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**THE ULTRA
MEGA [OKI]
MIC MADNESS
ISSUE**

Starring **BRUCE SWEDIEN,
DAVID Z, JOEL HAMILTON, TIM
GREEN, AL SCHMITT, THE UNSANE,
PAT DILLETT, J.J. BLAIR, DAVE RAT**



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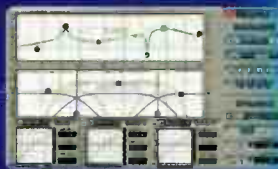
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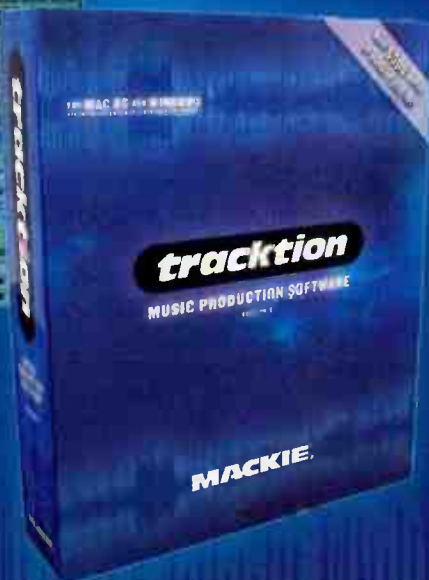


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MACKIE®

09/05

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Producer/engineer Tai Herzberg

[Green Day, Counting Crows, Mya]



Producer David Kershenbaum

[Joe Jackson, Bryan Adams, Tracy Chapman]

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Talk Box



Vol. 16, No. 9
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TRY THAT WITH A MEGAPHONE

The images are altogether a sort of cryptic bit of modern Western iconography. That is: the amazing Mr. Please Please himself bent over one, Elvis wrapped around one, or the Sinatra of the bobby soxer heart throb era leaning *all over one*.

What is a microphone, Alex?

What is a microphone?

A prop, an affectation, a suggestion of something . . . else . . . entirely, depending on how you rocked it and *what* you were rocking. Because it needed to be but *suggested* (versus even being *shown*) to get across what was killing itself to be said definitively and, more importantly, more loudly than everybody else: *therefore I am*.

So through the same cool medium of exchange that packed them out for Orpheus and that now, in this day and age, had a name, a face, and a place in space, usually in some singer's enraptured fist, the mic's fallen heir to being accessible like no other bit of music technology has *ever* been accessible.

It's where the recorded songs start.

It's how *good* recorded songs shine.

And, hell yeah, we gave it its own issue.

Because it deserves it, because it makes a difference, because you can't do without it, and if you can't do with it well, you *will* do without it. Because nobody else has bothered talking to BRUCE SWEDIEN in a damn, good long while, because what AL SCHMITT, ED CHERNEY, BIL VORNDICK, *et al.* know many of us can't even begin to guess at, and because what J.J. BLAIR, TIM GREEN, and JOEL HAMILTON put themselves and their mics through a dog shouldn't even have to suffer.

This is our September. Welcome to it.

Cheers,

P.S. Tuba Players (*EQ*, Talkbox, July 2005)? Yes, yes, you can stop writing any time now. You *have* been heard.



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POST PUNKISTICS

I MIKED THE UNSANE

by Joel Hamilton



There are two things I know.

Every mic is a part of our sonic vocabulary. Every mic "describes an event" differently.

With that in mind, and a fairly "eloquent" selection of mics, I set out to make a record that really let a band with an aggressive sound be described by a recording that engaged, annoyed, attacked, and affected the listener. The band was UNSANE, known for a sort of very aggressive, heavy,

sonic assault. This is not heavy metal. This is an attack.

But how the hell to get that attack, that gesture, all the way through to the end listener?

HERE COME THE DRUMS

Well we started in an obvious place: the drums. Vinnie hits the damn drums like they owe him money, and so I wanted a setup that let that really come across, focus, real impact and the aggression of the room, versus the old "I wanna sound like Bonham" crap that winds up translating as BLINK 182 with a little more room mic in the final mix.

With this in mind, I tried all kinds of stuff, based on my "usual" rock setup.

I had a **Sennheiser E602** in the kick, about two inches away from the beater. That gave me the thwack I wanted without having to EQ. I put a **Neumann FET 47** in front of the kick, for the boom. Snare was top miked only, with a **Revox 3500**, in the same way you see in pictures of every frikkin' session ever. The Revox is like a **Beyer 201**

with a little more top. Nice. Responds to compression well. Rack and floor toms had one **Oktava MC012** each, in cardioid. I love those things for toms. I have tried *everything*, and I came back to these cheap condensers for the awesome balance of thwack and boom. So much tone, NO EQ again on any of these, to tape. Actually there was no EQ at all on this record, on the way in, or during mix. None. Zero. Zip.

Overheads were **Earthworks TC30s**. Omnis as OH. Like hovering above the kit. Open, fast, brutally honest. I had a center ambient mic in the room (mid size, terra cotta tile floor, wood walls). I used a **C12 VR** custom I have, into a tube pre, into a **Neve 33609** limiter for some explosive ambient sounds, but still focused. The C12 VR I have has a good overall balance in front of the kit. Like the source, only better. . . . I also wanted a really distant room mic as well, still mono.

I tried a few different mics that I would normally choose, and settled on a **Neumann CMV563** with a M7 capsule, through a custom **Ampex 601** tube pre I have, into an **AM864/U** "federal" compressor. Slow, floppy time constants, but fast enough release to give me more explosions, and complement the quick release of the Neve 33609 so my releases average out and there is no "pumping" regardless of the tempo of the song. The CMV was like the old guy in the corner, really enjoying the whole experience at the show. Not accurate, not really "the truth" but giving a flattering account of the attack in progress kind of like how FOX news would describe Iraq. . . .

I also had yet another mono room mic, kind of a "wild card" mic that I will throw in the mix on almost every session I do, that gives me an overall character of that particular session, and really gives the drums a sonic fingerprint specific to that session or album. Think "When the Levee Breaks." We could all name it from the first kick hit because it really has a sonic footprint that is instantly recognizable. On this record, that "wild card" was a **Lomo 19A19**, behind the upright piano, through an **1176** with all four buttons engaged. Fun craziness that wasn't always appropriate, but was always fun. The Lomo is like a dark, smoky, (distorted in this case) storyteller that makes even mundane acts seem a little more sinister, like Tom Waits describing a trip to the grocery store.

Photo by Brendan Tobin

WHAT IS

CHECK 1, 2:

What we heard when we got all of these mics really screaming was the sound of war. Vinnie really was making the air work in that room, and with all those mics around, I was sure I was getting what I needed to really make this exciting. In circumstances like this, I felt like I was putting up as many cameras as possible, because the schoolbus is only going to jump the canyon ONCE, you know? And we can always look, listen, and decide later whether it's going to be riding the room mic heavy for the slow one or tight and punchy for the screamers.

BASS FISHING

The bass in Unsane, a three piece, is really an intrinsic, unique part of the band's overall sound. Capturing the sound of an SVT about to explode is no simple task. This bass makes a lot of racket outside of traditional "bass" sounds. To grab this, to really describe this unsettling event Dave Curran calls "bass" for UNSANE, we wound up with the following setup.

We put the SVT in its own room, with a **DI (Avalon U5)** and four mics. I needed something with fangs first, and something that would handle 10 billion dB, so we grabbed a 57. Yes, a **Shure 57**. Put that on the top right speaker of the poor SVT cabinet. I listened to the phase relationship to the DI . . . awesome. FANGS. The 57 was eating the grille and you could hear it was in an unpleasant place . . . Perfect. I also really wanted some balls for this sound. We put an **RE20**, eating the grille down by the floor on another speaker: low end, and some top sizzle. Cool fit with the 57 and the post-pedal DI. Assume there was some dicking around with phase for all of these choices. I also wanted something NOT as focused as these close mics, so we put a **Neumann FET47** about four feet back from the center of the 8x10" cabinet. Awesome. Totally snarling lashes of really heavy barbed wire coming at your face: the intended gesture was coming through the monitors.

GUITERROR

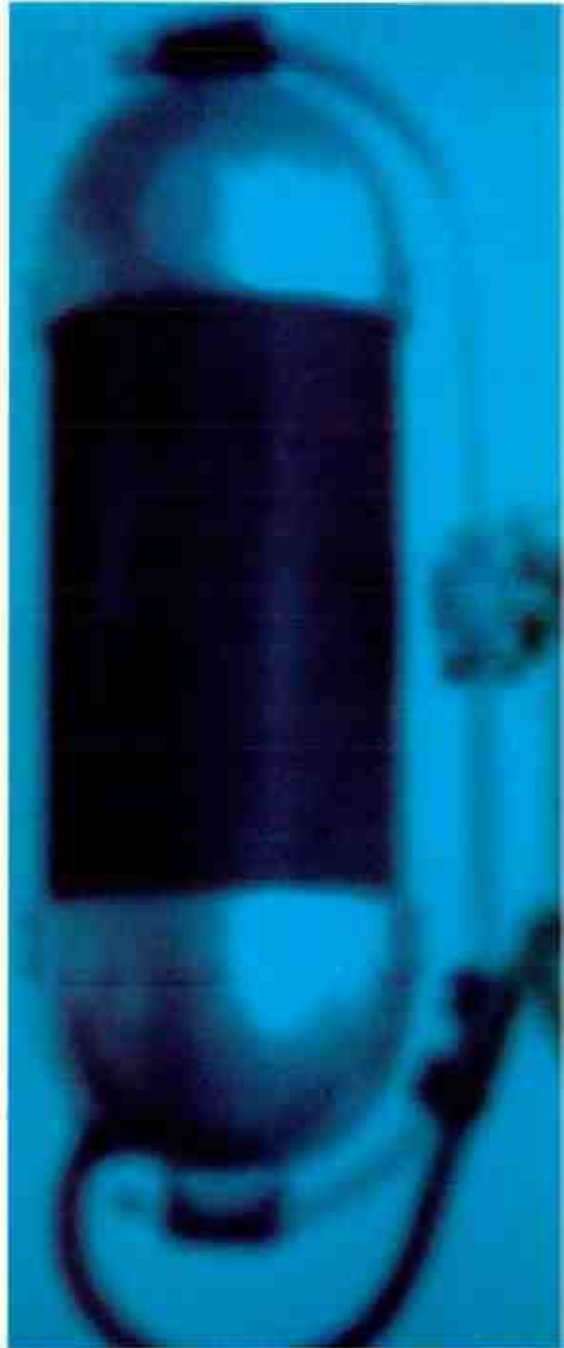
Guitar was much simpler: A twin, a **Fender twin**, ALL THE WAY UP. Couple that with Chris Spencer's **Telecaster**, and you have a punishing sound. We also had a **Mesa/Boogie Triple Rectifier** for the more driven part of the sound through an old basket-weave **Marshall 4x12** cab. A 57 and an **Echolette 409** on two different speakers for the Triple Rectifier, and a 57 on the twin. Simple, effective, abrasive, but "professionally abrasive."

ULTRAVOX

Vocals are shared by Dave and Chris, and for Chris, (after Frank Black finally left the studio, as he was doing the Pixies reunion thingy at Hammerstein here in NYC and stopped by to hang out) we simply plugged in a 57, held in hand. Chris wound up on the floor on his side, wailing away. All 10 songs in an afternoon. Amazing. For Dave I wanted a little more tubed-out drive, so I hauled out an **RFT 7151** bottle, and let it get killed by the onslaught. Fully grabbed the intent of both people, and sat well in the rest of the mayhem.

AND SO...

All of these mics were chosen because they describe the original event in the way we wanted. We control the media. We choose the way we are presented to the world in the studio, and these microphones "described" the event so well that we wound up with NO EQ anywhere on the record. Choose microphones, and any piece of gear for that matter, with the intent of flattering the original intent of the artist, and you will wind up with something that really sounds like the artist . . . only better . . . ►



THIS?

MICROPHONECHECK 1, 2

STATE SECRETS

THE OBLIGATORY GENIUS GUIDE TO STUNNING MIC TACTICS...

Starring suspects both usual and unusual: Charles Dye, Ron Albert, Al Schmitt, Pat Dillett, David Z, Bil Vorndick, Bob Bullock, and last but by no means least, Joe Chiccarelli

by Dan Daley

It's a given that successful people figure out a few things on their own along the way. Very successful people also figure out that they might want to keep a few tricks up their sleeves that help keep them unique. But some secrets, as is the habit with secrets, ultimately come out, and here a slew of great engineers and producers share some techniques — on the QT, hush hush, and very confidential — that helped them get to Easy Street.

HERE COME THE DRUM MICS

CHARLES DYE, Grammy winner, best known for his work on Ricky Martin's 1998 love-it-or-hate-it hit "Livin' La Vida Loca."

"For hi-hat I usually go for a sound that's less clanky and more wispy. Using a 451 or similar, I position the mic on the opposite side of the hat from the snare for separation, about one inch beyond the hat's outer edge, and two inches above the edge pointing straight down. The mic is now aimed directly at the floor and not pointing at the hat at all. This off-axis and slightly unconventional position turns out to



give me just the sound I'm looking for with the least amount of equalization. But invariably either the drummer or assistant engineer will at some point 'fix' it for me, thinking someone bumped the mic."

Beyond the high-hat, Dye says he gets ambient drum sounds via early reflections. "I prefer miking the room's ambience by positioning room mics facing a wall or window. The purpose is to get as much reflected sound as possible, without getting any direct. I often prefer warmer large diaphragm condensers for this. Most recently at Hit Factory Miami's Studio C I used a pair of tube 47's, placing them on the sidewalls to the left and right of the drums 14 feet in front of the kit. They were 10 to 12 feet high pointing directly at the wood walls 12 inches out. Because the mics were pointing in opposite directions from each other, the ambience was out of phase, so I flipped the phase on one. The sound was a very warm and rich room tone that later sounded great while recording electric guitars as well."

QUICK PICKS

HEIL SOUND PR40 DYNAMIC MICROPHONE



This is supposed to be a replacement for the ElectroVoice RE20.

Why replace the RE20?

Why not?

The Heil PR40 sounds very close to the EV but it is about half the price of a used one. I used the PR40 outside the front head of a kick drum. Sounded exactly like what I thought the RE20 would sound like. Cool. The Heil PR40 doesn't have the same little 85-95Hz bump that the other one has, but I generally notch a little of that out anyway. I tried the PR40 on everything from acoustic guitar, male vocals, a hi-hat, some male narration, a snare drum, and a piano. You know, it worked pretty well on everything — kind of the same way that a SM57 works OK on almost everything. I really liked it on the narration — it sounded very "broadcasty" and radio announcer-like. And it sounded pretty good on the snare. Also great on the bass amp. It sounded like one of those Beyer Dynamics. I like this mic — it is the affordable RE20 replacement. It comes in a nice wooden box with a stand clip. The mic is very sturdily built.

The frequency response is from 28Hz and stays perfectly flat to 18kHz with mid-range rise that gives it great natural articulation for VO and broadcast. Apparently all the HAM radio guys really dig this mic. If you're in the market for a truly affordable option, check this one out. A shockmount is going to be available for this model very soon. (\$200 street) —Monte Vallier

Pluses: Relatively flat and wide frequency response, sturdily built to last, all-around workhorse type mic, good price.

Minuses: Needs a shockmount.

PAT DILLETT, engineer and producer for They Might Be Giants and David Byrne, has a subtle trick for miking drums.



"I'll place tom and snare microphones at a lower angle to the drum than most people. On toms I usually use [Sennheiser] **421's** or [Shure] **SM98's**, on snare usually a [Shure] **SM57**. I find if I place the mic at a little less than a 30-degree angle to the drumhead —

aimed at the point of attack (or at least the drummer's *intended* point of attack — don't get me started!) — I end up with a fatter sound. The mic catches the full impact but also grabs more of the skin resonating than a sharper angle placement. Of course, when stage miking, you want a sharper angle to avoid picking up everything else thundering around onstage."

DAVID Z While engineering for Prince during his most creative days in Minneapolis in the 1980s, David did a lot of off-the-wall experimentation. And some even had to do with music.

"On the *Family* album, we were recording in a huge warehouse. We had to put the drums on the other side of the room because there was no control room. To get a particularly hot snare sound, I put a **Sony ECM-50** condenser lavalier microphone inside the snare drum. We took off the top skin, suspended it with tape so it didn't touch any part of the drum, ran the wire out of the air hole on the side and then taped up the air hole as part of securing the mic. You need some way for the air to escape the drum so I burned a hole in the bottom skin with a cigarette. I still do that to get rid of the boingy-ness of the snares. It freaks drummers out when I do it — even when I tell them I'm going to do it, they don't believe me until I actually burn the hole. But it works, and so did that Sony mic inside the snare, but not for too long. It just got the life whacked out of it. It wasn't designed for that kind of abuse. It lasted for about four songs. But it sounded great."



STRINGS & THINGS

RON & HOWARD ALBERT have graced the acoustic guitar sounds of Eric Clapton, Keith Richards, Steve Cropper, *et al.* The key? According to Ron? Hardware.

"The ultimate acoustic guitar sound is a **Martin D-45**, preferably vintage, with bronze-wound strings. Put a **Neumann U-87** into a shock-mount and place it on a stand upside down, so the capsule is at the bottom — the secret is that you don't get reflections off the metal body of the microphone that way. Set the mic on axis to the strings, as close as comfortable to the guitarist. Then, run it first through a **Pultech PEQ-1A** equalizer, because they have the ability to cut and boost in the same frequency range simultaneously. That's what we do — cut and boost the highs and lows; the microphone honks the mids on its own. Then send it through a **UREI 1176LN** compressor. The setting will vary according to how hard the guitarist plays.

"On vocals, one longtime trick of ours has been to use dynamic microphones, like a **Shure SM-7**, for rock vocals. Dynamics lower the proximity effect and they tend to sit in the mix better, whereas condensers tend to pop out."

JOE CHICCARELLI, production and engineering great whose bona fides run the gamut from the Stranglers to the Kronos Quartet, loves stringing them high.



"Often I'll record solo violin or viola as a color on a country or even a rock track. The violin puts out sound from all over the instrument, from the neck to the body and out the sound holes. Using a close-up and a distant (room) microphone will work well, adding some depth to the sound. However, sometimes the tracks or the mics aren't available to me. So I found that the most realistic sound could be captured with one mic above the instrument in the omni pattern. By moving the mic up and down above the violin I can control the balance between the present (close) sound and the ambience of the room. This seems to yield a result that truly sounds like the instrument in the room with a very three-dimensional quality to the sound."

BRASS TACTICS

AL SCHMITT, whose 17 Grammys out of 34 nominations gives him an exact .500 batting average, has a favorite trick for brass.



"I leave all the microphones in an omni pattern instead of cardioid, like most engineers do. On big sections I'm not worried about things from other parts of the room leaking in, and there's something about the way a fully open microphone sounds. The back is open and it just picks up a more natural array of sounds."

GUITAR-TRONICS

ED CHERNEY, engineer for the Rolling Stones and Bonnie Raitt, knows a thing or two about a thing or two. In this instance: guitar amps.

"For guitar amps, to find the sweetest spot to place the microphone — **Shure 57s** are usually the classic choice when close miking, although I have really been digging the **Royer Ribbon 121** — then plug the guitar cable into the input, but don't plug in the guitar. On the jack that you would plug into the guitar, hold it and put your thumb against the tip of the jack so it hums. Then get down on your hands and knees in front of the amp speaker, cup your other hand behind your ear and listen from about a foot away from the speaker. Move your ear around until you hear the spot where the hum is the fullest and richest — that's where to aim the microphone."

BIL VORNDICK, whose engineering and production chops helped win Allison Krause her first Grammy, and who has pioneered modern bluegrass recording techniques, says lap steels may be electric guitars but do need a special touch.

"I like to mic the front and the back of the amp. I will use a single **Shure 57**, **Sennheiser 421**, or a **Royer** on the front of the amp cabinet (depending on which amp) a few inches from the speaker pointed one-third of the way from the center to the outside speaker rim. Then I position a 421 — out of phase from the front mic — pointing into the back of the speaker cabinet about six to eight inches away. (Move it around until you get the exact sound you like.) You can really get more balls out of the amp using the two mics front and back, instead of just the mics that many engineers only use on the front."

BOB BULLOCK, a Nashville-based engineer whose discography includes the most recent discs for Shania Twain, George Strait, and Travis Tritt, has a neat adaptation on a stereo microphone technique applied to an acoustic guitar.



"I'll use a stereo pair of **AKG 451** condenser microphones. I set the first one up over the [soundbox] of the guitar about six inches away, aimed toward the sound hole and at the three lowest-frequency strings [E, A, and D]. I'll take

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the other microphone and aim it toward the neck, around the 12th fret, and aimed toward the highest-pitched strings [G, B, and E]. With this setup, the first microphone is picking up the guitar's lowest frequencies from both the lower-pitched strings and from the area of greatest low-frequency resonance. The other mic gets the upper frequencies. It's the same principle as miking a piano with stereo mics, and when you pan them hard left and right, it gives you the same kind of stereo image. It really sounds great when someone is finger-picking the guitar."

JOE CHICCARELLI (yes, again) recalls two techniques that helped him capture elusive instruments.

"Some time ago I did a project for blues guitarist George Thorogood. George is an amazing guitarist, capable of producing a big sound with his small combo amp that could fill a room with a great spectral balance top to bottom. Often it was hard capturing the type of low end that would emanate further back in the room and would rumble the floors. I had the best luck miking the Fender amp with the typical **Neumann U-87**, **Shure 57**, **Royer 121** combinations, but I also mic the back of the open speaker cabinet — in the rear at the outer edge of the speaker I found the most punchy low end that I could blend in with my front microphones. To do this properly, I had the best luck with large-diaphragm condensers like the **EV RE20** or the **AKG D12**. To balance all the microphones correctly, you'll have to reverse the phase of the rear microphone. Remember, it's a speaker cone moving positive and negative so the rear motions will most likely be opposite-phase from the front."

MIC CHEKA

THE GREAT AMERICAN MIC HUNT

by J.J. Blair

Strange things happen on the Internet.

In a particular pro audio forum, I had posted the *EQ* cover of Jack Joseph Puig [March 2005] giving the "Blue Steel" and then the pic of Dave Navarro, from a different *EQ* issue, lying shirtless on an SSL and displaying his total recall technique. I went on to suggest

QUICK PICKS

B.L.U.E. Microphone Snowball

"What the hell am I supposed to do with this?"

