudioLive digital mixer's channels, auxes, effects, subs, Fat Channel processors and more. StudioLive Remote provides multiple views of key StudioLive mixer controls, and is a true iPad app, not a port. The Overview displays the most-used parameters, such as channel levels, mutes, panning, EQ curves and more for multiple channels at once. The Fat Channel view allows navigation between the gate, compressor, EQ and so on with the flick of a fingertip. The app is free and part of the Virtual StudioLive computer-control system that ships with the company's 24- and 16-channel digital mixers.

The Personal Touch

JHAudio PRO Series In-Ear Monitors

The PRO Series feature JHAudio's (jhaudio.com/promusic) precision-balanced armatures, three-way crossovers and up to -26dB background noise attenuation. Four models are available, custom-fit and tuned to the user's ear shape. The JH10X3 PRO (\$799) has a single low, midrange and high-range driver and a 20-17k Hz response. The \$850 JH11 PRO has dual low drivers with a single midrange and high range, and a 10-17k Hz response. The first 6-driver in-ear, the JH13 PRO (\$1,099), has dual low, midrange and high-range drivers for a response of 10-20k Hz. The only 8-driver in-ear on the market, the \$1,149 JH16 PRO, has double dual lows, single dual-midrange and single dual-high drivers for a 10-20k Hz range.



Well-Arrayed

WorxAudio TrueLine V5

The TrueLine V5 (\$1,984, retail) from WorxAudio Technologies (worxaudio.com) is an ultracompact line array with a 1-inch exit compression driver on a FlatWave™ wave-shaping device and dual 5-inch cone transducers coupled to an Acoustic Intergrading Module (A.I.M.) to minimize cone filtering. The passive, 16-ohm V5 has 120-degree symmetrical horizontal coverage and 10-degree vertical dispersion. The multi-ply Baltic birch enclosure weighs 30 pounds and has a black or white finish and steel grille. Custom TrueAim™ rigging hardware with 1-degree increments can easily array the system to the desired coverage in flown or ground-stack mode, or it can be pole-mounted for portable applications.



Series Expansion

QSC GX7 Power Amp

Delivering more power in a reduced weight package, the GX7 (\$699 MSRP) is the newest model in QSC's (qscaudio.com) GX Series of power amps, featuring 725W/ch. @ 8 ohms; 1,000W/ch. @ 4 ohms; and 1,200W mono bridged into 4 ohms. Its two-tier Class-H design creates a lightweight powerhouse, weighing a mere 15.5 pounds for the 120V version. Cooling is aided with a low-noise, variable-speed fan with rear-to-front airflow. Like the GX3 and GX5, the GX7 features XLR, ¼-inch TRS and phono input connectors; Speakon and binding post outputs; built-in subwoofer/satellite crossover control; detented gain knobs; front panel LED indicators; and GuardRail™ amplifier and speaker protection. III

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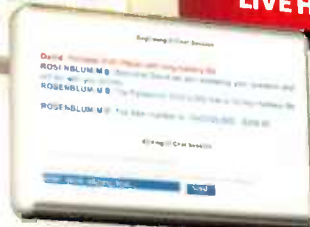
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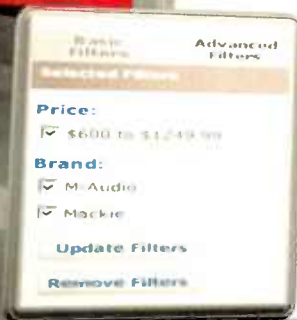
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Avid VENUE Live Console

Tips on Making the Transition to Digital Mixing

Over the past couple years, we've noticed a trend of more studio engineers going out with the band, taking on a front-of-house mixing role for the tour once the group hits the road. With that in mind, we spoke to Avid senior market specialist (and award-winning live sound mixer) Robert Scovill, who shared some advice for Pro Tools—savvy studio engineers taking this leap into live sound and using Avid's VENUE Series consoles.

First Things First

"It might seem obvious, but the first step for a studio engineer moving into working with VENUE is realizing that with live sound, the performance is *outside* the box," Scovill says. "You have to change your mindset somewhat—you can't treat your audio 'tracks' as a constant every day, but what can be a constant is everything you've built up inside the console.

"When beginning to use VENUE, some Pro Tools users stumble a bit because it runs on snapshot automation rather than run-time automation. When mixing live, there usually is no time base, unless the band is slaved to a clock or click track, so the source inputs vary from day to day. Live mixing is more hands-on, but using snapshots can be set up to be very repeatable. There's an element of live sound automation that has to be very nimble, especially if the artist takes a left turn during the set list or somebody messes up and puts in an extra chorus. You have to be able to adapt to any changes that might happen."

According to Scovill, it's also important to be aware of the differences between two inherently similar topologies. "The Pro Tools mix engines and the VENUE mix engines are built on the same technology but purpose-built for different applications. The VENUE engines are more robust, with more redundancy features such as the ability to continue mixing with all plug-ins working, even if the host computer fails.

"VENUE is *not* a tactile interface for Pro Tools. It might look like an ICON and operate in some ways like an ICON, but it's a stand-alone

control surface with a mix engine that does not control any aspect of the Pro Tools mix engines. Pro Tools operates as an attached recorder/playback device. Now with inter-op, we've established meaningful communications between Pro Tools and VENUE via Ethernet. We also have some marker transfer, so when you recall a snapshot in VENUE, it can place a marker of that name in a Session, and once you're done recording, that makes it very easy to navigate [through] a Session from the VENUE surface. When you're in Virtual Soundcheck mode, it will push Pro Tools to that location and go into play. This also makes it easy to do editing after a show. For example, creating post-show MP3s can be a 20-minute process instead of hours."

