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CONTENTS

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Talk Box

THE TIPPING POINT

It's a wild and wackily screwed up world we live in sometime. Toilets flow the other way down under, jazz is a "niche" market, and while *no*, might certainly mean *no* in many places, try telling that to someone who in the quest to have their stuff sound "just like it does on the radio" is trying to have their band make the loudest CD *ever*. And before I lose you completely: This letter is being written at a kitchen table sometime in mid-December so to a certain degree I *am* prognosticating about that wondrous world of the future called February that we may or not be right or wrong about.

Which is perfect in way. Perfect since this issue . . . this ENTIRE issue is one, long, lovely, super screed on going BACK to the drawing board. Back to the board with the able assistance of our resident and invited panel of experts who will try to breathe some life and *breadth* into whatever the hell it is you *are* doing sitting behind that board or perched in front of your DAW for solid hour after solid hour.

How, what, why, where?

Well, last year this time, this very issue we ran 100 TIPS. And you dug it so much, when you weren't telling us how much you hated/loved us for slights real and/or imagined, that you said so and loudly proclaimed that you would nail it to your bathroom wall for repeated readings. Or something. And so we did it again. And because we are mighty defenders of the righteous cause we DOUBLED the tips, QUADRUPLED the tip givers, and covered and overlaid the production process with sage advice both ridiculous *and* sublime.

So while JERMAINE DUPRI, snubbed for producer of the year, but maintaining a large bed of cash at home to cry himself to sleep at night on, is our cover cat, this issue has the proverbial IT ALL. That is, everyone who is anyone giving away the secrets to the store in the name of engaging, entertaining, enraging, educating, and a bunch more E words not fit for a family publication, YOU.

And just in time for Valentine's Day. Now isn't that sweet?

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World Radio History

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If everybody's got their 2 cents and we talk to everybody in the painful process of pulling from the deep, dark recesses of their secret minds what about their process makes their process so great well the way we figure it that's, um...wait...carry the 2...add the sine wave to the differential and you get...oooohhh...we're not so strong in the *math* department...OK, you get the square root of –2? Wait, that's our yearly bonus. **How about...**

200+...TIPS, TRICKS, AND A THIRD THING THAT BEGINS WITH THE LETTER *T* and has everything to do with doing what you do better, faster, and stronger. Courtesy of... JOE BARRESI, Bart Thurber, BUTCH VIG, Carmen Rizzo, Scott Colburn, BARRY CONLEY, Jim Roberts, Rich Tozzoli, CRAIG ANDERTON, Tim Green, JOE CHICCARELLI, AL SCHMITT, DAVID Z, Darren Rust, Dave Rat, EDDIE CILETTI, Cliff Goldmacher, JEFF GLIXMAN, FRANK FILIPETTI, Ken Walden, Anthony Collins, JJ BLAIR, KEN SCOTT, MICHAEL C. ROSS, JERMAINE DUPRI, and a cast of, well, a few more that's who.

DIG IN.

10 STUPENDOUSLY USEFUL & DEVILISHLY CLEVER TRICKS

by Craig Anderton

1 USB memory sticks are getting really cheap, especially the sub-32MB models. So create a text file with all your software authorization codes, passwords to websites where you get your updates, activation codes, serial numbers, and the like. Save this to your USB stick for backup — it's a pretty robust medium.

2 Your client wants a loud CD. You want something where you don't have to use a *nom de plume* like Alan Smithee to avoid embarrassment. Compromise time: Bring down the gain of entire sections that are loud, without compressing them. Then bring up the level of the whole file, and add a bit of compression to bring up the average level. Mission accomplished.

3 Life was complicated enough when software was a work-in-progress, but now hardware has joined the "to be announced" club. Specifically, DVD-RW drives tend to be picky about the media they use, but firmware updates can make them more accommodating. Check the drive manufacturer's website for firmware updates, and follow installation instructions

ONES!!!!

SET PHASE TO STUN

How 'bout the word "Phase"??? Does anybody know what it is or does? Phase is a tricky thing to pinpoint...it can make your tracks tighter and have more punch, and it can create some really interesting effects too.

by Joe Barresi

11 To see if two tracks are in or out of phase, try panning them to the same position and hitting the phase switch on one of the tracks (assuming there is a switch). If the sound gets fuller or has more bottom end, then they are now in phase. Whenever I start a mix, I always bring up all the drum faders and check the phase on every track. I like to start with the kick and snare and compare them with the overheads, the toms, the room, etc. If there is a sample involved, listen to the kick against its sample, the snare against its For those of you who like to look at music, zoom in on the two tracks and see if the kick and kick sample have similarly shaped waveforms. If they look like opposites, then flip the phase on the one that needs it.

12 A neat way to make bass guitar fatter (besides checking phase with the phase switch) is to actually move the amp track ahead or the DI track behind a little so they are better in phase and time. Back in the olden days, we would put the Direct bass thru a delay line and move it a few milliseconds back to be more in time with the amp sound. These days of DAWs, it's easy to slide a track ahead or behind to make it fit better. OR even better yet, try a box like the **Little Labs IBP**. It stands for In Between Phase and it's a box that lets you sweep the phase of the signal going through it from 0 to 180 degrees. What a great tool. My old **Countryman phase shifter** did sort of the same thing until it broke. . . .

13 Speakers pushing and pulling can also be lumped in the phase category . . . although absolute polarity is probably a better

to the letter. Otherwise, your drive might end up in worse shape than when it started. And make sure the electricity doesn't go out while you're updating, either. But if it does. . . .

4 Panic time! The lights are down, something's not right, and you can't see what's going on with your pedals, your rack, or whatever. *Got cell?* Whip it out, and open it up. The screen will actually generate a fair amount of light, especially if you have a white screen or bright picture as a background.

5 The "industry standard" for space between songs on a Red Book CD is two seconds. But it's a standard, not a law. Don't be shy about tightening up the space, or extending it, as the material requires.

6 When you want to add dynamics control to a tune, be aware that loudness maximization and multiband compression have different effects on stereo imaging. Multiband compression generally "spreads out" the soundstage a bit more, whereas loudness maximization tends to preserve the stereo imaging better.

7 Always listen to a CD all the way through *in mono* as well as stereo before sending it to the duplicators, just in case there are strange phase things happening that will come back to haunt you.

8 Making your own Red Book CD? Great. But when you place the markers that indicate the start of a song, don't butt them right up to the beginning. Instead, put them at least 15–20ms before the beginning. Some cheapo CD players overshoot the mark when seeking the start of a cut.

9 Have a picture book sitting around your studio with really beautiful images (for example, pictures of earth from space or Vargas pin-ups — whatever turns you on). When there's a creative block due to excessive time spent in left-brain mode, images can sometimes kick-start the right (creative/intuitive) side of your brain.

10 With a dual-monitor setup, try not to mix LCD and CRT screens. The CRT may need to be set to a "lowest common denominator" refresh rate, which can produce nasty flickering that will drive your eyes bonkers after awhile.

200+

term. A simple 9 volt battery can tell you a lot about a speaker's phase. Simply hook up the positive terminal of the battery to the positive terminal of the speaker, the negatives to the negatives. In theory, when the positive tip of the battery is touched, it should push the speaker outward. If the speaker is out of phase, it will appear to suck in. In a multi-speaker guitar cabinet, it is important that all the speakers are moving in the same direction. The mics in front of each speaker will be different if they are wired wrong, and the sound of the cabinet in the room will be odd and not as solid as it could be. I have seen situations where two cabs were wired out of phase, or an amp driving one is out, and when they are both running simultaneously, the sound disappears or gets very thin.

14 When listening to a set of speakers while mixing or tracking, the sound coming out can be fuller and tighter if the speakers are both pushing instead of pulling in. It's amazing how flipping the phase on a set of speakers will make the mix coming through them either tighter and more

defined, or more distorted and soft on the bottom. This could be a result of a pin 2 pin 3 situation where the mix gets flipped through a piece of outboard gear, a 2-track (Studer/Ampex were opposite polarity), or simply an amplifier or speaker set that is opposite your console outputs. Try it with your favorite CD and see if you can hear the difference.

15 Sometimes intentionally putting something out of phase can make it bigger and more unique. On a 4x12 guitar cab with several mics on speakers, flipping the phase on a mic and blending it in can create some unique filtering effect that might make a sound cut through better in a mix. Flipping the phase on one side of a stereo pair can also make it appear to travel outside the

speakers . . . a great effect on backing vocals and reverbs.

16 Leakage is also a big issue when dealing with phase . . . a mic on a drum kit is not just picking up the source in front of it...it's picking up everything near it, and depending on the type of mic and pattern it has, can be a real challenge to isolate. Learn how to listen to leakage and fine tune those engineering skills to make multiple mics better in phase with each other. Sound Replacer isn't the remedy unless you are totally screwed.

17 Distant mics, whether they are on drums, guitars, whatever can also be moved to be better in time and phase . . . I've seen all kinds of solutions from measuring the distance from the snare to both overheads, the kick to two room mics, getting out a calculator to see what distance a certain waveform develops at, etc. The bottom line is that by flipping a phase switch, paying attention to better mic placement, and actually listening to what you are recording, your understanding of phase and your recordings can be greatly improved.

18 BUTCH VIG: OVERDUBBING GUITARS WITH A BULLET

"I've got a technique I use when I overdub guitars. First, get a white noise tone generator (or just a loud hum from the guitar amp). Then send the microphone feed to the mixing desk and CRANK it through the headphones. Next, you'll want to carefully put the headphones on and — as you move the mic around — you'll be able to hear the high and low frequencies change as you get phasing anomalies. Warning: Make sure the assistant engineer keeps the guitarist away, so he doesn't plug in and blow your ears out! I usually end up placing the mic where it seems like I can hear the maximum high and low end responses. When you are finally ready to overdub the guitar parts, if it still doesn't sound good, then to hell with it . . . forget everything I just told you, and place the mic where it looks cool!"

They've given their lives to music. We owe them something in return...
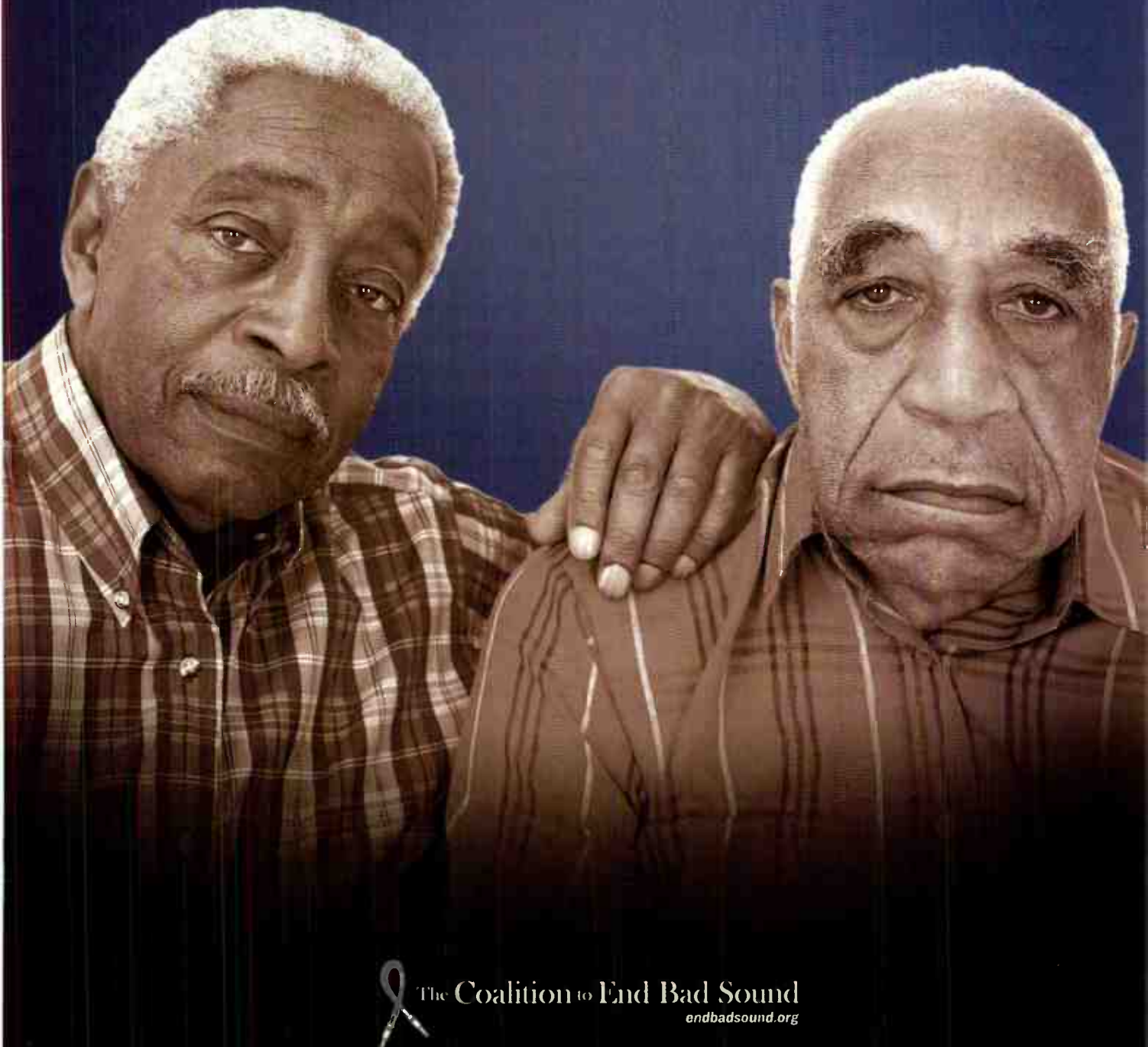
200+

EDDIE CILETTI'S TEN E-Q-TIPS

As a geek, people see my views as way outside the box: curds and whey too technical, if not restrictive or even distracting. But it's really just another perspective, scientific intuition if you will, or perhaps science instead of seance. Funny thing is, two people can say the same thing two different ways, one could be the key to unlocking a stubborn brain, the other won't ever get in the front door. But don't take my words for it, check out the Joe Chiccarelli/Ken Scott interview [December 2005, *EQ*]. It's the most right-on interview I've ever read. Rich Tozzoli also wrote in that same issue about cleaning up low-end mud.

So here's the *yin* to his *yang*. . . .

19 KNOW THY SPACE: Pump a 40Hz tone into your control room and walk around with blue and white masking tape, making white marks where the tone is hot and blue where the tone is not. The results may suggest that you redefine the optimum listening position, especially helpful when struggling with low-end issues.

20 PROXIMITY EFFECT: Download the response curve of your fave directional mics and if they don't include proximity curves, ask the manufacturer for them. Using lots of close directional mics can build up track mud that's much easier to tame if you know freq range and how much to pull out.

Sennheiser e609 response detailing proximity curve and MD-421 showing bass roll-off curves to compensate for same.

21 BACK OFF: Relative to my glorious Tip 20, get some distance between mic and sound source. If backing off increases unwanted leakage, make a house out of MiniTraps. Cozy!
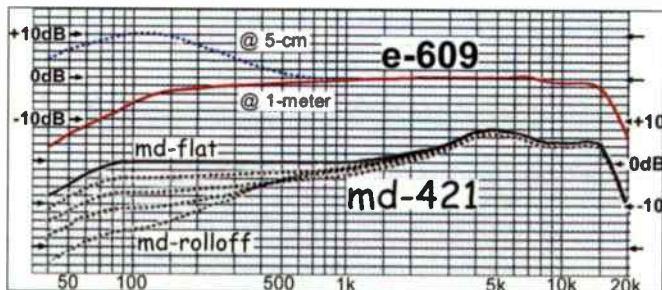
22 Relative to Tips 20 and 21, try more **omnidirectional mics**, there's no proximity effect (and make more houses if necessary.)

23 HOW THE EAR HEARS: The ear always wants more bass (Google "The Equal Loudness Curve"), so be sure you can hear it, NOT by pumping it up in the mix but by listening on full range monitors or using a subwoofer (or getting your room in shape).

24 BOOM SHA-KA-LA-KA: Next time you track drums, zoom in on the waveform and take a close look at polarity *and* phase. Often times you can buy more punch and low end just by lining things up, not just polarity, but phase too. Lining up the kick won't necessarily line up the snare, so choose which drum needs the most help.
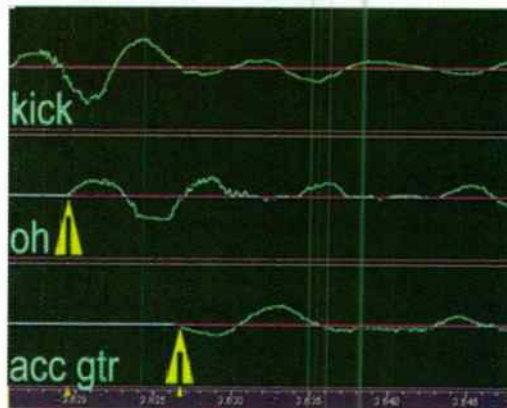
The speed of sound reveals itself in these three waveforms. At top, the initial impact of a kick drum and below, its leakage is delayed by the time it reaches the kit overhead mic, as well as a nearby acoustic guitar mic.

25 MUDDY WATERS: When managing tracks that are collectively muddy, it helps to have a subwoofer if only to reveal sub-sonics. Use a combination of a hi-pass filter (to remove the lowest of the low rumble frequencies) combined with subtracting via either a low shelf or wide bell curve in the 125Hz to 250Hz range. Drums and guitar are good candidates (even kick, because there's often more "down there" than you think or hear), especially if the goal is to make more space for the bass.

26 FOR METAL HEADS: Your biggest challenge will be getting drums to compete with chainsaw guitars. Refer to Tip 21 using the darkest mic possible — ribbon preferred or an original Sennheiser e609 (not silver) from about three feet away. Then use a stereo pair from behind the cab to capture more room — this will make the guitars sound bigger without competing so much with

Using lots of close directional mics can build up track mud that's much easier to tame if you know freq range and how much to pull out.

the kit. To make more real estate for the lead vocal, without pushing it in the mix, use the vocal to drive a compressor side-chain input to nudge the guitars back. Use both high- and low-pass filters to make the guitars a bit smaller than you might like, but keep in mind that Mix buss compression (and mastering) will pump life back into them, wrapping them around drums and vox.