A Snowball?

Come on BLUE, when are you going to run out of cute color/name combos for your spherical mics? What's next: The Meatball? The Melonball? The Eyeball? Whatever. The mics are pretty cool.

The Snowball is white (surprise, surprise). It's also the first USB-powered spherical microphone in existence. The mic is pretty new on the scene and hasn't generated a lot of press. The BLUE website doesn't have any specs listed, and the review mic came in a little Styrofoam box with a USB cable and no literature. So I will wing it.

I don't use any software where I would need, or could even use, a USB microphone. The only thing I could try was GarageBand.



I'd never really used GarageBand except that one time where I was on tour in Japan and we had to do a demo of GarageBand at the Apple store in Tokyo and none of us knew how to use it and we learned it in the cab on the way to the demo. The demo kind of sucked in a surreal way. But here was my chance to redeem myself. I spent the next

three hours getting totally into the freakiness of the software until I had the perfect track to try and record some creepy vocals into. I hooked the Snowball into the USB port on my keyboard, set the audio input preference (the driver automatically loaded) to BLUE USB thingy, and armed a new track for record and presto: there was a nice fat signal.

The Snowball is a dual-capsule microphone. One is for vocals and VO and one is for instruments. There is a three-way switch where you can choose either capsule or both at the same time. The one that is for voice is sort of low-mid enhanced to give your voice a little bit of ball (sic), and the instrument capsule delivers a more high-passed open sound. Both capsules simultaneously sound sort of extra fat and chunky. I can't sing to save my life but I know when a mic sounds good. Especially for the price and the type of market that it'll be satisfying.

I DO have a couple of problems with it though: I think the mic is just too big and bulky for the laptop/backpack brigade. Also the demo model I got had no mount — just a 5/8-inch screw hole on the bottom to attach to a straight stand. What it needs is a way to mount the mic on a little collapsible desk-mount stand you can stick by your keyboard or mouse and get to work. Or maybe they can come up with a flexible swivel mount so you can get it into position with a normal boom stand. This mic will have a very specific audience and they need to cater to that group. The sound is pretty cool, and flexible, and the price is right so maybe this Snowball has a chance in hell. (MSRP \$139) — *Monte Vallier*

Pluses: USB powered, no need for a mic pre, dual-capsule versatility, looks cool on the desktop, price to quality ratio good.

Minuses: needs portable desktop stand, since there's no pre amp — no control over input gain, bulky and a bit unwieldy, will get dirty, makes you make bad puns.





- ◆ Classic Solid-State Opto-Compressor
- ◆ Custom UA Transformers & T4 cell
- ◆ Discrete, Class A Amplifier – up to 50dB gain
- ◆ Rear Panel "Gain Mod" switch for gain control
- ◆ Designed by ex-UREI engineer- Dennis Fink

LA-3A

Classic Audio Leveler

Conceived 1969
Cloned 2005



The original LA-3A Leveling Amplifier made its debut at the 1969 NY AES show and marked the departure from the tube design of the LA-2A. The LA-3A incorporated components and design concepts from the Putnam-designed 1176LN Limiting Amplifier. Immediately embraced as a studio workhorse and still widely used today, the LA-3A remains a favorite of engineers and producers worldwide. Our reissue of the LA-3A retains all the internal and external qualities of the original. Original rear panel connections and controls are maintained, while the commonly performed "LA-3A gain mod" is added as an additional switch for maximum gain reduction range.

Technical Specifications (more at uaudio.com)

Maximum Gain: 50 dB
 Input level: 0dBm at 50dB gain; +20dBm at 30dB gain
 Output level: +20 dBm nominal, +27 dBm maximum
 Attack Time: 1.5 milliseconds or less
 Release Time: 0.06 seconds for 50% release; 0.5 to 5 seconds for complete release
 Noise: 80 dB below program at threshold of limiting



UNIVERSAL AUDIO
www.uaudio.com/LA3A-clone
 analog ears | digital minds

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that perhaps a certain *EQ* editor would rather be working at *Honcho*. Well, after a couple of weeks, my phone rang. "Hi, this is Eugene from *EQ*. You know, the head *Honcho*."

The upshot?

He wanted me to write an article for THE MIC ISSUE. Either that or he'd throw me a beating *and* buy me a lifetime subscription to *Honcho*. And it wouldn't get delivered in the brown wrapper. So here I am.

Let me start out by saying to the manufacturers who are or who have become my friends, if I say something about your product that you don't like, I'm sorry. Just remember, I'm not a technician, nor am I an egghead who understands why every circuit sounds the way it does. I'm just a guy who sets up mics, turns knobs, and gets sounds good enough that people have decided it's worth paying me to do it.

So what is an opinionated producer/engineer/musician going to write about for the Microphone Issue? Well, it starts off a long time ago, in a studio far, far away with a passel of mics prime: the **Neumann U-47, Neumann U-87, Telefunken U-47, AKG C12VR, Manley Gold Reference, AudioTechnica 4060, BLUE Kiwi, BLUE Cactus, Brauner Valvet, Korby Convertible with 47 head assembly, Langevin CR2001, Lawson L47, Manley Reference, Microtech Gefell UM70S, Microtech Gefell UM92.1, MXL V76T, Neumann M147, Soundelux E47, Soundelux E49, and the Telefunken U47M.** . . .



EPISODE ONE: ATTACK OF THE CLONES

If there were ever a microphone associated with the recording studio, it would be the **U-47**. It's been a staple of studios for over 50 years, and it'd be safe to say that most condenser mics are based on the technical principles developed for the **U-47**. It has also inspired many look alike and sound alike clones. In the past few years, I've seen articles reviewing some of these clones, but I've never seen one big shootout. In my studio, I frequently do shootouts of different pieces of gear, so I thought it would be a great idea to get a hold of some of the more popular model **U-47** clones, or **U-47**-inspired mics, take a couple vintage **U-47s** and put them all through the paces of recording instruments that a **U-47** is typically used for.

But first, a history lesson: The Neumann (or sometimes Telefunken branded) **U-47** is the grand daddy of all studio mics. Originally built by Georg Neumann in 1946, the original version of the mic uses a dual diaphragm M7 capsule and a **Telefunken VF14** tube. Later versions, and most versions you will ever come across use the **K47** capsule. The main difference in these capsules is thickness and substrate material. They both use a gold-sputtered 28mm

diaphragm. The **M7** uses an 8-10 micron thick diaphragm made of poured PVC and the **K47** uses Dupont's Mylar film in a 6-micron thickness. PVC suffers from noticeable shrinkage over time and can significantly change the sound of the capsule, and the manufacturing of these capsules is labor intensive. Mylar is a much more stable and durable polyester-based film and the **K47** is still available from Neumann today.

I realize not everybody reading this article has had the pleasure of using a **U-47**, so some of you might be wondering, "What does a **U-47** sound like?" Well, those of us who have used several **U-47s** have a general idea of what they are supposed to sound like. However, because of the variations in capsule type, or even the variations in capsule states, not to mention other important factors such as the health of the tube, the capacitors and the transformer, you are going to be hard pressed to find two vintage **U-47s** that are an exactly matched pair. Even though **U-47s** may vary in terms of overall brightness from one mic to the next, I would generally say that they share a certain 'tubby' sound with excellent low-end response and punchy mids. Also, the **VF14** tube, which is an integral part of the **U-47** sound, also tends to add an authority to the midrange that you don't experience with any other tube mic.

So either you already know how great these mics are or you are sick or hearing about how great they are and you want to own one. Buying an original **U-47** from a vintage dealer can cost you anywhere from \$6,000 – \$10,000. You can gamble on a mic from eBay for around \$5,500 – \$8,500, and hope that the tube and capsule are in good shape. And then you have all these other mics that look just like the **U-47**, and you don't know quite what to make of them. What should you do?

First off, here's my philosophy on the matter: If you are recording for yourself and you find a mic or any other piece of gear whose sound you like, and the price is fine with you, then by all means, buy it. But if you are a commercial studio or aspire to be one, clients generally want the real thing. This may be ignorance on the client's part, but it is just a fact of commercial studio life. The other thing you might want to take into account is whether or not a piece of gear will retain its value. This is the dilemma of vintage gear: It's a tool *and* it's an investment. Only time will tell if some of the new mics will be regarded well enough that in the future, they will still fetch top dollar. But on the flipside, new mics offer the convenience

of knowing that they will likely be functioning properly, or that they will still be covered under warranty if something goes wrong. So the trade off of less maintenance might be worth not having a mic appreciate in value to some.

For this shootout, aside from vintage U-47s we used some of the popular U-47

inspired mics:

the Korby

Convertible with their 47 capsule, the Soundelux E47, the Lawson L47, the Telefunken North America U47M and Neumann's M147, which is the current offering from Neumann that claims a U-47 lineage.

I then put them through the paces of recording instruments in the cardioid mode that one would be likely to use a U47 on: upright bass, alto sax, male vocals, female vocals, mono piano, violin and acoustic guitar. Everything was recorded without a pop screen, through an **Inward Connections Vac Rac** tube mic pre, into an **Apogee AD16X** without the use of soft limiting at 96kHz up to **Pro Tools HD**. However, on the male vocalist, because he had one of those gruff, chainsaw crackling voices, I used a **Manley tube mic preamp**, to ease off some of the harshness caused by the rasp in his voice.

Our three vintage U47s all contained VF14 tubes, original BV8 transformers, and two of the mics used original Neumann K47s, while the third had a BLUE built K47 type, which I had chosen in place of this mic's original K47. Even with the BLUE capsule, this mic matched extremely closely with one of the K47s. One of the mics with the K47s had a clarity in the high end and an airiness to it uncharacteristic of most U47s, but the mid range and low end of the mic was definitely signature U47.

The only true clone of the group is the Telefunken North America U47M (MSRP \$7,495). It came equipped with a new old stock (NOS) VF14 tube, a very faithful reproduction of the original BV8 transformer, and what they said was an original Neumann M7 capsule that had been reskinned with a Mylar diaphragm. Now the problem with the M7 capsule is that the only people currently making M7s with the original PVC material are Microtech Gefell (which is an historical descendent of the original Georg Neumann company). However, they do not sell their capsules to outside parties unless they are replacing an original Gefell made capsule. Even though it's not the original material, the advantage to using Mylar is that the capsule should last longer and retain its characteristic. But in trying the Telefunken USA M7 capsule on the same mic body against the K47 capsules, I found it to be dark. An original M7 capsule should in fact be brighter than a K47, due to the lack of elasticity of the PVC material. However, Telefunken North America does offer K47 capsules. The conventional wisdom on K47s is that they do tend to vary in tone from one to the other, so you might want to look into the possibility of auditioning a few before you settle on the one that winds up in your mic. Since NOS VF14 tubes cost about \$1,200, they also offer a cheaper version with a NOS EF14 tube or even a NOS Nuvistor tube version for \$1,000 less. But it is my opinion that neither of these options will sound as good as a real VF14 tube.

Telefunken North America has done a remarkable job recreating this mic. *It looks just like a Telefunken U47!* They also win the prize for coolest case. The mic has its own velvet-lined wooden box, and there is a vintage-looking carrying case for the power supply, mic box, Neumann style shockmount, and cables. The mic uses the same type of Tuchel connector found on the vintage U47. In fact the only cosmetic differences between this mic and its vintage counterpart are the size and coloring of the Telefunken badge, and the fact that the capsule basket has a rounded top. The original Neumann basket curves, but is flat across most of the top. I have no idea if this changes the acoustics of the capsule housing (I doubt it), but this is one small factor in the mic not being a 100 percent copy of the original, if you care about that kind of thing. And just like the original, the mic can be used in cardioid or omni.

The mic that second most closely resembles the original is the Soundelux E47 (MSRP \$3,950/eBay price \$2,400). The E47 uses a K47 style capsule with a 6-micron Mylar diaphragm, but it employs a JAN submini tube and uses an accurate four layer recreation of the BV8 transformer. It has a grey paint job that resembles the color of the finish on a real U47, and a chrome basket for the capsule. The shape and geometry of the basket differs from the original, as does the cannon-style connector for the cable to the power supply, but overall the mic really evokes the image of a U47. It doesn't come with a carrying case for all the components, but there is a nice wooden box for the mic itself. One nice feature about the E47 is that unlike the U47, there is variable pattern selection available for the capsule.

Next on the look-alike list is the Lawson L47 (\$1,995, direct from the manufacturer). The L47 uses a 3-micron thick K47-style capsule, a 6N1P-EB tube, and a Lundahl transformer. It comes in a waterproof Polican case, which holds



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the mic, the cable, and the power supply. There is no shockmount, but there is a standard mount that attaches to the cable connector. The L47 comes in either a matte gold or nickel finish body and matching chromed basket, and there is a cannon-type connector on the bottom for the PSU cable. The Lawson has capsules that can be interchanged with their L251 system, as well. It gives you the option of either using the capsule in fixed cardioid or in variable mode, also. It's a great looking mic, but one issue I had with it is that when you remove the capsule basket, nothing is left to hold the body housing in place. The ATC type connector that connects the capsule basket to the body is not the most elegant solution for interchangeable capsules, but these features may be part of what allows Lawson to make a mic that sells for under \$2,000.

Then there is the Korby Convertible (MSRP \$4,500 in this configuration), which actually resembles an E1a M251 more than it resembles a U47, but they are not really going for a clone. The Korby Convertible is a system that actually is supposed to give you an option of four capsules that are reminiscent of four classic mics. Their 47 head assembly is in fixed cardioid mode, and they use a Groove Tubes 6201-M tube and a proprietary transformer in the body. There's an Anvil style flight case that holds

the mic's wooden box, the PSU, the shock mount, the cable, and up to three more head assemblies. The head assemblies are removable without having to undo any screws. They simply pull off, and fit rather firmly with a very solid-looking four-prong plug.

The last on the list is the Neumann M147 (MSRP \$2,899/eBay price \$1,800). It looks like a scaled-down version of the U47 FET, with a satin nickel finish. It comes in a nice flight case with a shock mount, a regular mount, a PSU, cables, and a satin bag for the mic. Except for being smaller, the capsule basket shares the same look and geometry of the original U47 capsule. The mic uses a 6111WA tube and is transformerless. The good folks at Coast Recording Supply were kind enough to let me demo this, because for some inexplicable reason, Neumann/Sennheiser only wanted to send me the BCM705 to test, and the manufacturer rep never returned three, count them, *three* phonecalls. Go figure. I was tempted to leave them out, but then a friend pointed out that without Neumann, we wouldn't be having this discussion in the first place. We had to invite the big dog to the shootout.

SO THE GANG'S ALL HERE, LET'S GET THIS PARTY STARTED.

First up was the upright bass, mic'd from 7' away, pointing at the 'f-hole. All the mics performed well in this situation. The M147, the Lawson, and the Korby sounded rather close to two of the vintage U47s. The exception being that the Lawson was missing some of the low end, but it had a nice presence in the low mids and the overall tone was even enough that you could have EQ'd in some of that 100Hz and lower range that it was missing. The Korby was darkish, but it had a nice round sound to it and full lows. The Soundelux and the Telefunken NA were similar in terms of darkness, and they both seemed to have a lot of resonance in the area of 650Hz. But I wasn't as crazy about the E47 on this instrument, because it seemed to be weak at translating the fundamental frequencies of the notes. I would say that the M147 and the Korby seemed the most usable of the new mics in this situation, with the vintage U47s being the favorites.

Next up was a mono piano setup, which was difficult because we were trying to capture some proximity effect while trying not to have any specific parts of the keyboard jump out more than others. One of the vintage U47s was the clear favorite. The M147 sounded rather even, but it suffered from more proximity effect and off-axis rejection than any of the other mics. It just sounded like it was in a different space and like the cardioid pattern was more tightly focused.

The Lawson seemed a little scooped out on the low mids, but was clear on the high end. The Soundelux did have some of the sub 100Hz response of the real U47s, but it seemed to have a noticeable bump in the 150Hz area that clearly differentiated it from the other mics. The Korby and the Telefunken NA were both the darkest mics, but the Korby had better low-end response and was punchy in the 1kHz region. While the U47M was lacking some of those deep lows and clear highs, it had a nice flat response to the piano that didn't make any certain frequencies stand out more than any other.

When we recorded violin, we set up the mics about three feet away pointing down toward the instrument. In this particular instance, my favorite mic was the Lawson. It didn't have the lows of the other mics and didn't have any airiness to it, but something about the combination of this mic and instrument was really happening, and had a great vintage sound that made the texture of velvet come to mind. The Korby sounded most similar to the Lawson in this application, but with some extended high end. The bright U47 did not work as well for me in this situation. It was too nasal. But the other U47s sounded very clear and full. The low frequencies really came through best in these mics and would have



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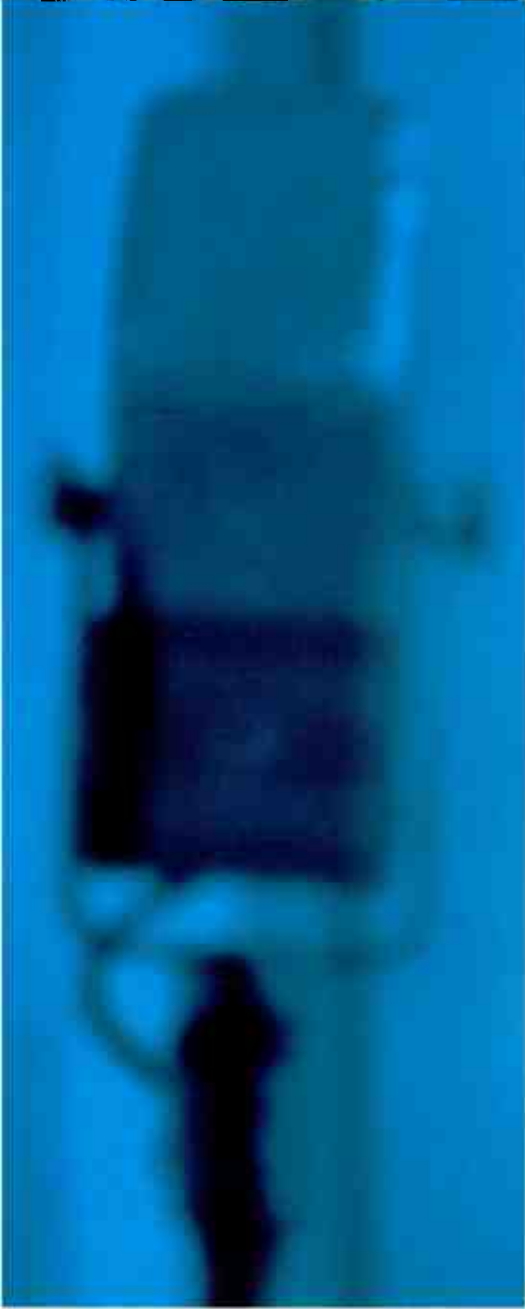
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been my next pick after the Lawson. The M147 was smooth, but was missing the low end. The Soundelux lacked some of the lows of the vintage mics and seemed to have a great deal of presence in the 8kHz range. The Telefunken NA seemed rather piercing, but all in all, each mic performed well in this task and had a definite 'U47-ish' quality.

The acoustic guitar recording really spoke volumes about each mic. I recorded a **Martin D35** from about five inches pointing directly into the sound hole. The Korby and the M147 were the most similar to the vintage U47s in this instance. The Korby was maybe a tad more robust in the 400 – 500Hz range. The L47 was definitely sounding in the same family, but once again lacked the low end. **The darkness that I kept experiencing with the Telefunken NA was a factor in translating the crispness and chiming of the strings, even though the overall response was very even. It just lacked that magic at 8kHz and above.** The E47 performed very nicely, and sounded a great deal like the bright vintage U47 minus the sparkle, but with a little more thickness in the lower midrange. It lacked some of the low end, however.

My second engineer dusted off his alto sax for the next test. The mic that immediately grabbed me on this task was the Telefunken NA. It just had a terrific texture and presence in the mids that really complemented the fundamentals. One of the vintage U47s had the best bottom and a really smooth, sexy tone. The other vintage U47 matched up pretty closely with the Soundelux and the M147. The Korby was a little thick in the low mids for me, but had a definite U47 texture. The Lawson once again had an exciting top end and sizzle, and had the least amount of bottom.

The next victim was a female singer who had a very Karen Carpenter-esque voice that was smooth and smoky. The Lawson and the bright U47 really captured the air in her voice the best. But when she was singing quietly and low, the Soundelux really excelled. On the contrary, the Korby sounded extremely grainy, if not too much so, when she sang quietly, even though it handled the louder dynamics nicely. The M147 was perhaps too present in the 1–2kHz region, and did not complement her voice, but the Telefunken NA delivered a nice even recording, in spite of the darkness. There was nothing magical about it, but it was pleasant.

Last but not least, the voice that a U47 was made for: A soulful male with a great deal of rasp. The Lawson really delivered the most amount of airiness and sizzle, but once again lacked the low end. The vintage U47s were quite wonderful and full, and the Soundelux really sounded the closest to them. The M147 was too grainy and brought out all the wrong elements of the vocal texture, making it harsh sounding. In this instance, the Korby came off sounding a bit boxy. This is the situation where the Telefunken NA mic really seemed most comfortable. The darkness was not a liability, and the midrange presence translated in all of the right areas.

SO WHAT DID I LEARN FROM ALL OF THIS?

Well, first of all, there aren't any of these mics that I wish I had instead of my Neumann U47. I mean, if I were to buy a second U47, I would likely look for a vintage one. However, each manufacturer did a really good job of making each mic sound in that U47 ballpark. If I were on a budget, I would absolutely pick the Lawson. I know

they wanted to get some of the high frequency response that a 3-micron diaphragm achieves, but if you are looking for the booming lows that you can achieve with a U47, this might not be the mic for you.

While not sounding exactly like a U47, the Soundelux is a fair approximation. It's a solidly built mic, and the brand is garnering enough respect that even in a commercial studio, it might help attract clients. Even though it had all the essential elements of a U47, there was an "X" factor missing, that probably was the reason I never picked it as my favorite in any of the applications, even though it did them all very well.

The Korby is a terrific mic, but I don't know that I would use it in lieu of a real U47. However, if you are interested in the system, I can attest to the fact that their 47 head-assembly definitely sounds like a mic in the U47 family.