Gain Guess

As with many digital products, there are always a few tricks that aren't so obvious to the casual user. "VENUE is a digital console, but we scale meters in an analog fashion so you'll see a range on an input meter that's scaled from -30 to +15 dB, and zero translates to -20 dBFS on your Pro Tools recorder," says Scovill. "You have to be very aware of where you're setting input levels to make sure you're getting as high a resolution of conversion as possible. We have a feature called Gain Guess that helps to use this effectively. Once you're in Input Attenuator mode, you can hold down on the encoder and let it sample the input signal, analyze it and set it to the proper value so it's optimized for both the console and Pro Tools. Setting input gain becomes a no-brainer."

Another simple but useful tip involves us-



ing the Fine settings on the console vs. the Coarse settings. "When the console boots up, it's in Coarse mode, meaning about two turns can move through an entire range of a pan or EQ boost. If you double-click on the Fine mode, it takes about 10 or more turns to go through the entire range. I always suggest doing setup in Coarse mode, then switch to Fine mode from the time the house lights fade to the end of the show. This is particularly useful for monitor engineers, especially those mixing for in-ears, where you really need a higher resolution of control. You just have to push the button twice and it stays in that mode.

"I also encourage live sound engineers to get away from using the trackball/mouse unless you're in a setup mode," Scovill continues. "You shouldn't need to have your hand on the mouse the entire night. With all the encoders and control built into the console, the encoders will operate every aspect of the mixer—including plug-ins. It's a console so operate it as a console. Trackballs can be scary in a live environment, where you might be trying to adjust something and your hand slips or your arm gets bumped, and what was to be a 2dB adjustment becomes a 20dB increase. So get off the trackball, get on the encoders in Fine mode and let's go to work." ■

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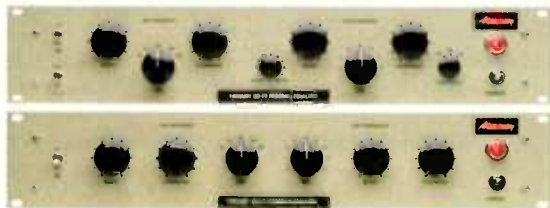
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The MoiyN is an all-discrete 8-channel summing amp that turns the Purple Audio Sweet Ten 500 Series rack into an 8x2 mixer.



PROAC STUDIO 100

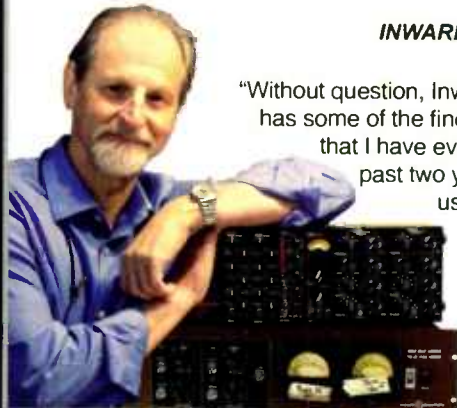
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- Ron Saint Germain



WUNDER PEQ2R MIC PRE/EQ

The Wunder PEQ2R is a classic-sounding 1073-style mic pre/EQ with high-pass filter in a 19" rack-mount format.



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Lehmannaudio StudioCube Headphone Amp

Lehmannaudio's StudioCube headphone amp (distributed by transaudiogroup.com, \$499) is compact, comes with stand (optional) or desk mount, and is linkable for daisy-chaining multiple units. I/O is on Neutrik ¼-inch TRS headphone outputs and Neutrik XLR/TRS stereo input/thrus. Features include mono/stereo input selector switches, and front panel LEDs to monitor input signal presence and overload. The output is Class-A, and all units are crafted with selected components in Germany.

Packed With McFeatures

McDSP V. 5 Plug-Ins

Now shipping, McDSP (mcdsp.com) V. 5 includes AU support, the new 6030 Ultimate Compressor plug-in, Classic Pack V. 5 and Emerald Pack V. 5. In addition to Pro Tools, McDSP V. 5 plug-ins now support Logic, GarageBand, Digital Performer, Ableton Live and other AU-compatible DAWs. Supported formats include Mac OS 10.5.x (Leopard) and 10.6.x (Snow Leopard), Mac PowerPC (RTAS only) and Windows. The 6030 Ultimate Compressor offers 10 different compressors, some designed completely from the ground up by McDSP, mixed with unique twists on vintage emulations. Prices are \$449 HD or \$249 Native, or as an upgrade to Emerald Pack V. 5 for \$349 HD or \$299 Native.



Analog Meets Digital

Universal Audio

Studer A800 UAD-2 Powered Plug-Ins

Mac and PC users can now purchase Universal Audio's (uaudio.com) Studer A800 Multichannel Tape Recorder (\$349) plug-in for the UAD-2 platform. Modeled by UA with help from AES magnetic recording expert Jay McKnight, the plug-in faithfully models the entire tape path, including input, sync and repro paths and circuit electronics of the hardware, plus the sounds of four distinct tape formulas and calibration levels.



Resting Assured

Rycote SRND 360 Mic Mount

Milab Microphones (milabmic.com) and Rycote (rycote.com) collaborated on a custom version of the Rycote InVision USM (Universal Studio Mount) suspension for the Milab SRND 360 surround mic (price TBA). To fit the 60mm barrel of the Milab SRND 360, Rycote designed a modified version of the USM. The microphone mounting ring is acoustically decoupled from the rest of the suspension by the use of Rycote's patented vibration-resistant Lyre clips, made from a nonelastitized thermoplastic that is virtually indestructible and can be bent completely out of shape but always returns to its original form.



Remotely Engaging

Switchcraft 900 Series DI Box

Now available with a Jensen (\$900) or custom transformer (\$900CT), the 900 Series (\$230) is a revolutionary new concept in DI technology from Switchcraft (switchcraft.com). The unit can be operated in two modes: Manual mode lets users control ground lift switch from the DI's toggle switch, while Phantom mode allows users to control ground lifting remotely using +48V phantom power from the console. When phantom power is engaged, an LED is illuminated, indicating that the ground is lifted. When phantom is turned off, the LED turns off, indicating that the DI is grounded.