27 ENERGIZE: To get more energy from your tracks or mix, process in layers, using a peak limiter first, 6dB of limiting MAX! Don't just use a plug-in, but DO capture the processed track to make sure the limiter is doing its job.
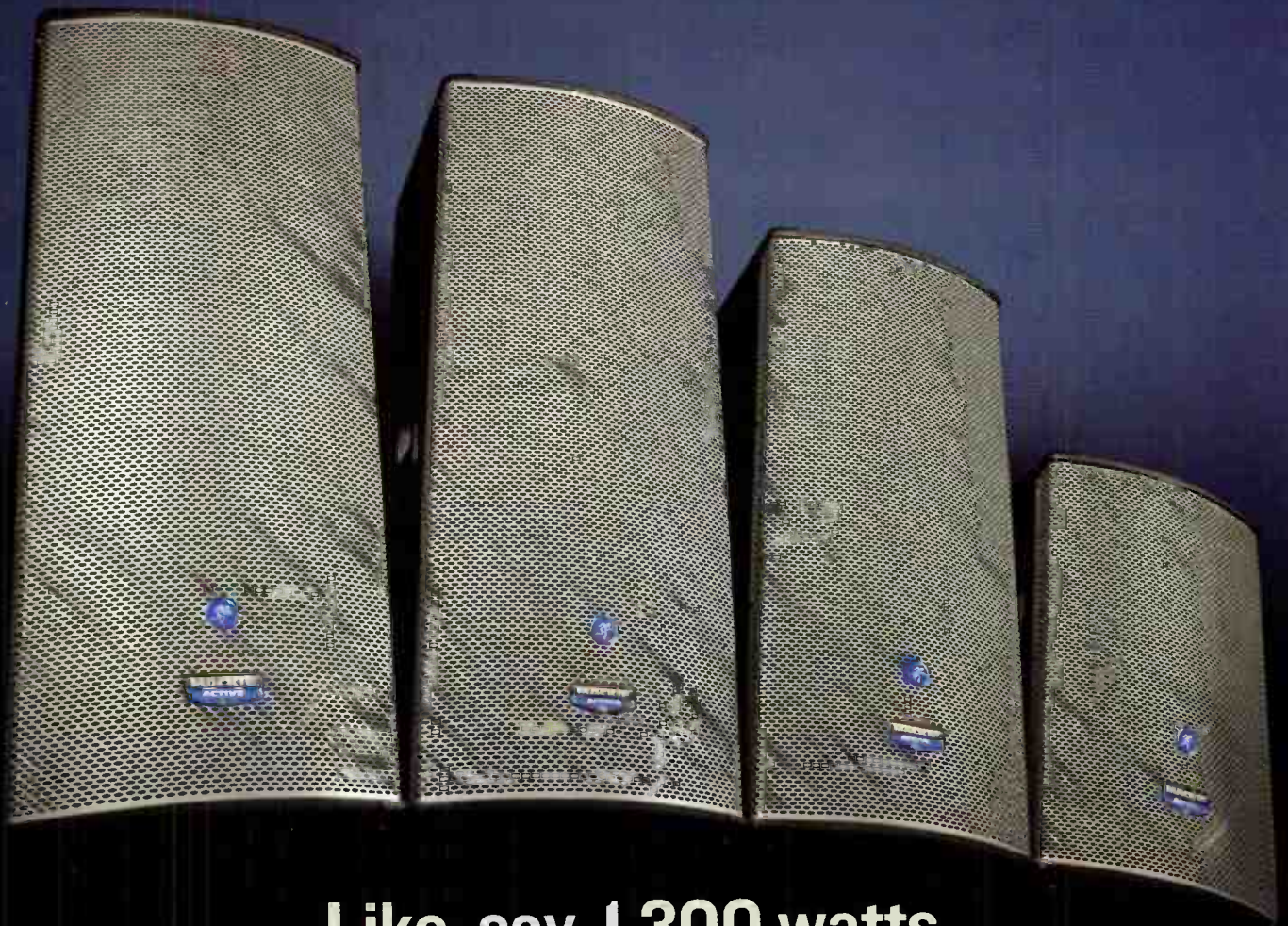
Like, say, 1,300 watts of clean, integrated power.

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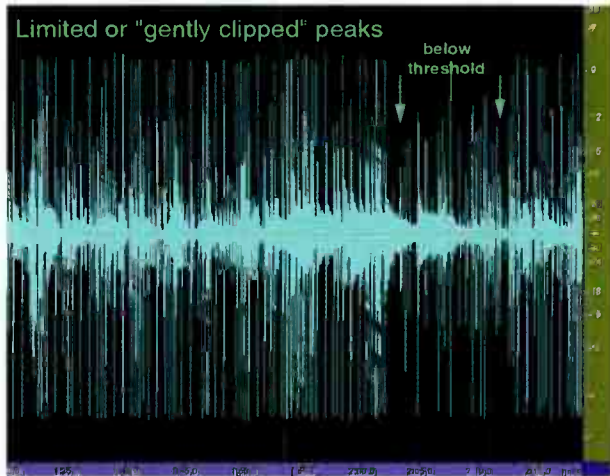
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Help spread the word! Go to **endbadsound.org** to find out what you can do.

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Drum overhead track that has been gently clipped/peak-limited. The dark space, top and bottom, allows room for compression.

28 DON'T RUSH TO BE NORMAL: After #27, take advantage of the space cleared by limiting to compress (rather than rush to normalize), then re-apply peak limiting if necessary.

29 B-FRESH: Take advantage of every fresh-eared opportunity to tame tracks that are too bright, especially with metal, because your ears get used to treble so fast that it clouds your judgment. Also keep in mind that the best monitoring system is the one that sez, "your mix suck;" especially muddy systems.

30 FEAR NOT: Don't be afraid to mix in THE BOX because it allows the ultimate freedom to refine those subtleties that really maximize the universal playability of a mix.

31 HON-S-T HAT: Like tracking, OD-ing, and Mixing, Mastering is another hat to wear and with it, another perspective — it often reveals stuff missed during the mix. If the first 12 steps improved the end result, mastering should be a whole lot easier. But no matter who masters your stuff, request honesty from the mastering engineer. It's easier to clean up individual "offensive" tracks than to "fix" them post mix (and compromise the whole mix in the process). And if you're the master-er, be honest with UR self.

32 Thank U fo lettin' me B mice elf again!

Eddie Ciletti worships the electron goddess at tangible-technology.com and teaches the geek language at iprschool.com.

HOW TO RECORD KANSAS' "DUST IN THE WIND"

by Jeff Glixman

Looking back at the recording of Kansas' "Dust in the Wind" reminds me of all the nights we spent driving for hours on the deserted highways of Kansas, heading out on the long plains toward Colorado with the wind whipping past.

There was a lot of pressure heading into the studio in 1977 to record *Point of Know Return*, Kansas' follow up to the highly popular *Leftoverture*. With a huge head·lining tour on the horizon and guaranteed airplay promoting the tour, concert promoters were expecting another hit record. So, we were faced with getting this album done quickly.

Most of the songs for the album had already been se ected when Kerry Livgren, guitarist and major songwriter of Kansas, shared with us a song he recorded on a cassette recorder. This was the first time any of us had used a recorder to demo a song. Kerry came in with a similar version of "Dust in the Wind", vocal line, music, and guitar parts intact. We listened and immediately went to work recording the song for the album. Love it or hate it, 30 years later, "Dust in the Wind" is one of the greatest airplay songs of all time, still playing daily in every major U.S. city.

We recorded everything except the vocals and percussion in Studio B at Woodland Studios in Nashville. "Dust in the Wind" featured Dave Hope, bass; Rich Williams and Kerry, acoustic guitar; Phil Ehart, congas; Steve Walsh, vocals; and Robbie Steinhardt, violins and viola.

33 ■ In truth, since we didn't have a viola, Robbie tracked the violin three times. We then sped up the tape machine and tracked the lower parts twice. The track was cut through 1073 modules on a Neve 8048 and recorded to a Studer A80 VU tape machine using Ampex Grand Master multi-track tape.

As most listeners of the song know, there are no drums on the recording. Instead we used a click track. This was the first and only track I cut with Kansas using a click track. One of the dynamics in Kansas' music is tempo, just as in classical pieces. As a big performance band, Kansas liked to perform everything as much as it could. While "Dust in the Wind" is a bare, minimalist track, it is also one of the few Kansas songs that was constructed rather than performed in the studio.

The entire record was recorded and mixed in a little more than six weeks, so we were blazing through production. We really didn't have a lot of instruments. The guys shared one acoustic guitar, and Robbie played all the string tracks with one violin.

34 ■ Neumann U 87 microphones were used on the guitars, hung slightly above the hole over the neck and recorded with no compression right into the Neve. The strings were overdubbed right after the guitars. On the suggestion of Terry Diane Becker, my co-engineer on *Point of Know Return*, violins were done from three feet back, using a Neumann M 49 microphone.

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While shifting to Village Studios in Los Angeles for mixing, we prepared to record Steve's vocals and the conga overdub. Steve is a dynamic singer. Some singers have a great instrument in their voices, and others are great singers. Steve is blessed to have both. He was the easiest vocalist you could ever hope to record. Because of the gentleness of the song, I didn't want to cut the vocals with compression. Steve wanted to handle the mic, so I gave him a Shure SM 57, and he did the rest. He moved the mic in and away to match the emotion of the lyrics. It was really an unusual technique at the time. Making the vocal session even more unique was the fact that Steve had to stay in Phoenix to protect his voice from the pollution in Los Angeles, which was affecting his sinuses. He flew into Los Angeles one morning, recorded the track and flew back out that night.

Mixing in Studio B at the Village, I was looking for an intimate feel. I didn't want the production to detract from the lyrics and the vocal.

35 ◼ The final mix featured one guitar panned left, the second panned right and the high-strung guitar placed in the center. The violins were left-center-right, and violas were left-right, slightly in from 100 degrees. For me, the symmetry opened up a lot of space for the vocal and the detail of the (EMT plate) reverb. It's just a nice broad, deep sound.

Despite the pressures and difficulties in recording *Point of Know Return*, this song was straight-ahead and traditional, and so was the recording. Kansas was efficient in that regard. Maybe it was due to the time considerations; we never had nearly as much time as we would have liked, but we were also pretty confident in our decision-making.

Jeff Glixman is a Grammy-nominated producer and executive vice president of StarCity Recording Company in Bethlehem, PA.

A FEW TRICKS SOME OF WHICH IF I TELL YOU... I'LL HAVE TO KILL YOU

by David Z

36 Set four effects buses to four different delay units, each getting progressively longer. Equalize the returns of these delay units totally differently, such as getting smaller and smaller by filtering each more narrow as the delay gets longer. Great for solos and vocals.

37 Take a radio or a television and turn it to a NON channel so it's white noise. Run it through a gate and use the snare drum as the key input. Adjust the gate so the snare triggers a white noise tale. You can adjust the length of this tale and it works better than reverb to give the snare some depth. You will have to equalize the white noise to change its character.

38 Burn a cigarette hole in the bottom head of a snare drum to reduce boing. [Clear this with the drummer first!]

39 Put a lavalier mic [dynamic] inside the snare drum. You may have to cut and resolder the cannon connector to get it in.

40 Use a second Bass drum shell [with the heads taken off] in front of the Bass drum to act as an extension shell. Put a big diaphragm condenser mic in front of the second shell as well as the normal inside mic.

41 Flip the phase on the tom mics or the overhead to create more 3-D in the drum set. Also experiment with phase flipping on under or over snare mics.

42 Assign typically a percussion part [such as tamborine] to a reverb or effect send. Adjust the level of the send and then put the send into "PRE." Pull the track all the way down and off. What you're left with is just the effect return. This is good for creating 3-D space in the mix. Great for strings or organ.

43 Put a lavalier mic [like a Sony ecm 50] inside of an acoustic guitar. You can rig up a holder with a large paper clip and some duct tape. Suspend it so it faces the strings from the inside. Gives the acoustic a stringy sound

44 For great guitar distortion, take a Fender piggyback amp like a Bandmaster and unplug the cord from the "speaker " output in the back. Plug it

200+

THE BIG ASS 33

by Craig Anderton

46 The biggest bang-for-the-buck computer upgrade is more RAM. Without enough RAM, your computer uses your much slower hard drive as virtual memory. You need at least a Gigabyte, but if you're really into it, install the maximum your system can handle. Don't know what kind of RAM your computer uses? Go to pny.com/configurator, search for your machine, and you'll find out what type of memory you need to get.

47 If you're recording in the field and can get away with mono, split the signal into left and right channels, and turn down *one* of the channels about 10dB. If an overload occurs on the main channel, you can likely use the signal from the other channel. Use a digital audio editor to choose the right splice point (for best results, "bookend" the replacement section with high-level transients), and adjust the gain as needed.

into the "extension speaker" output. You must turn the amp up all the way as it will be extremely quiet. Use a condenser mic and boost the gain you can hear the signal. You will get a very powerful electric guitar sound this way.

45 Take a piece of gear with knobs and meters on it, like something that tunes in old satellite dishes. Scrape or somehow erase all the writing in it. Set it up next to your other outboard gear and pretend you're adjusting it sometimes. No one will know what the hell it is and you'll get hired because you're the only one with that piece of gear.

48 Most repairs these days are done through substitution, because the world is getting lazier and dumber. But you're ambitious and smart, so do the subs yourself and save both $$$ and time. Buy replacements for mission-critical parts that will cause you the greatest grief if they fail: Power supplies and CPU fans are high on the list.

49 If you're running a computer without an uninterruptible power supply (UPS), well, don't say we didn't warn you. And no, we don't mean a surge suppressor, which is to a UPS as a fly swatter is to an Uzi. Don't cheap out; spend a little more and get the kind with a replaceable battery, as that will save you money in the long run.

50 Got an idea for a melody line but you're away from home? E.T. phone home, and hum it into your answering machine.

51 Don't use ground lifters, unless you really know what you're doing and the gear in question has a solid path to ground anyway. The ground connection is there for reasons that go beyond mere attempts to annoy you.

52 Keep a set of nail clippers in the studio. Guitarists can be neurotic about their fingernails, and if one breaks, they're going to want to trim it.

53 Speaking of guitarists, keep a spare set of strings in the studio of the three most popular gauges (.008, .009, .010 for the high *E*). Or if business is bad, *don't* keep a set of strings around, so the guitarist will have to go out and buy one while your clock is running.

54 Remember that recording and mastering is a service industry, and the customer is always right. That does not mean the customer isn't a jerk; it just means if they want their music to sound pedestrian, that's what you give them. However, you don't have to put your name on the album, either.

55 Using a laptop for portable music? It may be a temptation to use the onboard audio, but it's worth adding a small USB interface or PCMCIA card (*e.g.*, Echo Indigo). You'll get higher levels, better quality, and when your hard drive does its thing, you won't hear sounds like small insects trapped in a conveyor belt.

56 It's a good idea to back up data to two copies. It's a better idea to use media made by different manufacturers for the two copies.

57 You don't want equipment to get too cold or too hot. If you can't leave heat on in your studio, then leave on two 100-Watt incandescent light bulbs. They'll generate just enough heat to take off some of the chill.

58 Into using sample CDs? Copy them over to hard disk for faster access, and save any audio you use with your project. You don't want to call up the project in a few months only to find out that it refuses to play unless you find the right CD-ROMs and stuff them in your drive.

59 Every now and then, a track or program material will have a "rogue resonance," perhaps from bad acoustics, or a "perfect storm" of a singer's

NEXT PAGE

200+

voice coupled with a mic response peak in a room that accentuates the peak. To fix this, dial in a very narrow parametric bandpass response, push the gain up to max, turn down the monitors, and *slooooowwwwwllllly* sweep the EQ frequency. When you find frequencies that go into massively ballistic distortion, pull back on the gain to zero, then reduce it by a few dB. Ahhh . . . much better.

60 If you're into rude noises, try guitar amp plug-ins on anything, particularly drums. Use the plug-in in parallel with the main sound, not in series. Or not, if you like *really* rude noises.

61 Want to do parallel processing, but you don't have Bias's Vbox? Well, get Vbox. But if you can't wait, duplicate the track you want to process in your DAW, process each track separately, mix them together into a subgroup, then assign the subgroup to your master output.

62 If you're doing field recording, always have at least one spare, fully charged battery for whatever you use to record. Make that two, actually.

63 We told you so, Part 1: No matter how many times we tell you how important it is to document your sessions, some of you will still be too lazy to do it, and regret it later on. So if all else fails, create a "comments track" in your DAW project, feed a mic into it, and describe your session — gear used, presets, mic placement, whatever. See? Documenting isn't that hard.

64 We told you so, Part 2: No matter how many times we tell you how important it is to back up your sessions, some of you will still be too lazy to do it, and regret it later on. So here's the easy option: Install a big honkin' hard drive in your computer (surely there's room for a spare; if not, get a big honkin' external FireWire or USB drive) and copy your files over to it whenever you think of it. And you should think of it whenever you have something you don't want to lose.

65 People don't read manuals because, let's face it, the plot sucks and character development is non-existent. But you're not supposed to read it like you'd read *War and Peace* (or for some of you, comic books). Think of a manual as a buffet, where from time to time you go in and read a chapter or section. Do this with a highlighter in hand, and highlight all the sections that make you go "Huh, I didn't know that!" You'd be amazed how many cool little shortcuts and things you forget if you don't use something consistently.

66 You have a zillion little gizmos — iPod, Minidisc, digital camera, and the like — each with their own AC adapter, little special weird adapter cable, CD-ROM with drivers, non-standard format instruction manual, and so on. If you lose any of these, you're hosed. So, go to Office Depot, Staples, etc., and get one of those plastic drawer units with lots of little drawers. Dedicate one drawer per gizmo.

67 For all of you who missed it the first time around, when you want to set a delay time to one beat, here's the formula for music in 4/4 time: 60,000/tempo in BPM = Milliseconds per beat. For example, at 120 BPM, each beat lasts 500ms.

68 If you think the singer is on the verge of a truly great take, turn up the level in the phones 1dB just before the take. The tiny bit of extra volume can give that added, subtle psychological jolt that takes the vocal up a notch.

69 If someone from the band wants to be around when you mix, choose *the bass player*. Seriously. They'll sit quietly in the corner and leave you alone, and when they do have comments, they're invariably useful.

70 No matter what anyone says, mix at reasonably low volume levels, and turn up the levels only as a last minute reality check. The last thing you want while you mix are fatigued eardrums.

71 Always have a can of WD-40 sitting around for bass drum pedal squeaks, wa-wa pedals, stompbox footswitches, and other things that go squeak squeak squeak.

72 If you work solo in the studio, buy a Frontier Design Group Tranzport *now* (assuming it supports your DAW of choice). You won't regret it, and you won't understand why it's cool until you have it. If that's too much of a budget buster, and you use Sonar 4 (or higher), Adobe Audition, or Cool Edit Pro, the ADS Red Rover gets the runner-up award. Why do you want a remote? Because then you don't have to jump back and forth between your keyboard, guitar amp, or whatever and the engineer's seat.

73 Put a comfy chair or couch in your studio just for casual listening . . . not in the sweet spot or anything, just someplace where you can hear the sounds in the background as you relax. It'll give you a different perspective on your mix.

74 When working with a laptop, *never* plug a dongle directly into the USB port. *Always* use a USB extension cord. If something applies pressure to the dongle and it breaks off at the base, not only is your authorization hosed, the motherboard on your computer will probably never be the same. And if you need to fix it, your budget won't be the same, either.

75 When hooking USB devices into a Windows computer, use consistent port assignments for the various devices. Sometimes devices are "wedded" to a port when you install the drivers, and if you plug the device into a different USB port, it won't be recognized.

76 Powered USB hubs with a transformer cost a bit more than the self-powered kind, but some USB devices simply won't work with a self-powered hub.