This particular Telefunken NA U47M didn't totally WOW me, but it sure sounds like a real U47. I would personally choose a K47 capsule if this capsule they sent me is indicative of the reskinned M7 capsules available. The U47M body didn't completely sonically match up with the vintage U47s, but that could be because of aging capacitors or factors with the vintage transformers or tubes. However, it did sound more like the real U47s than any of the other mics. It will put a dent in your wallet more like a real U47, as well. But if you wanted a brand new mic, and money was no object, I couldn't find fault with choosing the U47M.

The big surprise for me however was the M147. I was prepared to hate this mic, based on my experience with new Neumanns. However, for a street price of under \$2,000, it definitely has a U47-ishness to it. It definitely suffers from off-axis rejection and doesn't have the magic or flexibility on some applications that the similarly priced Lawson L47 has, but this mic has earned some of my respect.

EPISODE DEUX: ELECTRIC BOOGALOO

The most recognizable mic in the world, as well as the most ubiquitous has to be the Neumann U87 (MSRP \$3,179/eBay \$1,300 – \$2,000). As the U47 is the grand daddy of all condenser mics, the U87 is the godfather of all solid-state large diaphragm condensers. **For some reason, everybody feels they need a U87 if somebody is going to take them seriously. I'm personally not a huge fan of the mic. I find that they tend to be a little too harsh in the high mids, and then they have that high frequency filter that Neumann tends to do when developing mics for German broadcast standards.** But you feel you need to have a solid-state mic that kicks ass? What are your options? Well, there are three mics that were sent to me that I preferred to the U87: **The BLUE Kiwi** (MSRP \$2,399/eBay \$1,899), the **Microtech Gefell UM70S** (MSRP \$1,750/street price \$1,450) and the **Langevin CR2001** (MSRP \$800/street price \$700). I compared these all against a vintage U87 that had recently been factory refurbished and recapsuled by Neumann.

The BLUE Kiwi looks like the green half-sized version of the BLUE Bottle. I thought I saw a commercial recently with Bo Bryson singing into one, but then I realized it was Chewbacca recording cellular phone ring tones.

Thank you very much.

Anyway, this mic has variable pattern selection unlike the U87, which only offers cardioid, omni and figure eight. The mic uses a lollipop-style capsule that can be removed and replaced with other BLUE capsules. This is a much brighter mic, and more exciting sounding. It really sounded fantastic on acoustic guitar and male vocals. It's very airy,



QUICK PICKS

CAD M177 + CAD M179

CAD is an American company making mics in a factory in Ohio. They came to prominence in the 90s with the Equitek series of mics that started the trend toward high-quality-for-less-money project studio type mics. This new range — the M series — will compete handily with the influx of inexpensive mics coming from the Far East. These mics use high-speed, low-noise op amps instead of discrete FET designs. These are quiet, flat, well-made mics. They are sturdily built and feel substantial in your hand. The -20dB pad and 100Hz low cut switches are quality and easy to operate without having to get a pen or something sharp to jab into them. They come with a nice stand mount, but it would be nice if they had a shockmount. They tended to pick up quite a bit of rumble from the stand/floor since they are almost flat down to 10Hz. Although the



100Hz roll off switch can do wonders.

I tested each of these on some acoustic guitar and vocals. In comparing them to the other mics I have that fit into this category of mic type and price they did very well. I recorded the same piece of music with the two CAD mics (in cardioid), an Audio-Technica 4033, a Rode NT2, a Neumann TLM 103, and a B.L.U.E. Bluebird. The signal path and gain structure was the same for all of them: Millennia HV3D mic pre through a Summit DCL 200 compressor into Pro Tools.

OK. Let's go: The CAD mics are really quiet. Compared to the 4033 and the Rode these were absolutely clean. They exhibited damned good musicality and good detail with a neutrality and naturalness. They sounded better to my ears than both the 4033 and the Rode NT2. The AT 4033 is a bit bulky and mid rangy and the NT2 a little bit thinner — not so much body. The TLM 103 and the Bluebird did sound fuller with a 3D depth that the CADs didn't have. But for the price, which is significantly lower than even the Rode and the AT 4033 these mics shine.

The CAD M 179 continuously variable pattern feature is amazing at this price point. I can't think of any others in this price range. The M 179 has a wheel that you turn to access the various capsule patterns. These include hypercardioid, cardioid, wide cardioid, omni, and figure eight. All these patterns have a détent in the wheel but you can smoothly turn the wheel and get in between patterns to customize the sound that you are looking for.

From their low noise and sweet sound performance to rugged construction and tight design and quality to price ratio these mics are well worth checking out. The only drawback so far has been the lack of a shockmount and I'm sure the folks at CAD have one in the works. (CAD M177, CAD M179 = \$169, \$199 street, respectively) — *Monte Vallier*

Pluses: Rugged construction, neutral clean sound, versatile (multi-pattern M179 especially), low noise, affordable.

Minuses: Susceptible to low-end stand/floor noise coupling, lack of shockmount.

MICROPHONECHECK 1, 2

unlike the Neumann. It's more cumbersome than a U87, but it's really an elegant looking and sounding mic. BLUE has established itself as a studio staple, thanks to the Bottle mic and great marketing on the company's part. This is a mic that clients would take seriously.

Another excellent option to the U87 is the brand new Brauner Phantom AE (Anniversary Edition: MSRP \$1,500, street price \$1,275). This cardioid-only mic had a very sexy and open top end, and was what I could call the most elegant sounding of this group. Brauners are starting to turn up in some of the top pro studios, as their reputation becomes firmly established. You should have no problem getting a respectful reception from your clients with this choice.

The Microtech Gefell UM70S uses their PVC-based M7 capsule, which descends from the original U47. It's a really solidly built mic with the same pattern selection, -10db pad, and roll-off as a U87. It has a very similar frequency response, but the mic range is so much creamier. That harsh midrange that I object to with the U87 is not there at all. Gefell, whose history I'll touch on in the next section, is considered by many to be the "real Neumann" by many, and has established a great reputation in top studios. However, people outside the pro audio loop are not that aware of it and it would take some explaining to make a client understand why they want to use this instead of a Neumann-labeled mic. In this respect, its slim profile and small appearance betray the image that should be associated with the sound of this mic. But make no mistake, this mic is a U87 killer. The MTG UM70 has a cult following and I am confident that it will one day achieve its well-deserved classic mic status. If you like the sound of a U87, I bet you will like this better.

The last option is the **Langevin CR2001**, made by Manley Labs. This is the same mic as their CR3A, but in a new styled and much more solid body. Gone is the familiar shape of the U87, in favor of a body that resembles a very slightly scaled down Ela M251. This is a cardioid only mic, featuring a high-pass filter and a -10db pad switch. It uses the same capsule as the Manley Reference mic, but with an FET design and a Manley transformer. This thing just sounds great. Anything I put this mic on against the U87 sounded better on this mic. It has nice crisp highs and a smooth, punchy mid range. I must say that I own several of the predecessors to the CR3A, and I have literally used them on everything, with excellent results. *This is a very versatile mic and is well built. It will definitely stand the test of time. It's not going to get you the respect that the U87 or Kiwi will on appearance or name recognition, but I consider this a must own utility mic.* And for this price, you can own a few of them. And I guarantee you that in 10 years time (which is how long I have had my CR3As), they will be working and sounding as good as they do today, which is something I can't attest to for the glut of cheaper priced FET condensers that are pouring out of China. Yeah, I do have a bias toward these things, but any engineer who's come into my studio and used the Langevin has left a believer.

EPISODE THREE: THE REAL MIC WORLD

This is the true story of nine microphones, picked to be used in a studio and have their signal recorded. Find out what happens when instruments stop being polite and start getting real, yo.

Of the piles of mics I received for reviewing, I had to cull the herd to a manageable group, so to make it fair, I just picked anything that was sent to me that used tubes. This is totally random, and there is no theme to this group. We have the **AKG C12VR**, the **Audio-Technica 4060**, the **BLUE Cactus**, the **Brauner Valvet**, the **Manley Reference**, the **Manley Gold Reference**, the **Microtech Gefell UM 92.1**, the **MXL V76T**, and the **Soundelux E49**. Each one of these was used to record the same male and female vocalist as the U47 mics, as well as the acoustic guitar and the piano in the similar fashion.

The **AKG C12VR (retail \$4,999/eBay \$2,800)** was hyped as the revival of the venerable C12, but the only thing these mics share in common is probably the shape and the 6072 tube. AKG abandoned the original CK12 capsule decades ago because of the difficulty and expense involved with manufacturing these gorgeous-sounding capsules. The modern CK12, which confusingly shares the same name as its predecessor, uses the same mechanical principle, but shares none of the sonic majesty that has given legendary status to mics employing the original, such as the Telefunken Ela M251.

The C12VR is a dark-sounding mic. I wouldn't say that it's woolly, but it definitely has no sparkle. What it does have however, is a nice even tone and a velvety warmth. It really sounded good on everything we recorded with it, but it did leave me wanting to EQ in some high end. It really translated the full range very evenly, which would lend itself to EQ'ing, in my experience. It's a solid workhorse that was really good in each instance, but that price is pretty damn steep. If for some reason you've gotta have this mic, get it on eBay or something.

The **AT4060 (MSRP \$1,499/street price \$1,099)** was a surprise. It had some grainy high mids that really stuck out and gave some of the vocals some presence. It was a bit brittle on acoustic, but was very pleasant on piano. It definitely is

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MICROPHONECHECK 1, 2

not a mic that translates low end, and the hype in the high mids can betray some situations, but it had a cool texture to it. However, the mic that I was using had a pretty atrocious noise floor. I would hope that this is an aberration, because otherwise with product standards like that, A-T will never shed its "prosumer" image.

The **BLUE Cactus (MSRP \$3,299/street price \$2,499)** was an enigma to me. BLUE has the philosophy of having each of their mics have a really colored sound. Well, this one is colored really dark. I mean, woolly, even. It had a really fantastic low-end response, but this is not a mic to use if you want presence. With a peak at around 5kHz and a steady rolloff from there, this would be a great mic for horns or any application you might prefer a ribbon mic on. It worked OK on the male vocalist, but was not happening on the female. It was way too dark for my taste on acoustic, as I like to have some bump somewhere between 8 and 12kHz in that application. Forget about the piano. It is really cool looking and comes with a bad-ass BLUE anvil case. It also uses the lollipop system, so you could try other capsules on it.

The **Brauner Valvet (MSRP \$3,200/street price \$2,400)** was nothing short of awesome. It sounded great on everything. This is their more moderately priced tube mic, and it really had a sparkle on each voice or instrument, combined with a terrific grain and the perfect amount of sizzle. I could definitely find myself using this mic a lot. In fact, I would really like to start seeing Brauners become as ubiquitous as some of the more stalwart brands, like AKG and Neumann. This mic is definitely a new classic, in my opinion. They also win the prize for coolest new design in a shockmount.

Now the **Manley Reference (MSRP \$3,000/street price \$2,700)** is a very nice mic with a lot of character. Even though this mic has a fixed-cardioid pattern, it really has a great grain and presence on each voice and instrument. It really made the acoustic and the vocals cut and sizzle. Its big brother, Manley's flagship mic, the **Gold Reference (MSRP \$5,500/street price \$4,950)** has a different capsule — designed by David Josephson — and a fully sweepable pattern. This is one of the most open sounding mics I've ever heard, without having any hype in one area or another. In a situation where you want to capture a breathy performance, but you might get too much sibilance or harshness from the boosted highs of a C12 or a Ela M251, this would be the perfect alternative. Not as grainy as the black Reference mic, it still has a terrific presence on acoustic and piano, with a flat response that seems to extend well beyond where most mics start to shelve around the 12kHz region.

The **Microtech Gefell** owes its lineage to the legendary Neumann UM57. MTG, which is essentially modern day Neumann Gefell, uses the PVC based M7 capsules that I spoke about when discussing the U47. I found this mic to have all the same warmth and fullness of the UM57, but it was surprisingly dark. My understanding is that this is because of RF filters that the manufacturer has added to the preamp, and that there is a mod that can be done to bypass the filter and open up the top end. However, as is, it is much like the C12VR. It responded great to each voice and instrument, but I really wanted to add some high end to it to get it to pop more. This is another well-respected mic that is likely to attain classic status, but to anybody who buys it, I suggest doing an Internet search to find out how to bypass that filter.

Now the **MXL V76T (MSRP \$299/street price \$199)** is the least expensive of all the mics I've tested. It's actually pretty musical-sounding and has a cool grainy tube-condenser vibe to it. It's definitely hyped in the high mids and adds character to the vocals, but its mid-range presence seemed tinny on the acoustic. And the mic just did not translate the low end effectively at all on the piano. My concern with this brand, as with many of the OEM Chinese brands, is that consistency is not terrific from one mic to the next. As well, just as Eastern Bloc mics suffered from problems over time because of substandard materials, we have yet to see how these mics will hold up in five or 10 years time. Most of these brands are using all the same parts from a handful of manufacturers, and from everything I have read from people who have visited the plants, the tolerances don't exactly meet the same standards of most Western manufacturers. But at prices this cheap, you might not care if it lasts.

And last, we have the **Soundelux E49 (MSRP \$3,750/street price \$3,325)**. This is based on the Neumann M49, and uses the same K47 style capsule as the Soundelux E47. This was a terrific sounding mic, although it lacked some of that airiness and sizzle of mics like the Manley or the Brauner. It had a very neutral but warm sound. It was one of the most even-sounding mics on the piano. And while it didn't have that ring or brightness to it, it gave a great representation of the acoustic. It had a nice fullness on the male vocal, but I didn't care for it on the female. I wanted to hear some of her breathiness and it made her sound a little boxy. This would make a great utility tube mic, but there was nothing magical about it for me.

Thus ends the hunt. Now go forth and rock.

J.J. Blair is a Grammy winning producer and engineer, based in Los Angeles, where he works out of his personal studio, Fox Force Five Recorders. He is not now, nor has he ever been, a subscriber to Honcho.

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MICROPHONECHECK 1, 2

3 THE HARD WAY

YOU ARE LOUD? I AM LOUDER

Consider: the classically designed tube microphone, one modern-design tube microphone, and one electret condenser, respectively. Mix in crust metal. Let steep while Tim Green from The Champs and HMIC at Louder Studios SF does what needs to be done to harrow the BLUE Bottle, the Audio-Technica AT3060, and the CAD e100(2).

SONGS SUNG BLUE

Modeled after the Neumann CMV, the BLUE Bottle is, in fact, a massive tower of high-grade electronics, an EF86 tube, and transformer. An interface at the top is compatible with an array of BLUE capsules of different patterns and recommended applications. The stock capsule, which ships with the BB is the B6, a large-diaphragm cardioid with a dual backplate. I also tested out the figure eight-patterned B2. BLUE calls this the "vintage capsule" and suggests that it resembles a classic ribbon mic sound with the soft high end, aggressive midrange, and proximity effect the old ribbons are prized for.

Returning from EQ central to the waiting guinea pigs, er, band . . . I immediately put the BLUE Bottle into service. The BB, with B6 attached, found itself facing the business end of a Sunn Model T powered 4x12 cabinet. It was then subjected to 122 decibels of

brutality courtesy of crust-metal experts, Dystopia. And I might add: the amp was only at 4! The 9610-power supply has, in addition to its tube-saving soft-start feature, a polarization switch. This lets you either pad the Blue Bottle to handle higher spl's or to add extra gain when needed. With the switch set a -4dB, the mic handled the glare or the Sunn quite gracefully. It retained a good amount of resolution while still conveying the power of the amp. This mic works well under pressure, which is not always the case with large diaphragm condensers.

DAY TWO: CAP'N'S LOG

OK, first things first on DayTwo: On the included literature with the AT3060 is a claim to the "warm classic tube sound," but, curiously enough, the type of tube is not divulged at any point on the sheet. I suppose we'll just have to trust that there is some sort of tube in there, although, by the sound of this mic, that would be a pretty big leap of faith. Another AT3060 curiosity is the absence of a power supply. The aforementioned phantom tube runs, conveniently enough, on phantom power. The capsule is of the cardioid condenser type and comes with a shockmount compatible with many of the newer AT large diaphragm condensers.

In addition to servo-head amps and a transformerless output, the supercardioid CAD e100(2) employs a somewhat unique system combining phantom power with two internal 9-volt rechargeable batteries to serve the current-hungry, high speed op amps in its amplifier circuit. According to the accompanying literature, these op amps tap into the reservoir of power to handle transients with maximum efficiency. Unfortunately, as we all know, efficiency is not always a prerequisite for musicality. The e100(2) also comes with its own shockmount.

Now: a battery of tests, the likes of which had not been seen since the space race of the 1960's, although it is not known whether NASA conducted its trials using an acoustic guitar, a drum kit, and a singer. If they had, they may have made it a lot farther than the moon. At any rate, the mics were all run through modified Trident 65 preamps. This not only served as a known constant, as all channels were fitted with Panasonic hfs electrolytics and TLE2071 op amps at the same time, but also served as a sort of real world scenario: the price of the AT or the CAD would likely be within the budget of a Trident 65 owner. This would also demand performance of all three mics with no support from a superior preamp to fall back on. ►



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MICROPHONECHECK 1, 2

On acoustic guitar, the BB, outfitted with the B6, converted sound into electricity — and then sound again, in a beautiful and graceful manner. The mids and high mids were well defined and the low end was full but not boomy or loose. There was an even, smooth frequency response with more sparkle than was audible if you were sitting in front of the guitar itself. The only shortcoming arose when a Klaus Heyne modified U-67 burst onto the scene. Its low mids were a little less murky and the sound was a bit more open in general — so maybe an unfair comparison, but with the prices being fairly comparable it seemed appropriate. The B2 capsule behaved similarly, but produced a less muddy low midrange and, obviously due to the figure-eight pattern, a more spacious sound. The CAD conveyed a decent high end, but with a honky midrange. Although the AT handled the low mids better, the midrange was even more unruly and abrasive. The AT had less low end than the CAD and a generally thin, anemic sound. The chances of a tube actually residing within this mic are beginning to diminish.

The next trial was by drum and air. The three test mics and the rogue 67 were positioned about five feet from the drum kit. In this case the CAD suffered from a murkier, less defined low midrange, but handled the low end more firmly and generously while making the ultra highs shimmer in a manner befitting a mic in a much higher tax bracket. Again, the AT fared better in the low mids, presenting a much less clouded picture of the room and the drums therein. There was much more high midrange to be found in the AT, making for a somewhat gritty sound. In the unfair comparison department, the BB, armed with the B6, blew

away the competition to the extent that all other mics in the studio were summarily thrown in the garbage. This included the once cocky U-67, whose low mids were less defined than the BB and whose magic elves delivered less high-end sparkle. It was by a thin margin though.

LOCAL VOCALS

After the rash decision was reconsidered and the remaining mics were fished from the trashcan, the final and most brutal test was initiated: the vocal test. There is nowhere to hide, nowhere to run, just the naked, human voice in all its frailty. Some mics can mock even the most accomplished chanteuse, while others with more compassion will guide and coddle even the lowliest “vocal stylist.”

Here the stakes were raised and each mic was routed first through a Universal Audio re-issued 610 and then a “revised F” UA 1176. The CAD was a little lacking in the low end and the midrange sounded a bit canned, but again, the high end excelled and gave the sound a nice shine. The AT supplied even less low end and rendered an edgy, aggressive midrange. The B6 piloted BB landed a smooth, defined mid and hi-midrange that was not too aggressive, but still very present. It had a nice body to it with no unseemly peaks to be found. In a photo finish, the BB again nudged past the U-67, although with the B2 capsule fitted the race would have run more favorably for the 67. The B2’s midrange was a little too gritty for my tastes — at least for this particular singer.

NOT-SO-QUICK PICKS AEA R92 Ribbon Mic

I’ve never owned a ribbon mic. I’ve borrowed them. I’ve been able to use some from well-stocked mic cabinets in nice studios. And I’ve used the **Coles 4038s**, **Royer 121s** and **122s**, some old RCA mics, **Beyer M160s** — you know, the usual suspects. I had never tried any of the AEA ribbon-mic series so I was excited when I got a hold of the new Tylenol capsule shaped R92. It’s 7 inches long and 2.5 inches in diameter and surprisingly only weighs 2 pounds — pretty light for a ribbon mic with the large ribbon geometry. An RCA 77 is about the same size and weighs easily twice as much. The “C”-like integral shockmount suspends the mic from rubber-coated elastic bands and the mic stand attachment, though plastic, is sturdy enough, making the whole shebang very easy to maneuver into position on a mic stand.

I also had a perfect session to try this new mic out on. Singer/songwriter Peggy Honeywell (Galaxia) writes quiet, old-style

folk music that would be at home at the Grand Ol’ Opry circa 1948. She plays a steel string acoustic guitar and a banjo and prefers to record herself singing and playing and not to overdub. I thought the smoothness of a ribbon just might work. The AEA R92 needs a lot of gain. The manual says it needs “60–65dB clean gain” to get good levels on anything with a low level source. Peggy sings and plays very delicately and quietly so I reached around for a good preamp. I had been using the **John Hardy M2 solid-state pres** a lot then so I put the mic in and routed the output to a **Summit DCL 200 tube compressor** for an additional gain stage and maybe a little peak taming and into Pro Tools. While the John Hardy was quiet enough, it didn’t have enough gain — I found myself making it up too much at the compressor and adding a good amount of noise. I could tell the mic sounded good though. The next time I reached for was a **1956 Berlant Concertone Series 30 preamp** that I got on

eBay. This amp had been modded a bit with balanced XLR ins and outs and was very clean. Tons of quiet gain — perfectly fit the tone of the recording. I put the mic about a foot away from Peggy’s face slightly tilted up. Her voice sounded smooth and warm — exactly what we were looking for. I put a pair of **AKG 452s** through the John Hardys on her guitar to get a clean stereo guitar sound and was amazed at the way the AEA R92’s pattern rejected the guitar. Phase issues were easy to deal with and the recordings sounded great.

Next I had a piano overdub to do for Helene Renaud’s band **Beam**. I have an old upright grand and I took the front cover off and put the AEA R92 horizontally facing the middle of the strings about a foot away. This time I used a **Millennia HV3D mic pre** with the +18dB gain switch pushed in. The super-clean mic pre and the relatively quiet R92 performed perfectly for what we needed



for the song. A mono, chordal accompaniment that felt smooth and present with a healthy low end — exactly like the piano sounds when you stick your head in it.