New Version, Plus a Bonus

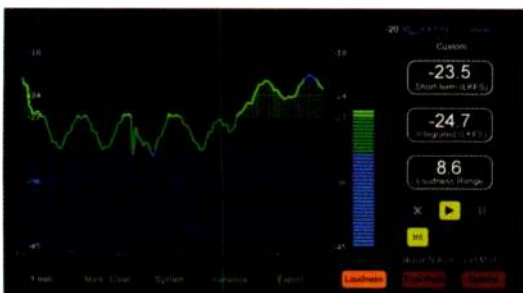
Antares Auto-Tune 7 TDM

Following the release of Antares' (antarestech.com) Auto-Tune 7 Native versions, Auto-Tune 7 TDM (\$649) brings the latest incarnation of the world's largest-selling audio plug-in to Avid's Pro Tools HD platform Version 7.2 or later. The software includes a second generation of Antares' Evo™ Voice Processing Technology, a new from-the-ground-up time-manipulation system, new MIDI capabilities in Graphical mode and more. As a bonus, Auto-Tune 7 TDM also includes a license for all of the Auto-Tune 7 Native versions. Supported formats include Mac OS X (10.5.x and above) and PC (Windows 7, Vista and XP).

Out-Standing

IK Multimedia iKlip iPad Mount

The new iKlip™ (\$39.99) mic stand mount from IK Multimedia (ikmultimedia.com) makes it easy for anyone to use an iPad in any live or studio setting. With the iKlip, users can securely position any iPad for optimal viewing and accessibility, while all controls, buttons and connection ports remain free from obstruction. iKlip features sturdy thermoplastic construction with six secure touch points that hold the iPad without scratching or marring it, and multi-angle adjustment in both landscape and portrait orientation.



Get a Handle on Levels

NuGen Audio VisLM Metering Plug-In

NuGen Audio (nugenaudio.com) has released VisLM, its standard compliant loudness metering solution that's capable of measuring loudness in both LKFS and LUFS from mono sources, through to 5.1 surround (RTAS/AudioSuite/VST and AU formats for Windows and OS X). VisLM is fully compliant with the latest loudness standards ITU-R BS1770, EBU R128 ATSC A/85 and many other regional localizations, offering a complete professional solution to loudness and true peak metering for mix, mastering, film and broadcast. VisLM is available in two versions: VisLM-C (compact, \$299) and VisLM-H (\$449), which, in addition to ATSC/ITU/EBU mode metering, provides a loudness history trace and data export. III

Manley MicMAID

Router for Quick Audition/Recall of Mics and Preamps

It's seldom that a truly unique audio product comes onto the market, but the Manley MicMAID is one-of-a-kind. Simply put, it is a router that allows for quick recall of any single combination of four mics and four preamps at the push of a button. For instance, you can have a single mic and audition it across four preamps, or conversely, have four mics and audition them across a single preamp, or any combination up to 4x4.

On the back, XLR I/O is plentiful, featuring four mic inputs, four outputs to preamps, four preamp returns and four preamp direct outs. The key to the whole system is the single MON/REC output, which lets you run any mic/preamp combination to a single channel of your recorder. This output is also the only way to take advantage of the infinitely variable phase control and ± 19.5 dB level matching gain trim (in 0.5dB steps) on each preamp's output. The phase control feature comprises a 180-degree Polarity Flip button, Bypass button, and a High and Low band button. It uses an active all-pass filter network with a capacitor inserted to change the crossover frequency when the High switch is engaged.

Front-mounted features include DI input and Thru (on TS jacks), ground lift switch, fader input for riding levels to your recorder, variable phase controls, 4x4 matrix switcher, four mic switches, an Instrument input toggle, four phantom power buttons, a "Lock" feature, and a gain trim knob that doubles as a menu controller.

PRODUCT SUMMARY

COMPANY: Manley Labs
PRODUCT: MicMAID
WEBSITE: manley.com
PRICE: \$3,500

PROS: Great way to audition mics and preamps in quick succession. Super-clean signal path.

CONS: Occasional popping when switching sources during a transient peak.



The MicMAID features variable phase control and gain trim for level matching.

Clean Machine

Although the box is a simple router in concept, there are some things to get your head around. For instance, to keep the user from switching 48 VDC whenever a different mic is selected, phantom power can only be applied from the MicMAID itself. This keeps clicks and pops from happening while switching mics/preamps and protects mics, like ribbons, from accidentally receiving phantom power. When phantom power is not engaged, it's a hard-wire connection from input to output. When the MicMAID is providing phantom power, there is just one capacitor in the signal path, offering negligible change in impedance and phase. MicMAID will sense and block any incoming phantom power displaying "bP" (bad phantom) if it detects phantom coming from a connected preamp. It will temporarily disable the signal path where it senses phantom, and the corresponding PRE button in the matrix flashes until the offending voltage is turned off at the preamp. After a short delay, the unit will unmute and become operable again.

Wanting to be sure I wasn't skewing results by inserting the MicMAID into my review chain, I put the unit on the bench and ran some tests with an Audio Precision APx500 system. The folks at Manley boast a clean signal path throughout, and they're not fibbing. (See full test results at mixonline.com). From preamp in to out, with the Variable Phase inserted, the APx500 measured distortion at a

slight 0.008 percent and 0.003 percent without the variable phase feature engaged. It is dead-flat out to 10 kHz and only 1.75 dB down at 80 kHz. With gain trim at full volume +24.167 dBm (at 600 Ohms), the distortion figures were the same and the unit was still flat out to 10 kHz, but only -2.5 dB at 80 kHz.

The MicMAID is marvelous in use. You can quickly jump between setups and then lock a mic to a preamp. I especially liked the gain-matching controls and how easily it allowed me to compensate for level changes between preamps and mics. You can store setups internally for future use, and although I didn't use it, the option to add a fader to the output is brilliant.