77 Okay, so you got a cheap Windows computer. But there's hope! Use a PCI audio interface card (or external USB/FireWire audio interface) instead of the onboard audio, and an AGP graphics card instead of the built-in low-rent graphics capabilities. Even a

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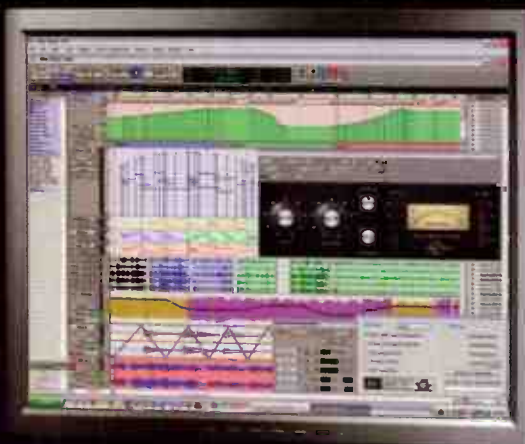
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cheap AGP card will do. Just make sure you disable both the internal audio and internal graphics; if you forget to do that and your computer goes blue screen on you, don't panic — reboot into safe mode, disable the onboard stuff, then re-boot and let Windows "discover" the new cards and install drivers for them.

78 Before you install a piece of software, including drivers for hardware, go to the manufacturer's websites and check for updates, patches, or important notes like "Warning: Do not install the drivers shipped with the product, use these instead."

DON'T LET THE DOORKNOB HIT YOU
by Ken Scott

79 Find another profession.

80 Learn patience.

81 Unless your love is schlock, don't try and make a hit record, make the best record.

82 Learn patience.

83 Get the sound right in the studio not in the control room.

84 Learn patience.

85 NEVER be afraid to make a decision. We learn by our mistakes.

86 And last but not least: Learn patience.

I hate to say it but it does all come from the studio. The up-and-coming engineers and producers need to know that the greatest records were made with extremely limited resources. Yes, I have my preferred, expensive, mikes. BUT, the Bowie records, along with a whole lot of other records, would have worked as well with el cheapo mics. The EQ that we used was extremely limited. Outboard gear was a couple of limiters, a Countryman phaser, and one, maybe two, EMT plates. There's no right or wrong way but there are very few records coming out today, in my humble opinion, that sound better than a lot of those oldie but goldies.

I guess I'm trying to say that I can't come up with a list other than this on the left:

STUDIO, SAFE, STUDIO
by Anthony Collins

There is an epidemic going through the music industry. No it's not an STD or computer virus, but something just as bad. Studios are falling prey to equipment theft. Audio gear is being stolen from studios not only to be sold, but also to be used by the thieves themselves. With so many smaller home studios starting up, and the prices of equipment so high, these culprits look for vulnerable studios that have the equipment they can sell or want for personal use.

Back in the early '90s it was primarily the larger studios that were being hit. Frequently these incidents went unreported, or not widely distributed to people in the music industry. Over the past year alone there have been more than 11 studios in the New York area that have been victimized. Most of the crimes were committed by so-called "clients": someone who's been in the studio before, or someone who knows the studio well. The epidemic has affected smaller studios as well as the larger ones.

How To Keep What's Yours

The best way to keep studio equipment from "walking" is to make sure that strangers don't enter the facility. This is of course unrealistic. The very nature of a commercial studio requires it to be open to any and all business that comes through the door. However, there are many ways to secure your equipment and prevent it from leaving with your "clients."

87 Add surveillance systems or cameras, video recorders, or a silent alarm system. Be sure to post signs indicating that the premises are being watched. This can be an expensive addition to your studio, but it might be a small cost compared to the value of the stolen equipment and the resulting loss of business.

88 Make it difficult to remove equipment from the studio. Mount as much of your gear as possible in steel equipment racks and secure it using security mounting screws.

89 Register your equipment with the manufacturers. Always fill out your warranty cards and send them in since they're your proof of ownership. In one incident,

"There is no upgrade from this"

"I've been buying audio gear for years...I just bought a Millennia Origin, and for the first time, I feel like I've bought something I'll have for the rest of my life. Not to say I'll never want anything else, but for what the Millennia preamps offer, there's nothing better."

Eric Ruud - Engineer/Musician

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the serial numbers of microphones stolen from a studio in NYC were on file with the manufacturer. When the thieves tried to sell the mics to a studio in North Carolina, the owner called the manufacturer who told the studio that the mics were registered in New York City. The manufacturer released all the information so the buyers could confirm these mics did belong to them, and the thieves got caught when they came back to NC to sell the rest of the equipment.

90 Mark all your equipment. Purchase an engraving tool and mark all your equipment with your address, social security number, or some other type of identification.

91 Insure your equipment. In the unhappy event of a burglary, an insurance policy correctly written will help you quickly replace the stolen items and keep you in business. There are companies that specialize in insuring recording studios. They know the value of all your gear and can help in advising how best to protect it.

92 Make a record of all your equipment and keep it in a safe place. This will be necessary for your insurance company but it will also help you and police quickly know the extent of a theft. Take photos of all your equipment, front and back. Include the serial number of the gear if possible. Make a complete list of all of your equipment and include in the list the make, model, and serial number, the date purchased, price, and vendor you bought it from.

93 Keep all original receipts with date of purchase. Keep them all in a safe place.

94 Join your community watchdog patrol group. Let them know when you are going to be away for any period time and ask them to report any unusual activity involving your studio (e.g., equipment being removed from your location with no notification).

95 Always be aware of customers calling the studio and leaving a cell phone number as a point of contact. Try and get an address with a landline phone number or mailing address for billing.

96 Beware of clients booking sessions late at night. Always try to get some type of legal ID (e.g., drivers license).

97 Always back up your sessions when using a computer. Put your hard drive in a protected area (e.g., in a different location but, in a secure area, in a steel box). Store all your clients' sessions on a backup hard drive. Losing your equipment is replaceable. But lose your clients' trust? Not so easy to regain.

Anthony Collins is an audio engineer, technician, studio designer, and faculty member at NY's Institute of Audio Research.

HOW HIGH IS HIGH?

DAVE RAT'S TOP 10 LIVE SOUND SECRETS REVEALED!
by Jason Lally

Dave Rat's been a staple in the touring band community for many years [Red Hot Chili Peppers, Black Flag, and so on], so I asked Dave to give me 10 tips on live recordings. What he sent me was amusing but I thought uninspired and really nothing new. In fact I hated it. So I asked Dave to try again, what follows are not 10 tips on live recording but rather 10 tips on being an engineer and possibly 10 tips on being a happy person while being an engineer.

Well done Dave Rat, I am a fan. [ratsound.com]

98 Never underestimate the importance of a large knob. Large knobs on audio gear are the #1 most important tool for getting great sounds.

99 It is your sworn duty as a sound engineer to make sure that perfect sound never touches untrained ears. This is why we must keep heaps of outdated old gear.

100 It is of the utmost importance to pretend to make "perfect sound" by doing stupid things. Audiophile AC outlets are a good start.
Just kidding!

101 Sound is the closest thing to magic that is left in our lives, treat it as such. The coolest part is "if you believe it, you will hear it."

102 Ugly gear never sounds amazing. "Pretty good" is the highest level ugly gear can sound.

103 Really cool looking gear always sounds at least amazing but can reach levels of incredible and phenomenal as well.

104 Audio gear always remembers its own history. Avoid gear that has been abused. Never buy gear that has been to counseling. Whenever possible buy gear that used to live in a famous and now defunct studio and pay lots of extra money for it.

105 In our lives we need balance and we do in our recordings as well. Always mix super high tech equipment with old broken stuff to get the best sound.

106 The less you know about how all the audio gear works, the more enjoyable it is to listen. We all love magic!

107 The best part about sound is that there is no right or wrong. Just an infinite number of opinions, and just like in real life, we are entitled to them. And also just like real life, the people that are the most opinionated, tend to be the most confused.

World Radio History

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Whenever possible put the mics in omni.

Keep the musicians as close together as possible.

108
109

GET OFFA MY LAWN!!!
TWO CENTS
by Al Schmitt

THE GANG OF 14
by Rich Tozzoli

110 CREATIVELY USE EQ WHEN LAYERING TWO LOOPS.

One way to really pump up the motion of a song is to use several loops (of the same tempo hopefully) at once. But what if they both have a nice top end that works together, but the kick drums conflict on certain beats? One way around this, besides chopping up the loop, is to use creative filtering. In this application, try filtering or cutting the low end at around 200Hz (or higher). This will let the kick from the first loop be heard while leaving the midrange and top of the second loop — without muddying up the low end. Try the same method for the high end by cutting frequencies around 7kHz on one while leaving the other alone. As always — experimentation is king.

111 GET A GREAT GUITAR SOUND WITH AMP FARM.

While I'm a big fan of tracking real guitar amps and cabinets, it's not always possible to do so. Line 6's Amp Farm can get some vicious tones and with a little extra effort, you can take the sound over the top. Just call up your favorite setting and lower the Master Volume a little to prevent clipping. Adjust the GATE's Threshold and Release so they only open and close when you're playing — this allows you to have a little extra DRIVE on the channel. Now place a good software EQ such as the URS N-Series 'Neve' EQ and follow it with a Universal Audio 1176 limiter to balance it in the mix. Next create a pair of stereo Aux Inputs and assign one to a Line 6 Echo Farm or Soundtoys Echoboy (or

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other delay). On the second Aux, call up a real Amp Spring using an Impulse Response reverb and mix and match the two. You'll think it was recorded live at Madison Square Garden.

112 ADD A TOUCH OF PERCUSSION TO SPICE UP LOOP-BASED SONGS.

Loops are a common and well-used aspect of many of today's modern productions. However, they don't always provide that natural feel that can really help out a song. Try recording some 'ive percussion in the feel of the hi-hat (if it has it) to add some *human touch*. Those small percussion eggs work great, as do shakers and/or brushes on a snare. If you find a great pattern, you can even cut and copy it, but try to keep it real for the whole tune. Mix it in so it barely peaks through, and with a single channel, you'll have kicked your song up several notches.

113 CREATIVE USES FOR SONY'S TRANSIENT MODULATOR.

"What the #@%* is a Transient Modulator?" you may be asking yourself. This handy Sony plug-in does just what it says — modifies transients to either provide extra attack and presence or take them away. Working on the Pro Tools LE-HD Accel and TC PowerCore platforms, it radically changes the dynamics of instruments or whatever you run through it. There are only four sliders, four knobs, a few meters and an IN button — so it couldn't be any easier to use. Place it on an aggressive drum loop, pull the RATIO below zero and push the OVERSHOOT above zero and you'll hear more room and less attack. Do the opposite with a mellow bass part, and it somehow gives you attack you didn't have before. It's great for "sitting" loops behind the beat to provide a chilled out feel, or putting life into a mix that sounds flat.
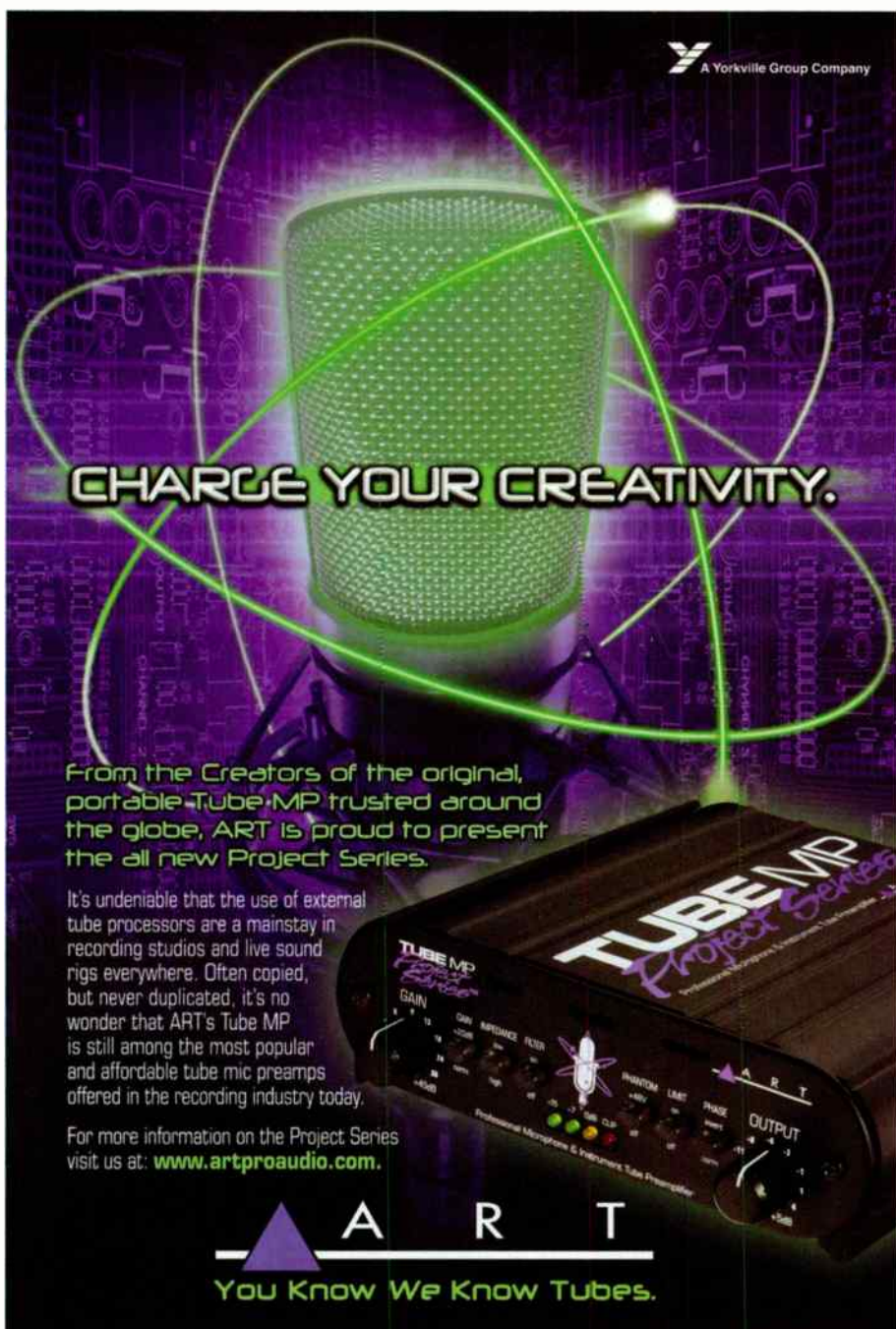
114 USE THE SCROLL WHEEL ON URS PLUG-INS.

Unique Recording Software (URS) plug-ins feature a cool function called Mouse Scroll Wheel Support for Mac OSX Panther and Tiger. For those of you who have scroll wheels on your mouse, it allows the mouse scroll wheel to control knobs, buttons, and numeric value windows. Working with all eight URS EQs and their four compressors, you simply place the cursor over the selected knob and without clicking, scroll with the wheel to change values. Each click of the wheel moves the slider or knob .1dB, and holding the option key will enable a 10X multiplier. I use a Kensington Turbo Mouse and use the function constantly. It's a nice touch of hardware interacting with software.

115 USE BFD IN ALL MULTI OUTPUT TO DO A "CYMBAL PASS".

FXPansion BFD is a great tool for adding cymbals to a track. Ranging from 18" K-Series Zildjian Dark Crashes to Paiste 8" Accents, they can liven up any tune. These are real cymbals recorded with great mics through quality preamps, at 24-bit resolution. There is full natural decay on all samples with up to 46 velocity layers per. You can load up to three individually selected cymbals per kit, so I usually find a nice ride, crash, and splash to start

Clean Gleam

Last year he knocked back 18 number one records and one Grammy. Sign of the apocalypse, now, or the start of a new age? Hmmm....

E verything about Jermaine Dupri's first impression screams newness. On a December day at Los Angeles' Atlantis Studios, he's reinvigorating, er, *overseeing* new music from his girlfriend Janet Jackson. His wireless device hums and rings incessantly with updates and queries and shows next-to-no physical wear.

Those diamonds that twinkle in the ears of pop's most bankable producer are the size of M&Ms — peanut, not plain — and his Bathing Ape T-shirt and sneakers are casual finery unlike much you've previously seen. When JD takes off his gleaming watch, its backside description reports it's the third of three ever made. "Everybody ain't got this," Dupri informs. Even his haircut is a millimeter away from baby-smooth.

Yet when it comes to making records, the 33-year-old producer-songwriter-rapper may well be the hit-making game's biggest throwback. Consider the flash of pride shown when Dupri points out the most crucial piece of equipment in a studio tricked out with state-of-the-art hardware.

"This is an MPC 62. This ain't even a 3000," he says with a sly pride. "Every hit record — Usher, Mariah Carey — comes off this old machine. This is how I make my records."

A reference to JD's music is a reference to the prevailing taste in contemporary pop. Last year Jermaine Dupri made 18 number one records and earned the Grammy for R&B Album of the Year. His music making may have reached mythic status with the ever-selling, acclaim magnet that is his work on Mariah Carey's *The Emancipation of Mimi*. And of course you have to count his club hits, whose value is measured more in street credibility than awards or chart figures. Nevermind the Atlanta native's own platinum recording career or the 2005 ASCAP Golden Note Award. CEO of the So So Def label and newly installed president of Virgin Records, he's about as successful as a flagrant rule-breaker is ever going to be.

And he throws this in your face.

"The way I sample, I sample mono, too. I don't sample in stereo. I know everybody does that clean, I don't do that," Dupri

By Donnell Alexander

Photography by Albert Sanchez

MAINING

MAINE

said. "I don't know, I just got the way I work. I sample straight from the sample plug into the headphone jack, outta everything."

The very notion of such in-studio behavior might make a lot of traditionally trained engineers convulse. It certainly had that effect on this producer's primary engineer, John Horesco. When he first began working with Dupri a few years ago, learning to tolerate unorthodox recording tactics was a prime part of Horesco's learning curve.

"I like to track everything dry, but I don't have that opportunity because of what's integral to his sound. At first it was tough," says his engineer. "He likes things dirty and a little distorted. So we [engineers] have to keep a hands-off approach. I learned a lot, in terms of listening."

A boy wonder whose breakthrough hit, "Jump," by the duo Kris Kross, came when he was 19 years old, Dupri was a kid who lived and breathed found sounds, cataloguing aspects of his favorite vinyl, which he kept in a crate not at all different from the one next to him at Atlantis. "I used to have a room like this," he said, gesturing across the 8x12 'B' studio. Across the hall, production legends Jimmy Jam and Terry Lewis are putting

"This is an MPC 62. This ain't even a 3000," he says with a sly pride. "Every hit record — Usher, Mariah Carey — comes off this old machine. This is how I make my records."

together tracks for Janet Jackson, in a setting more traditionally associated with big-ticket albums. "My bedroom was about the same size. It looked just like this, equipment everywhere, speakers everywhere. The bed wasn't even a factor in my life.

"What I would do is, every break-beat that would be in my crate, I would sample every sound. That would be my goal, to have every sound for my MPC. To have all the snares, to have all the kicks. I don't know why. I thought I was gonna use 'em, but [mostly] I was just trying to study how to make my sound better. In the beginning I was just trying to figure out how people got their records to sound the way they sounded."