We had some flugelhorn overdubs to do later and I knew that the AEA R92 would shine in this situation. Ribbon mics are made for horns. Using the same path — Millennia HV3D pre through the Summit DCL200 compressor — the mic sounded fantastic. Two or

Nor was I moved by the supposed enhanced proximity effect boasted by the capsule's literature.

AND THE BEATINGS GO ON

Clearly the BB stood head and shoulders above the other contestants, but this is like entering two obese satyrs with exhuma in a Miss America contest. These mics were simply out of their league, so another battery of tests was administered. I've always been a fan of Audio Technica; from the AT25 to the 4033 (not to mention some excellent headphones) they consistently deliver the goods well under budget. So I felt I owed a second chance to this 3060, their new, mysterious offspring and, while I was at it, its flat-faced cousin, the e100(2).

The pair went up against the same drum kit, but this time with the benefit of the UA 610 and under the watchful eye of the old standby, the AT 4033. Again both mics failed to make their mark as the 4033 delivered a big, solid low end with mellow mids and shimmering highs, while the 3060 lacked body and sparkle and suffered from the same boxiness and murkiness that the e100(2) did.

The acoustic guitar returned for the next test. Here the e100(2) brought a little warmth via a bigger low end and smoother high mids while the 3060 was stuck in the mud of its own murky midrange and overall canned sound. The e100(2) actually held its own against the 4033 bringing a little more body and smoothness to the guitar, if not as much high-mid detail.

At this point I decided no amount of testing was going to save the 3060. The case may be that the alleged tube inside this thing is actually a plastic tube filled with 741 op amps. Being a big AT fan, I really wanted to like this mic, but I doubt I could find a place for it in my studio. At half the retail price of the 3060, the e100(2) was not too

shabby at all. If \$300 is at the higher end of your budget I would consider this mic.

But obviously the big winner here was the BLUE Bottle armed with the B6 capsule. The only real shortcoming was the massive size of the bottle coupled with the limited maneuverability of its capsule. Despite the capsule's ability to pivot slightly, I'd be hard pressed to fit this thing into any tight spaces or unusual angles.

LEARNING TO LOVE THE BOMB OR...

HOW TO STOP WORRYING ABOUT OMNIS

by Rich Tozzoli

Enough already!

I've heard all the sordid stories out there about omni microphones — *they feedback, you can't get any separation with them, there's too much leakage, they're not directional.* Look, while choosing the right mic is never easy, don't just blindly reach into that closet for a cardioid. Omnis *can* help you make better recordings — with no fear of professional suckitude. ►

three feet away from the bell gave us a buttery yet detailed and dynamic sound that was to die for.

Like I said, never having owned a ribbon mic before, I needed to get some perspective on how this mic stacked up to some classic ribbons. I called a friend who has lots of ribbon mics in his studio's microphone filing cabinet. Kevin Ink at The Studio That Time Forgot. I asked him if we could do some comparisons with a couple of his favorite ribbon mics. He uncovered an early **RCA 44BX** that was hanging from a colossal Atlas stand and a **RCA 77DX** (from the studio in Gary, Indiana, where the Jackson 5 did all their early demos) that was similarly hoisted. I took the **AEA R92** out of the plastic box that it comes with and handed it to him. "Wow, why is this mic so light?" was the first thing Kevin said. "They must be doing something special with the magnets." Indeed.

We started by putting all three mics in front of his piano (same situation as mine — from cover off) about a foot away from the

strings in the middle all pointed basically at the same spot. Then we put them in front of an upright bass and finally I played some acoustic guitar into each one. He had them all going through Neve 1073s with +70dB of gain. They all sounded good and exactly like you'd expect, but each was different. The 44BX was the fattest with a deep well-balanced low end but not too much detail in the highs. The 77DX was noisy and had smooth lows but an annoying high-mid chirpiness. The AEA R92 had the cleanest, smoothest, most even frequency response but didn't have the expansive low end that the 44BX had.

Kevin said, "The R92 had more highs and less lows than the 44BX. The high detail was very flattering. All around I'd say that the R92 is a more useful mic than the 44BX — definitely more than the 77DX. I liked the even frequency response. I think it is better than most vintage ribbons for all-around usability — especially for the price. But I still gotta have the 44 for sax."

He suggested for a final test that I try it out on an electric guitar since this is where ribbons also excel. I've used Royer and Coles ribbons on amps before and been very happy with the results — so when I plugged the Tele into the Deluxe I was prepared for something nice, but what I got was fantastic. Putting the R92 a little off axis, about 18 inches away from the speaker resulted in a deep, creamy presence without the normally irritating 3.5k brain drill this combo usually exhibits.

But I wanted to test the inherent figure-eight pattern that this mic has so I turned the mic around so the back lobe was facing the speaker and I put a reflective piece of plywood leaning on a stand about three feet in front of the amp so I could pick up the reflection in the front lobe of the mic. After moving the wood around to get the phase to be interesting, I was surprised by a nice, warm, roomy and thick tone. The back lobe has much less highs so it really smoothed out the top edge

coming directly off the speaker. I should have been doing this a loooooongggg time ago.

To sum it all up, this microphone exceeded all expectations that I had. The versatility, the design, the excellent wind-blast protection, the reduced proximity bass boost, the clean, the even frequency response, great high end, and very affordable price make this a must have for anyone looking for a real ribbon to add variety to their sound or to replace some finicky vintage mics. MSRP \$900

(www.wesdooley.com)

— Monte Vallier

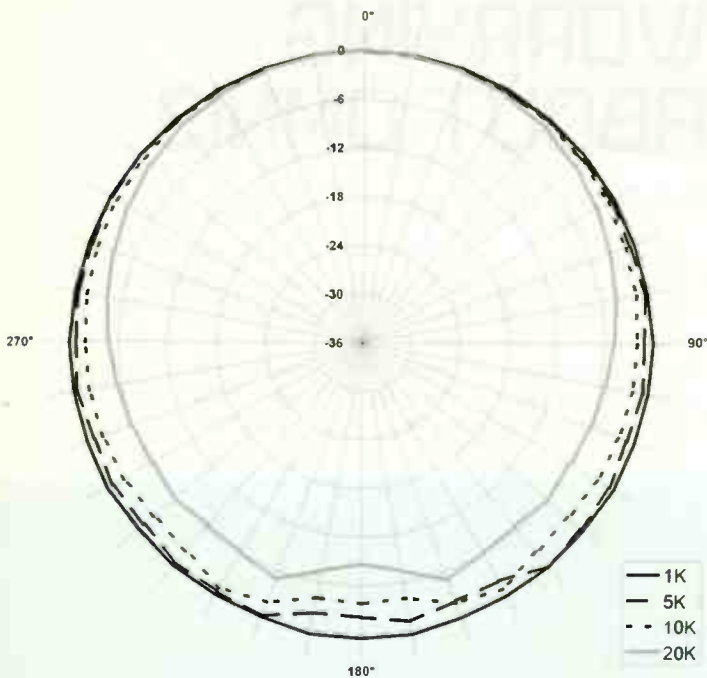
Pluses Smooth frequency response with detailed highs, quiet, lightweight and easy to maneuver on a stand, great wind-blast protection, affordable.

Minuses Needs lots of clean gain (+60 to 70dB), mic stand connector is plastic, elastic bands holding mic onto shock mount may be a weak point eventually.

MICROPHONECHECK 1, 2

TELLING YOU WHAT YOU ALREADY KNOW

The basic design of the omni microphone is such that it captures sound in a full 360-degree, or omnidirectional radius (see Figure 1). Unlike cardioid, hypercardioid, or supercardioid mics that reject sounds from the side and rear, omni's record that space. While you may be thinking, "I was taught to always minimize leakage," quite often that 'leakage' is useful ambience. For example, when recording drums in a good room, I will often use a pair of omni mics as overheads or ambient mics. The room tone will often add life and depth to drum recordings, so why 'reject' it? Certainly, the better the room, the better the sound, but it also helps me minimize how much reverb I add in the mix stage. Try it for yourself and you'll explore a whole new sound.



Another interesting fact about many omni microphones is that they can handle very high sound pressure levels (SPLs). As two of my favorites, the **DPA 4007** microphone can handle up to 155dBs before clipping, and the **Earthworks TC30K** can take up to 150dB SPL. This lets you place them very close to a source without worrying about overloading — great for the aforementioned drum overheads, kick drums, or cabinet mics on electric guitars. So go ahead and place an omni in front of a loud source — they can handle it with ease.

PLACE IN SPACE

Speaking of placement, another benefit of omnis is that they don't suffer from proximity effect (the boosting of lows as you get closer to the source). This simple fact lets you place them closer to an instrument or amp if you choose to — therefore capturing more of the direct sound. If you want more ambience in the recording, just move the mics farther away from the source.

On live recordings, I often use a pair (or more) of omni mics placed out in the audience to capture the vibe off the stage and PA system. Often referred to as a 'spaced omni' approach, this delivers me plenty of left/right separation and provides the 'natural' feel of a recording — instead of just a dry mix with artificial reverbs. Sometimes I place them out with the Front of House (FOH) console. If that distance is too far and slapback occurs when raising the tracks in the mix stage, simply nudge them back in time. That allows

you to create the exact distance you want the listener to hear — or feel for that matter.

THE DEAL

Omnidirectional microphones tend to have very small capsules, which are quite simple in design. This provides a cleaner, more dynamic sound with a nice, flat, extended low-frequency response. The pair of Earthworks QTC-1s I own have a listed frequency range from 4Hz to 40kHz. These work great on acoustic instruments of any kind: bass, piano, strings/woodwinds, and especially acoustic guitars. Working with the late great engineer David Baker, we recorded Al Di Meola's vintage 1930's Martin using a pair of Schoeps cardoids in an X/Y configuration at the soundhole, with the Earthworks omni's set about four feet from the guitar and four feet apart. The omni, when mixed with the X/Y mics, added a beautiful natural sheen to the instrument and really opened up the sound. Think beyond mono, Grasshopper. . . .

Directional microphones are also more sensitive to wind/pop and handling noise than omni mics are because of their larger diaphragms. This led me to experiment with using an omni mic on vocals. I placed the mic pointing straight up at about the height of the singer's chin, so the voice would project into the space just above the tip. We liked the sound so much we used it on every track on the record — without using a pop filter. In capturing the singer's guitar (world/flamenco guitarist Hernan Romero), I used a pair of QTC-1s, with one pointed at the neck/soundhole position and one placed down by the body of the instrument. Panning each at the 3 and 9 o'clock position, they delivered a warm, punchy and "real" sound — exactly what the artist was seeking. Distortion, or lack thereof, is another positive characteristic of omni microphones. Flamenco guitarists can be very transient, and omni mics with their small diaphragms can handle the spikes and SPL peaks amazingly well — with no distortion.

Good omni mics can virtually eliminate the need for EQ, since their response is so smooth and accurate. On a recent hi-res recording up at Clubhouse Studios in Rhinebeck, NY, engineer Paul Antonell and I used four omni mics (stereo DPA 4006s and Earthworks QTC-1s) in the main room to capture the surround tracks. It was 11 pieces playing together live; a string quartet, several woodwinds, percussion, Peter Primamore on piano, Tony Levin on bass, Jerry Moratta on drums and Ciele Minucci on guitar. We placed the mics by finding the sweet spots in the room, and then simply went with our instincts. Panning the DPAs into the front left/right and the Earthworks into the surrounds, it feels like you're sitting in the middle of all these great musicians. Also, the percussion (in isolation) was recorded with simply a pair of overhead omni's — providing excellent transients and overall sound.

So if you've got an omni mic, or two, in the closet, and you've hesitated in using them, fear not. For a clean, clear, open sound, you simply can't beat the omni.

Pluses: Extended low-frequency response, can handle high sound pressure levels (SPLs), captures sound equally in a 360-degree field, no proximity effect, great for ambient room/live miking. **EQ**



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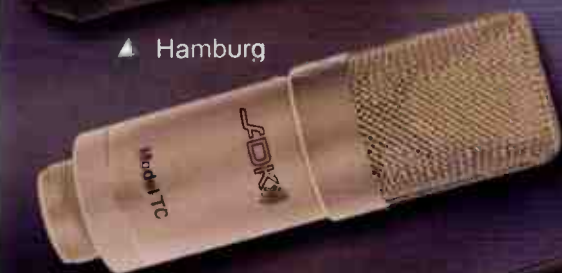
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▲ LE Vienna



▲ Hamburg



▲ TC



▲ Model "S"

"After hearing the TT, I was not surprised that Johnny Matthis and Gladys Knight as well as Mr. Charles, selected two of the TT Valve Mics for their vocals. That the TL Decca Tree worked so well on Ray's Steinway Grand was a nice bonus! But what surprised us the most was how many uses we found for the original Model "S". From Guitars to Drums, Horns to Violas, ADK Mics were everywhere on the "Genius Loves Company" CD. Most mic companies give you one or two good mics. With ADK, you get an arsenal!"

-Terry Howard, Multiple Grammy® Winner: Ray Charles, James Taylor, Michael McDonald, Gladys Knight, Barbra Streisand, Willie Nelson, Duran Durañ, Merle Haggard, Ellis Hall

"I used the ADK TC microphone to record vocals for one of my artists I usually use a Neumann® U87 or a Telefunken® 251 on. It blew me away. I love the "proximity effect" of this microphone. The body of the sound, the presence in the midrange, the smooth top end; I couldn't believe it! If this is any indication of the quality of the rest of the ADK line, you have a serious hit on your hands!"

-Bob Rosa, Grammy®-Winning Mixer/Engineer: Whitney Houston, Mariah Carey, Ednita Nazario, Paulina Rubio

"The Vienna is an absolutely beautiful sounding microphone! It has all the warmth of a rare vintage mic, but adds a slight presence boost in the high end that just screams 'expensive'! A producer could have a closet full of ONLY ADK mics, and still be ready to record ANY session in ANY style! How many mic manufacturers can say that?"

-Ted Perlman, Producer, Arranger, Composer: Ron Isley, Bob Dylan, Burt Bacharach, Young MC, Chicago, Kellie Coffey

"ADK Commemorative Tube Mics are a Gas! We used them with the Cincinnati Pops Orchestra and our Vocals Really Soared!!"

-Tim Hauser, Vocalist, Manhattan Transfer

"I've now used the ADK Model "S" on almost everything including vocals, guitars, and drums. They remind me of very expensive German mics I have tracked with before."

-Adam Kasper, Producer/Engineer, Cat Power, REM, Pearl Jam, Soundgarden, Foo Fighters

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MICROPHONECHECK 1, 2

NOT-SO-QUICK PICKS

THE SE TITAN, SE 2200A, SE 1A1ST, SE 2A, SE 3ST

Everyone is looking for great sounding, versatile mics that don't break the bank or cost so much that you're afraid to use them in certain applications. The SE Electronics line of mics may be the answer.

I got a number of SE Electronics mics from the factory to try out. I decided to incorporate them into my everyday work rather than just testing and comparing. I've been working on recordings for a couple different bands that feature female vocalists and organic, natural instrumentation. A problem I've always had is finding the right mic for quiet, intimate female vocals. I don't have access to a mic closet with all kinds of old tube mics, so I have to go with what's available. I have access to a **Neumann TLM 103** that I've been using a lot for vocals. For male vocals it sounds OK. It's definitely not ideal for female vocals — I usually have to de-ess heavily and bump some mids to get it to sit right.

Out of the collection that SE sent me, two mics were appropriate to try on the vocals of the ladies in the band Willow Willow (they have a psychedelic, folkish, pop sound — think a Beatlesy McGarrigle Sisters with beautiful harmonies where the vocal is the whole enchilada): the **SE 2200A** large-diaphragm condenser, and the SE Titan. The Titan is a transformerless class-A FET that's kind of oddly bulbous and stubby. I put the SE 2200A up first. It comes with a sturdy shockmount that reminded me of the Neumann mounts. I've been using a **Millennia HV 3D** set of pres that I've absolutely fallen in love with. This preamp is so clean and powerful. When you turn the gain knob, each of the 1.5dB steps gives you a warm *whoomp* of gain that is very satisfying indeed.

Anyway, after the Millennia pre comes the **Summit DCL 200** tube compressor. This box goes with me everywhere. I love how this compressor sounds in cahoots with the clean power of the Millennia. After all the beauty in the signal path, we end up in Pro Tools. Whatever.

I had one of the ladies do some takes with the SE 2200A and we stopped and listened. It sounded a lot like the TLM 103 — a bit of a push around 6.5-7kHz — so I had to put a de-esser on the track to make it work. It didn't exhibit the same lows as the 103. It was a tiny bit thinner. I took down the 2200A and put up the **SE Titan**. The Titan looks kind of cool with its large ball of a windscreen and space station-like shockmount. The mic is kind of heavy, but the sturdy screw-on mount does a good job. It's not too bulky either. I had the Titan going through the same path. We did some more takes and immediately noticed the difference. They couldn't explain why, they just knew the mic sounded right. When a singer is comfortable and likes what they hear in the phones, you know you have a good chance at getting some good work done. It was smooth and present from the high mids on up to the delicate highs. The roundness of their voices was also captured well. I was able to take the de-esser out of the chain. We finished tracking with the Titan that day and have used it on each vocal session since. The Titan is a bit pricey (around \$1,250 street) compared to the SE 2200A (around \$340) but worth comparing to other mics in the range. The SE 2200A is definitely worth hearing. For the price it nearly sounds the same as the Neumann TLM 103, which costs more than twice as much.

THE SMALL-DIAPHRAGM CONDENSERS

I needed to replace some nylon-string acoustic finger-picked guitar

on one of the Willow Willow songs. A perfect time to audition the two stereo pairs of mics that SE had sent me: the **SE 1A1STs** and the **SE 3STs**. Both of these are matched stereo pairs. The SE1As come with a nice wooden case that has a couple of clips and a stereo-bar stand mount. The SE 3s come in a flight case with clamp-style shockmounts and a stereo-bar stand mount.

I mounted the SE1A pair in a stereo fashion with one pointing at the neck/body connection and the other at the back of the sound hole. It was pretty easy to get the mics into position. We recorded a take while their singer was warming up. I had the mics going through the Millennia HV 3D pres and decided to soften the attack a bit with **Avalon SP747's** super transparent compressor. A very clean path indeed! I usually use my set of old **AKG 452s** in a situation like this. I'm very tuned into what they sound like. They are my benchmark. The SE1As sounded bright — a bit too bright for the nylon strings. The highs made me think that there was a lot of detail I've been missing with my 452s, but I'm not sure that's a good thing. I took the SE 1As off the stand and set up the SE3s. They are quite a bit larger than the SE 1As. Actually, they seemed a bit large to be so-called "pencil mics". They have a handy switchable low end roll-off (-10dB/octave starting at 120Hz) and a -10dB pad. Very useful. The shockmounts are OK but I have a pet peeve with cheap shockmounts. Let me just say that they are passable. The clothespin clamp fell apart the first time I used it. It was easy to fix and with a little sensitivity I've been able to keep it together since. They should also include stand clips for tighter positioning purposes.

After a few more warm-up takes using the SE3s through the same signal path I was sold. The SE3s had a heft and a warm low-end presence that was not there with the SE1As. The highs were pleasing and detailed without being annoying or brittle like the SE1As. I was impressed. My AKG 452s sounded dark and distant when compared. We finished the session with the SE3s on the stand.

The next day I recorded some percussion overdubs for a friend's demo. I brought the AKG 452s, which are my standard for light stereo percussion (tambourines, shakers, and bongos), the SE3s, and a pair of SE2A Multi Capsule small-diaphragm condensers. These guys have switchable capsules that come in the case: a standard set of cardioid, hypercardioid, and omni. They also come with the same shockmount that the SE3s come with. I was curious to see if they sounded any different than the SE1As.

I went with a pair of **Brent Averil 1272** pres through a Summit DCL200 of course. The SE2As in cardioid sounded just as bright as the SE1As. Not such a bad thing with tambourine. The omni capsule sounded good but brought too much of the not-so-pleasing reflections into play. I didn't like how they sounded on the bongos: a bit thin and boxy.

The SE3s went up on the stand next. With the same path, but a little less gain, the SE3s sounded great. I had the percussionist stand about 2-3 feet away with the tambo and the shakers and the sound was perfect for the track. The depth of the stereo field, the tight low mid presence on the bongos, the tasty highs without being brittle on the tambourine, and the "shhhh" of the shakers all worked very well. I didn't even bother putting the AKGs to the test.

If I had more time I would have loved to try all these mics out on a full drum kit recording. I can imagine that the brightness of the SE1As and SE2As would be great on hats and as room mics and the SE3s would be grand stereo overheads. I bet the



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MICROPHONECHECK 1, 2

SE2200A would make a strong mono overhead too.

All these mics will be able to find a place in your collection. They are quality, affordable mics. Apparently on the SE Electronics website you can sign up to test their mics on a loan at this site and try them out before you buy. Be warned — you just might not want to give them back. SE Titan Transformerless, multi-pattern, class A FET (\$1,250), SE 2200A large-diaphragm cardioid condenser (\$339), SE 1AST pair small-diaphragm cardioid condensers (\$380/pair), SE 2A multi-capsule small-diaphragm condenser (\$339), SE 3ST pair

cardioid small-diaphragm condenser (\$600/pair) —*Monte Valler*

Pluses: Quality-to-price ratio very strong, versatile, lots of gain — these are all relatively loud mics, and they're quiet, nice wooden boxes and sturdy aluminum flight cases

Minuses: Lack of stand clips for the SE2As and SE3s, shockmount a little flaky, stereo pair needs a spacer so XY stereo overlapping pattern can be done

RAT POLITICS

MY NAME IS DAVE RAT & YOU'RE HERE WITH **ME** NOW

Dave Rat was born in Alabama, grew up in California, and has done a few things: tested games for Mattel, tested missiles for Hughes Aircraft, and tested the outer parameters of sonic savagery with his Rat Sound dealio. Sound engineer, sound equipment designer, developer of the Micro Wedge (ratsound.com), and provider of concert touring sound for **Black Flag**, Red Hot Chili Peppers, Rage Against The Machine, **REM**, Jimmy Eat World, **Bad Religion**, The Bangles, Blink 182, Beck, **The Cult**, The Foo Fighters . . . is that enough? Cause there are a hell of a

telemarketer or any other variety of ass clown you better watch out cause you picked the wrong guy on the wrong day. Lucky for me Dave doesn't know yet what a total punk I can be so we had a fine old chat, and I present it now to you my loyal servants. —*Jason Lally*

Dave Rat: Is this article about whether or not women wearing clothes affects the sound quality at a strip club differently then if she were, say, wearing more clothing at a different kind of club?