Am I a MAID Man?

The Manley MicMAID is a mind blower. It does what all great gear is supposed to do: disappear after setup and reveal the truth beyond the box. This product does something that once was impossible: offer users the ability to audition different mic/preamp combinations in succession without patching or delay. I was able to get a bead on my front end signal chain in short order and make better recording decisions. I found mic/preamp combinations that worked, then moved on to other applications where I found more. There were occasional clicks when I switched mics during high transient peaks, but that was rare and negligible. The MicMAID gets high marks in all sonic categories and makes you a better engineer, and you've got to love that. III

Wavemachine Labs Drumagog 5 Drum-Replacement Software

Upgrade Raises the Bar With New Sounds, Features and GUI

Version 5 of Wavemachine Labs' drum-replacement software maintains the easy operation of past versions while adding new features and math under the hood, as well as introducing a redesigned GUI, all of which create a powerful, user-friendly production tool. This scalable software lets you opt for as much versatility as you can afford. I reviewed the full-throttle Drumagog 5 Platinum (\$379) version, which includes many new extras. Next down the line is the Pro version (\$289), then Drumagog 5 Basic (\$149).

Dynamically Versatile

One of Drumagog's best features is its complexity of dynamic range and randomness. It features an unlimited amount of dynamic groups. The included "GOG" files preload different samples into each velocity step. Some of the included sets assign samples to a mere three or eight steps, while other more complicated sets work particularly well for drummers who play with a wider dynamic range as they are able to reproduce the greater variation in velocities. The real benefit is that one sample isn't necessarily paired with each velocity cueing threshold, but with an entire group of samples. From there, Drumagog's engine randomly plays one of the samples in that group corresponding to the velocity of the hit that is being replaced.

For example, one GOG file might contain five different quiet snare rattle sounds, five snare rattles with more stick attack, five medium snare cracks and five really hard whacks with the shell resonating. When replacing a snare hit of medium volume, any of the five medium hits might play. This way, even if the performance is very consistent in dynamics, always cueing the same threshold, no single sample will necessarily play over and over. The result is astonishingly realistic.

PRODUCT SUMMARY

COMPANY: Wavemachine Labs
PRODUCT: Drumagog 5
WEBSITE: drumagog.com
PRICE: Platinum, \$379; Pro, \$289; Basic, \$149

PROS: Easily achievable, very believable drum replacement.

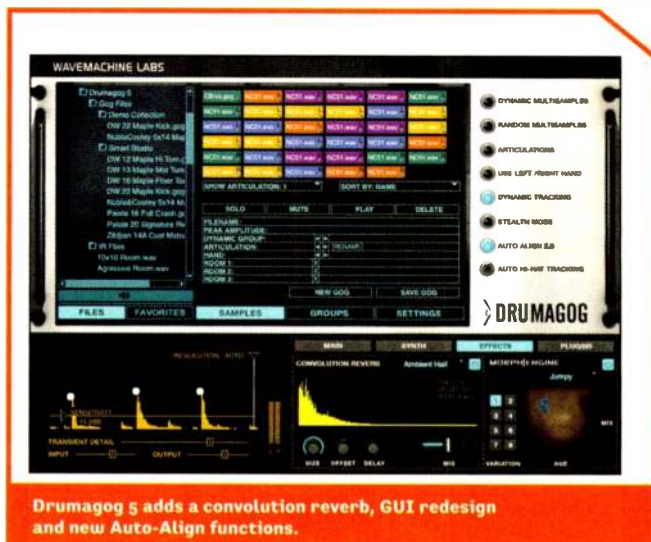
CONS: CPU intensive. Auto Hi-Hat Tracking slows responsiveness.

New Features

Drumagog's tracking engine was re-engineered in V. 5, which improved its accuracy. The software also incorporates an automatic phase-alignment feature (this was previously set by the user). Subtle frills and rolls were never neglected, and the phase-compensation engine seemed to work well. When blending original sounds with the sampled ones, they always seemed to add together well without having to adjust polarity or phase.

A new feature, Auto Hi-Hat Tracking, lets the plug-in automatically adjust in response to a hi-hat performance, gradually moving between open and closed articulations, and steps in between. I was impressed with the realistic feel this creates, although the whole engine seemed to track more slowly with the Auto Hi-Hat Tracking on, missing the detail of rolls on the hi-hat. The algorithm's success will vary greatly based on the style of music involved. This feature also adds additional latency on top of the considerable latency that the plug-in imparts on its own.

The V. 5 GUI received a complete makeover and has a more polished and modern look. Thankfully, it no longer has pictures of drums being struck, which made it look like a toy. There's a built-in convolution reverb and an effect called Morph|Engine. I'd rather add reverb to a drum mix outside of a single Drumagog instance, but Drumagog's included reverb sounds are quite usable, if wanted. Morph|Engine is a filtering effect that makes drums sound more synthetic or electronic. While Morph|Engine's interface is simple to grasp and easy to automate, it relies more heavily on presets than precise customizable controls; again, my personal inclination would be to use filters outside of this plug-in to achieve such effects. Sonically, Drumagog 5 adds room sounds to



Drumagog 5 adds a convolution reverb, GUI redesign and new Auto-Align functions.

many of the GOG files, which greatly enhance the ability to sculpt the kit's overall sound.

Drumagog 5 includes a generous library of different snares, toms, cymbals and kicks in a range of styles. There are good-sounding brushed snares, big meaty rock snares and electronic drum sounds that are all preconfigured into useful GOG files. And if you need to customize, building your own GOG files is simple and intuitive—although tedious—using the built-in editor. Drumagog 5 also offers plenty of powerful controls to fine-tune sounds to perfection, and the graphics make those controls very accessible. Be aware that Drumagog 5 is CPU-hungry and is recommended only for use with DAWs that have delay compensation.