The son of a drummer, Dupri obsessed over the sounds of early-to-mid-1980s percussive sounds popularized by Jam and Lewis in their hits with the S.O.S. Band, Human League, and, yes, Janet Jackson. Early Rick Rubin was another producer whose drum sounds he tried to emulate.

"I was always, *always* into old records, and all the old records had 808. LL Cool J, Run DMC," he said. "When you put an 808 on a record it just takes a record further in the 'hood than the average record would possibly be. It's just the 808 is like language to the 'hood. If I hear the 808 knockin' from the beginning, I'm more keen to listen to it. I don't know why. It's just that 808 kick."

The 808 sound, which has floated in and out of vogue within the hip-hop idiom, is now dominant, particularly through the influence of reggaeton and southern crunk styles. Back when Dupri was struggling to make his sound coalesce, he would struggle to convey the era's studio

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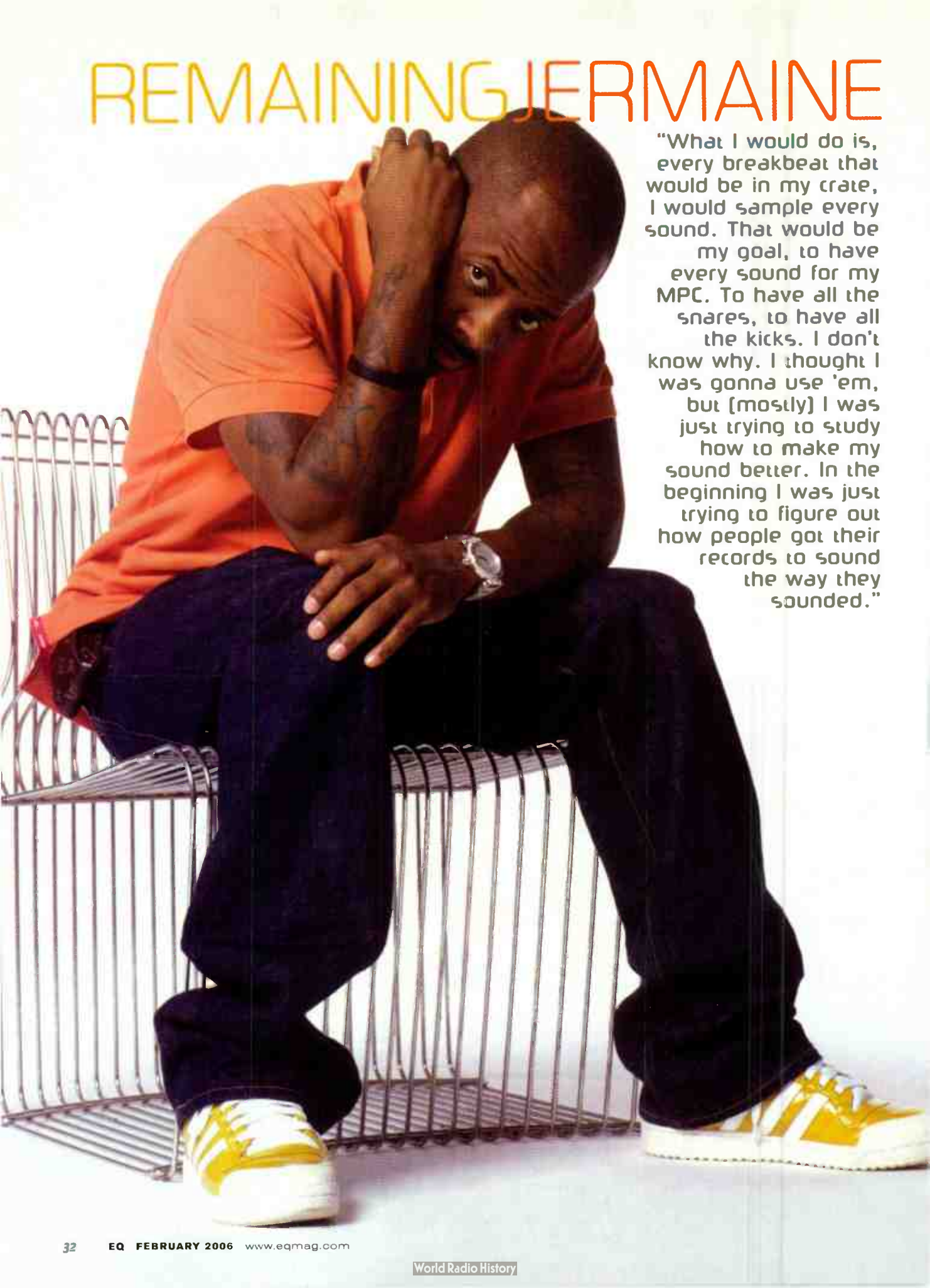
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"What I would do is, every breakbeat that would be in my crate, I would sample every sound. That would be my goal, to have every sound for my MPC. To have all the snares, to have all the kicks. I don't know why. I thought I was gonna use 'em, but (mostly) I was just trying to study how to make my sound better. In the beginning I was just trying to figure out how people got their records to sound the way they sounded."

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REMAININGJERMAINE

technicians the importance of keeping and developing such elements.

"That's what made me become a producer. I used to go to other producers and try to tell them, 'this is my little idea.' And they couldn't ever get it. When I started telling them what I wanted, they started telling me what they thought I should have. I started getting frustrated, like, 'man, this ain't the way my record's supposed to sound.'"

Old to the New

"When I was a kid I had more like a 505, and moved up to an Ensoniq EPS. I made the Silk Times Leather (*It Ain't Where Ya From, It's Where Ya At*, 1990) with an EPS. I got more money to the point where I could buy the MPC 60, the first one. That's what I made the Kris Kross (*Totally Crossed Out*, 1992) record with."

If the Kris Kross album got Dupri on the map, it was his work on 1994's *Funkdafied*, by Da Brat, that elevated him to a star producer status. Its title song sampled The Isley Brothers' "Between The Sheets" (turntables are the foundation of Dupri's process) and he works primarily on Technics 1200s but also has limited edition

> "The way I sample, I sample mono, too. I don't sample in stereo. I know everybody does that clean, I don't do that."

black 1210s — and single-handedly reinstated the 808 sound, for a time.

That was one hundred hit records ago though, and his approach to technology has hardly changed, with the exception of the SE-1 with a Probus patch that replaced two bass modules he used to stack for a signature keyboard sound. And while JD is no longer burning up boards the way he was as a kid, he's still running his music through that old MPC; and he owns every model made. In the cramped Atlantis studio, he plays a handful of MPC kick sounds on the 4000 model. The producer has a verbal take on the nuance of each thump unleashed by his tap on the machine's pad.

"I always reference the sound of records. I don't reference the actual things that are going on. We're talking about working on this Janet record with Jimmy and Terry. The way their beats used to sound, on S.O.S. band and Human League and all that shit? When I talk to them I tell them that's how Janet's record needs to sound.

"I would say Jimmy Jam is more musical, as a keyboardist, than I am. But when it comes to drum machines and beats and this, that,

and the third, I don't believe he's on the same level I am. Right now we're in a world where the beat drives what's going on in music. So, sonically, I'm trying to make him understand: 'Go back to where them beats were.' That's when the beat was the most important thing: when y'all was making those older records. That's what we, as younger producers, are trying to make our records sound like: their old records."

Plays Well with Others

As an executive producer, Dupri's job is to collaborate with other producers, as well as engineers, songwriters and artists. JD insists the failure to master this part of the process is the reason for a market flooded with unfocused projects.

"It's like painting your house. You've got to know what you're doing in the room downstairs to paint the other rooms upstairs," he said. If you're painting your own house, you're supposed to know what colors you just used downstairs. When Jimmy's working, it's my job to go listen to what they're doing and if they set the tone for the record, it's my job to come in here and make my records sound *close* — not directly [matching] but close enough to where you don't lose the focus. Like, 'Oh, this is all one thread.'"

"When I do Usher records, usually I'm the spearhead to what's going on with his records. Like, I did 'Confessions' first, 'Confessions Pt. II,' 'Let it Burn'. All those records were done in the same period of time. So, when LA [Reid] started playing it for anybody else he wanted to be a producer on the record, he'd play these songs as if to say, '[This] is where we started.'"

This balancing act might seem like child's play in comparison to dealing with one of the epic divas of our time, Mariah Carey. Dupri prefers to work in his "bulletproof" studio at home in Atlanta, where his favorite session musicians are available to finish songs quickly. (JD says such a need is rare though: "Nelly's record *Grillz*? One night. It's over with. I don't go back and touch it. I don't even listen to it. It is what it is when I do it, and that's it.") Carey is hell-bent to work with her favorite producer, so she'll make the flight in from New York. But she's bound to be late, on a tight time table, and demanding perfection.

"When I'm doing Mariah records, we're on the worst schedule in America. She might [be scheduled] to come to the studio at 10:30 at night and she won't get to Atlanta until 1 o'clock in the morning. And she'll have to leave 6 a.m. And we have to finish the record in that gap right there. That *We*

Belong Together record? We literally did the whole, entire record in four hours. And I had to sing half of the end of the song because she wouldn't get on the plane without me finishing the lyric. I was just telling her, I don't want to sing it. But she wouldn't leave. So I go do the part; it was 5:30 in the morning.

"Whatever the demo sounds like, that's what we're trying to make the record sound like. So, if I sing the hook, whoever comes in and sings it has got to sing it as terrible as I have."

His contributions to *The Emancipation of Mimi* are distinct

REMAININGJERMAINE

from Dupri's past work with Mariah in that he's finally put his favorite production element — the 808 kick drum — all over one of her projects. (I'd be like, "Okay, if I do a record for Mariah, I gotta tone the 808 down a little bit, because of her audience.") Part of the producer's evolution toward more street-sounding pop records has been his collaboration with Lil Jon. Another blazing-hot production star, Lil Jon started as an A&R man at So So Def. In the late 1990s, Dupri began allowing him to re-mix club versions of hit singles. Lil Jon's first was Usher's "Let it Burn".

"He started making beats that sounded straight 808 — 808 snare, 808 hi-hat, clap, everything. And he was like, 'I'm gonna make this my sound. I'm not gonna deal with a whole bunch of sounds.' It is simple, but nobody else was doing it. He liked the way his records sounded, and one record led to another, and the 808 just got popular again."

"I don't know, I just got the way I work. I sample straight from the sample plug into the headphone jack, outta everything."

Lil Jon is a beatmaker in the classic sense; he previews them for performers and producers, then collects a healthy payday. His mentor doesn't indulge this part of the hip-hop game so much, but does employ a crew of such producers, including Kanye West's mentor No I.D., Nitty (Boyz in the Hood, 8-Ball), Young Juvvy (Dem Franchise Boyz), and L-Rock, who has been called "the sound of Lil Jon." These producers come in at a defined part of JD's process and function in a space somewhere between featured artist and session musician.

It's a pretty big operation for the self-described Last of the Monicans of low-tech studio approaches. Dupri is quick to wave a floppy disk in a visitor's face and brag about his aversion to zip drives. It seems a point of pride that he can confidently say there's no point in fixing his process if it isn't broke. None of this is to be confused with hubris.

"I don't ever feel like I have my style locked down," he said. "I know what I do. I know what I like, but I'm always questioning the way my records sound."
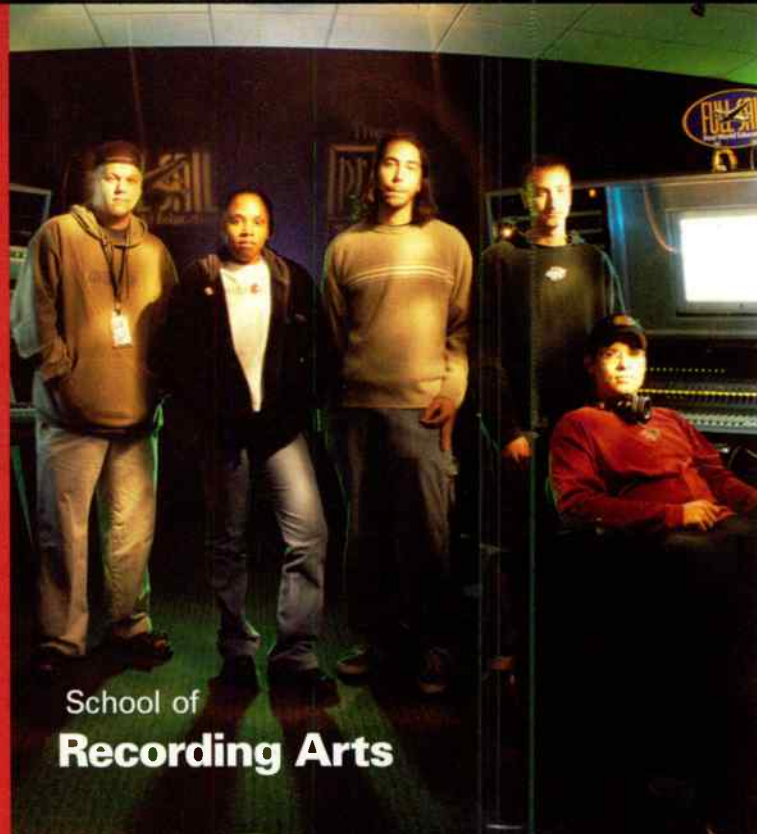
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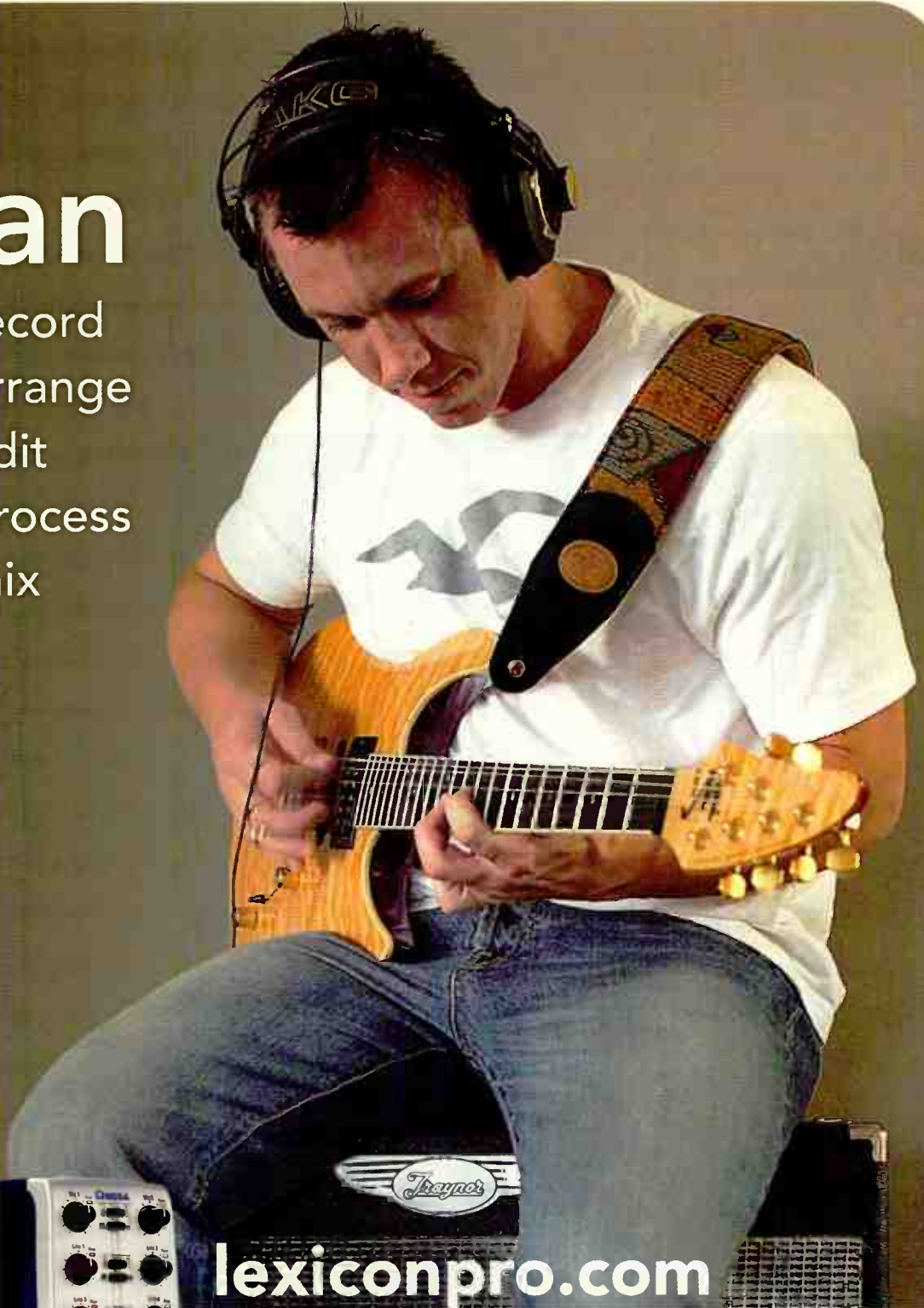
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DUPRI'S QUINTET

Clear guest appearance contracts: It seems so simple, but in the hip-hop era recording can be so quick and haphazard even the best get caught in this trap. Jermaine Dupri says a performer prohibited from appearing can destroy a perfectly good track. "It happens everyday, and it's bad when it happens. When you start listening to it you have to take that person off, it's like, 'Damn, what are we supposed to do?' We got a record like that right now. I did LL Cool's first single and we put [Fergie] from the Black Eyed Peas on it, and I don't know if t's gonna be cleared."

Keep an open eye for new engineering talent: The key to locating the engineer who might take your records to new levels of fidelity isn't on the production of that latest hit CD. Thirteen years ago, Jermaine was struggling to have his music recorded as he heard it. "I realized I'm working with some engineer that makes their records sound right, he doesn't make my records sound right." An engineer's second asked for a crack at mixing him, and the two have been together ever since.

"I took a stand by going and getting Phil Tan, somebody that nobody else was using."

No late-comers to the project: Collaboration is a beautiful thing, but a misplaced production voice can tip the balance of voices and vision toward that hostile territory called disarray. In an era of multiple-production contributors, preparation is key to knowing who should be at the table from the outset, and restraint is necessary to preserve coherence. "You gotta bring people in at the beginning of the process. You can't bring them in at the end," says Jermaine Dupri. "That's when you have records that sound all over the place."

In a creative pinch, consider the 808: The short-cut to street credibility is the 808 drum, which Jermaine Dupri calls "language to the streets". Although the effect now flirts with cliché, it's an exciting element to add in a pinch. "Somebody that's from the streets, in any 'hood, if they put a CD in and it's knockin', 808-wise, that's almost like, 'this sounds good, from the beginning.'" Dupri says. "If you add 808 to Cyndi Lauper records, that shit will sound crazy."