EQ: Yes, of course that is exactly what this is about! So what are your feelings on the subject?

DR: As much as possible.

EQ: As much clothing?

DR: (Laughing) No, no, as much feeling!

EQ: Let me be serious for a moment: How'd you get started in the sound game?

DR: I was hanging around a lot of punk bands at a place called The Church in Hermosa Beach. Bands like Black Flag and Red Cross would rehearse there, SST

records was basically started there. So I would record bands with two microphones and a cassette deck, in exchange the bands would get me into the clubs. That was around 1979 I think. Then from one

band I would meet another and so on until I was doing backyard parties and even building my own speakers.

I mean I had just bought a four-track recorder and I was on my way to record a friend's band, and there was this guy, Tom, that lived below the studio and he said he had some gear I could check out. I walked into his place and he had a PA set up in the living room! It was so cool. He then told me he was building some monitors to go along with the PA and asked would I like to help? He built four and I built four, and that was what I used for my first PA and also how I learned to build speaker cabinets.

EQ: You are a man of many talents. I understand at one point you were repairing mics for a living?

DR: Rat Sound had grown as a PA company and we were doing more and more shows, and even some installations. Then we got robbed at gunpoint, they tied us up and loaded all our stuff into my van and drove away. So we didn't have any PA gear to make any money, and my partner Brian and I had quit our real jobs at Hughes Aircraft and so Rat Sound almost went under.

So I started repairing amps and mics to support myself. I would maintain the sound systems of various Hollywood clubs as well. Also, I would go to all of the rehearsal halls and recording studios and convince them to let me work on their boxes of broken mics. I mean every studio had one. I would make a deal: two for one — for every two mics I fix I get to keep one of equal value. ►



lot more names I could drop . . . damn, you guys are starting to piss me off.

Anyways, he's got this funny way of answering the phone: both warm and with a hint of warning, like if you're a

ALL OF THE WARMTH... NONE OF THE HASSLE

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Most agree the sound of a good tube microphone is wonderful. We have all heard the warmth and silky-ness that they can produce. But most will also agree that it's a lot of work to set them up, and valuable time is wasted waiting for them to heat. This, and the inevitable tube replacement reality. We also make some of the best tube mics available, like the V69 Mogami Edition, and we have a solution to these age old dilemmas.

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"We had already fallen in love with the company's products, and now the MXL tradition continues with the new V6 microphone. The mic has a classic look and solid construction coupled with an incredible sensitivity to capture the subtleties of human performance. The V6 has the full, rich sound we need to produce hit records".

Joey P and Dale "Rampro" Ramsey,
Producers of Grammy award winning artists including Ludacris,
Justin Timberlake, Jay-Z, Sean "P. Diddy" Combs, TLC, and Stevie Wonder

"Here is a mic with all the sonic elegance and qualities of vintage tube mics in a phantom powered condenser. They rocked the house as room mics, every bit as good as my matched pair of U 67's and also sounded warm and transparent on vocals. I am a fan!!".

Joel Jaffe,
award winning Chief Engineer of Studio D Recording, Sausalito California

"The V6 easily lives up to the claims made by Marshall Electronics. It's a big sounding mic, with plenty of open top end, good dynamic response, low noise, and a warm tone. It lines up next to the V69 very well, delivering similar tone, and excellent value. I don't know how they do it, but Marshall continues its history of delivering value-packed microphones".

Mitch Gallagher, EQ magazine

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MICROPHONECHECK 1, 2

EQ: They would go for that?

DR: Of course, it didn't really cost them anything and in the end they had working mics that they'd written off as dead. Also, I would keep all the broken parts for later use. When I was done I would take the mics that I had earned and sell them. I was able to fix up to 20 to 30 mics a day on some days, and getting between \$100 and \$500 per mic. So it turned out to be pretty good money.

EQ: So then you funneled the money back into Rat Sound to keep it afloat?

DR: (Laughing) No I funneled it into my belly so I could eat, but that kept me alive and that helped me restart the business.

EQ: What about recording live shows? It can be so difficult for a multitude of reasons, what's your approach about?

DR: There seems to be two trains of

thought when it comes to live recordings. One is to try and capture the absolute best sound you can to tape. That comes more from the studio-recording point of view. The other, which I think is far more applicable to live shows, is to capture the most accurate snapshot of your subject that you possibly can. When you have the raw but accurate snapshot, you can then begin to manipulate it any way you want. That way you may not be getting the best sound, but it is UNdoctored so at least you know you're not making any steps in the wrong direction. Even when I was doing the Chili Peppers or mixing Rage Against the Machine or any band that I have done live multi tracks with, I could take the output of the tape machines, play the show from the night before and plug them back into the mic preamps, and use the exact same settings I use live except for the gain stage on the front end and it will sound like the band is right there back onstage. I can actually sound check a band without the band being there, using tape

inputs: It's the same mics, the same input levels, the same compression, etc. So my opinion is this: Go as close to direct microphone to tape, undoctored, and no EQ, though occasionally I would introduce peak limiting or some kind of protection mechanism, just to make sure we don't go over.

EQ: Which mics do you favor?

DR: I put together my optimum mic package for what I need. I can listen to a guitar rig and know what a SM 57 or Audix D3 will sound like on that rig. At this point in my career I pretty much know what most instrument/mic combinations will sound like once I hear the instrument, so I choose mics from that perspective.

But when I'm building my mic chart I take two things into account. One is the mic instrument combination that I consider optimum. Two is safety/versatility, for example I currently use an SM/Beta 91 and Audix D6. Both have assets, and I could get



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John Gatsky - Pro Audio Review



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"You should be able to use this mic for everything from insect mating calls to jet propulsion testing."

Darwin Grosse Recording June 2005



"Judging by the price, [the AT2020] is aimed at project and budding home studios. But given the horizonlike frequency-response chart, this puppy may be aimed at more experienced studios, as well. Who couldn't use an extra studio condenser or, at this price, several?"

Doug Eisengrein Remix July 2005

"This mic compares well to much more expensive condenser microphones... On a cost vs. performance basis it is tough to beat."

Marshall Rice Radio magazine April 2005

"A \$99 condenser that can deliver the goods."

"Simply put, the AT2020 is a fine mic at any price, but at \$99 it's a value proposition you almost can't afford to refuse."

Michael Molenda Guitar Player April 2005

"If the \$100 price range is your budget, then rest assured that the AT2020 is as good as it gets in a condenser mic that can handle vocal and instrument duties."

Steve Langer mojopie.com April 9, 2005

"With the introduction of the AT2020, Audio-Technica has broken the price barrier without sacrificing sound quality or rugged reliability."

Chris Gill Future Music June 2005

audio-technica

MICROPHONECHECK 1, 2

away with either. I use the combination of the two to be versatile, so I can alter the sound from song to song just by using a fader rather than EQ and also as safety: If one mic goes down I can just dial the other one up. Having a single-mic kick drum go down is catastrophic to a show.

Same theory on the snare: On top I use an SM/Beta 98 and on the bottom an

SM 57 or Audix i5, depending on the drum. I really like what Audix's done with the capsule that's in the OM7, the D3, and a similar version, which is in the I5, as well as the D6 kick drum mic. That whole series that uses what I believe they call the VLM transducer sounds great. Anyway on the toms and hi-hats you will see a lot of SM/Beta 98s as part of my set up, I

love them, those mics are just great and I have not found anything that could replace them yet. I find the mics I use for live shows are convenient as well, nothing too big and I don't use any mic stands on a drum kit everything is clamped.

EQ: Why?

DR: It looks good! And it's easier to set up because the mics don't move as much so they stay in position. I can't begin to understand why a touring band would still have mic stands for drums. Clamps are much lighter, much smaller. The only thing that people might think is strange in this is that I clamp under the cymbals, but for live I think the difference between the sound above the cymbal and below the cymbal is irrelevant. Drum mics should be heard, not seen.

EQ: Hey, wait a minute, you helped develop the OM7, right?

DR: Well, when the OM7 was initially released, they came by the old Rat Shop and showed it to us. We try to be open to new products. We listened to it and it was a good-sounding mic. It had a flat top grille on it, instead of a round grille, it kinda looked like an oversized Beta 87ish grille. The mic had excellent feedback rejection but I knew that most bands I worked with would never use it. The feel of the shape of the mic on their lips is as important as the weight, feel, and sound of the mic. The threads were the same, so we started using the mics but with different grilles from another one of their mics. We ordered so many of them and started selling them to so many bands that Audix eventually sent us seven mics with different low-frequency tunings and the grille selection that we requested. We picked the one we felt was best, and with some minor adjustments, that is the OM7 that you see today.

EQ: OK, what do you do when a musician is being an ass clown, like the guitar player can't tune his guitar but is blaming his sucking on you?

DR: (Laughs) How I deal with it now is very different than how I dealt with it in the old days.

EQ: Gimme a good one, new or old!

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MICROPHONECHECK 1, 2

DR: Okay, once upon a time there was this up-and-coming band, the house was packed, there was no monitor engineer, I was mixing front of house and monitors from the back. The singer had broken the top off the grille of an SM58 but I didn't know it at the time, as I couldn't see the stage. All of a sudden I hear the singer of this cheesy rock band in a whiny voice say . . . "oh Mr. Soundman? We have half a microphone here . . ." He was being a real . . . umm. . .

EQ: Dick?

DR: (Laughs) Yeah, he was less than friendly. I'm thinking, "half a microphone what does that even mean?" I get up to the stage, put the new mic on the cable, and hand it to him. Before I am five feet away he starts to taunt me again . . ." Thank you Mr. Soundman . . . about time, Mr. Soundman and on and on." By now I'm furious. He broke the mic, it hadn't stopped working, and he's abusing me as I

plow through the over-packed room to help fix things.

Well, that was just around the time that SPX 90s had come out, and as soon as they started the next song I switched over to 100 percent octave-up pitch on the vocals. This was through the house only, so he wouldn't hear it. He played the next few songs singing like Minnie Mouse. I was trying to keep a straight face but it was so funny.

At this point in my career I introduce myself to the band, make sure they know who I am, and what I plan to do. At this point I wouldn't work with anyone who was abusive. The bands know that there's someone out there who's going to work his hardest to make them sound good but it's an 'I respect you, you respect me' kind of deal. And if anyone is acting overly unprofessional muting the mic is always an option.

EQ: OK, Dave, let's say I'm a new engineer and I finally feel ready to buy some gear. I don't want to make a mistake, I just want to have good utilitarian workhorse mics. What

do you suggest? This is a four-piece touring rock band with five thousand dollars.

DR: Alright, first you gotta buy an SM 91 and a D6 for the kick drum. For the snare top, maybe a 98 or 57. You gotta have four SM57s cause everybody's gonna want 'em and they're great utility mics. Tom mics, three SM98s would be my choice. Vocal mics, love the OM7s. Gonna buy three of those because they can get loud and they don't feed back nearly as much as other mics. I will also use those on guitars at times. Bass guitar mic, I again would use an SM98 (the best bass mic I have ever used!). I don't buy into the expensive tube DI's, except for looks and if it makes the bass player happy. Sound-wise though, come on! Throw in two or three other mics that make you happy just to have some diversity and any condenser whose model number is not a multiple of the number nine and you should be fine. All told you could put together a fantastic mic package like this for around \$4,000. **EQ**



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World Radio History

MICROPHONECHECK 1, 2

QUICK PICKS

SHURE KSM 44/32/27/137
+ AUDIO-TECHNICA
4033CL/4040

I took the opportunity to try these mics in a variety of recording situations. As far as the preamps I used, unless otherwise stated, I tracked

through a Soundcraft Spirit board and then out to a tape machine (a 1" 16-track TASCAM MS-16). Here's the breakdown:

ACOUSTIC GITS: Both the KSM 32 and 44 (set to cardioid) worked great. I placed them 6" from the point where the fingerboard and body meet; they

were full, warm, and very big. For the acoustic solo overdub I used the smaller diameter KSM 137, placed in about the same location for a crisp, tight sound. So far, so good.



DRUMS (5-PIECE KIT): We started with the KSM 44 on the mid-sized rack tom, 5" above and angled slightly in, pattern set to cardioid. This gave me a good, rich tone that emphasized the lower midrange without being boomy. It really cut through the mix, and the bleed from the other drums was minimal (and this was a very thrashing drummer). I placed the KSM32 on the floor tom with the same set-up, again getting a full, rich tom sound, with good rejection. Tried the KSM 137 on the hi-hat and was disappointed — too midrangy in the 500Hz range, and too much bleed from the surrounding drums. I also tried the KSM 27 on the same rack tom; although the sound was fairly balanced it would've worked better on a smaller sized tom in this case. For a room mic I put up the KSM 44 in omni and ran it through a Focusrite preamp, but I didn't like the sound: too bright and brash.

ELECTRIC BASS: Surprisingly, the KSM 27 (through a Drawmer 1960 pre) worked really well as a bass amp mic for the bassist's rig, a GK 4x10. Four inches away and slightly off center, the sound was reasonably deep, not boomy, and had good midrange. It also handled the loud amp-volume well.

VOCALS: The AT 4033CL really stood out in this test using a male vocalist. This mic has a very modern vocal sound. It's crisp, with a slight mid-range dip around 1k and has a nice, tight low end. It mixes well in the track and gives good presence to the vocal. The AT 4040 was also well suited in the same regard, giving good body and character. For recording two male lead vocalists at once, I tried using the Shure KSM 44 set to a figure-8 pattern with the two singers facing each other, about 4"



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e100 - supercardioid
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"The vocals I got using the new CAD e300 & e100 mics sounded so good I re-cut tracks I'd just done with other mics. The other mics are back in the closet for now." - Chris Pelcer - songwriter / producer Rod Stewart, VanZant, Peter Cetera, Coyote Ugly Soundtrack

"I LOVE these mics! I'm taking them with me to every session I do from here on." - Rusty McFarland - 2-time Grammy winning producer / engineer / musician Asleep At The Wheel, B.B. King, James Brown

"I love the e300! Great top end, with a smooth response. The e100's are great as a pair for acoustic stereo imaging." - Tony Harrell - producer / 1st call Nashville session keyboardist. Martina McBride, Montgomery Gentry, Trace Adkins, Wynonna Judd

"Wow! This e300 is the most versatile mic I've ever used. I can relax and sing!! Truly inspiring!" - Pat Buchanan - songwriter/producer / 1st call Nashville session guitarist. Faith Hill, Dixie Chicks, Kenny Chesney, Rodney Crowell, Hall & Oates, Cyndi Lauper

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continued on page 50

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THEY CALL HIM...





SWEDIEN!

What he knows, what he does, and who he's done it to telescopes through the last significant half century of music production before landing squarely in the halls of the greats. Ladies and gentlemen: Bruce Swedien.

by John Payne photography by Craig Rubadoux

THEY CALL HIM... SWEDIEN!

Music first, and love what you do: Not some weird new-age-isms but legendary recording engineer Bruce Swedien's secret weapons. Well, those and his trusty collection of mics old and new. An explanation as to why he's a five-time Grammy winner?

Perhaps.

And talking with Swedien about his use of mics invariably comes back to these values, along with the amazing list of musical luminaries he's crossed paths with along the way, each and every one of whom hasn't just inspired Swedien's career in music recording, beginning with the music of the post-swing era and on through to his contemporary multi-media digital projects, but his view of life and music in general.

The Florida-based Swedien began his career by studying electrical engineering at the University of Minnesota. "But it didn't take me too long to figure out that schooling wasn't going to help me a lot. A lot of the basic stuff was interesting, but my interest in recording music didn't really materialize until I built my own studio in Minneapolis and really learned to work with microphones."

He'd been an intern at the campus radio and TV station at school, and had a significant chance encounter. "We broadcast the Minneapolis Symphony, and I got to meet a young engineer from New York who came to Minnesota for the sole purpose of broadcasting and recording the Minnesota Symphony on RCA Red Seal. And he brought with him a microphone that was

going to change my life forever. The mic was a Neumann U47, designed in 1929, and in fact, strangely, not all that different from mics of any previous recording era.

The New York engineer's name was Bob Fine, a specialist in classical recordings. "To this day," says Swedien, "I get goose bumps when I remember. We were recording the Minneapolis Symphony, and the definition that this microphone brought to those recordings was absolutely incredible. And Fine's technique was to suspend one U47 about 15 feet

above the conductor's head, and that picked up darn near the whole orchestra. The U47 was actually designed around this World War II military radio tube called the VF14, and it was probably done because there were probably a whole lot of 'em left over; eventually Neumann made somewhere in the area of 10,000 U47 microphones.

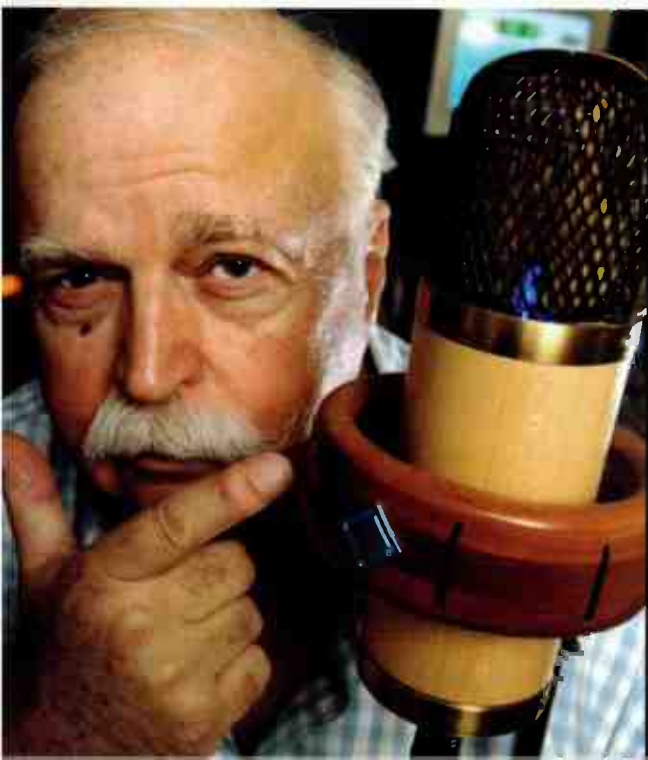
At that time, the early '50s, the U47 sold for \$390 dollars, which was very pricey. "But people like me found out quickly that the sensitivity of this fantastic microphone greatly enhanced the detail in the recording," says Swedien. "I had worked with other condenser microphones, such as the Altec Lansing, and they were good, but until this Neumann U47 came around, there was nothing that was even close."

Then. Or since. "I don't think anything truly new has happened, particularly in condenser microphones, just refinement and better components. But my friend in Finland, Martin Kantola, is a microphone genius who's built a custom-built mic that

I love to record the drums on an unpainted plywood platform. I set up the drum set on my plywood drum platform. I use my special kick drum cover that covers the whole front of the kick drum. There's a slot with a zipper in it that the mic fits through. When the kick drum mic is in place, in the slot in my drum cover, I zip the opening tight around the mic.

NU-47

This is an extremely high quality, prototype microphone designed and built by my good friend Martin Kantola, who hails from the Swedish-speaking part of Finland. I first met Martin in 1992 in Helsinki, when I was doing a Master Class at the Sibelius Academy. Both Martin and I are fascinated by the art of microphone design. The basic concept behind the NU-47 was to make the most capable hyper-fidelity microphone possible, designed expressly for the recording of featured solo sound sources in modern music recording. Of course, it's a fantastic vocal microphone. There have been very few NU-47's made. One was made for Icelandic singer Björk, who absolutely loves the sound of this incredible new microphone. She told us that, "It captures both the small and the big sounds that I make!"



Thank you.



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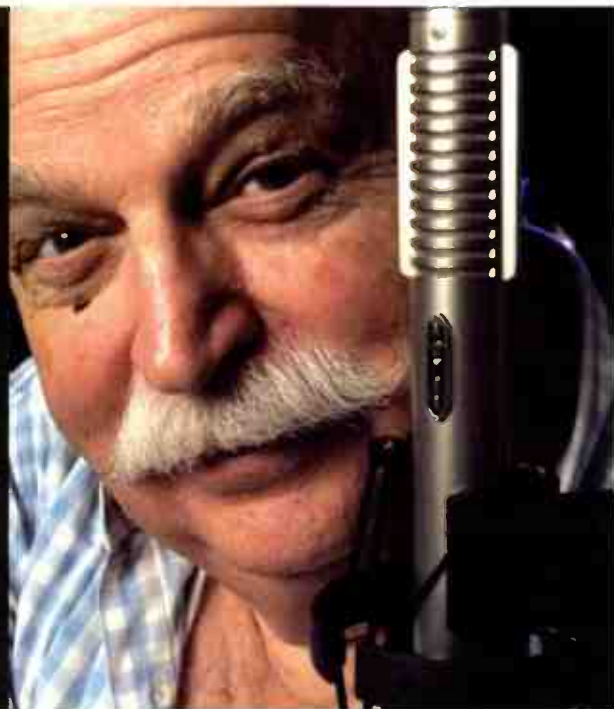
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PHONIC

I've been using, and while it doesn't have anything truly new, it really refines the art of microphone building."

Swedien's love for the U47 mic had to do with its extremely wide frequency response and sensitivity. "When we were recording the orchestra, you could hear the triangles and cymbals in some of it, and it was absolutely perfect; the definition and detail that mic provided was so unique at that point in time. It went on to be the Beatles' favorite mic, and my pal George Martin, who produced those records, says to this day it's his favorite microphone."

Techniques such as suspending the microphone above the conductor's head prefigure much of the thinking about sonic spatiality in today's recording studios. "I'm speaking from the viewpoint of 1952 here, but we were doing only monophonic recordings of orchestras. And a few years later, '58 or '59, we began to experiment with stereo, and eventually I would record a large orchestra like that, with two or three mics over the conductor's head. But in mono, picture this: the microphone was suspended about 12 to 15 feet above the conductor's head, so that the goal of the U-47 microphone technique was to hear the orchestra in the same balance as the conductor did. Of course later on we would use what we'd call sweetener mics, if there was a solo or something like that — we'd close-mic that."