I'd certainly recommend the Pro version, just for the sake of the Auto Align V. 2 engine and the pitch control. The main pluses for upgrading to Platinum are the Convolution Verb, Morph|Engine and Hi-Hat Tracking, and the ability to host any VST instrument within Drumagog and directly cue samples (such as BFD's) using the Drumagog engine. Unless those are real draws, I'd say stick with the Pro version. I highly recommend Drumagog 5 as a comprehensive solution for drum replacement. III

Brandon Hickey is an independent engineer and film audio consultant.

Equator Q12 Studio Monitors

Coaxial Design With Networking, Room Correction

Coaxial loudspeakers are hardly new, having been around for more than half a century, but Equator Audio Research has modernized this venerable design with its Q Series speakers. Onboard bi-amplification, networking, built-in DSP, calibration software and a continuously variable digital crossover all work together to fine-tune this historic design.

Functional Cubism

The Q12s are formidable-looking boxes. To mount these 65-pound speakers safely, you'll need a reinforced meter bridge or heavy speaker stands. The 17x17x17-inch enclosure comprises a 0.75-inch-thick, 13-ply Baltic birch front panel with a shaped 1-inch high-density fiberboard that minimizes cabinet resonance. Rubber pads on the bottom decouple the cabinet from its resting place, although Omni-Mount-compatible mounting holes on the bottom offer other mounting options. Dual 3-inch front ports can project a lot of air in the low frequencies. A multifunction display on the front baffle indicates power, communication, volume and limiter status.

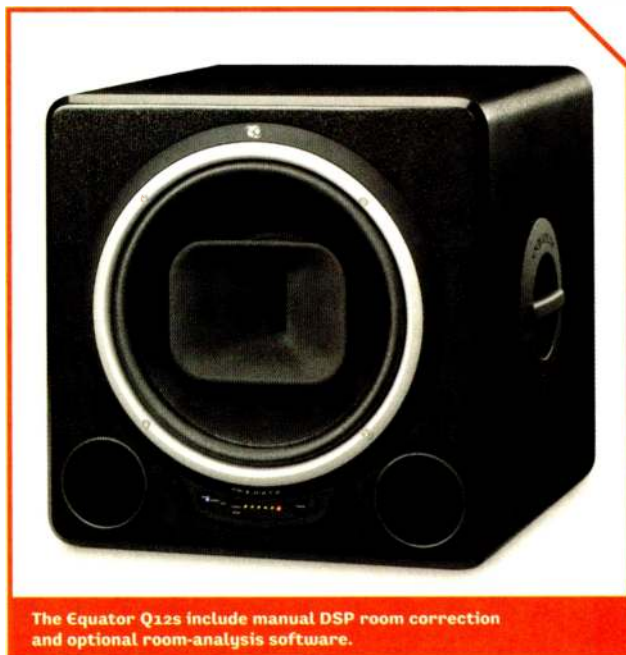
The back panel has an IEC AC socket, power switch, XLR and TRS inputs, USB, RS-485 in/thru and a series of DIP switches. The latter identify the individual speaker, which group it is in, and whether or not the Room Correction is enabled. No digital inputs are available.

PRODUCT SUMMARY

COMPANY: Equator Audio Research
PRODUCT: Q12; Equator Room Analysis Kit
WEBSITE: equatoraudio.com
PRICES: Q12, \$2,795 each; Equator Room Analysis Kit, \$495

PROS: Great-sounding, full-range monitors. Networking. Manual and Auto room correction. Point-source timing correction.

CONS: No digital inputs. No mic pre with ERA software. No Cat-5 or USB cables included.



The Equator Q12s include manual DSP room correction and optional room-analysis software.

The speaker configuration comprises a 12-inch Fiberglass-impregnated woofer that's fast and punchy. It reproduces high frequencies using a coaxial, custom 1.5-inch titanium compression horn driver. The frequency response is rated at 30 to 22k Hz (-3 dB/2 π). The low end goes really low; I had no problem feeling the kick drum. Even with an extended bass response (for a small cabinet), I never felt as though it was "hyped" in any manner while listening to all types of music, nor was any port turbulence in evidence—bass instruments were never muddy. The horn sounds smooth all the way out to its rated top end. Cymbals had no nasty upper-harmonic resonance, as was the case in older horn-based coaxial designs.

The two point-source transducers are bi-amplified with the low-frequency RMS power at 500 watts and HF at 200W; double those specs for peak operations. This equates to 117dB SPL with both channels driven. Alongside the electronics' power amp portion sits a CPU that is designed to match the output transducer's frequency response with the power amp. This seamless interaction matches the ever-fluctuat-

ing electrical characteristics of frequency vs. power vs. impedance. The CPU also handles what Equator calls the "no-slope" crossover point, reducing midrange distortion at and around the crossover point (centered at 1.5 kHz), providing an increase in the midrange SPL.

Sonic Networking

Every Q Series speaker has onboard, manual DSP. I used this feature before running the optional Equator Room Analysis software. Starting with the speakers off, I configured the DSP switches, connected the USB to a Mac G5, and then plugged a Cat-5 cable from the thru port on that speaker into the next speaker. I launched the Equator Control software, which searched for and immediately found both speakers in

the network.

This provided a graphic display of my configuration, complete with a mixing console stationed in the middle. A series of tabs at the bottom of the display offer choices for system configuration, audio source, manual room-response calculations, speaker placement, room analysis (optional), selected speaker response, LED brightness, 5.1 controls and more.

After running the Equator Control software and inputting my room dimensions, I noticed that the bass response tightened very slightly. This seemed justified as the software adjusted the speakers to cut -6 dB at 17 Hz and -3 dB at 43 and 71 Hz. I looked forward to running the Equator Room Analysis (ERA) software to see how it would handle an established build-up from a first reflection at 160 Hz.

Automate My Response

The ERA software costs an additional \$495. For that price you get a calibration mic, a mic clip, a windscreen and the software on a USB stick. One thing you don't get is a mic preamp. I find this slightly disheartening, as other cali-

bration software systems I have used recently have made this portion of the calibration process much more streamlined and trustworthy. Granted, most studios will have a mic pre heading into the input of an interface, but what if they don't?