Pro Tools can't make the call: The availability of Pro Tools means almost no limit to the number of tracks and choices available to a producer. Sometimes that's too much of a good thing. So So Def engineer Phil Tan, worries that a generation has lost the ability to make tough decisions. The contemporary presence of overly busy, crowded tracks may well be traced to this development in technology. So, tread carefully. EQ

Donnell Alexander is senior staff writer at Los Angeles City Beat *and author of the memoir* Ghetto Celebrity *(Crown 2003). His short fiction will appear in the* Bronx Biannual *(Akashic).*

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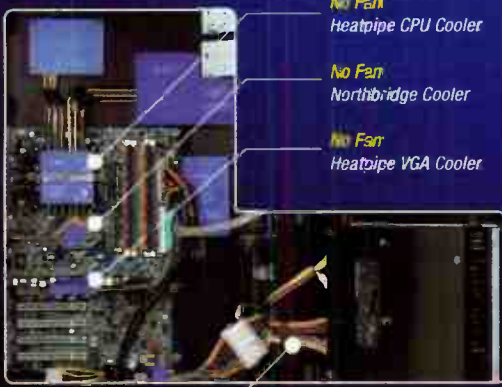
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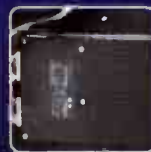
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GOING DIGITAL, GONE DIGITAL

by Barry Conley

I kind of gave away all my secret recording tips in the Grand Theft Audio issue [August 2005, *EQ*] and my miking techniques in the Zakk Wylde interview earlier in the year.

BUT here are a few tips (products) I like to use when recording to digital:

124
Neve 1073 mic pre/EQ: This is my "go to" mic pre/EQ on the front end for almost any instrument and I use it to EQ whatever's needed while mixing.

125
EMT plate reverb (Tube or solid state): A great "tuned" plate is a beautiful thing. Usually used during mixing.

126
Tape delay: I generally use a Roland 301 tape delay because it is rugged and it does so many great things (spring reverb, multiple head combination delay, chorus, and output equalizer). I also use a solid state Echoplex (blue version-very reliable) for a different type of sound (think Hendrix). I use the tape delay mostly on vocals to warm them up but I have been known to use it on drums among other things. I usually use the tape delays during the mixing phase.

127
Analog delay: I have started using a new Electro-Harmonix Deluxe Memory Man. This has a different sound than the tape delays and has true vibrato!

128
Spring reverbs: I love these acoustic abominations. Abuse and distort when possible. I particularly like the black faced Master Room spring reverbs, Fender spring tanks, Real Tube Reverb, and the springs in my Buchla 200 series synth and EMS Synthi. This will really chortle up a mix.

129
Aphex 207D 2-channel tube mic and instrument preamplifier with 24-bit ADC: Since Aphex lent me this (don't tell anyone) to review, I have been using it as a DI for my tape and analog delays. The 207D pairs well with these old cranky units because it is so clean and transparent. "I capture all the ugliness in its glory with the 207D."

130
Live Chambers: Get it out of the digital domain and pump it up through some speakers and mic the outcome (hopefully from a distance). Usually used during mixing.

131
Reamp: Reamp anything that needs to come alive during a mix, particularly direct recorded instruments. I bring a whole host of amplifiers for reamping to get different tone colors. I use several different Fender amps ('72 Deluxe, '62 Bandmaster), Supro/Gretch amps, solid state Yamaha practice amp, Leslie cabinet, Hafler/Crown/or whatever's available, Yamaha NS 10s, etc.

132
Mix To Tape: Bring it back into the real world one more time before it's lost forever in the digital quagmire.

133
Pray for tape: Yeahhh . . . they are making tape again! (There *is* an analog god, my prayers came true.) Now I don't have to record to the digital medium.

Barry Conley's everywhere. Especially if by everywhere you mean on records by Sugar Ray, L7, Dwight Yoakam, The Vandals, the Red Hot Chili Peppers, and little Bobby Dylan.

DRUMS, CONSOLES, MICS, & MORE

by Joe Chiccarelli

134
When I position drums in the tracking room, I always double check my spot, even though the drums might be in my favorite corner or against the wall that I like. I then move the entire kit around by a few inches or a foot to find that magic spot where the low end on the kick is extended or the snare has the most crack. Sometimes just a couple of inches can make a major improvement in overall tone.

135
When I record non-tuned percussion, I take great care to choose the exact tambourine or shaker to fit the tone of the song. Even after I choose the instrument I refine it by VSOing the tape or DAW by just a small percentage to fine tune the instrument to the track. Sometimes a 1% change in speed can make a dark percussion instrument rise above the track.

136
I often mix from DAW on analog consoles. Every gain stage of an analog console has its own tone. A track's sound can be altered dramatically by how hard the level from the DAW hits the front end of the console. I take time

to listen to the difference when the input trim is attenuated, set at unity or boosted. I also check the tone when the level from the DAW is attenuated in the computer before it hits the console's input.

137 Just as the input of the console has an affect on the sound, the master fader's position can make a major change in tone. Each console can sound very different depending upon how "hard" or "soft" a console is driven. Sometimes it's best to leave the console master fader at the top and attenuate the level, if needed, at the recorder or DAW input. This might give a more open tone to the mix. Other times hitting the console output hard and pulling the master fader down can result in a darker more compressed tone. Every console's output stages work differently so it's worth it to experiment with the differences in tone on a mix.

138 We all take time to find just the right mic to complement a singer's voice. Compressors, as well, all have a unique sound. I audition several compressors on a singer to find the one that has the best color and handles a singer's peaks and open vowels in the most invisible manner. Unless I need to destroy a sound then they all work just fine when I turn them all the way up.

139 We all like to record digital at healthy levels. However, to do that we often have to push the output of the analog input chain to deliver those high levels. This might look good going into the DAW. Unfortunately some pieces of analog gear, especially vintage mic pres and compressors don't always like to be pushed so hard. You might be overdriving the output stage of the device and seriously compromising its headroom and transient response. Sometimes it's best to back the output down and record at more reasonable levels, especially when working at higher sampling rates. I spend lots of time in tracking getting the exact sounds I want.

140 Because of this, mixing my own tracks can mainly be a time of balancing as opposed to processing. If a track doesn't require any EQ, I'll often patch it into the Insert Return or Fader input, as opposed to the line input of the analog console. This eliminates a few stages of circuitry and can result in a more open and transient sound. Then again, especially in old vintage consoles, a few more transformers in the path can round off the edges on a track and make a nasty guitar fall right in place in a mix.

141 The best compressor can be an acoustic compressor. I use baffles or gobos to direct or compress a sound into the microphone. A thick baffle placed behind or alongside the sound can help direct or force the sound straight into the mic and help it not dissipate into the room. This is most effective on a vocal or solo horn instrument.

142 Long microphone level runs can exhibit signal loss and noise. Many tube condenser mics come supplied with a 25-foot cable from the mic to the power supply. Instead of adding another 25-foot mic cable from the supply to the mic panel, when I'm recording vocals, I often actually bring the power supply into the control room and run the cable through the door, or a feed through, to eliminate the mic cable. I'll then patch directly out of the power supply into the mic pre with a very short mic cable.

143 In the digital world the best investment for a studio is in a high quality clock source. Syncing DAWs, digital console, and DAT machines together with one clock can dramatically improve a studio's sound. The one item people forget about is the BNC clock connection cable. For whatever reason, these cables seem to go bad more often than abused guitar cables. Invest in high quality cables that ensure a tight twist lock in the socket.

"IS THERE LIGHT AT THE END OF THE FIREWIRE AUDIO TUNNEL?"

by Michael Goodman

What's wrong with FireWire?

The big FireWire promise was: We'll make device interconnections easier. The reality? Well, try using FireWire products from different manufacturers on the same Windows computer: Multiple units used together were incompatible, applications crashed, audio was noisy, and installation required a PhD. Well, I have a PhD and I wrote some software that supports many manufacturers' audio interfaces and is an invisible component at the peripheral level of the OS that tells it how to use hardware devices. I call it the Universal Driver.

144 Burn fewer CPU resources: Since FireWire uses less CPU while offering a similar number of channels, FireWire interfaces take less CPU resources than USB 2.0, freeing up your computer to run more plug-ins while you're recording.

Drivers? So what?

A driver's the glue that connects the hardware with the OS. A secondary component of the OS, drivers serve as translators between internal generic commands and the actual commands understood by the physical device. If the driver is broken, so is the hardware that is connected to the computer. Audio streaming is a very demanding task since you probably can't afford to have glitches or dropouts in your audio. Problem is there's no business case for drivers so the most important link in the chain gets the least attention.

Moreover, since FireWire is such a tricky standard, FireWire drivers are the trickiest to write. (The spec by itself clocks in at 1,300 pages.) So while there are a number of features that make FireWire devices smart, the drivers are not always implemented correctly, or in the most accurate way for audio.

NEXT PAGE

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For example, FireWire devices implement the ISO/IEC 13213 "configuration ROM" model allowing automatic configuration and identification, to provide plug-and-play capability. All FireWire devices are marked by a unique identifier, a code indicating the type of device and protocols it supports. You don't need a computer to have several devices recognize each other on the bus. All these features make FireWire devices highly advanced, but also make it difficult to design robust drivers.

OK, blatant plug: Our driver supports all major FireWire audio chipsets from BridgeCo, Oxford, and Wavefront, making it compatible with products from Apogee, Edirol, M-Audio, Mackie, Presonus, Yamaha, *et al.*

NOTE: Apple has something similar built-in to Mac OS X 10.4, called "Device Aggregation." Both drivers will be maturing together over the coming months, but our driver for Windows has extra geegaws like sample-accurate sync and flexible selection of a sync master on the network.

How drivers work

Modern operating systems such as Windows XP, Linux, or Mac OS X are expected to work with different hardware from a variety of manufacturers. Because no one company can make its OS compatible with thousands of printers, video cards, soundcards, and so on, a concept of abstraction is used in OS programming. An operating system contains layers, just like an onion, and different layers take different functions. This is done so that programmers don't lose their minds when designing the layers. The OS kernel (inner layer) need not know anything about peripheral hardware. It worries about correct program execution and delegates handling of hardware to a driver. It issues generic (abstract) commands to a driver, which translates them into commands specific to the physical device — division of labor makes everyone's life easier. Drivers usually come from the device manufacturer. Every device has a different number of channels, controls, indicators, supported sampling rates, etc. As a manufacturer adds unique features to its product it creates a unique driver, which will tell the OS how to use the product. This way the maker of the OS can concentrate on creating a reliable kernel, which would be instantly compatible with devices released years from now.
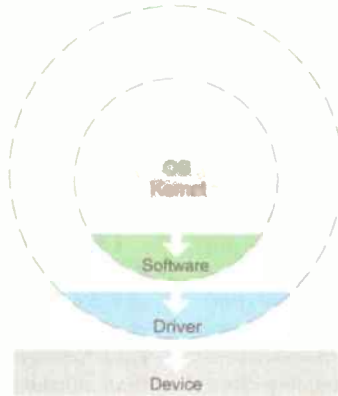
145 Check your latency: There's a utility to test the overall latency of a Windows-based audio system. (Yeah, we make it. So what?) Use this utility to measure up your system, then adjust necessary software and hardware parameters to ensure the lowest latency and highest audio quality for your system. (You can download it *free* from centrance.com in February.)

TRICK QUESTION: Special requirements for audio drivers? **STRAIGHT ANSWER:** Lowest latency.

If you are monitoring yourself during recording, your audio comes from the mic into the audio interface, is carried by the driver to the recording application, there it loops back and takes the same trip back to your headphones. The processor in your computer runs all these software steps, devoting some time to each one before switching to the next. This is where delay creeps in. The more software steps that are running, the longer the latency becomes. Generally, if your audio returns to you in 10ms or less, you won't notice much delay. But in reality, it can take much longer for audio to travel the full route in and out of your computer. Since Windows is not a true multimedia OS, it is not designed to take care of low latency audio. Windows wants to make sure that no samples are lost, but in doing so, it can insert as much as 50ms of "safety margin" into its built-in driver. The downside is that you can't expect to do critical recording with built-in Windows audio drivers; that's why everyone has to write their own.

Driver? Now what?

146 Have a friend with the same type of audio interface? Have him bring it over, plug it into your studio; get twice as many channels for recording or playback.

147 Bought a premium interface with a killer mic pre for your critical vocal tracks? Don't throw away your old interface. Plug the new one in alongside your existing interface, get more channels with instant sample-accurate sync.

148 Like mixing outside the box? Add more interfaces, get more output channels, route them to an external mixer.

149 Need to add MIDI to your setup? Add a MIDI interface, or use MIDI on your existing interface. A good driver, like ours, supports MIDI, too.

150 Need ASIO/GSIF/WDM? Oh yeah. These are the three main standards for getting audio to the app from Steinberg, TASCAM, and Microsoft, respectively.

Michael Goodman, is a patent holder, co-author of an AES Standard, CEntrance CEO, and when not developing innovative audio products, he can be found playing bass in his sample-accurate jazz trio in Chicago.

THE AMAZING '70S SNARE DRUM TRICK

151

You'll need: Small guitar amp
Snare drum
Noise gate
Reamp (if you got it)

by Bart Thurber

You'll get: A clean, crispy snap from the snare wires that can be mixed with the original snare drum track for that vintage sound.

Here's how you do it: Send a recorded snare drum track to a noise gate, and set the gate so it opens with the snare hit only; then set the release as quick as possible.

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From the noise gate, send the signal out to a guitar amp. A reamp device would be helpful, as the signal will then be at the proper impedance, but in a pinch you can run a long cable out to the amp. Just be careful with the amp input volume, as the signal will be very hot. Next, place the guitar amp on its back, facing up. Then place the snare upside down on top of the guitar amp with the snare wires facing out. Adjust the amp volume so that the gated snare signal is loud enough to trigger the snare wires. The gated snare sound, running through the guitar amp, will "hit" the snare and sound like it's being played.

Mic the upside down snare. A good starting point is about three feet away.

Bring the miked snare signal back into your mixing board and blend it with the original sound. This should give you a dry, tight '70s snare sound.

You can also try compressing the miked sound, or running just that track through a reverb send, or if your room is big enough, move the mic back to catch the room sound. If you have a way of reversing the phase, you might want to play with that also.

THE INCREDIBLE SWIRLING GUITAR SOLO TRICK

by Bart Thurber

152 You'll need: a big room and a mic (any dynamic works well), SECURELY attached to a *long* cable.

While the guitarist is tracking his guitar solo, have someone stand in the room with the amp and swing the mic in the air like a cowboy swinging a lasso. The solo will have a bizarre, circus-like sound that phases in and out. Definitely not available as a preset!

HOW TO MAKE A CARMEN RIZZO RECORD

by Carmen Rizzo

Most of the songs from *The Lost Art of the Idle Moment* started and finished at my studio in Hollywood at Suite 775. However, when I set out to collaborate with other artists I admired, I packed up my Apple G4 1.5 laptop (1 gig RAM) running Pro Tools LE (I now use M power with a FireWire 410 or Ozonic when I travel), an Oxygen keyboard, Sony headphones, and a passport, all stuffed into an M-Audio backpack and I was off. I went to NYC, Paris, London, and Munich to record.

One of the most interesting recording experiences from the album was "*Too rude.*" The song was conceived in Bristol, England. I went there to record one of my favorite bands, Alpha (on Massive Attack's label). Their studio was based around a Mac running Logic with a Mackie Digital 8 console with lots of cool vintage keyboards and drums in the recording area with modern gear in the control room. The studio was in this old barn in the countryside just outside of Bristol

Toward the end of the recording sessions they gave me this unfinished song idea. I then took it back to L.A. and started to tear it apart — adding more parts, sections. I brought in long time collaborator and friend, Jamie Muhoberac, to add his magic as well. I really loved the song — it was a good marriage between myself, Corin, and Andy from Alpha. All I needed was a singer. Ladybug Mecca (Digable Planets) who I was also working with suggested I call Esthero, who I hadn't spoken to in awhile.

After speaking a few times on the phone, I was not sure now we were ever going to be in the same place at the same time. A few weeks later she called me and said, "Hey I'm in L.A., let's make it happen". I stopped what I was doing, she came down to my studio, and after playing her the song she started to sing this idea she had over the track. I was speechless. We tweaked it a bit and there it was. Just her voice over the track was like velvet, really one of the best vocalists I have ever worked with.

200+

I recorded her voice through a Neumann TLM 103 through a Bret Averill API mic pre then a dbx 165A Compressor and a UREI 545 EQ. I then, in Pro Tools, used the Focusrite EQ and compressor. The wonderful outro is from an old gramophone I found in the lobby of Studio 301 in Sydney, Australia. I cranked it up and heard this amazing (public domain) recording. I recorded it to a DAT with a Shure SM57, brought it back to my studio, ran t through my old Space echo speeding it up and down. Then added even more static from Sample Tank; it was just magic creating this beautiful atmospheric interlude that goes on for a pretty long time.

But here are my **Top 5 "tech" tips on making a Carmen Rizzo record:**

153 Panning: Just because you can record in stereo, does not mean you have to. There is something to say for mono. Separation is very important in a mix, whether parked at one place or swimming in the mix. Everything hard left and right can be a bit boring.

154 **Effects from instruments: From soft synths to hardware ones. There are wonderful effects from places you probably never look.**

155 Listen at low volume: I cannot monitor loud for very long. I'm a near field monitor guy.

156 **Mid beat clock: I use MIDI for everything, from locking other computers, to drum machines, synths, and so on. You can use MIDI for great effects from other boxes in real time.**

157 Drawing out de-ess: When a de-esser does not work, go into the audio waveform and draw those "S's" out; it's time consuming but it really works.