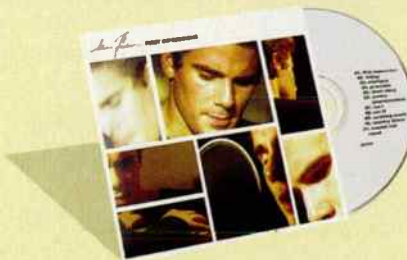
Recording a large orchestra means that the engineer can't just spread mics throughout the room without having to worry about the balancing of the instruments. To gain insight into that sort of spatial intelligence, it helps that the engineer himself is musically sensitive. "I've found that my musical training was very helpful," says Swedien. "I had a music minor at the University of Minnesota, and I studied voice, and I studied piano — long enough to figure out I'd better do something else. I wasn't all that talented musically, but I do have a good ear, and one of the real benefits of all that musical training is to be able to read music. So when I record a large orchestra, I will have the score in front of me; it's much easier to balance an orchestra, especially when you're recording classical music. I can look at the score and instantly know what notes should be heard."

Capturing an accurate sound was the original and admirable job of any recording engineer back in the old days, but it eventually became clear to Swedien that that wasn't his primary goal in recording, a lesson he learned in his work recording Count Basie and Duke Ellington in the '50s and '60s. "About 1960, I began to get very bored with just capturing an accurate sound of the

bands. I learned that the real value of microphone technique is to be able to present to the listeners my *concept* of what the music should sound like. That allows me to use my imagination. It allows me to create a recorded sound field that probably does not occur naturally. When I discovered that, I got really excited about recording music. The real joy of what I do is to create an image — you know, I like to call my recordings 'sonic sculptures' rather than just a recording. To me, re-creating an acoustical event is not terribly exciting. To do it well is exciting, yes, but that's not really what I do."

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THEY CALL HIM... SWEDIEN!

Working with Basie especially found Swedien "really going crazy with combining microphone techniques, and finding out what could actually be done in music recording by *not* capturing an acoustic event — by creating a recording that could *only* occur in my imagination."

Recording the big bands presented special challenges owing to their particular instrumentation. "I was recording both of the Dorsey Brothers in the late '50s, and the biggest problem was getting bass on the records. It's not hard to get low frequencies on tape, but transferring it to disc properly was, because the grooves have to really load up with lower frequencies. But then, I'm kind of a frustrated bass player."

Recording of the brass sections presented other challenges. "Basie's band was four trumpets, four trombones, five saxes, piano, bass, drums, guitar, and vocals. At one point we wanted to try something a little different, and we decided to record the band *after* they played a gig. So, the band was just *slammin'*. We started the sessions at 2 a.m. but that was probably some of the best fun I've had in the studio. I had my Telefunken U47.

I recorded Basie in Studio A at Universal Recordings in Chicago, a beautiful, big studio, about 75-80 feet long with a 30-foot ceiling and 50 feet wide. We had risers, and I used the Neumann U47 on the trumpets, one mike; I used a Neumann

I always take my A.S.C. (Acoustic Sciences Corporation) Studio Tube Traps with me to my recording sessions. I have the traps that are 53 inches high and 9 inches in diameter. The Studio Trap is adjustable for height. Each trap actually has two sides with little marks to identify them; one side is reflective and the other is absorptive. In many recording situations I won't pay too much attention to those little marks. In other words, I wouldn't carefully organize them, aimed in one direction, or face them all in one neat little row or something. I'll generally make a random Tube Trap setup. I'll try to make the room sound as natural as I can. I usually put the Traps more toward the outside perimeter of the room and not between the sound source and the microphone. If the room has an area that might be perhaps too reverberant, or if I hear a reflection or standing-wave I don't like, or if the area I wanted to record or mix in is simply sonically too belligerent, I can use my Tube Traps to immediately modify the sound field. I find that Tube Traps make a dramatic difference.

M-49 on the three tenor trombones and then another 49 on the bass trombone; then for the saxophones, five of them. I was experimenting at the time — Universal was one of the only studios that had really good microphones, and I think that was because of Bill Putnam, the renowned guy that built that studio. We had two Neumann U48s, made after the 47, and it was bi-directional, whereas the 47s were directional."

The advantage with the U48 though, didn't hit until Swedien recorded the sax sections. "I'd use the two mics, bidirection-

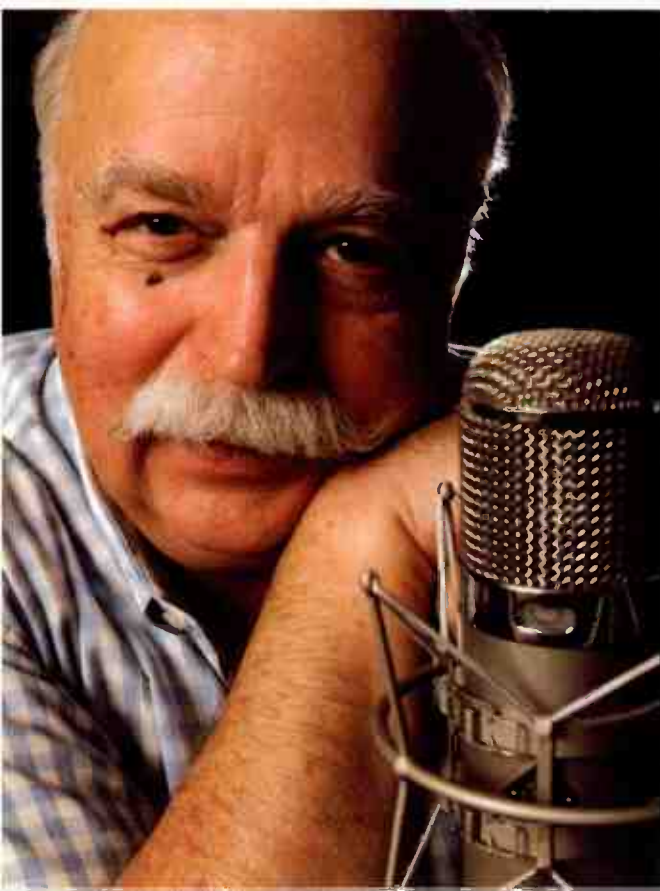
NEUMANN - U-47

I bought this fantastic microphone new in 1956! It cost \$390! In those days that was a lot of money! I bought two of them. I brought both of them with me when Bea and I moved to Chicago from Minneapolis in 1957.

When I began my work at Universal Studios in Chicago, the first world-class artist that I recorded with this lovely microphone was Nat 'King' Cole. The next major artist to sing into this very microphone was Sarah Vaughan. Next, Joe Williams with Count Basie's Band, followed by Ella, Michael, and, a few months ago Jennifer [Lopez].

The original U-47s were actually made by Neumann and distributed by Telefunken, as well as being sold under the Neumann name.

One of my cherished U-47's was stolen in 1981 when we were recording the Michael Jackson album *Thriller*! An absolutely incredible microphone, isn't it amazing to think that a 50 year old mic can still be the undeniable first choice for many high profile sound sources?



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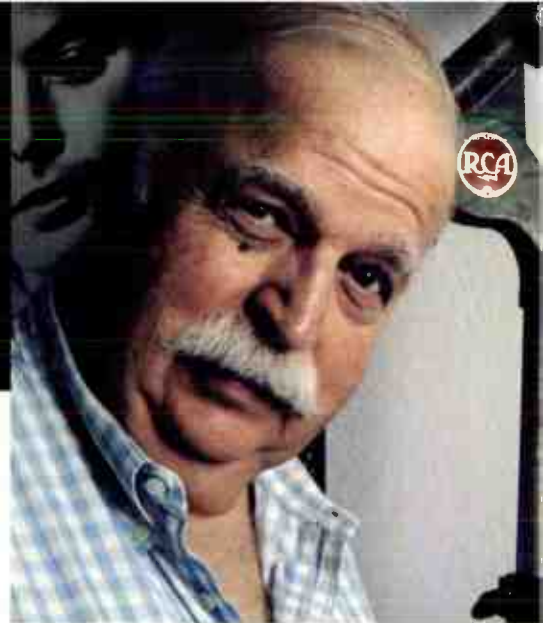
RCA MIC BOOM

als, one on top of the other, and record the saxes with a coincident mic technique, or using cross figure of eight mics to record a stereo sound field. Then I thought to myself, 'gee, what about putting a 20-foot square of carpet down and have the five saxes in a circle and use two Neumann U48s above each other, in bi-directional, and record the saxes and spread them across the image. . . .' And it just worked beautifully. It was quite a departure from ordinary recording at that time."

Of course, the musicianship of the band itself played a big part in the beauty of the recorded sound. Says Swedien, "The saxes in Basie's band would pretty much balance themselves. But my idea was to have the saxes in a full circle around these two mics. The lower mic was on a floor mic stand and vertical. It was set for bi-directional, or a figure-of-eight pattern. The upper mic was suspended, and also set for bi-directional, or figure-of-eight, but the pattern of the two mics were crossed. The upper mic was suspended as close as I could get it to the lower mic, almost touch-

ing, an eighth of an inch or less. The object of this technique is to get the mic capsules as close together as possible. This application of this microphone technique was the beginning of my continuous use of the Classic "Blumlein Pair" microphone technique. Then I arranged the five saxophones in a full circle around these two microphones. And these guys were so incredible, if there was a solo or something, I would ask them to stand up or move in, or whatever. . . ."

The advent of stereo was not exactly heralded as the coming of a new dawn in recording technology though. "In 1960," he says, "the record labels didn't want to know about stereo; stereo was a non-issue as far as recording music. But there were a few of us guys who were very interested in it — me, Al Schmitt, Phil



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Hi-Hat – Royer R-122

Toms – Neumann U-87s

Ramone, and Tom Dowd. A few of us would talk about it all the time, and for a few of us, stereo was gonna be a big deal, but the record labels didn't want to know about it.

As a matter of fact, some of the labels, if they saw a stereo tape machine in the control room at the start of one of these big band sessions, they would make you move it out. You know why? They didn't want to pay for the tape."

Neo-post-modern Luddites aside, it's the people he's worked with that've made Swedien the musical thinker, forward-thinking engineer, and sonic philosopher he is today. Such as Bill Putnam, "literally the father of modern recording," he says. "He built Ocean Way in L.A., as well as Universal in Chicago. If you look at a modern recording console, the position of the dials and effects, the way things are located on a console, all that originated with Putnam's imagination. He was my mentor. I literally followed him around in Chicago, and he would let me do things. I was with him for a year before he went to California, and actually Studio B was not completed yet, but was to be my studio to work in. I was at Universal for 11 years; then I built a studio for an advertising music company. For Richard Marx's father, who was an incredible piano player, Dick Marx."

Swedien's old friend Quincy Jones, too (with whom Swedien did *The Wiz* soundtrack, among many other projects) was a huge

inspiration, not just for the genius of his musicianship but for his gourmand's way of enjoying food, fun, and life itself. "And you could call him in the middle of the night with a problem, and he'd be there for you. He was a lot of fun to be with in the studio."

But it was Duke Ellington who ultimately changed Swedien's life in the most major way. "When I got to Chicago from Minnesota, as a young Swedish-American, I'd come from a place where you weren't supposed to *like* what you did for a living; that just wasn't done. That always bothered me 'cause I didn't understand it. In Chicago, one of the first bands I worked with was Ellington's. And just the way he dressed, you could tell that he was excited about music and his life. I remember sitting and talking with Duke and asking him, Is it okay to *like* what you do?"

"This is all I've ever done," says Swedien. "I've been lucky. All I've ever wanted to do is record music. Liking what you do is a plus, in fact. I've always loved what I did, and I'm just as excited about it today as I ever was."

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World Radio History

MICROPHONECHECK 1, 2

from their pop filters. A slight bit of compression evened things out, and the sound was tight and even, without too much of the room being picked up. We also tried the Shure KSM 27 for backing vocals but the mic didn't really shine in this application; it was a little dull and lifeless.

ELECTRIC GUITAR: I only tried the AT 4040 on this instrument as I usually use a ribbon and dynamic mic combo. With the 4040 I placed it about 4" back and off center from the best sounding speaker

(a very loud 4x12 cabinet and 5150 head) and got a really good dark, thick sound. Combined with a Shure 57 it gave the guitar a unique blend that mixed well.

TRUMPET: For this hard-to-capture instrument we ended up running the mics through a Focusrite preamp and moving the player back about three feet to get more of the room and to even out the sound. Both the AT 4040 and 4033CL worked well for this, with just a bit of room ambience coming through. The Shure mics were a little

drier sounding, with the KSM 27 being a little too thin to use.

KSM 44 Multi-Pattern Large-Diaphragm Condenser \$1,393, KSM 32 Fixed Pattern Large-Diaphragm Condenser \$1,070, KSM 27 Fixed-Pattern Large-Diaphragm Condenser \$575, KSM 137 Fixed-Pattern Small-Diaphragm Condenser \$575, Audio-Technica 4040 Fixed-Pattern Large-Diaphragm Condenser \$495, 4033CL Fixed-Pattern Large-Diaphragm Condenser \$595

—Bart Thurber

THEY CALL ME MANLEY

AKG vs. AUDIO TECHNICA vs. B.L.U.E

by Phil Manley

Six large-diaphragm condenser mics: two AKG (**C414B-XLS** and **C414B-XL II**), two Audio-Technica (**AT 4050** and **4047/SV**), and two BLUE mics (**Type B** and **Baby Bottle**). All comparable in terms of possible application. I tried to use them in a variety of settings, seeing as they are all multi-purpose microphones. The vocal tests were done in a studio using a **Universal Audio 2-610** mic pre and a blackface **1176**, no EQ. The acoustic guitar tests were done in my home studio using the pres on my **MOTU mk II**, no compression, no EQ. The bass and drums tests were done using mic pres from a **Trident Series 65** mixing board.

AKG. The 414 is a long-standing favorite in studios everywhere. This mic has a long history and the C 414B-XLS and XL II are AKG's current installments. There are only two obvious differences between these two mics. Most obviously, the XLS has a silver front grille and the XL II has a gold front grille. Soundwise, the XL II has a +3dB rise in all frequencies above 2kHz. This translates to a very bright and present microphone. C 414s have always been very bright and responsive, and the XL II does not disappoint in the bright category. When recording acoustic guitar, the XL II does an excellent job of capturing all the subtle nuances of pick attack while still delivering a full-bodied and robust low end. There is a slight dip in the midrange around 1000Hz though, which gives the guitar a slightly scooped sound.

Another design change AKG has introduced with these two mics is electronic switching for polar patterns, LF roll-off, and pad. Switches on 414s past seemed only problematic if they'd been shorn off by egregious mishandling. Like electronic locks and windows in modern cars, I wonder if AKG should have left these switches as analog. That is to say, is it really an improvement, especially once the momentary electronic switches fail? But that is neither here nor there, since they seem to be working now.

Besides the new switches, AKG has added a few extra settings to these mics. There's a new, wide cardioid setting, which falls somewhere in between the omni and cardioid settings. Wide cardioid can be useful when trying to reduce proximity effect. It also has a slightly more open high end than regular cardioid. Other new features include different pad settings. Old 414's had -10 and -20dB pad settings. This new generation offers -6, -12 and -18dB settings. Also, the same with the roll-off, AKG has added a third roll-off point, offering roll-off's at 40, 80, and 160Hz. These new features seem a little excessive, however not entirely useless. It's hard to fault AKG for trying. They're working with an amazing microphone design in the first place.

One major flaw with these mics: The XL II's jack was loose, causing a very bad hum. The hum would also increase as I reached to switch the polar pattern. I determined this hum to be unacceptable and fiddled with the jack for a second when I felt it finally click into place. Hmmm. Quality control anyone? In AKG's defense, I've used 414's as long as I've been recording, and I've rarely ever been let down. I guess crap happens, even (or especially) in Austria.

These mics excel in so many different applications. My favorite use for these mics? On toms. They capture a very realistic, full-bodied sound event when put over the edge of a tom, aimed at the center for added stick attack. Unfortunately, they can suffer from badly dented grilles in the hands of a wild drummer. Though, I've never seen one damaged so badly that it hasn't kept on chooglin'.

When recording vocals with the XL II one should be wary. Sometimes the XL II was a little too detailed. Perhaps the slightly mellower XLS is better suited for vocals. Unless you want a very breathy vocal, in which case the enhanced presence of the XL II might be preferred.

Audio-Technica 4047/SV and 4050. I've always been a fan of Audio-Technica for their excellent bang-for-the-buck products. These mics are no exception. Both members of A-T's top-of-the-line "40" series, both mics are excellent competitors when compared to other brands with similar specs.



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MICROPHONECHECK 1, 2

The 4050 is an elderstatesman in the 40 family. This multi-purpose multi-pattern large diaphragm condenser mic can handle pretty much anything without flinching. Perhaps this is AT's answer to the 414? It excels in many of the same apps. The 4050 made my '67 Gibson Country-Western acoustic jump out of the speaker like a bucking bronco. It's literally like you're in the room with the guitar. Incredible detail without sounding unnatural. Again, with a lot of clarity to fingerpicked notes and a full depth to the sound, this mic "hears wood." The omni setting provided a more open high end while the figure-8 provided a more exaggerated proximity effect. The output of this mic is higher than most, perhaps because of its transformerless design. Also, this mic can withstand up to 15dB with the 10dB pad engaged, making it well suited for any sort of percussion, or miking an AK-47 at close range. This mic can really handle anything you throw at it. I thought it sounded a little brash when used as a drum overhead. Perhaps a little too much high-mid information. Or perhaps it was the drummer bashing on his hi-hats? Wait that was me playing drums. Wait, I can't play drums. The frequency response between polar patterns is remarkably the same, making it useful when switching between patterns not for tonal differences, but merely to isolate a sound source from unwanted bleed.

The 4047/SV is a newcomer to the 40 family. Its design is based on the early FET mics, namely the U-47 FET. Its amplifier is transformer coupled and has a specially tuned element that adds up to a pretty cool sounding mic. Not quite as detailed in the highs as the 4050, this mic is more reminiscent of a time when things were a little mellower. It provides the aural equivalent of velour — soft and warm. It sounded great on acoustic and even better on vocals. It really excels on low-frequency instruments — particularly bass guitar and kick drum. Used as a close mic on an Ampeg SVT 8x10 cab, this mic was slamming! Very full, round low end with extended girth, as well as enough high mids to provide clarity in the mix. On a closed headed 24" Ludwig kick drum, this mic sounded great about 8" off the front head, aimed dead center. It captured the whole kick with a good balance of lows to highs. Again, a great all-purpose mic if you're looking for something a little mellower than the 4050. Sometimes mellower is a really good thing in this digital age.

BLUE A very pleasant surprise. I'd always seen these mics but had never had the opportunity to try them. These mics have a very distinctive art deco style that sets them apart from most. The **Type B** is purported to be part of BLUE's affordable line, but you'd never know it from the sound. This mic has amazing depth and clarity and a unique character that sets it apart from all the other mics mentioned earlier. Using a Class-A discrete circuit and interchangeable capsules, the mic amplifier body is based loosely on the original Neumann CMV condenser microphone — although this mic is much smaller than the original CMV, thankfully. This mic has a very distinguished look about it, surely to inspire comments from vocalists. It's the sound that will inspire the most comments, however. Using a cardioid capsule, there is a certain immediacy to the midrange that makes instruments sound pleasant and present. The highs are exceptionally clear without being annoyingly detailed. The low end is amazing — very round and extended. Using this mic on vocals, I could hear the vocalist's throat. I know this sounds weird, but I could. It's almost as though I could hear the air traveling through his throat. Very intense depth of field, like a large format camera.

The people at the BLUE factory in Latvia clearly have an understanding of an older way of building things. The detail in the craftsman-

ship is astonishing. The mics come in very satisfying Baltic birch wood-ed boxes. Presentation is obviously a big deal to the people at BLUE.

The Baby Bottle. This mic held its own against a **Klaus Heyne-modified U-67** (a benchmark, for sure) and its parent Bottle mic. In fact, the vocalist preferred the Baby Bottle to both the Neumann and the bigger Bottle. The Baby Bottle has a more focused mid range and a slightly less extended high-frequency response than the Type B. The low end was comparable to the Type B using the cardioid capsule. This focused mid range helped the vocals cut through the mix without any EQ at all. The Baby Bottle has a fixed cardioid element, not a modular capsule like the Type B, making it slightly less flexible than the Type B. But whatever, this mic rules. The exquisite sound of the BLUE mics lives up to their audacious looks.

OH YEAH?

In summary, the AKG C 414 XLS and XL II are repackaged classics with a few design changes, perhaps in a sideways direction. The sound remains classic — full and present with a super-real detail that's synonymous with all 414s. Audio-Technica provides the most affordable bang for buck large-diaphragm condenser mics with the 4050 and 4047/SV. The 4050 is A-T's answer to the 414 and it does it well. A jump out of the speaker sound. The 4047 has a mellower, softer, warmer sound for sure. This mic excels in the low end. Try it on a bass and you'll be thinking of James Jamerson wearing a soft, worn-in Pendleton pullover. And lastly, the BLUE Type B and Baby Bottle mics really surpassed all expectations, delivering an incredible depth of field, intense clarity without being annoyingly detailed, and a bottom end that doesn't quit. That is to say nothing of their distinctive good looks. **EQ**





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Entries must be postmarked no later than December 15, 2005.

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MICROPHONECHECK 1, 2

THE RIBBON ROOKIES

TOP ROUND 1ST CHOICE DRAFT PICKS FOR *EQ*'S RIBBON RONDELE

by Lynn Fuston

The past 10 years has seen the number of new mics making moves in the recording field exponentially expand. Nowhere is this more evident than with ribbon mics. A field that was stagnant for the past 45 years has suddenly seen incredible growth, and while others may not have noticed, to a ribbon fan like me, this is a very exciting time.

You see, we're in a "ribbon renaissance" right now with much of this renewed interest being sparked by the success of some of the Royer Labs mics. With the intro of the **R-121** in 1997, Royer proved that ribbons *can* be dependable workhorses for studio and stage and not just delicate recording instruments.

Now, consequently, innovative designs from companies like AEA, Royer, Crowley and Tripp, Coles, and Nady are joining the venerable mics of yesteryear, like the **RCA 44**, **RCA 77DX** and **Coles 4038**.