After installing the ERA software, I connected the included mic to a preamp and set the gain so that the meter inside the software wasn't overloading. As requested, I input the maximum room dimension and ran the Auto-RRC (Room Response Correction) routine. A countdown gives you time to get out of the way of the test, and then a sweep tone is produced. A graph is then displayed for your selected speaker—each speaker is calibrated individually from the single mic placement. I then saved the file as Auto, along with the Manual file setting that I had obtained previously, as well as Flat. I then loaded these three preferences into Auto-RRC's Quick Access Presets for A/B comparisons. The Auto-RRC software did, indeed, find the 160Hz issue and calculated a -1.8dB cut at 159 Hz.

A/B'ing those three responses made my room anomalies quite apparent. The Manual corrections let a lot of the bass frequencies through, obviously not compensating for any of the early or secondary reflection corrections made by the Auto sequence. The ERA software flattened out the response of the listening position, producing a much more accurate representation of every musical source I put through the speakers.

Music Around the Equator

On first listen, I found the speakers to have an unusually narrow sweet spot. However, I was using them in a near-field situation and these transducers will work more accurately—and more within their design parameters—in a mid-field position. After working with the speakers for several weeks, this perception started to diminish as I became more accustomed to their reproduction characteristics. My experience: The more I played them, the better they sounded.

What I found truly remarkable was the clarity of vocal tracks. There was none of the expected "honk" of a horn pointing at me. Guitars—whether grinding metal or more soft-spoken—were reproduced with great detail. The punch of well-recorded kick drums was extremely tight. Imaging is solid, with a well-defined center image. The separation of

instruments is quite pleasing. With the correction software in place, eliminating boundary reflection issues (along with the point-source timing and phase accuracy of the treble and bass frequencies) made for a great listening experience. I experienced virtually no listening fatigue after long periods of living with the speakers.

I was initially concerned with the "old-school" approach of having a large horn embed-

ded in the middle of a woofer, and the diffraction and turbulence that are associated with such a design. Apparently, Equator has calculated, compensated and lessened the effect of these physical characteristics through the use of modern computer technology. In this price range, these monitors are a definite "must listen." III

Bobby Frasier is an audio consultant, recording engineer and educator.

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Sennheiser HD 800 Headphones

Large Ring Transducer Offers Greater Detail, Definition at the Top

Headphone reviews are tricky. As these products are worn by the user, they are more “personal” than other audio gear. It’s like reviewing a pair of shoes: The feel makes a big difference in customer satisfaction. High-end headphones take it up another notch, with components made from rare materials and described in terms reserved for audiophiles. New technology is often in play, as is attention to detail in hopes of offering a unique ownership and listening experience. The Sennheiser HD 800 headphones are in this rarified air and for the most part deliver what they claim: a top-notch and very comfortable listening experience.

In Your Ear

It all starts with the transducer, a new ring-shaped design for which a patent is pending. Sennheiser’s explanation is that while a larger diaphragm surface area offers better low-frequency performance, it also generates oscillation at higher frequencies. The HD 800’s answer is its ring-shaped, 56mm-wide transducer, 40mm coil and 42mm magnet system. The coil has 98 windings using wire that’s just 42 micrometers thick. The space between the two magnets, where the coil oscillates freely, is 0.6mm wide. The driver oscillates in a more controlled way due to the large coil and the two supporting surfaces. These tight specs mean that each unit has to be fitted and tested by hand, which contributes to the HD 800’s hefty \$1,399.95 price tag.

The large circumaural ear cups are very comfortable and the headphones themselves are gorgeous in design. The cords split from the main cable, which is nearly 10 feet long, to feed each ear, and they use twin-core, high-perfor-

mance, Teflon-insulated connections. The braided cloth covering the cord reduces handling noise to near zero.

The headband is a metal layer covered with several layers of plastic chosen to ensure that oscillations are not transmitted to the headphone mountings. The ear pads are covered with Alcantara, a synthetic that feels like suede but is actually woven from polyester and polyurethane.

Between the ear pad and the driver, Sennheiser uses stainless-steel mesh that opens the ear to the outside. I prefer this design, which is similar to Grado’s SR Series. It’s less fatiguing than completely closed headphones, but it limits their use to personal listening as there would be leakage issues in some studio cue applications.

The Sound

The documentation’s somewhat hazy specs state that the HD 800s reproduce frequencies between 6 Hz and 50 kHz (-10 dB), and 14 and 44.1 kHz (-3 dB). The frequency response chart was odd in that it depicted more of a square-wave fluctuation of frequencies rather than what I’m used to. I don’t usually go by manufacturer specs—although they can provide a good starting point for making an evaluation—but these were of little use.

It was on my head that the HD 800s strutted their stuff. As stated earlier, they are extremely comfortable. As with all great headphones, the detail is brutally honest and takes some getting used to. The absence of room modes, resonating surfaces and even slight off-axis anomalies make for a very revealing listening experience. I tested these across a wide range of music from digital and analog sources. Delineation between instruments is excellent. While lows don’t have the thump of a sub moving air in a room (Prince’s *3121* helped with this bit of eval-

uation), the HD 800s are true and not hyped. The midrange is very smooth if slightly understated in the vocal range around 1 to 4k Hz. The highs are not hyped but “open.” I get the same feeling when I’m listening to beryllium tweeters: There is more definition at the top without being over-the-top or phony-sounding.

The HDs Are Hi-Def

What I liked most was the HD 800s’ musicality. After stripping away what most listeners rely on to enjoy music, air and room interaction, these still offer a balanced and smile-inducing experience. As a consumer, taking off my engineer hat I give them high marks. Listening to vinyl records and losslessly recorded digital material was a pleasure. As an engineer, I found myself wanting to get another shot at some mixes after hearing my work with the HD 800s. These are honest and give a level of detail that you simply can’t get with speakers, no matter how good they are. I’d rely on the HD 800s 100 percent as a mixing reference and gut-check. III



The HD 800s use a patent-applied-for ring-shaped diaphragm.