HOW TO MAKE METAL MOST HEAVY
by Roberto Martinelli

DRUMS:

158 "There's quite an art to getting triggers to sit in the mix properly without it sounding too drum machiney. I usually replace the kicks 100 percent with a sample, but I'll mix the [sampled] snare sort of 50 / 50 with the natural snare to try and keep a bit of realism there. I'm actually using it all within Pro Tools now, so I'll throw my Ddrum transducers on the kit, and I'll use either Drumagog or Sound Replacer within Pro Tools." —Andy Sneap

159 **"With multi-samples now you can trigger five or six samples per drum, randomly, so it doesn't sound like the same sound every time. That's a good trick. It makes the ear think it's more natural. This is for toms as well. With really fast rolls on toms, it's really difficult to get the triggers to sound right. So what I'll do at the start of each session is sample each drum — when it has fresh heads on it — so I have a good, natural sound; if I need to replace a hit (say, if there's a lot of cymbal bleed on a tom hit) I can use the natural sound as opposed to having to find one in the database." —Andy Sneap**

160 "To record, I'll use the Ddrum triggers. You won't get any cross talk with those. I'll record through a mic pre right into Pro Tools, and not even bother with a brain. Say I have a five-piece kit. I'll have a mic on each part of the kit, but I'll also be recording one of these triggers from each part of the kit. You soon end up with 24–32 tracks for your drums, but it's good, because you can actually see where every tom hit is. You can actually use that trigger into the side chain of the gate as well, to open the natural sound. That works really well. You can trigger straight from the spikes that it gives you within Pro Tools. That's the most accurate way I've found of doing this." —Andy Sneap

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161 "You know how when you're tuning kick drums, they never truly sound the same, even if it's the same make and model? Well, if you take the right trigger sound, and set the pitch of it just a little bit up or down from the left trigger — not enough to blatantly notice, there will be something more realistic about it." —Ron Vento

162 "If the drummer isn't very good, we'll completely remove all the kicks and literally put in the kicks we want. If the drummer's good enough, you can trigger directly from a brain and layer that in. In a bad situation, you have to literally wipe the kicks out and start from scratch. But then the problem you run into is, how loud were the kicks in the rest of the mics? That's why we'll sometimes put blankets or long throw booms to not allow the kicks to be heard in the rest of the mics." —Ron Vento

163 Making your own drum samples: "Say you have a mic right up to the beater of the kick drum. You might want a really sharp sound, so you put a wood beater on there, and you mic it really close. You'll also use a Yamaha Subkick on the outside, blend that all together, EQ it just how you like, and clean it up on both ends (put your fades on it so it doesn't pop in or out). Then you'll put it in your drum library so you can call it up later when you're using a program like Drum Replacer. Most of my snare and tom samples come from the actual kit, and then I'll layer them in with a sound replacer. Sometimes we may take a sample and EQ it a little bit, and then sound replace that, and use it as a layer — not to actually replace the track, but rather layer it in with another one; we keep that really low. It's just there for snap." —Ron Vento

164 "As far as the Alesis Dm-5 brain is concerned, there are three kick drum sounds that are staples. One is called 'foot,' another is called 'speed metal,' and I believe the other is called 'fusion.' The 'speed metal' one is the really sharp, clicky one you hear on a lot of albums. The 'foot' is a little more solid, but it doesn't give you the *oomph*; that's why I mix it with the natural sound." —Ron Vento

165 "Triggers work better if you pack [or muffle] the drum, so the drum is really dead, and all you're catching is that initial hit. But if you're also going to be miking the drum, obviously you don't want to pack it full of pillows [or tape it up] because you won't get the real drum sound." —Ron Vento

166 "Distressors have got great distortion settings to simulate that fat tape sound. They've got five or six different ratio settings; but what's really cool is something called the 'nuke' setting, which gives an absurd amount of compression. Most people will use that if they're trying to get that loopy room sound; there's a trick in recording — and I don't mean to be vulgar — that's called a dick mic. You'll literally face an SM 57 at the crotch of the drummer — right above the kick head — and you put these distressors on 'nuke' mode, and it gives you the best sound in the world. For a single mic, you can't beat it. So to speak." —Ron Vento

GUITARS

167 "One SM 57 in front of the guitar amp, straight in the middle, and maybe I'll move it off to the side to get rid of some of the really harsh top end. But only very slightly. I'm talking half an inch. Sometimes I'll throw another mic (another 57 or a Sennheiser 421) on there, but it's very, very slight in the mix, like about 20dB down from the main mic. I've found that the actual speaker makes as much difference as the amp we use. I always used to use (Celestion) Greenbacks, the 25s. But I've gone to the (Celestion) Vintage 30s more recently. It depends on the player a little bit more, and the tuning as well. If the band's in the more regular 440 tuning, sometimes you find that the 75 watt Celestions work a little bit better." —Andy Sneap

GUITARS THAT SOUND LIKE ARCH ENEMY

168 "Two tracks of Peavey Triple XXX going into a Marshall vintage cab with Celestion 30s in it, wide to 8 ohms. Then two tracks of

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Peavey 5150 the same way. Also an Ibanez Tube Screamer (the old green one) in front of the amp as well . . . not with the gain on, but just to tighten the sound up a little bit." —Andy Sneap

169 "On any kind of heavy record, I cannot stand PODs or Johnson J-Stations or Amp Farm, or any other modeler. There's nothing like putting a mic in front of a real cabinet, and cranking it up. You might get 80 percent of that sound out of a modeler, but putting a mic in front of a Mesa Boogie Triple Rectifier and letting it fly, to me, sounds unbelievable. I've never used an amp modeler on any album I've ever done, unless it was a fly-in, auxiliary guitar part. Any time we're doing a heavy metal record, we're using real amps, and sometimes two or three real amps. We might use a Marshall JCM800, we might use a Soldano, we might use a VHT Pitbull, but you can bet they're all real amps." —Ron Vento

170 "What I used quite often with the POD was putting the signal head of the POD into an Avalon compressor I have a big Avalon vacuum tube unit; I put my vocals into it, and I quite often run my guitars into it as well. Obviously, the Avalon alone costs about as much as my G5. It warms up the signal and boosts the frequencies, and it sounds like it's got multiple pre-amps on it. I also use a Joe Meek compressor, one of the larger, more expensive ones; not one of the tiny ones. Putting those in a chain with the POD gives me so much more control over the tone than I ever had with miking up a Marshall. Another thing I use is a TL Audio Power Electric Equalizer. It's got like six valves in the back of it, or something. I put signals in that as well to find the right top end. My big problem with the POD is that the sound is thin. But I've found that once I've got it into the Avalon or a lot of Waves plug-ins, I'm boosting it up to around 150–200Hz, and then I'm adding more compression to contain that, and then I'm adding a limiter . . . ." —Justin Broadrick

WHACKED OUT VOCALS

171 "I use an Eastern European Neumann U87 copy, called the Røde NTT. I put that directly into the Avalon as a pre-amp, and use the onboard compression directly into the G5. Then I used more plug-ins on top. The voice is also heavily processed. I do it like that because I do harmonies and stuff, and then I'll use Auto Tune, shit loads of echo and delay, a ton of reverb and chorus doublers. On the first song of the Jesu album, *Your Path in Divinity*, I used an Orange Vocoder, which adds like a fifth to the voice."
—Justin Broadrick

COST-CUTTING TIPS

172 "If you're really on a budget, you can make your own triggers. Just go to Lowe's and buy a doorbell sensor, put a quarter-inch cable on the other end of it, tape it to your drum, and you've got a trigger." —Ron Vento

173 "Are you familiar with that Yamaha Subkick? It's like a mic that captures the really low frequencies of a kick drum. It looks pretty nice, but it's a little on the pricey side. Everyone I know makes their own. We take a decent speaker and reverse wire it, so it acts like a microphone to only capture really low frequencies, giving the kick that really low thud." —Ron Vento

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TOP OF THE HEAD TIPS

by JJ Blair

174 **It starts at the source.** One important thing to know when engineering is how to make instruments sound good before you even put a mic on them. I've had to intonate many guitars and basses on the spot, in order to keep a recording from sounding like ass. Few things are as unlistenable as a badly intonated guitar. On a similar note, learn how to tune drums. The biggest secret to getting a good drum sound is having a well-tuned kit. When a drum is tuned properly, it will sing. There are webpages dedicated to this that you should be able to find with Google. Also, maybe a drum shop in your town might be able to teach you.

175 **It's about the girth.** Sometimes, if you are trying to get more body or "crack" out of a snare, throwing an SM57 or an ATM25 in the side pointed right at the hole on the snare can do wonders A number of mics can actually fit this bill. If you add that into your other snare mics, you'll get a lot more "pow", usually.

176 **Speaking of thickness** . . . When recording distorted guitars, I find that I don't always need to get that 250Hz and lower rumble in the recording that you might be hearing when you are standing in the room with the amp. I find that if I record the guitars really full range, it fights a lot of other instruments, most importantly the lead vocal. If you get the upper mid range recorded well, and then maybe some extra texture on top so that the distortion sounds nice and crunchy, having a good bass sound underneath can give the illusion that the guitar is really more full range than it is. At the same time, you will get much better separation between the drums, bass, guitars, and vocals.

177 **A quick fix for sibilance.** I notice online a lot of people asking what to do about sibilance. A handy trick that I have for sibilance is simply to tilt the mic off axis. A mere 15 to 30 degrees can do wonders without making things sound too dark. Also, if you are using a compressor with a slow attack time, like an LA2A, or a slow setting on anything with a variable attack speed, you will actually accentuate sibilance and any other natural transients that the compressor will not be able to catch in time.

178 **Check your mix in mono!** If you have anything recorded in stereo, you should always be checking that in mono before you hit record, first off. It's a lot easier to change polarity or move a mic to an in-phase position than to try to fix mono phase cancellation after the fact. And especially when you are doing a mix, always listen back in mono before you print. On my first major label record, I made a huge mistake by accidentally having on one side a stereo guitar solo out of phase. I noticed the problem when I was in a restaurant and the song came on their radio, and I couldn't hear the solo because all the speakers were mono. Whoops! (BTW, I have noticed that iTunes will cancel things when mono'd that don't cancel when played back via other means. So don't freak out if you are reading this and you start checking your olds mixes in iTunes in mono and you suddenly can't hear the piano.)

179 **Attenuation!** One of my biggest pet peeves is getting tracks that another engineer recorded

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FRANK FILIPETTI? WHY YES!

by Roger Maycock

Frank Filipetti's unique in his ability to mix just about any kind of musical style for an equally varied array of uses, including albums, Broadway shows, film, DVDs, and televised projects. With a wealth of musical accomplishments to his credit — including albums for artists James Taylor, Gladys Knight, and Rod Stewart, among others, Filipetti has, over the course of the past year, worked on Monty Python's *Spamalot*, a Broadway show, Elton John's *The Red Piano*, and albums for Ray Charles, and Korn. Yeah. Korn.

EVERYTHING OLD, NEW AGAIN

Filipetti is well known for his ability to take classic recordings and remix them for compilation/boxed set release. One of the biggest challenges with projects of this nature starts before the first song has even been brought up on the console. It begins with the condition of the original analog tapes. Filipetti reports that most of the tapes recorded from roughly 1973 through the mid-'80s were done with Ampex low noise, high output formulations. With a considerable number of these tapes, a common problem involves the chemical that bonds the tape backing to the magnetic material. After sitting on a shelf for 20–30 years, this chemical frequently ends up oozing onto the recorder/reproducer's heads the moment playback begins — gumming up the transport in the process and bringing the entire project to a grinding halt before a single song has been transferred to a newer medium.

183 Rectifying this problem sounds more reminiscent of a Julia Child cooking class than it does anything studio related. "You take the

only to hear mic pre distortion. This is simply a case of the signal from the mic being too hot and the pre not having enough headroom to handle it. Ever notice that somebody starts belting into a mic and it starts to sound fuzzy? This can be solved by flipping a simple pad switch. But because not all pres have built in pads, I own a couple dozen of these variable attenuators that Shure makes. They are little cannon connectors that you run inline with the XLR cable, and you can select –15, –20, or –25dB pads. On an anecdotal note, I once had a visiting engineer in here that was afraid to use pads saying that they will screw up the sound. Well, needless to say, that guy didn't know what the fuck he was talking about (because it doesn't change anything about the signal other than the overall level), and the only thing that screwed up his sound was the mic pres he was using distorting, because he didn't understand gain structure. Besides, most of the more colorful mic pres I think sound better when you add more gain.

180 **Digital headroom.** Speaking of distortion, for those of you who mix "in the box", one of the good things about keeping everything digital is the lack of a noise floor, compared to analog. However, there is no distortion as unpleasant to listen to as digital distortion, and the fact of the matter is that the headroom of your DAW's bus is not that great. So, next time you mix ITB, try keeping your faders about 15 to 20dB below where you usually put them. If you are monitoring post fader with your VU meters, you should want to only see the meters hitting about halfway. This will take enormous stress off your summing headroom, and will give you a much better sounding mix. And remember, you can always bump up the volume of your finally 2-track mix later. Just get something as clean sounding as possible before you go and ruin it with L2.

181 **Be gentle!** If you are using a mix bus compressor, please be gentle. All you need is a couple of dB reduction. Better yet, if you are unsure about how to properly compress the bus, leave it to the mastering engineer. If

you over compress and bring him a couple of files that look like they've been flattened with a steamroller, the mastering guy won't be able to do anything with that.

182 Which brings me to my final point: **STOP WITH THE BRICKWALL LIMITING**! Fer Christ's sake, people. Louder CDs do not sound better! First off, a couple of things happen when you brickwall limit, starting with you change the sound of the mix. The first thing to disappear when you brickwall are certain transients, like the snare. The other thing, and I have noticed this a lot, is things tend to sound distorted when you make the CD too loud. I had a record I produced and mixed ruined on me by a mastering engineer who insisted on using brickwall limiting. I got a copy of the CD, and was mortified when I heard the distortion. I thought perhaps I had screwed the pooch during mixing and took out the half inch tapes to check. Sure enough, the mixes were fine and didn't contain the distortion, and it wound up being a result of printing a CD too goddamn loud with brickwall limiting, even though the peaks were still at 0dB. CD players just are not built to accommodate that type of headroom. We have a lot of CDs coming out these days, by major artists even, that sound like crap, because some A&R idiot decided that the louder mastering job was the better one. Bands fall prey to this mentality too, and it's really a mindset that needs to stop, because it's ruining a lot of music. Dynamics are part of music. Brickwalling kills dynamics, and is the refuge of untalented mastering engineers. Stop the madness already, or I'll have to hurt the next person who says to their mastering engineer, "I want this to be really loud."
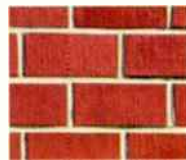
JJ Blair has produced/engineered everyone from Weezer, Rod Stewart, Unwritten Law, Ryan Adams, and others, as well as recording a Number One single for P. Diddy and producing a Grammy award-winning CD for June Carter Cash.

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entire reel out of the box, place it in a convection oven — not a microwave and not a standard oven — and bake it at 120 degrees for a good seven or eight hours. At that point, you pull the baked tape out of the oven, let it cool down briefly (it's not that terribly hot to begin with), and then play it while simultaneously transferring to hard disk."

The tapes will usually play successfully for at least one or two plays before the formulation starts to, once again, break down. It's important to note this problem occurs not just with the big, unwieldy 2-inch tapes, but can just as easily manifest itself with quarter- and half-inch tapes from the same period. Filipetti adds that Scotch, BASF, and Agfa brands generally don't exhibit anywhere near as many problems,

nor do tapes that were manufactured in the '60s. And in case you're wondering what oven is best for this purpose, Filipetti recommends the Farberware convection oven. "These are the best ovens for the job," he reports, "and many studios have them specifically to deal with this issue."

NOISE?

Joe Travers, Frank Zappa's longtime friend, engineer, and guardian of the Zappa library, has been meticulously transferring many of Frank's analog tapes to Nuendo format, with each multitrack tape equaling one session. Joe uses a system whereby each session is the equivalent to a particular tape in the vault — with labels, time code, and track numbers corresponding perfectly to the originals. The tapes from this 1974

concert were originally recorded on 2-inch, 16-track at 30 ips.

With the music safely archived in a random access format, Filipetti is now able to work in the digital domain. While his Euphonix R-1 continues to serve him well as a dedicated hardware multitrack, he has been making a gradual transition to DAW recording so as to take advantage of plug-ins, and for this, his tool of choice is Steinberg's Nuendo.

184 "I've been working with Nuendo because I prefer its sonic quality over Pro Tools," said Filipetti. "Nuendo also has several features I can't get with Pro Tools — chief among these being the ability to easily open and work with multiple sessions simultaneously.

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The Zappa concert took place over two nights and totaled 16 Nuendo sessions (tape reels). By being able to open multiple sessions, I could work with each night's material in the same session, determine which performances I wanted to use, and then compile a master without having to import tracks from each individual session as I would with Pro Tools."

Digital recordings are, by nature, far quieter than analog recordings, and people have become accustomed to this characteristic. While one may be inclined to eliminate all the noise associated with analog, Filipetti suggests a far more cautionary approach.

"I'd rather hear a little noise than risk losing harmonics," says Filipetti. "I find it distressing that some engineers get so preoccupied with eliminating noise that they end up losing the 'air' at the top end. While there are tools to remove hum and other extraneous noises, you need to be careful. With Frank's recordings, I'm trying to bring the listener into Frank's world, and that approach demands an allegiance to fidelity first, noise second. I tend not to concern myself with noise problems unless they intrude on the vibe."

"You don't get something for nothing," says Filipetti, "and everything you do affects something else. In trying to eliminate noise, you're invariably going to eliminate some of the good stuff as well, like low level harmonic content, ambience tails, etc., which I prefer to keep. If a little bit of noise seeps through, so be it. For the noise that just has to go, I've had great success with a number of Waves plug-ins — among them X-Click, X-Crackle, and X-Hum."

MEET JOHN DOES

Jim Roberts is a 20-year veteran to the audio world and currently one third of the dynamic popular songwriting/producing team, The John Does. After recording garage bands in Westchester County in the early '80s, playing Hammond organ on Steve Walsh's (Kansas) solo album, and mixing a dozen tracks for the late John Entwistle from The Who, Roberts found his place in the audiovisual realm of sound and now kicks down original tracks for commercials and films for HBO and ESPN, while recording and mixing spots for network television. He is, arguably, a vocal genius.

Forthwith, his tip:

185 To get a vocal track to sit better and be less 'mono' (i.e. wider without being effected): Bus the vocal to a stereo aux, insert a stereo delay on the aux, set the left side to 15ms and the right side to 30ms, mix the delay in — to your taste — while leaving the original vocal up in the middle. And if you blend it just right, the vocal opens up without any delay/verb/chorus artifacts.

VOX POPULI: TIPS FOR NAILING VOCALS IN THE PRODUCTION MIX

by Darren Rust

Having been on both sides of the board as a performing and recording artist and now also as a producer working with many different recording groups, my work in studio frequently focuses on vocals and vocalists. Sometimes capturing that perfect lead vocal or getting that huge, stacked backup vocal can be elusive — even for the best singers. Here are some tips to remember when tracking vocals or mixing them.

186 **Composites**: Use composite vocals to piece together the best vocal track. Use cross-fades to "sew up" your takes to create a seamless vocal track. Before consolidating your vocal composite into one audio file, make a copy of your edited track and keep it on a disabled track or playlist — just in case you need to redo a cross fade.

187 **Stack 'em up:** I work with stacked vocals a lot. Doubling or tripling backup vocals is the best way to get that big, wide background vocal sound. Good intonation and timing are everything when stacking vocals. Without it, you'll have a mess of vocal takes that won't mix easily. Here are some subsequent tips to accomplish that:

■ Use Vocaling by Syncro Arts to match the phrasing of your overdubs so each take is in perfect timing with each other.
■ Use tuning software like Auto-Tune, Waves Tune, or Melodyne to correct intonation. Keep in mind that slight pitch fluctuations in each vocal overdub are necessary to create

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the "chorusing" effect. So don't tune them too "tight."

■ One of my standard procedures is to triple background vocals (panned hard left, hard right, and up the center). When tuning the triples, I set the tuners to offset the pitch on the left and right tracks to help preserve a natural chorusing effect. Set the tuner to detune up 3 to 5 cents on one side and down 3 to 5 cents on the other.

■ I use Antares Auto-Tune for background vocals because it's the quickest way for me to tweak multiple vocals. Tuning plug-ins like Auto-Tune can eat up processing power very quickly, especially when every vocal part is tripled, and your track count is high. To keep your plug-in count down, reprint your tuned vocals onto separate tracks. I set Auto-tune to chromatic mode, and bus the tracks to three new tracks and record them. Then you can disable the original tracks and plug-ins.

■ Make sure you keep your original tracks in case you need to reprint them.