So when I was offered the opportunity to check out some of the new ribbon mics, I eagerly accepted. Six of the ribbons I auditioned were introduced just in the last two years. I thought it'd be interesting to see how they compared to the old standard ribbon mics. The team of new mics consisted of the **Royer R-121** and **R-122**, **AEA R84** and **R92**, **Coles 4040**, **Crowley & Tripp Studio**

Vocalist and Proscenium, and the **Nady RSM-2**. The veterans consisted of the legendary **RCA 44B** and **77DX**, two of the most revered ribbon mics ever to grace a studio. Though they have been out of production for years, their value continues to rise and they are still commonly used in studios today.

Another classic ribbon is the **Coles 4038**, the heralded BBC mic. Though this year marks the 50th anniversary of its introduction, it is still in production and can be purchased new today. The **Beyer Dynamic M160** is another veteran that has proven its worth on lots of legendary rock albums, including what many believe to be the "greatest drum sound in the history of rock," the 1971 Led Zeppelin classic "When the Levee Breaks" featuring drummer John Bonham recorded in the stairway at Headley Grange.

So I lined up all 12 of these mics to see how they compared. The sources were rock drums, alto sax, electric guitar, and female voice. Each mic was carefully calibrated to ensure a level playing field. Listening tests were performed using

Chandler TG2 preamps and **Cranesong HEDD** converters.

MIC EVALUATIONS

AEA R84

While there are several "new ribbon" manufacturers that seem to be trying to change the rules by flattening the frequency response, the coolest thing about the R84 is that it sounds like a vintage ribbon with the advantage of lighter weight and smaller size. While it is still a large mic, its yoke and integrated shock-mount make it easy to position. On brass and strings, it sounds divine, lending a "Hollywood film score" vibe. While I don't love it on drums and electric guitar, I know others who do. On sax, it sounded very warm with lots of tone, but little air. On voice, it sounds very natural but dark. It takes EQ well, and one can easily add 6dB on the top end to flatten out its response. The pronounced proximity effect, true to most ribbons, is very evident in the R84 and I frequently position it 16-36" from the source.

AEA R92

This is the same "large ribbon" mic as the R84 but in a different housing and voiced for

The Ribbon Mics (alphabetical order)

AEA R84
AEA R92
Beyer Dynamic M160
Coles 4038
Coles 4040
Crowley & Tripp Proscenium
Crowley & Tripp Studio
Vocalist
Nady RSM-2
RCA 44B
RCA 77DX
Royer R-121
Royer R-122



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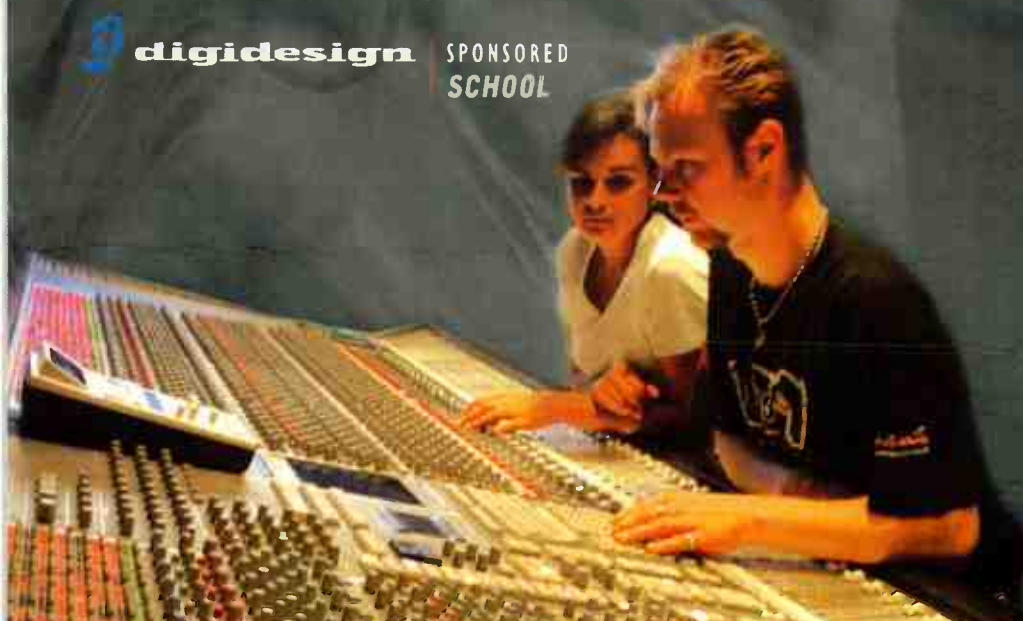
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World Radio History

MICROPHONECHECK 1, 2

Bruce says



"I've never heard anything better in a ribbon microphone than Royer's new R-122, ever! Something happened when they put that amp and larger transformer in there and this has become my new favorite ribbon microphone. I always use ribbon mics for their warmth and sweet high frequency response characteristics, but there is something truly unique about the powered R-122's sound quality. My pal Omar Hakim was bouncing off the walls when he heard the first playback with R-122's on overheads on his drum set - they just sound absolutely fantastic! Royer really nailed it with the R-122."

Bruce Swedien
(Grammy winner, Jennifer Lopez, Michael Jackson, Quincy Jones, Duke Ellington, Count Basie)



Visit royerlabs.com to hear Bruce speak about ribbons and to see photos of his current recording session.

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up-close work. It's a brighter mic with drastically less proximity effect, allowing the talent to work in a more typical LDC fashion, 4-6" from the mic. It has more definition up top than the R84, but lacks the warmth and majesty that the 84 presents. For the guitar amp and drums, I liked it better. It sounded very nice on sax and voice as well.

Beyer Dynamic M160

The only handheld mic in this group, the M160 is unusual because of its small size, unidirectional pickup pattern- and double-ribbon design. It's still being made, along with its bidirectional sibling, the M130. I was honestly surprised it is still in production, since I've seen so few of them in the past 20 years. This mic has an unusual but very distinctive sound. On saxophone, it sounded very present, almost hyped, while still having a nice low end. I didn't care for it on voice, but it made up for that by sounding wonderful on the drums. On electric guitar, I preferred other mics more. It's the second least expensive mic in this lineup. Highly recommended.

Coles 4038

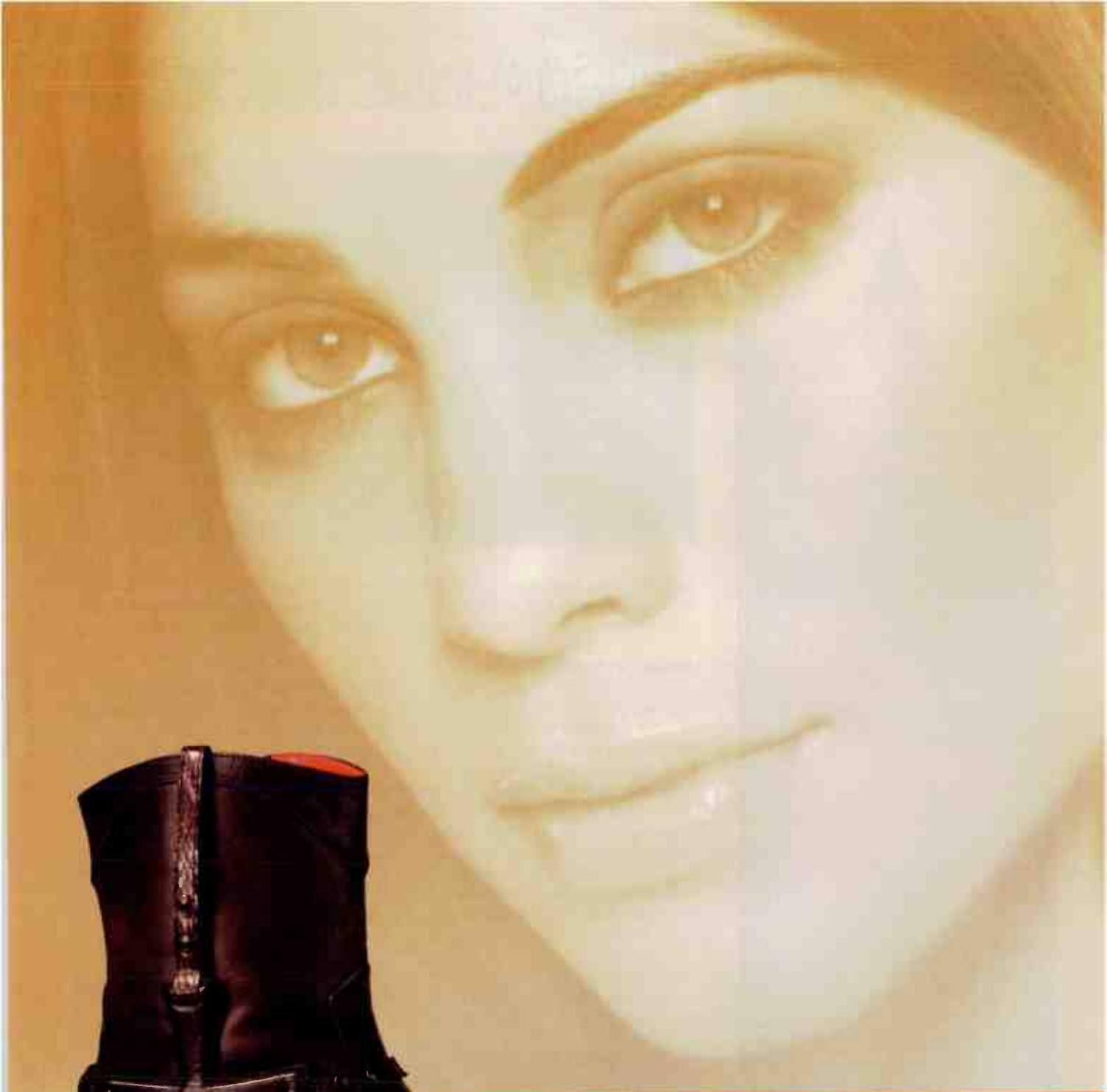
With its waffle-iron looking swivel head, the 4038 is one of the most unique mic designs ever and still the favorite ribbon mic of many engineers. It has one of the most unique sonic characters of these mics. With a very pronounced midrange peak, it sounded amazing on drums, even in mono. For female voice, it had a nice presence without much high end. On sax, it had a presence that would cut right through a track, but it sounded a bit pinched to me. On guitar it was not my favorite.

Coles 4040

This is a completely new design from Coles and it looks and sounds nothing like the 4038. Its cylindrical shape and dimensions are more reminiscent of a Neumann FET47. It has drastically more top end than the 4038 and feels like the low end extends another octave. While it doesn't have the "uniqueness" of the 4038, it still sounds wonderful. On drums, it was great. The low end "oomph" of the floor tom was delightful. For guitar, it has a lot of power and body that some of the others did not. On saxophone, it felt scooped in the midrange compared to the 4038.

Crowley & Tripp Proscenium

When you first pull the Proscenium from its beautiful hardwood case, you may be surprised that it doesn't "look" like a ribbon mic. Several people asked about why I had "condenser mics" in the ribbon session pictures. It looks like a side address LDC. The weight of the mic is the only thing that betrays its lineage. All of the Crowley & Tripp mics are built in the same housing, which is compact and heavy. They all share the same ribbon and magnet assembly. But each model is voiced differently for different applications. The Proscenium is the fullest sounding, designed to be used at medium distances like at the front of a stage, hence the name. I thought it sounded very nice, an admirable first product from this new company. This is a mic that would find many



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MICROPHONECHECK 1, 2

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While I originally intended to research audible differences between the mics, mics were accidentally hot-swapped with phantom power applied. While this is not standard operating procedure, all of them survived. Another misconception about the fragility of ribbon mics was tested as well. One of the mics accidentally fell from its resting place atop a stool and landed on the wood floor. Just how delicate are these new ribbon mics? Well, it still worked fine. Yes, it was a Royer. Don't try this at home, but know that if you do, it doesn't automatically mean a repair trip.

uses around the studio. Although I listened to it on only four sources for this comparison, I also tried it on cello and it sounded excellent on all of them. It has less character than the Royers but sounds more neutral than the AEAs. Based on this brief listening, I would recommend it.

Crowley & Tripp Studio Vocalist

Is the world ready for a "bright" ribbon mic? If so, then the Studio Vocalist is going to be a huge hit. With the fullness of a ribbon and the presence of a frequency-tailored dynamic mic, it could well fit the bill for someone looking for something other than an LDC for vocals. To my ear, it sounds like a marriage of the Proscenium and an SM-57. You can see the upper midrange bump on the frequency response chart and you will hear it too as soon as you plug it in. By comparison with other ribbon mics, it sounds very midrangey. I didn't like it on this female voice in the lineup against the others. But when I took the voice recording home and listened to it in isolation, I heard the admirable qualities that had caused the singer to pick it as her favorite. I used it again on her voice later in the week and it sounded wonderful. The immediacy of an LDC without the fizzy top end and a relaxed presentation (typical of ribbons) that I rarely hear from a condenser. At this price point, I think this may fill a niche that has been empty before. On electric guitar and sax (and trumpet the day before), I thought the mids were too harsh, though on the drums I liked it.

Nady RSM-2

Frequently referred to as "the Chinese ribbon," this mic is the least expensive of the group by a long shot, by more than half. Borrowing from previous designs, it's establish-

I am frequently asked how different ribbons stack up in terms of output level. I had never tested them, until now. After calibrating them, I noted how much gain each mic took as I mic'd the guitar cabinet. Not intended as a scientific measurement (far from it), these are simply the face plate markings from the Chandler TG2's. They are only intended as a simple reference.

122 (active)	23
Proscenium	34
Vocalist	34
121	34
4038	34
4040	34
44	38
77	39
R84	39
M160	40
RSM-2	42
R92	43a

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MICROPHONECHECK 1, 2

Z5600a



Z5600a

The Z5600 has won many awards and thousands of fans with its ultra clean and detailed valve sound, nine polar patterns and great performance enhancing looks. This excellent mic delivers a superb vocal recording, with natural warmth and incredible detail, and is an incredibly versatile mic, use it on anything from live drums to a choir. With 9 graded steps between three main capsule patterns, omni, cardioid and figure of eight the Z5600A finds uses in a huge number of applications. Complete with full aluminium flight case, shock mount and a power supply with pattern switching and cables.

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ing a niche for itself by introducing the ribbon sound to engineers who have been curious about ribbons but wouldn't spend \$1000+ to satisfy their curiosity. Think of it as a "ribbon primer" for the uninitiated. Ribbon zealots, like myself, who seem to always run out of ribbon mics before they run out of instruments to put them on, will be thankful to have an extra ribbon or two, even if it sees less action than the standards. The RSM-2 has very low output, second only to the R92, and is one of the darkest mics in this lineup. So make sure you have a high-gain preamp and EQ ready. Still, it does have those characteristics of a ribbon mic that are so endearing — warmth, bidirectionality, proximity effect. Some have likened it to the R84, but it is very different sonically. I found the Nady sounded good on electric guitar, with a wooly, gnarly tone. On sax, it felt restricted. For voice, it sounded too dark. On drums, I might find it useful but more like an effect. I think it has a place in the market. For the engineer who is just getting started, there are mics like SM-57s that will be used more and cost less. But for someone who has a decent mic collection, but no ribbons yet, this is a good starting point.

RCA 44B

This is the granddad of ribbon mics. For most of the world, this is the one mic they recognize, usually with an NBC or CBS logo on top of it. It played a significant role, not only in the history of studio recording, but in radio and early live sound as well. But how does it sound compared to the mics we use today? For a mic that was introduced in 1932, it holds up admirably. Still a favorite on film scoring stages, the 44 has a dark, full sound that was designed for working at a distance. In circumstances that are typical today, with singers three inches from the mic, it does not sound as good. But get back 3 to 4 feet or more and it has a wonderful natural sound. The character of the 44 can be best described as warm and full. For the drums it didn't sound crisp at all. On sax, it has a vintage tone like you have heard on recordings from the 1940s and 50s. For female voice, I didn't care for it at all, unlike its cousin the 77, which sounded great. It excels on orchestral trumpets and brass, where distance from the instrument is key to its natural sound. It takes the edge off brassy sounding sources and makes them more pleasing to the ear, at least my ear. That's part of the reason that ribbons have experienced such resurgence. They tend to counteract the fatiguing high-end sound of digital recorders. The 44 is a classic and for good reason. It still sounds as good today as it always has.

RCA 77DX

This mic surprised me the most. I have tried it in the studio many times and always found things I liked better. But in this listening test, it was one of my favorites. While it doesn't sound anywhere near flat, it imparts a very unique quality to each source. With continuously vari-

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MICROPHONECHECK 1, 2

able pattern control, from omni- to unidirectional, and two hi-pass options, it is the most flexible ribbon mic I've ever encountered. I used a single setting (Uni, M) for all my listening. On the drums, it picked up the pitch of the snare like no other mic in the lineup. For E/G it had an aggressive, edgy, in-your-face sound that none of the others captured. For sax, it was very forward with an unpleasant bite, at least on this horn. On voice, in the studio I thought it sounded small, but on computer speakers outside the studio it had a wonderful presence.

Royer R-121

Since its introduction nearly eight years ago, the Royer 121 has become a new standard for recording electric guitar cabinets among engineers who make their living cutting rock and roll and heavy metal music. If all a mic needs is one good trick to justify its existence, then the 121 has earned a well-deserved place in the microphone hall of fame. But it excels at more than that. Its high SPL handling capability makes it a great choice for miking kick drum, snare, brass, and percussion. It does a wonderful job on woodwinds and acoustic guitar as well. For this comparison, the 121 sounded great picking up the drum sound, very good on the saxophone, and although I found it too dark for the vocal sound, it was amazing on the electric guitar sound.

Royer R-122

The R-122 is a higher output version of the 121. The magnet assembly is identical, the ribbon identical, the housing identical except for the length of the body (the 122 is longer). The frequency response chart should be identical, right? Well, regardless of what the specs tell you, the 122, with its different transformer and buffered output stage, is a different sounding mic. The output is hotter by about 11dB, according to my measurements, and that can make a big difference when your preamp doesn't have enough gain, like whether you can use a ribbon or not. This ingenious ribbon mic delights first engineers and confounds second engineers. It is the only ribbon I know that requires phantom power — it will not work without it. (I've lost count of how many times I've heard, "There must be something wrong with your Royer. It's not making any sound.") The 122 is brighter in the midrange. For those who like the sound of the 121 but consistently find it too dark, the 122 is the mic for you. On brass, especially low brass like bass trombone and tuba, and for percussion, and woodwinds like clarinet and oboe, I have found it without equal. For this listening session, it did an admirable job on the drum kit, but I like it better as an overhead mic where it picks up not only the cymbals but the tone and body of the toms as well. On guitar cabinets it sounds like a brighter 121, which you may like better or not. On saxophone it sounds very nice, more present than the rounder R84. For voice, I usually prefer other mics. That was my experience here as well. 

FULL DISCLOSURE

I personally own pairs of the AEA R84, R92 and Royer R-122, so I have much more experience with those. My time with the other mics is limited to a few days in the studio.

Did you know that the classic Led Zeppelin song "When the Levee Breaks" was actually written in 1929 by "Memphis Minnie" McCoy, a famous female blues musician who was born in 1897?

For more info on these mics:

www.beyerdynamic.com
www.independentaudio.com (Coles)
www.nady.com
www.royerlabs.com
www.soundwaveresearch.com (C&T)
www.wesdooley.com (AEA)

QUICK PICK PEARL DS60

What it is: [from the website] *The Pearl DS60 condenser microphone is a multiple-choice stereo microphone. It is the Pearl classic — designed in the '60s offering stereo recording in different modes. The mic contains two rectangular dual-membrane capsules mounted one above the other 90 degrees apart. These capsules capture the nuances of a live performance by achieving a very flat and resonance-free frequency response that extends deep into the lower frequencies and high into the upper frequencies.*

How it works:

Trying to select and mount two identical mics in your choice of stereo patterns can become difficult at best. Usually the mesh itself or the body of the mic make it nearly impossible to get the capsules as close together as you would like. The DS60 takes the guesswork out of the equation and has mounted two identical capsules inside one body. This is not a new concept but it is an expanded one. These are two large diaphragm capsules with dual layers.

I was intrigued by the mic because I can clearly see the diaphragms and can see how they will line up. There is an indicator etched on the body that shows which was the face of the mic in X/Y mode, as well as another location for M/S.

The other neat thing is that the mic comes with a special cable that terminates in four XLR plugs. It is through the selection of these signals that you can create X/Y, M/S, and Blumlein stereo patterns with the bonus of also using the cardioid, figure-8 and omni characteristics.

This mic is amazing in its detail whether used in close proximity or at a distance. The stereo image created by this mic is mono compatible and very true.

I'm always searching for quality products that provide versatility, and the DS60 fits this bill very nicely. (MSRP \$6,600) —by Scott Colburn



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MICROPHONECHECK 1, 2

also reviewed the stand made especially for the Blue Ball called **The Ringer**. While this also looked "cool," making us feel like we were in a future/retro episode of *Radioland Murders*, the only thing that's any good about it is the fact that it's got a shockmount, which we're not really sold on anyway. The problem that this mount exacerbates is making an already unwieldy mic even worse. For example, we couldn't imagine trying to mic a drum kit in any way with the Ball. Neither the mic nor **The Ringer** comes with any attachment to adjust the Ball's angle, meaning all you can do is 90 degrees from the stand arm (all the Ringer allows you to do is spin the Ball around).

What's more, the Ball's bulky shape means that miking toms would probably mean you'd have to forgo playing cymbals at the same time and overdub them like the story goes about what they did on one of those very early Slayer albums.

Final verdict: two years after its release, there may be a reason why **The Blue Ball** is still the world's only phantom-powered dynamic microphone.

SCREECHING, EVER SCREECHING

Alright, so it might have been a little silly to record a guitar amp with a condenser microphone, so we hooked up the **Marshall MXL 3000** for some vocal and acoustic guitar tests. We put it up against the **CAD E-300 2** and the **Neumann BCM 104**: all condenser microphones.

Here's what we got.

Our grind growler's lows sounded almost brighter than his screams on the CAD, and the buzzing room fan and humming bass amp that we forgot to turn off were not at all picked up, meaning that the mic did a great job in recording only that which was intended to be recorded. The Neumann came through better on the higher pitched stuff, while the CAD sounded more like it was right up against your ear. But we guess it depends on what you want. To nitpick, we also noticed that there was a bit of distortion on the CAD, even though the level didn't peak, but we have a feeling this was because of the recording medium. Meanwhile, the Neumann was out-of-control sensitive for loud stuff, making it extremely impractical to record anything with power, unless you risk breaking the thing to turn on the decibel-limiting switch (see below).