PRODUCT SUMMARY

COMPANY: Sennheiser
PRODUCT: HD 800
WEBSITE: sennheiserusa.com
PRICE: \$1,399.95

PROS: Impeccable fit and finish. Musical, balanced reproduction. Comfortable.
CONS: Price and openness at the top may deter some buyers.



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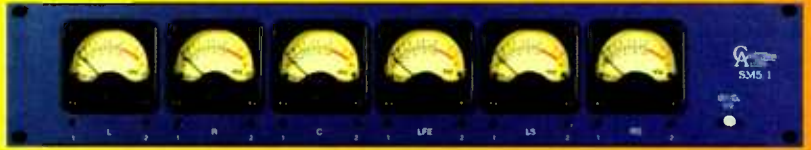
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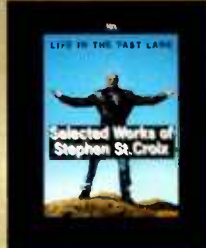
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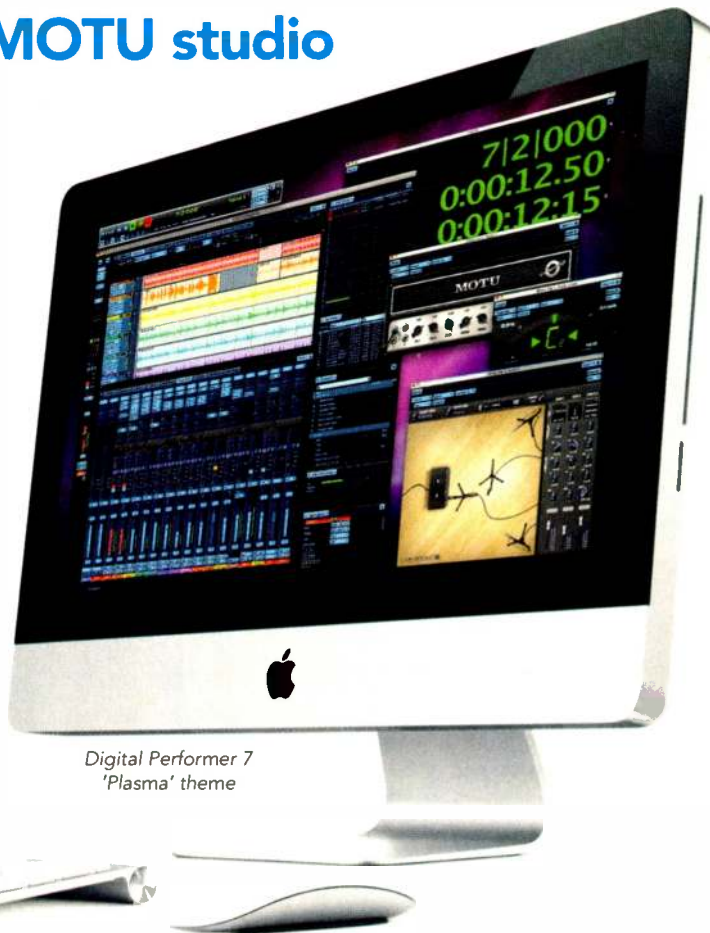
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The ultimate all-in-one. Turbocharged.

With new Dual-core Intel Core i3 and Core i5, and quad-core Core i5 and Core i7 processors, plus advanced graphics, the new iMac is the fastest, most powerful iMac yet. New Turbo Boost technology dynamically increases the speed of available cores for processor-intensive applications like Digital Performer, virtual instruments, and effects plug-ins for extra performance on demand — in an all-in-one computer that's as beautiful as it is powerful.



Digital Performer 7
'Plasma' theme

XLR mic cable adapter
is included.



MOTU MicroBook

Studio-grade I/O that fits in your pocket

Welcome to studio-grade personal recording that fits in your pocket. Plug in your iMac, mic, guitar, keyboard, speakers, and iPod, and enjoy pristine audio performance that rivals expensive interfaces costing hundreds more. You get all the I/O you need for a complete personal studio.

Shure KSM44A

Large-diaphragm, multi-pattern condenser mic

The flagship of the KSM line — and the new must-have mic for any MOTU studio. The KSM44A is a go-to mic you can count on for great results in just about any DP project, with extended frequency response specially tailored for critical studio vocal tracking. The dual-diaphragm design lets you select among cardioid, omnidirectional, or figure-8 pickup patterns.



MOTU

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McDSP Emerald Pack v5

Premium plug-in processing for DP7

McDSP's world-renowned emulations of vintage equalizers, compressors, tape machines, and channel amplifiers, combined with custom console modeling, and the latest technology in convolution reverb and mastering limiters, are now available for Digital Performer 7 in the AU-compatible Emerald Pack v5.

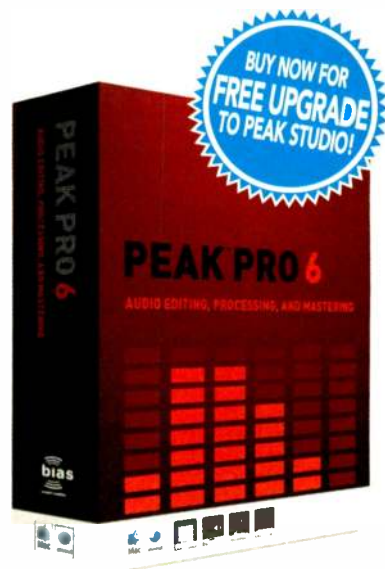
Winner of a 2009 *Electronic Musician* magazine Editors' Choice!