■ Auto-Tune works well in automatic mode in most cases. But if I'm working with vocals that are extremely pitchy, auto mode may not target the intended pitches correctly. Graphic mode in Auto-Tune can be a great way to target difficult passages. However, if you're working with 20 or 30 tracks, this can be time consuming.

One of my tricks here is to set the tuners to target pitches via MIDI. Then, I create a MIDI track in Pro Tools, and set its output to all three Auto-Tune plug-ins. Now I'm able to "play" the pitches the tuners will target. Most of the time, I'm working with vocals that I've arranged or recorded, so I am familiar with each part. So I hit record, and play the part on the keyboard along with the vocal, and the tuners target only those pitches on all three tracks at once.

I will also set the output of that MIDI track to play a MIDI keyboard piano. This helps me hear what pitches I'm targeting. This technique, however, can produce some adverse affects if not done correctly. Natural voice inflections will throw off your tuner if you hold a pitch through a grace note or vocal bend. Practice letting-up on the keyboard during these natural vocal inflections. The targeted MIDI notes can also be recorded first before you re-print or "commit" the vocals, allowing you to make adjustments to how the MIDI notes "play" the tuners.

Once you've edited the MIDI, place your three new tracks in record, and record the results. This may not be an easy process for those who are not familiar with a keyboard, but it has become the fastest way for me to tune all three stacked vocals at once.

188 **Alter thin vocals with Audiosuite:** Occasionally, a vocalist will naturally move in and out of the sweet spot of a microphone while recording, changing the tonality and volume of the vocal. This inconsistency can make it hard to create a unified composite vocal. Vocal takes that sound thin and further away from the mic, can be altered using an Audiosuite plug-in. Add some 150Hz with a wide bandwidth to compensate for the lack of proximity effect on those spots. In addition, add some volume if the take seems to fall away in the mix. These techniques can help match the tonality and volume of each take to sound like one phrase.

189 **Eliminate "p-pop":** One common problem when recording vocals is the "P-pop". Obviously the first line of defense is to use a wind-screen, or pop-filter. But with the extreme sensitivity of condenser mics today, it may not be enough. The second line of defense is to use the roll-off switch on your microphone or preamp. (I choose not to do this because you may be cutting out low frequency harmonics that might be pleasing in the mix.)

But if you have a pop problem, here is a way to remedy it: In Pro Tools, I use an Audiosuite EQ plug-in with a high-pass filter. Select the popped area just before the tone of the word, set your EQ filter to roll off everything below 150Hz or so, and process it. Crossfade the regions for a smooth transition. If you still hear a pop, redo the process by selecting a little further into the word (beyond the pop), and redo the crossfades. Experiment with different frequencies and slopes on the high-pass filter to achieve the best results.

190 **Watch that compression:** When recording vocals, I always use a touch of compression with a Summit TLA-100A tube compressor. Never overuse compression when recording, because it can never be undone. If you have a singer who is very dynamic, and compression alone isn't enough, try riding the preamp on loud sections instead of cranking up your compressor. Manually adjusting the preamp in real time will put less input into the compressor and will avoid that "pumpy", over-compressed sound, resulting in a more even vocal track.

191 **Don't overdrive the preamps:** Getting a good hot signal into your A/D converter is very important because it maximizes the bit resolution of your converter. But lately, I've found that many engineers are over-driving their preamps or the outputs of their compressors to get a hot signal into the DAW. When recording vocals, (or anything else for that matter) don't watch the input meters of your DAW or D/A converter as much as you watch the meters of your preamp, and/or compressor output. Most people keep an eye on the input meters of their DAW and meanwhile they're creamin' the output of their compressor, and they don't even know it. Switch your compressor's meters between Gain Reduction and Output regularly and be aware of both characteristics. You may find that you need to back off the gas a bit. Always record vocals as cleanly as possible. If your music calls for an aggressive, over-driven vocal sound, you can always achieve that later. But you won't be able to clear up a distorted or over-driven vocal if it's been recorded that way.

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Experiment with distortion: In more aggressive music, an over-driven vocal can be desirable. Once you've captured your vocals clean, experiment with distortion. Here are some tips:

■ Make a copy of your vocal track, and add an amp modeling plug-in to that track. Blend the original clean track with the distorted track. If your vocal has a desirable over-driven sound, but is not intelligible enough, add more of the clean track to the blend, or vice-versa.

■ If you don't have an amp modeling plug-in, use a real amp to overdrive it, and record it back in on another track. Then blend to taste.

■ Sometimes you can even get a decent overdriven sound by overdriving a plug-in or the input of another track. Use an EQ plug-in with a low-pass filter on the distorted track to "mellow" the high frequencies to emulate the effect of a real guitar amp.

192 Let the human voice guide you:

I've produced and mixed all kinds of vocal music. *A cappella* music is a genre that I'm particularly familiar with. For the uninitiated, *a cappella* means "without instruments." Contemporary *a cappella* has evolved in recent years into an extremely diverse form of vocal harmony that has roots in Pop, Hip-Hop, Jazz, R&B, and Rock, and includes a new category of instrumentalist called VPs, or Vocal Percussionists. Some of the more advanced groups in this genre have experimented with creating instrumental sounds with their voices. From a mix standpoint, all of these forms of vocal music have one problem in common. The source of every tone is the human voice. Though *a cappella* music has proved that the human voice is very diverse, the fundamental sound waves are all very similar in texture. Here are some tips to consider when recording or mixing stacked vocals.

■ With a good microphone, stacked vocals tend to have a low-mid EQ build-up a between 300Hz to 600Hz. To combat this problem, remember to keep the vocalist from creeping up on the mic. The proximity effect multiplied over 20 or 30 vocal tracks can result in a muddy, or "nosey" sound. Use the proximity effect, or the lack thereof to your advantage.

■ Keep your female or male high tenors at a distance from the mic that will keep low mid frequencies from overwhelming his or her track. As you get into the lower harmony parts, let the singers move up on the mic a bit. The proximity effect can give your baritone or bass singer that bass response needed to fill out the harmony spectrum.

As a bass singer myself, I will sing right up on the mic about 2 or 3 inches away. At this distance, I use two pop-filters to block out even the slightest amount of air hitting the diaphragm (and protecting the mic from harmful humidity). I suggest engineers monitor using the "big speakers" to hear accurate bass response.

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When I mix *a cappella* music I sometimes use an octave effect on the bass vocal to increase the lower harmonics of the mix. I use a pitch plug-in to transpose it an octave, then I use a low-pass filter to roll off everything above 100Hz. The result, an almost Moog-sounding bass line. Then I print the effect on a separate track, and blend it very slightly with the original track. This kind of effect can greatly increase the perceived depth of a bass vocal.

If you're stacking vocals on a track that has instruments, you may not want to triple. It may produce a BG vocal that is too dense for the track. Doubling may be sufficient.

When mixing vocals, finding the right effect can be difficult. I rely on delays more than reverbs in just about all of my mixes and here's why: Modern music has become more and more dense over the years, and as CD volumes get louder and louder, there's no room sonically for a reverb to be effective. In fact, reverbs have almost been totally eliminated in Hip-Hop, Pop, Rock, and R&B. Using delays can give you the lengthening and spatial effect of a reverb without blurring your mix with a washy reverb. I use a stereo delay set to equal the quarter note or eighth note of the song, and offset the left and right delays by 20 to 30 milliseconds. Set the feedback to generate 1 to 2 repeats.

Occasionally, I will send the output of a delay using an aux send into a short reverb and let the delay "pump" the reverb. The delay will regenerate the reverb, but the short verb decay won't wash out your mix. Many reverbs have these features built in, but I choose to use separate effects for more control. Using a multi-tap delay can also be helpful in creating a reverb-type effect. Set one stereo delay as a slap-back, around 50 to 120 milliseconds, off-setting the left and right again by 20 or 30 milliseconds to create the "early-reflection" and a second stereo delay to repeat the eighth notes or quarter notes as noted above. Experiment with the repeats.

In heavily stacked vocals, sibilance can build up as well. In Pro Tools, I use de-essers on tracks that sound "ess-y" or "spitty".

There are just a few things that I do on a regular basis to get my vocals cranked up — no matter who I'm working with — so it's in your face and clear as a bell. Enjoy!

Darren Rust plays in THE BLENDERS *and has his own deal out at* skylandstudio.com.

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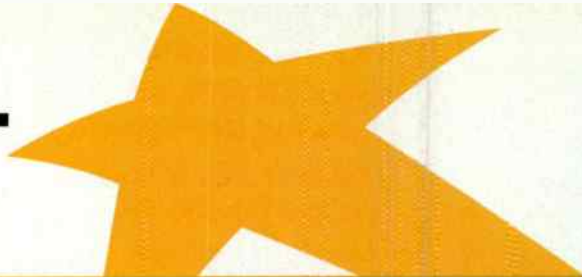
MICHAEL C. ROSS

TWO FROM THE TOP

by Mr. Bonzai

Michael C. Ross got his start in the mid-'80s as an assistant engineer at Ocean Way Recording Studios, but like many engineers, he started out as a musician and then shifted his attention to working behind the console. His credits include Christina Aguilera, Mya, JC Chasez, Counting Crows, Mick Jagger, Keith Richards, Lit, Ry Cooder, Barry White, and the Dixie Chicks, among many, many others.

193 SURROUND SOUND MIXES

"I have learned how to do stereo and surround mixes at the same time, when the budget doesn't allow for them to be done separately. When I know a project I am doing will be eventually mixed in surround, I record as much as I can off axis, or use as many room mics as I can, so the extra depth you can get in surround doesn't have to be manufactured with effects."

194 MAKE MINE A MIC

"I have always loved the old classic tube microphones. I recently purchased a newly made Telefunken Ela M251 that I love. It has a great sound, and it is very reliable. I don't have to worry about how many times it has been dropped. And, if something does happen to it, I can get it repaired, because it is still made. I also love the Royer 121 and 122 ribbon mics. They sound great on almost anything, and can handle level amazingly well."

GEAR TO DIE FOR

by Glenn Bucci

195 Universal Audio has two plug-ins that are simply amazing: the 1176 and LA-2A compressors. Though they do not sound exactly the same as their hardware counterparts, they get close enough for some amazing results. The 1176 is great for snare drums, bass guitar, guitars, and anything else that needs a punchy sound brought up in a mix. The LA-2A is an amazing compressor that can smooth out vocals and control transients. I found gain reduction of up to –3dB can usually make the vocal tracks sound better.

196 Have you ever played back a vocal track, and heard on a certain section of the song a strong "P" sound? How do you know what frequency needs to be adjusted to reduce this in your mix? One option is to use an EQ plug-in and play with the mouse and graph to correct it. However I found better results with using a spectrum analyzer that many DAW programs have. You start with moving the left and right location markers and narrow it down to the area where the problem occurs. Turn on the spectrum analyzer and engage it. On your screen you will see a small graph. Usually the highest point is where the problem is. You move your mouse over the high point on the graph and it will tell you what frequency it is. Next, you use one of your favorite transparent EQs that have a narrow Q and reduce that section by about 2 dBs. I have had great success with **Steinberg's Q EQ** in getting rid of certain sounds, including a bump of a mic stand on a track. The great thing about the spectrum analyzer is it tells you the exact frequency. This prevents you from altering other frequencys that could alter the sound of your track. By using a very narrow Q, it will not affect the other frequencies on your track. You can

use your automation on your DAW to apply it to the one area and then turn off. If you're dealing with a bass guitar low-end problem or sibilant issue, you could leave it on for the entire mix.

197 The biggest thing that hit DAW studios recently are the convolution reverbs. Though there are some free ones out there such as SIR, I prefer ones that offer greater control of the room sizes and have amazing 24-bit sampled rooms. Though there are good plug-ins out there, **Audio Ease's Altiverb 5** and **Waves IR1** have been on the top of my list for great convolution reverbs.

Convolution reverbs use impulse responses of real acoustic spaces. The impulse response is captured by generating a known signal in the required environment and recording the result. The convolution process effectively cross-multiples the impulse response with the dry audio so that the end result is that the source audio sounds as though it was originally recorded in the real space. If you don't care for real rooms, the Waves IR1 for one includes synthetic rooms that you normally hear from many of your favorite reverb boxes on the street. The only downside with these plug-ins is it takes a beating on your CPU. So a powerful computer with a minimum of 1 gig of RAM is recommended.

198 Good sounding tube mics are coming down in price, and many are being made in China. Though many companies have quality control and consistency issues between mics, **Røde** has come out with the **K2**, which has overcome these issues. They bought expensive high-precision finishing machines and computer-controlled metal lathes. Each

mic is tested and has a 24-hour burn before it leaves the factory. With this format, they have much better quality control, and with manufacturing a thousand at a time, they are able to keep their costs down. This is one of the best continuously variable, multi-pattern tube mics on the market that cost under $1,000. It is not overly tubey sound, but it adds a nice gentle smooth sound to your vocals or guitar tracks.

199 **So many people spend so much money on recording gear, but next to nothing on their room.** Companies such as Auralex and Real Traps have come up with material to help capture frequencies in your studio to prevent them from bouncing off walls, ceiling, and corners. This can help in getting a sharper and clearer sound in your studio. Bear in mind, you need different material to control the bass frequencies compared to the mid and highs.

200 **It's best to correct your sound from the source instead of using an EQ.** Mic placement can fix the sound of a vocal, guitar, or drum sound without needing an EQ, and be more effective in doing so. Spend time moving the mic around the source with headphones on until you hit that sweet spot.

Glenn Bucci holds it down at Revelation Sound Studio, which he owns. And rules. With an iron hand. And fear. Mostly fear.

YOU WANTED THE PLUS? YOU GOT IT!

AND WHY STOP AT 200?

201 Surge protectors are useless. Get uninterruptible power supplies.

202 WANT to record punk rock? **Donnell Cameron** from Westbeach Recorders says "compress everything, turn up the treble/guitars, try not to EQ the bottom, and if you don't like how something sounds in the mix, turn it up."

CLIFF GOLDMACHER'S PRO TOOLS TIPS

203 **Be Pound Wise:** When I was getting ready to make the jump from ADAT to Pro Tools, I had a decision to make: Did I go with the HD version of Pro Tools, which would have shot pretty much of my entire wad or did I go with the LE version and spend the bulk of my $ on a tube mic and pre? After much deliberation, I decided to buy a beautiful Lawson L-47MP tube mic made by Gene Lawson himself and the Manley Vox Box mic pre and compressor. My logic was that I'd keep these high-quality pieces forever and use Pro Tools as the digital storage/editing device it was. I have never regretted this decision. Make sure your front end is strong because it doesn't make sense to be able to capture mediocre sounds on a super high-quality recording device.

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204 Comping Vocals: When comping vocals, I'll create two tracks in Pro Tools, a track labeled "Lead Vox – Take 1" and another track labeled "Lead Vox – Comp." I'll then do between 3 to 10 takes with the vocalist (from beginning to end with NO INTERRUPTIONS OR PUNCHES) and perhaps one pass where we're trying for a few specific things (generally I like to avoid this). These tracks are being labeled "Lead Vox – Take 2, 3, etc. and put in the playlist on the same track. This way, when it comes time to comp, I can separate the regions I like from each pass and drop them down onto the "Lead Vox – Comp" track. I know what I want from each track because as I'm listening to each pass, I've taken notes on whether I like the line by putting the take number out beside that line on the lyric sheet. Then, I set the EQ, compression, and reverb settings to match on the two tracks so I can compare the comp I'm creating with the original passes to make sure I've got the best option in my comp.

205 Plug-Ins & Compression: Although it's tempting to get as many plug-ins as you can and use them all (including the cracked ones) in your mixes, I've found it's better to settle on a few reliable ones (Waves Gold Bundle, Antares Auto-Tune, Serato Pitch 'n' Time, and Channel Strip are my staples). This way, you can keep the plug-ins updated, learn more about their more esoteric details and if you ever need to call up a mix at a much later date (like say after you've upgraded your OS on your Mac) you'll still have access to what you need to recreate your original mix.

206 Create Session File Templates: Since I've got a decent number of demo clients who come in ready to do certain kinds of sessions, I've created Pro Tools session file templates to match a variety of situations. Then I hold down the option key and drag the template, which makes a copy of it in a new folder I've named for my client. For example, for guitar/vocal sessions, I've set up a template that already has tracks labeled, Lead Vox, Harmony Vox, Acoustic Guitar, Acoustic Guitar Double, etc. Then I've created two effects Aux tracks and put a reverb on one and a delay on the other. I've also gone as far as to drop in certain plug-ins on each of the tracks with their presets already selected. I then make these tracks inactive (click on the plug-in holding down

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control + apple) until I need them for mixing so I'm not draining too much CPU power. I also have a template for a full band session including drums already submixed into a track with a limiter on it. In other words, the less time you have to spend in a sessioin creating new tracks, routing them, etc., the more efficient and musical the session will be.

207 Sub-Mix Your Drums: Getting a good drum sound in a small studio is really a black art. It's a combination of knowing your room, the right mics and mic placement and then knowing how to treat the audio when you're mixing. First of all, as I mentioned above, I use Metric Halo's channel strip for drums. After a few sessions, I figured out some good, solid presets for each drum given the same room and mic setup. So, as I mentioned above, I'll have channel strip on each channel of the drums, but I'll keep them inactive until it's time to listen back or mix. Also, one thing I've found really tightens up the sound of a drum kit is to bus each output of the drums to a stereo aux track where I've placed the Waves limiter. This way I can alter levels of individual drums (and then I've got a master control for the kit as well).

208 Limit your 2-Mixes: Finally, when it comes to putting the final bit of polish on a mix (especially a mix of a song you don't plan on mastering at a later date), the Waves L1+ limiter on the Master Fader makes a huge difference. That being said, moderation is the key here. I usually keep my threshold at –4, my output ceiling at –.2, and look for the attenuation levels to sit at around –4 as well. This will bring out the vocals and really tighten the bottom end, as well as giving your mixes an overall level that will compare well to most recordings. However, if the attenuation levels go much past that, the mix will sound lifeless. I also keep the L1+ inactive on my master fader until I've pretty much finished mixing the song, then I drop it in and listen as the mix really starts to shine.

TIPS FROM LOUDER

by Tim Green

209 Use a crappy omni for the talkback mic with a ton of compression. That way the 122dB guitar in between communications won't be so loud. I learned that one from Mike Lastra at Smegmatone. You can also put this mic to tape as a sort of boombox sounding room mic or mix it in with a guitar solo to give it some space.

210 When mixing, send the snare through a gate and then some extreme compression, or better yet, a distortion unit (I use an Ibanez UE400 rackmount thing). Then bring it back in to a separate channel on the board so it doesn't sound like a gated snare!

211 Try running tube mics direct to tape. No mic pre. Use a compressor if you need a little extra gain.

212 Disconnect your insert lines and just patch from tape to outboard gear to console. Less cabling = fewer headaches and better sound.

213 If you know you're gonna have four or more guitars in the end, start cutting 2kHz on the guitar tracks as you overdub them so you don't end up with an unusable mess of midrange.

HIS LITTLE SECRETS by Scott Colburn

THE SMASHING SOUNDS OF SEATTLE

214 **Forget about overhead mics on drums!** The cymbals make enough racket as it is, just mic the room with a pair of large diaphragm condensers placed on either side of the kit near the front of the kit. Put them up as high as you can go and point the back of the mic toward the drummers head. This technique only works if you actually have ceiling height to work with. If you're in a basement . . . move out!

215 Place a PZM on a 2x4-foot piece of 5 gauge steel and place at a 45 degree angle, about three feet away from a seated hand percussion player. Combine this mic with a close mic for an interesting definition mic. The player will enjoy the slap back and it gives you extra depth perception on the instrument.

216 **Buy ANY $100 mic you see.** It can't be any worse than a SM57 and a SM57 is pretty damn good most of the time. You will eventually find at least a single application for that cheap mic and then you will start developing an esoteric mic cabinet and a sound that's all your own.

217 Re-amping DI keyboards will do wonders for your keyboard sound. After recording, play the track back througn an amp and mic it. Combine this source with your DI to add more depth. If an amp is not available just play the track back through your monitor speakers and mic that! Play with distance too. Try the mic in the mix position or in the middle of the control room.

218 **Ever wonder how to get a killer tabla sound?** Place a SM57 (yep!) in between the two drums with the diaphragm pointing down toward the floor but sitting at the midway point between the drum and the floor.

219 Don't put the vocalist's mic in their face! The Q of the human voice is amazingly wide, put it up and away about a foot at a 45 degree angle to the head and record natural sounding vocals that sit sonically in with the music you're recording. You're basically miking the third eye. Tell them what you're doing though because they will tend to lift their head toward the mic. We're not interested in getting them to sing like Lemmy, we're just trying to naturalize the vocal sound and avoid using a pop filter.

220 **Any speaker can be a microphone.** Just connect alligator clips to the terminals, and then to an opened 1/4" plug straight into a DI. Voila! The ultimate low end kick drum mic (or interesting vocal texture).

Colburn (scottcolburn.com) is an audio wizard residing in Seattle who's pulled off music productions for Arcade Fire, Animal Collective, Mudhoney, Sun City Girls, and Cerberus Shoal. As well as pure wizardry for the Revenant label with archival tapes of Capt. Beefheart and Charlie Patton (which won a Grammy for Best Historical Box Set 2002).

by Dan Daley

THE HIP, THE HOP, & EVERYTHING IN BETWEEN

Look under "unsung rap engineering and production pioneer" and you're likely to find Ivan "Doc" Rodriguez. Listen to the radio, and you're likely to hear his hits. Read this article and you'll learn how he did them.

TRADE TRICKS

When you're helping midwife an emerging art form, you go less to the textbooks than to the bag of tricks, and

Those who engineered most of the edgier hip-hop and rap recordings of the last 20 years? Arguably, more anonymous than not. The genres' lack of overt craft — who needs to know where to place a kick drum mic when all the drums are sampled? — has made them relatively overlooked both in the audio trade mags and the culture pubs like *Vibe*. And given the strong personalities characteristic to hip-hop and rap, any guy behind the console would have been hard put to outshine P. D'ddy or Dr. Dre.

But Ivan "Doc" Rodriguez became a luminary, at least within the community, with his work with seminal hip-hop figures including KRS-1/Boogie Down Productions, Grandmaster Flash, Spoorie G, T-LaRock, Biz Markie, Big Daddy Kane, Run DMC, LL Cool J, Redman, The Fugees, Will Smith, and Alicia Keys. And the awards speak for themselves: five consecutive gold LPs for his work with EPMD and more gold with the Fugees and Boogie Down Productions, platinum with Eric B & Rakim, and double-platinum with LL Cool J. And it's hardly a comprehensive list. He is, as DJ and Urban culture maven Bobbito Garcia described him in a recent tribute, "a very rare piece."

And like many kids who came out of Manhattan's Hells Kitchen with music on their minds, Rodriguez started out as a DJ and a musician. But a chance encounter with producer Spyder D in the early 1980s at Power Play Studios, just over the Queensborough Bridge from Manhattan and one of the first audio epicenters of rap in New York, introduced him to the tech side of the life. After a one-year stint at the Center for the Media Arts in between touring as a DJ with KRS-1 and assisting at the studio, the San Juan, PR, native was named chief engineer in 1987. There, he engineered two of the New York scene's most influential rap records, Eric B & Rakim's *Paid In Full* and KRS-1's *Criminal Minded*.

Rodriguez created plenty of them. His early looping work involved the use of half-inch 2-track tape that he would use to record longer samples than the 1-second capacity of most devices in the early 1980s allowed. To achieve longer samples on tape, he would loop it around the tape heads and capstans as he held the slack of an extended tape path away from the machine with a pencil.

Rodriguez moved forward as sampler technology did. The Emulator 1 keyboard offered about five seconds; as did the Linn 9000 and the SP-12; the SP-1200 had 10 seconds. When samples required more than 10 seconds, Rodriguez relied on the classic Publison Infernal Machine, a sampler with a 20-second capacity. "The way to make a loop out of a sample before that was to lay down a quarter-note click track from an SP-12/1200 drum machine, then bus the click track to the analog input of the Publison and manually release the click to trigger the loop," he explains. Ultimately, he found a way to use console automation to program the release of the trigger and create the loop hand's free. "That was the way we did the main loops on Eric B & Rakim's *Paid In Full*, EPMD's five LPs, and BDP's first three LPs," he says.

Another old-school trick when samplers had extremely limited memory was to play a cut from a 33-1/3rd LP at 78 rpm and sample it at the higher speed, then use a lower-octave key on an Emulator keyboard to play it back at the correct speed, which also served to time-stretch the sample from one second to three.

Rodriguez combined his DJ and engineering chops on KRS-1/Boogie Down Productions' famous "Stop the Violence" single. The reverse scratching intro came about when he flipped the two-inch master upside down, backed it up 40 seconds from the intro, and played a turntable groove on to an open track.

Photo by Vivien Allender

"At Power Play, we had three rooms but only one 808," he says. "So I would use the oscillator on the SSL console to send a 50Hz tone to an Eventide H3000 and I would sample that and give it a sloping top and tail and tune it to the bass line on the track. Instant kick drum, and you could make the duration of the sound as long as you wanted."

"Also, there simply wasn't as much stuff going on on a record then, not as many sources of sound," Rodriguez says. "So I did a lot of panning. I tried to make a record sound like a storm. Crazy panning can really add to the excitement of a record. If KRS was in a good mood, we'd do some really crazy panning."

When it came to drum machines, the Roland TR-808 was a benchmark. "The 808 was a real turning point, because you could tune the sound on the machine itself," Rodriguez says. But as memorable as the 808's kick drum was, Rodriguez figured out a way to recreate it, driven by the kind of necessity that characterized the early rap recording process. "At Power Play, we had three rooms but only one 808," he says. "So I would use the oscillator on the SSL console to send a 50Hz tone to an Eventide H3000 and I would sample that and give it a sloping top and tail and tune it to the bass line on the track. Instant kick drum, and you could make the duration of the sound as long as you wanted."

"Poor Georgie" was a career record for MC Lyte at the time, and Rodriguez fashioned what would become a hit track from an idea Lyte had recorded to a TASCAM PortaStudio 4-track cassette multitrack dumped to a Sony multitrack and ultimately mixed on an SSL G Series console. "I did the same thing with EMPD's 'Rap Is Outta Control,' only that was just a stereo cassette," he says. "The whole thing was that the artists had gotten a groove they wanted on a cassette and no matter what you did in the studio with a ton of professional stuff, they couldn't get that flow again. So they would give me the cassette. What I would do is patch the left and right outputs from the cassette deck into the patch bay, then use a mult from each one and spread it out over six channels: Channels 1 and 2 were the original with the low end amped up, channels 3 and 4 were phase reversed, and 5 and 6 had the high end boosted. I would use the filter at the top of the channel strips to dial out the hiss, add heavy limiting and it sounds like a record."

And when you ask Rodriguez about vocals, you get an interesting response, and it has nothing to do with which microphone you pick. "I remember when we were doing vocals for the 'Self Destruction' record, which was the first time the East Coast and West Coast rappers were in the studio together. It was produced by Hank Shocklee and KRS-1 and I co-produced it and mixed it. It was all egos all over the place. Some guys, like Kool Moe Dee, didn't show up because they didn't want to be seen with another guy. Just Ice was there and he had a 'thug' reputation. He wanted to be on the record but he wasn't on the Jive Records A&R list because they hadn't gotten clearance from his label, Sleeping Bag Records. So he called up Willie Sokoloff at the label and said, 'If you don't give me that clearance I'm gonna kill you.' And he meant it. I once saw him lift up and trash a soda machine because it took his quarter."

Rodriguez *did* get the vocals, ultimately, using a combination of either a Neumann U-87 or U-47, and a live-type mic such as a Shure SM-48.

MIXING MAGIC

Rodriguez' mixing approach is similar to that of the stem-based approach used in film audio post. "When preparing to mix a song,

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Once you have sampled all necessary elements take the time to edit the front and tail of your samples; this will be helpful in creating a tighter rhythmic feel and will make your overall programming process easier.

I always mix the instrumental first," he explains. "That way I have a slamming track to start off with and much more control over the entire process. I do the same for vocals and keys. I assign these individual parts to sub-master faders and treat the track as if it were more than one song — an instrumental, an *a capella*, and a [music-minus] track all in one. Eight sub-master faders control all main faders — as few as two or as many as a hundred. It's like mixing cake batter — one ingredient at a time until it tastes just right. When done this way there are less automation issues with the vocal parts and the readjusting process is so much simpler."

Hip-hop mixes are often truly plural — the "clean" and "street" mixes of each song. "A great way to achieve 'clean' radio vocal mixes is by using a DAW," says Rodriguez. "Once you have completed the vocal recording, create a virtual (or physical) copy of all censored vocals and edit out the profanity and other unwanted material. Once I have my 'street' mix, all I need to do is swap the vox faders. The automated mix is exactly the same and there's no need to create cuts/drops to eliminate unwanted words. Automation can also create clean radio mixes, [but] it takes much more time to complete. Often automated cuts in a mix may be a little off here and there and then have to be [re-programmed], which is time consuming. When you actually clean the material before you begin mixing, clean radio vocal results are always guaranteed."

But tricks aside, Rodriguez remains proud of having to invent solutions to studio challenges or engineer his way around them. Instead of a plug-in, he'll still slide a copy of a vocal track on Pro Tools to another track and play it back with a few milliseconds' delay, creating a digital version of the rockabilly tape slapback effect. Once tapped to play semi-pro basketball in Puerto Rico and with a nickname derived from his favorite sports star, Julius Erving, Rodriguez is not at a loss for an analogy. "If you cannot hit the jump, ain't no sneaker on earth gonna save you," he says.

Doc Rodriguez may have been largely off the scene for a few years, but he's never completely left. In the last seven years he's taken part in a few projects, including Chilean hip-hoppers Tiro de Gracias' *Decisión* debut album. "Hard work, self-respect, and discipline are the ingredients in my recipe. When I no longer feel that way I will no longer make records, but I believe that it will be a very long time before that happens."

RODRIGUEZ'S RULES OF ORDER

by Ivan "Doc" Rodriguez

PREPRODUCTION:

When preparing your project for professional multitrack recording, use a studio standard Akai MPC, Roland MV, or Korg Triton MIDI workstation to create your song(s) so you'll have the option of sampling audio and sequencing synthesized sounds in the same unit. If you decide to use a software application (Propellerhead/TASCAM/IK Multimedia/Apple), follow the same process. To program your sequences (or full programming in software applications) you will need a keyboard controller (M-Audio/Roland) with MIDI and USB connections.

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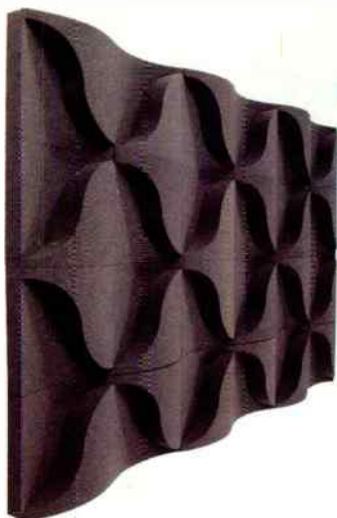
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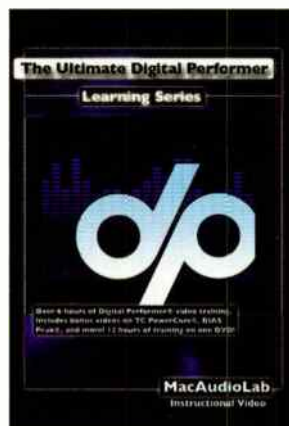
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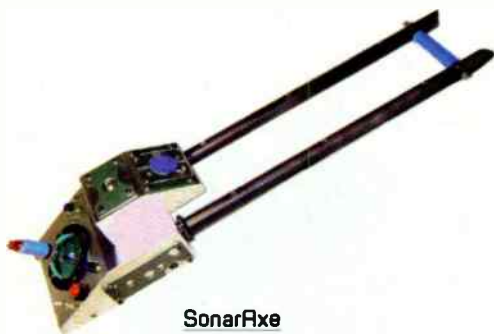
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THE HIP, THE HOP, & EVERYTHING IN BETWEEN

When recording samples (to multi) I recommend that you run all sampled material (individually) through an Avalon VT-747sp (or other reasonable grade tube preamplifier) and then to the multitrack (2" analog tape/hard disk recorder/Pro Tools/Cakewalk) master. This will add warmth to your samples while retaining the samples' original character.

When sampling audio (for drum kits/groove loops/bass sounds/special effects) make sure not to breech 0dB in the samplers input stage; you're recording binary numbers (not audio) and will end up with nasty digital errors. Record your samples at –8dB (rms) for a clean result. Great samples begin at the source so find the cleanest possible source available. Unless you are feeding audio into the sampler via a digital (spdif/coax/toslink) input you are probably using some sort of small (often DJ type) mixer to amplify the signal. Keep in mind that sub-par mixers will introduce noise into the signal path. Keep it clean! If instead you are sampling into a software application (Propellerhead/TASCAM/IK Multimedia) I recommend that you run all audio through an Avalon VT-747sp (or other reasonable grade) tube preamp to your soundcard and then record your samples. This process will add warmth to your digital samples. (If sampling from pre-recorded sources, you should write down any necessary publishing information per sample for future sample clearance issues.)

Once you have sampled all necessary elements take the time to edit the front and tail of your samples; this will be helpful in creating a tighter rhythmic feel and will make your overall programming process easier. When you have edited your samples and assigned them to pads (or MIDI notes on a keyboard controller), you can begin to sequence your groove. Experiment with time corrections (1/4th 1/8th 1/16th 1/16th triplets) to get your personal feel. If your track is sounding a bit too mechanical, make adjustments to the swing mode setting in your sequencer, it will give your tracks a slightly more natural feel.

When sequencing synthesizers/tone modules (Korg Tritons/Roland XVs/Nord Leads) you will need to keep close track of your MIDI channels. You get a total of 16 MIDI channels per MIDI output. Some sequencers (Akai MPC 3000/4000) offer up to four MIDI outputs (64 MIDI channels) and others (Digidesign 002/Akai MPC 1000/2000) offer only two (32 MIDI channels). While both sequencers serve the same purpose there are some substantial differences. If you have an MPC and four tone modules you simply dedicate one MIDI output to each tone module and move on to sequencing. However if you have a Digidesign 002 and four tone modules you will have to daisy chain two tone modules to each MIDI out (002 MIDI out feeds Module 1 MIDI in and MIDI out of that module feeds MIDI in of module 2) of the 002. In order to use both tone modules you will have to split MIDI channels (if you don't split your MIDI channels you will have two tone modules playing the same note sequence). When using a software application to sequence (only) soft synths, you gain better sequencing resolution and eliminate many of these MIDI issues but you also lose the quality of external tone modules (a choice you as a producer will have to make) and the sequencing feels that you get from an MPC (more so a Roger Linn MPC). You can, of course, use both.

Once the MIDI madness is conquered you can move on to sequencing your parts. Make sure to give each part an individual track and MIDI number. Whether using hardware or software you should still notate your MIDI channels/assignments on paper. While most popular soft synths and tone modules will do well for basic synthesized sounds I recommend using analog modules (vintage Roland/Oberheim/Novation) for sequencing bass sounds.

If you do decide to produce with hardware, always leave a blank 2 bar sequence in front of your song. If you use a studio with limited inputs, you will have to synchronize your gear and make several passes to record all of your material. Viable sync options are SMPTE and MIDI timecode.

Once your preproduction is complete make sure that all equipment output assignments and parameters are set and stored.

TRACKING:

1st Session. Begin by recording the basics to your song(s). All the musical elements should be tracked before you record vocals. If your project consists of more than one song, then dedicate your time to tracking the music to all your songs before you move on to vocals.

If you plan to record to an analog format (2" multitrack tape) you will have the option of recording very hot signals (often done for saturation effects) on most of your tracks. I don't recommend recording high freq signals (hi-hats, cymbals) at hot levels because they will bleed into other tracks and make mixing (of a capellas/drop mixes/solos) somewhat difficult. Substantial gating will be required to reduce noise.

If you plan to record to a digital format (Hard Disk/Pro Tools/Logic) you will not have the option to record signals to achieve saturation. You will be recording binary numbers (not audio) and will end up with digital errors. Record audio at –4dB (rms) for good results. With digital recording you can record everything at the same average levels (including high freq signals like hi-hats, cymbals) because you will not get any bleeding.

When recording samples (to multi) I recommend that you run all sampled material (individually) through an Avalon VT-747sp (or other reasonable grade tube preamplifier) and then to the multitrack (2" analog tape/hard disk recorder/Pro Tools/Cakewalk) master. This will add warmth to your samples while retaining the samples' original character. If you like the tube process you might want to try it when tracking synthesizers as well.

When tracking vocals I recommend a two microphone set-up (to two mono tracks), one Neumann U87 (or AKG 414) in the cardioid pattern running through an Avalon AD2002 (or Focusrite ISA 430/Presonus ADL 600/or other reasonable grade) mic preamp and a Shure SM58 (or other very basic stage mic) running through any basic mic pre (or console pre) stacked in an "L" pattern facing the vocalist. The U87 will always give you a wonderful result, the SM58 will give you a gritty type of sound that may be very useful in the mix. I do not recommend the use of compression when recording vocals (unless your vocals are erratic and even then I'd rather work you through a few takes until I get a feel for your style and cadence). Worst case scenario I'll insert a Tube Tech CL2A or Universal Audio LA-2A in the signal path at a very light setting (2:1). I'd much rather compress during the mix. What the heck, if you're going to record vocals you might as well record with two mics, you might never repeat that one hot take again and end up regretting the fact that you didn't get an optional mic track.

Other than the aforementioned tube process I do not recommend processing tracks when recording to the multitrack master. If you happen to over process (compress, limit, EQ) a signal when recording your basic tracks you will not be able to remove the process without re-recording those tracks. Always record your basic tracks flat.

Once you have completed this 1st session ask the engineer (or assistant engineer) to run off a rough-draft mix, one instrumental and one with vocals (if you got to record them). Take this home for review. And if you're lucky, you've already hired me and so it's already great. If not, well hope for the best and maybe that's what you'll get. EQ

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