BIAS Peak Pro 6

Mastering, restoration, and delivery for DP7

Whether you're a musician, a sound designer, an audio editor, a multimedia producer, or a mastering engineer, Peak Pro 6 offers more creative potential than ever before. Used side-by-side or launched directly from within DP7, Peak Pro 6 offers comprehensive restoration, mastering, and delivery tools to streamline your workflow with industry-renowned sonic quality and precision. Peak LE and Peak

Pro XT are also available — call your Sweetwater Sales Engineer today!



Genelec 8040A

Active bi-amplified studio monitor

With performance comparable to much larger systems, but in a compact package, the bi-amplified Genelec 8040A is ideal for use in many MOTU studio situations where wide frequency response is needed but space is limited. Use the 8040A for nearfield monitoring in project/home studios, edit bays, broadcast and TV control rooms, and mobile production vehicles.

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Dave Morgan

Top front-of-house engineer still going strong after four decades of mixing.

You've been mixing for Cher in Las Vegas for three years. That's a real change from touring.

Don't tell anyone, but it's the best gig anyone could ever have. We go in around 4 in the afternoon and we're out at 9:30. Living out here, I never had to get on a bus. If it weren't for the fact that I love working for James Taylor more than anyone else in the world, I'd never give this up.

I'm going back out with James in mid-February through the end of July, and then go into rehearsal for an extended Cher tour that starts in September. So I've got the next two years planned out, which is pretty good for a live sound guy.

You started out as a musician.

I started playing guitar in paying gigs when I was 14, but at the time I wanted to be a hockey player.

And now, years later, here you are in the center of hockey arenas.

That part of my dream of making money in hockey arenas did come true, but it took a catastrophic injury to convince me to stay with music. And good thing I did because now, at the advanced age of 61, I'm still at it. I do it because it's fun. I work with amazing people, and I'm making good money doing what I love.

How did you make the jump from being a musician to doing live mixing?

A buddy of mine and I had a demo studio in Hollywood. We shared the facility with a band called El Chicano, who we also recorded demos for. One day, El Chicano's house guy was sick so they asked me to mix their show for about 8,000 people at USC.

After that, I worked as a staff engineer at studios in Hollywood. It paid like dirt, so I also worked nights at a country music club called The Palomino. A couple years later, someone

from AI Audio recommended I talk to [AI owner] Al Siniscal about working with them. Al had me work with his whole roster of Vegas acts—Connie Stevens, Wayne Newton, and I even did monitors for Diana Ross. I'd work with a different act every weekend—sometimes just setting up speakers—but one night I was a cable pager for Frank Sinatra. Frank didn't like wireless mics so he sang into an SM58, with me on the side of the stage letting the cable out as he'd walk out and hauling it in as he moved closer. On some other Frank dates, I was at front of house. It was an interesting baptism into live sound.

Then Al put me on the Doobie Brothers crew, and I ended up mixing them. When they broke up in 1982, we were all really disappointed. I stayed with Mike [McDonald] after that and did his first two solo tours.

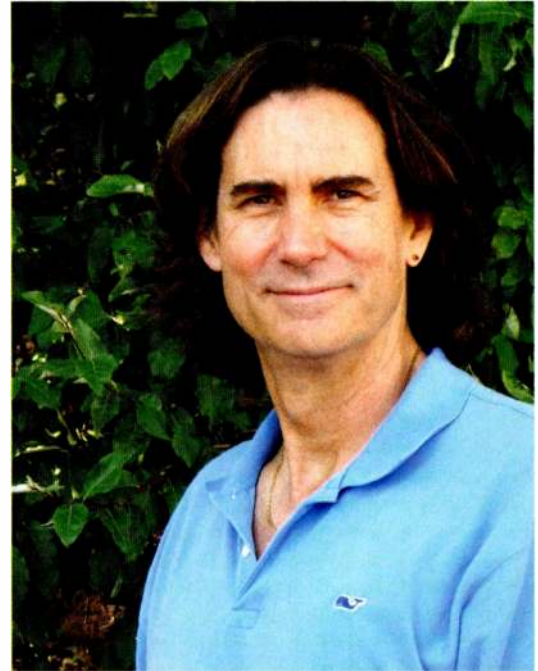
Somewhere along the line, I ended up being Dirk Schubert's partner in the original Schubert Systems. Dirk went out and did the tours. I stayed behind to run the office. I did five years as a sound company owner and hated every minute of it. Eventually, Dirk and his dad bought me out and I went back to mixing. Soon after, I was doing Whitney Houston and that led to mixing Paul Simon.

Of all these tours you've mixed, do you have a personal favorite?

Musically, Paul Simon's *Born at the Right Time* was the best thing I've ever done, but *Grace-land* is a favorite for everything it represented in terms of the politics of South Africa and how important—and emotional—it was. Being a part of that gave me a sense of pride and gratification that will never go away.

And 140 inputs from the stage.

It was astounding, but *Born at the Right Time*, with the 40 Brazilian percussionists mixed through two Gamble EXs, was also a labor of



love, especially on the Central Park show with 750,000 people. We did 162 shows in 36 countries for that tour. My 21-year relationship with Paul has been about as good as it gets for a front-of-house guy. It was the pinnacle of my career until James Taylor lured me away.

Every day I work with James is the best day of my life. It's like we're brothers, and working for James at this point in my career is the ultimate achievement for me. I always coveted Buford [Jones] for having that job and I never had a chance to mix James because I was so busy. Finally in 2005, I got a call from James asking me to mix his tour. Working with James is like comfortable old shoes and his band is stunningly good. It's the best thing in the world.

So after 41 years of live mixing, you're still with it?

As long as my body holds up, my spirit is definitely willing. I've looked at other things along the way but haven't found anything nearly as rewarding. There's nothing like stepping back during a show for a few seconds, listening to the P.A. and watching the faces of the people in the room. When it sounds good and everybody is grooving to the show, that feeling is unparalleled. I love my job. ■■

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