For the acoustic guitar event, the standings were reversed, with the Marshall and the CAD being about equal, and the Neumann being good, but noticeably inferior. Where the Marshall was heavier, it was also more boomy, while the CAD was brighter but thinner.

Despite these comments, the quality of the recordings of these three microphones done through Pro Tools 6.4 on a Macintosh laptop that we heard through our Yorkville YSM1p speakers were not all that dramatically different. Essentially, it boiled down to a question of price and features. Sure, the Neumann might have been ever so slightly better than the CAD, which was a bit better than the very reasonably priced Marshall, but is the Neumann (SRP \$1,079.99, street \$829) really worth two times the price of the CAD (SRP \$699, street price \$499)? We say, definitely no.

Remember those movies in which the heroes had to gently remove the plutonium core from the doomsday warhead or else all the world would explode? Neumann did its best to re-create that tension for you on a personal level. And while the whole world might not come to an end, you'll be pretty flaming pissed if you damage the fragile innards of

your thousand dollar Neumann after you pull out the little the screw to remove the protective casing and take out the core just so you can enable the -14db switch. This is the only way to do this. Someone tell Neumann that planned obsolescence is supposed to only appear coincidental.

In contrast, the **CAD E-300 2** has its decibel-reducing switch conveniently right on the front of the microphone. It also has switches that toggle uni-, bi-, and omni-directional recording, and a power switch, none of which the Neumann has. The CAD also comes with a shock mount and a good protective case (the Neumann does not). All this for the same practical recording quality, and at half the price. We're psyched for when we'll have backup singers for Rubicon, and for when we record drums, to use the CAD as an overall room recorder, even farther behind our twin **AKG C-1000** overheads.

Now, if you're some sort of mic geek, you're shaking your head, saying, "yeah, but the Neumann is meant for BROADCASTING, not for screaming, growling, or doing alarm clock vocals in general." Point taken, and one of the **BCM 104's** vaunted features, the replaceable screen (for hygiene purposes), is proof of what race this horse is running in. But vocals are vocals: whether they're excruciating or sublime, you still want to hear all the facets of their sound, and two times the price is still two times the price.

Oh, by the way, just to stir up some more trouble, we checked to see how our aforementioned **AKG C-1000s** (SRP \$318. Street price \$199, or two for \$298) fared against the other condenser mics we're reviewing. Just for the hell of it. Wouldn't it be so much easier if everything performed according to price? You'd know what you were paying for. Well, the C-1000 was in the same ballpark as the CAD and Neumann (who were superior). So again, if you don't have a bunch of money and need versatility, pick up a couple C-1000s (or Marshall MXLs, as they're even more reasonably priced, but not quite as good or versatile). If you need a highly versatile mic with the intention of recording vocals, the CAD E-300 2 is highly recommended. And don't forget to get a pop shield. **EQ**

BLUE BALL

Pluses: sounds good on vocals, it looks snazzy, might usher in a new era of posing if vocalists palmed it on stage

Minuses: bulky size and lack of mobility give it limited uses, guitar amp recording was clear, but thin, Ringer attachment rather silly, and enough with the blister packaging, already

MARSHALL MXL 3000

Pluses: reasonably priced uni-directional condenser microphone, good sound for vocals, acoustic guitar and overhead miking, solid protective case

Minuses: uni-directional means limited uses for vocals, setting up the mount to attach to a stand a bit of a pain

CAD E-300 2

Pluses: picks up what you want to record in high quality, without recording unwanted ambient noises, very practical and intelligent switches, highly versatile in vocal duties, as well as an overhead or room mic

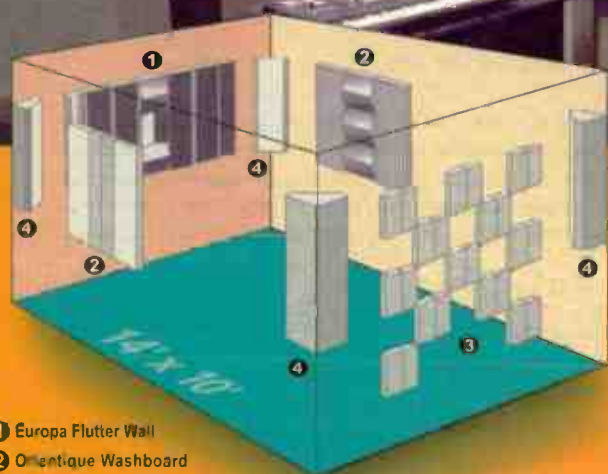
Minuses: can be a little tricky to mount

NEUMANN BCM 104:

Pluses: perhaps the best of the lot purely for vocals, intended for broadcasting, changeable protective screens may be attractive for situations with multiple users

Minuses: instrument miking not as hot as you'd expect, utterly preposterous placement of important switches, isn't worth the price for just about any music recording project, no protective case (aside from the cardboard cylinder that it comes in), angle adjustment impossible with basic microphone purchase

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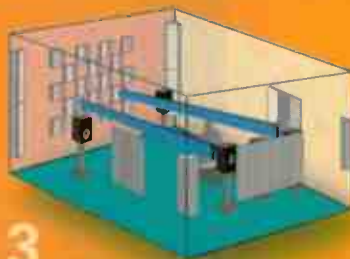
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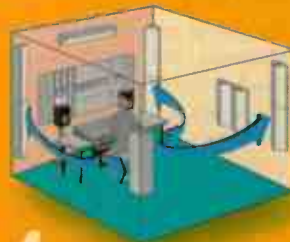
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Price: \$995 MSRP

Type: externally excited condenser

Electronics: tube

Polar pattern: cardioid

Frequency response: 30Hz – 18kHz, ± 2.5 dB

Maximum SPL: 136dB @ 1kHz

Power: dedicated power supply

Included accessories: hard carrying case, hard mic case, power supply, cable, shockmount

Contact: mojaveaudio.com

Phantom V

Price: \$2,675 MSRP, \$2,200 street

Type: Pressure gradient transducer

Electronics: solid-state

Polar pattern: cardioid, omni, figure-8

Frequency response: 20Hz – 22kHz

Maximum SPL: 142dB

Power: 48-volt phantom

Included accessories: hard carrying case, shockmount

Contact: brauner-microphones.com (distributed in the U.S. by TransAudio Group, transaudiogroup.com)

It's a mic lover's world out there. I mean, how many hundred models are there available on the market today? All types of mics from all over the world, and at all price ranges. I've got a mic locker that's stocked with a variety of different things; some, like my **Soundelux U99** get used all the time. Others — and I'm not mentioning any names here — maybe should go up on eBay. But in reality, they're all colors that I use to get particular effects, so I hang on to all of them because they're *all* useful.

But right now I'm sitting in front of three large-diaphragm mics. They couldn't be more different from one another: tube, solid-state, single-pattern, multiple-pattern, pad, no pad, from Germany, China, and at prices that span a wide range — one of them is 15 times as expensive as one of the others. But here's what we're talking about:

Audio-Technica AT2020 (\$169 MSRP, \$100 street)

Mojave Audio MA-200 (\$995 MSRP)

Brauner Phantom V (\$2,675 MSRP, \$2,200 street)

No rational engineer would ever say that these three mics are competitors. They're at far too different price points to make any kind of apples-to-apples comparisons. But that's why I'm here, to set these mics up and give them a listen on a variety of sources to figure out: Is one *really* 15 times better than another? And can you get by without spending a wad of cash for a large-diaphragm condenser?

I cocooned in to give these mics a once over. My new studio (am I ever gonna settle in one place for long?) features a nice, quiet, acoustically controlled iso booth that's perfect for really focusing in on the sound of a source with a microphone. For today's sessions I'll be hitting the diaphragms with male vocals, steel- and nylon-string acoustic guitar, and a couple of screaming guitar amps.

THE BASICS

The AT2020 is finished in matte black, and has a look, heft, and "feel" that's reminiscent of my AT4040s and AT4050, though it has the same squared-off top and grille style as the AT3035 and AT3060. The mic comes with a soft carrying pouch and a pivoting standmount, which threads onto the bottom of the mic for security. The AT2020 fills out the Audio-Technica line with an amazingly affordable side-address large-diaphragm mic that's aimed at general-purpose use in home and project studios. But there's no reason it can't be used in pro studios, too.

The MA-200 resembles a **U 87** in appearance, with a matte black body and silver grille. It's a heavy mic, and screws onto the included spider-style shockmount. Other accessories include a hard case for the mic, a power supply, 7-pin mic cable, and a larger hard case that holds the mic (in its case) and all its accessories. The mic was designed by David Royer of Royer Labs ribbon mic fame, and is manufactured in China using components specified by Royer. In fact, Mojave ships some components (such as the Jensen transformers and tubes) to China for the assembly. A 24-hour burn-in and all quality-control checking is done in the U.S.

The Phantom V is brother to the Brauner Phantom C, which is a cardioid-only version. It's finished in satin nickel, and includes a 10dB pad



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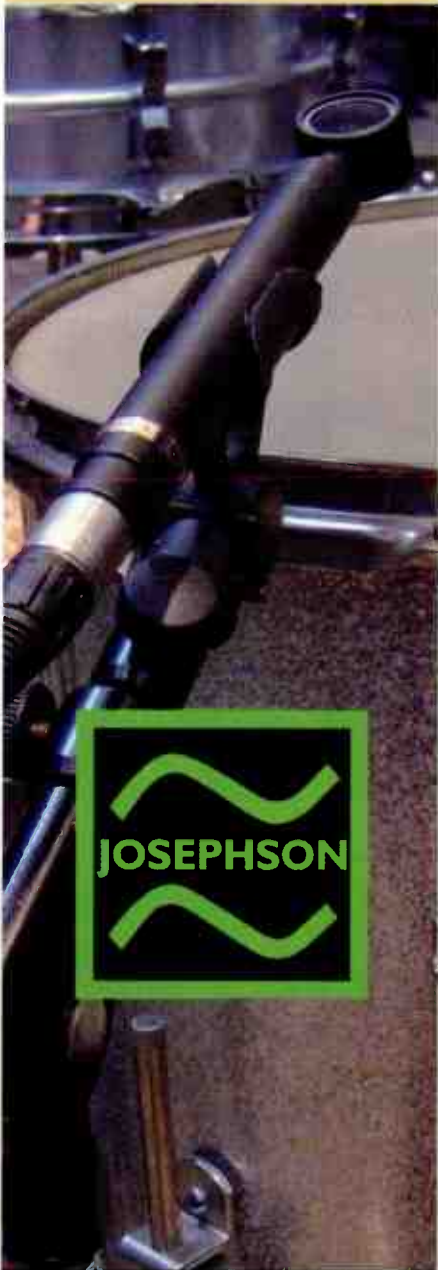
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MICROPHONECHECK 1, 2



and a polar-pattern selection switch on its body. The Phantom V is surprisingly solid and heavy, and snaps firmly into its unique "C"-shaped shock mount. Also included is a hard case that holds the mic mounted in its shock mount. Dirk Brauner designed and builds the Phantoms in Germany; the intent was to make a lower-cost, flexible large-diaphragm mic based on the capsule in the VM-1 mic that could be used both for vocal and instrument miking applications.

IN USE

The first application most engineers think of for large-diaphragm mics is vocals. All three of our contenders excel in this application. The AT2020 offers a nice, round tone with good dynamic response. The mic doesn't suffer from the "over-hyped top" syndrome that many moderately priced mics seem to be afflicted with. The top is open and contained, with good detail, but without excess fizz or harsh screech.

The MA-200 has a wonderfully fat, chewy midrange, with full, tight bottom (*Eaassy*. . . —Editor). It also has natural-sounding top-end. If you've heard a tube '47 or one of several clones on the market, the MA-200's mids and lows will immediately sound familiar to you;



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to my ears it's a bit more open on the top end. True story: My wife heard tracks I'd recorded of my voice from upstairs and thought that I was singing live — the MA-200 can sound *very* natural.

The Phantom V loves vocals. In cardioid mode it has full bottom end, and a present, punchy midrange that really makes vocals pop. The top end is airy and detailed. The dynamics are outstanding. The Brauner mics don't attempt to copy "vintage" mic sounds; they proudly sport a tonality all their own that works very well. Vocals tracked with the Phantom V have a nice presence that sits well in mixes, with excellent intelligibility.

All three mics did well on steel-string and nylon-string acoustic guitars; any one of them was great for tracking. The AT2020 has natural midrange and good dynamics. Its restrained low end kept boominess under control when the mic was too close to the soundhole; excellent for seating a strummed steel-string part in a rock mix. The MA-200 sounded fat and rich, with round bottom end and natural highs. It had wonderful presence without sounding strident. The Phantom had extended low end and exciting detail on top; you could really hear fingers on the strings. It benefited from being placed slightly farther back than the other two mics. I especially liked the Phantom in figure-8 pattern for steel-string where it had fatter bottom. For classical guitar I preferred the omni pattern with its more balanced bottom end and lack of proximity effect.

On electric guitar, the Brauner had thick bottom end and lots of clean top; this worked particularly well on cleaner tones. The MA-200 picked up midrange crunch like crazy, and captured nice low-end thump. There was no annoying fizziness in its top end. The AT2020 delivered round midrange, without excess bottom; its tone sat well in a dense mix without EQ.

The shockmounts for the MA-200 and Phantom V worked very well. The Phantom's shockmount was especially easy to position with its long, easy-to-grab adjustment lever. The AT2020's pivot mount was more difficult to get into certain positions; I had trouble hanging the mic upside-down for vocals, for example. The Brauner snaps into its mount quite tightly. The AT2020 and

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MICROPHONECHECK 1, 2



MA-200 both screw into their mounts for extra security. The AT2020 can also use the optional AT8458 shockmount.

All three mics have low self-noise — even on quiet sources like classical guitar, none of them had noise problems. The pad on the Phantom allows it to stand up to ridiculously loud sources, but all three mics handled high volumes well.

WHICH ONE?

The obvious answer to "which of these mics should I buy?" is: All of them! Each of these mics has a unique tonality and is valuable for that fact alone. Beyond that, it really depends on what you're after. If you want an affordable mic that will work on a wide variety of sources, the AT2020 is hard to beat. It sounds great, is quiet, and, sheesh, at that price, go out and buy a pile of them. *Not that you'll want anything to happen to them, but for a "pro" studio, if they get beat up by errant drum sticks, you won't be out a bundle. For a home or project studio, this is a great mic to get you started. Good for vocals and instruments, if you can only afford one decent condenser mic, the AT2020 should be a contender for you.*

At its \$1,000 price point, the MA-200 is simply amazing. You'll immediately recognize the



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debt it owes to the tube '47 — if you're after that fat, punchy, chewy '47 tonality with a more open top end, the MA-200 will do it for you. Some mic snobs might be put off by this mic's Chinese manufacture. Forget about it. The MA-200 rocks no matter where it was made. For a grand, it's a stupid-good deal. In fact, the MA-200 has become one of my favorite microphones.

And even though the Brauner comes in quite a bit more expensive than the other two mics, it offers multiple polar patterns, a 10dB pad, and an open, full, rich tonality that's especially flattering to vocals. It also excels on acoustic instruments. If your budget allows you to step up, then the Brauner mics are superior transducers that offer a complementary sound to many of the old standards.

Taken in context, all three of these mics are excellent sounding instruments, and are each great values at their respective price points. If you're waiting for me to declare one the winner, you'll be disappointed. All three do what they are intended to do at their price point. Does the AT2020 compete directly with the Phantom V, for example? Yes and no. I'm not going to tell you there's no difference in the response of a \$170 mic and a \$2,700 mic — of course there is. The extra money for the Brauner is well worth the detail, dynamic response, and richness. But that doesn't mean that the AT2020 isn't a fine microphone, offering a sound all its own that's equally valid in the right applications — even in a mega-studio.

As for me, I can only afford one of these right now, and what my studio needs is best met by the MA-200. And that's the only way to choose a mic, regardless of whether the price is rock bottom or sky high: buy what you need and what sounds good. EQ

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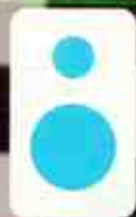
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Six veteran engineers, their budget picks, and all-time faves in search of sun, sand, and sonic salvation.



by Lynn Fuston

So, let's say you're out on a cruise ship in the South Pacific and your ship goes down. You swim ashore on a deserted tropical island. Fortunately, you were able to grab one thing before the ship sank — the backpack containing your trusty PowerBook and portable recording system.

You look around at all the wonders of this tropical paradise and hear the birds chirping and immediately think "I need to record this." You reach into your backpack and pull out? That one mic that you managed to salvage from the sinking luxury liner. And that would be...?

MICHAEL BISHOP

"If money was an issue, I think I'd pick three of the **Audio-Technica 4049a**, small diaphragm omni mics (\$595). I've used it just enough to know that it works well. My other option would be the **Oktava MC-012** (\$193) with the interchangeable capsules.

My first choice, though, would be the **Sennheiser MKH-800** (\$2950). All the headroom you could ever want, infinitely variable patterns, frequency response to 50kHz, super quiet, terrific resolution without making itself apparent. It would work anywhere to record anything. And the omni pattern sounds like a true omni. That would be my best choice.

ROSS HOGARTH

"If I could only pick three mics, I would start this way: large diaphragm condenser (LDC), ribbon, small diaphragm condenser (SDC). To feel like I would have the tools needed to be effective in any situation, I would need those bases covered. I think

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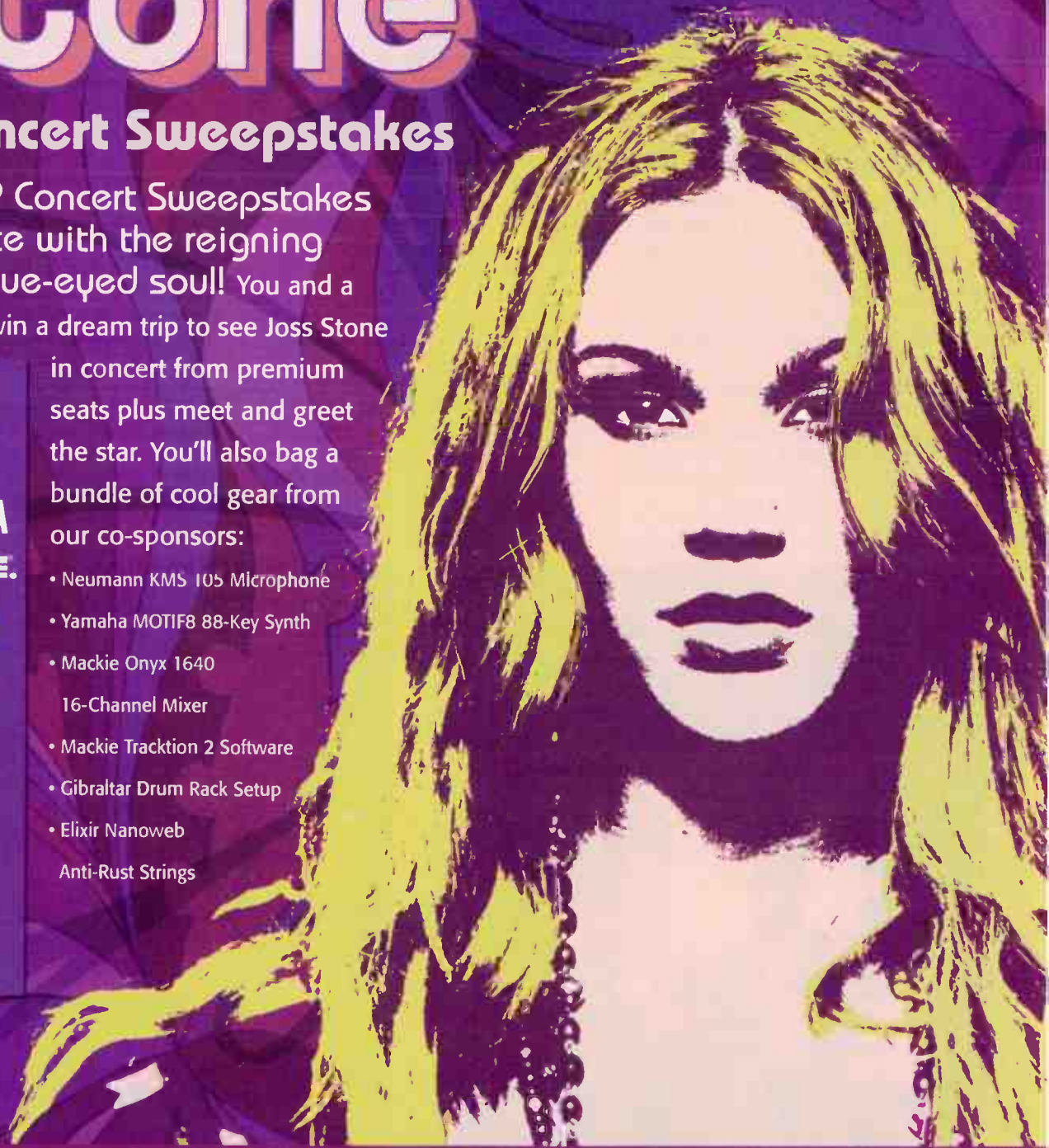
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Dateline: May 2001. Location: Western Samoa, halfway between Hawaii and New Zealand. One engineer, one PowerBook, three mics, and lots of Samoans. To read the rest of the story of my "studio in a suitcase" adventure, check out http://www.3daudioinc.com/samoa_travellog.html.

recording vocals is first and foremost.

So on a budget, I would go with the older **AKG 414**. It's an incredibly versatile mic. It can take gain, has a built-in pad and roll off, and the CK12 capsule sounds generally excellent on many singers. It is an all around good useful mic. Many other mics fall into this category, like the **Shure KSM 32** (\$1029), **Neumann U87** (\$3180), **Soundelux U195** (\$1350), **Mojave M200** (\$995), **Audio-Technica 4033** (\$595) or **4060** (\$1495). The LDC also rules as a pair for room-ambience recording or distant miking.

For my ribbon mic, it would have to be a **Royer 121** (\$1195). I'd pick this because it has such wonderful midrange on guitars, horns, B3, percussion, drums, you name it. I don't think I could make any recording without a ribbon mic. So I'd pick the Royer over the other ribbons for its incredible versatility.


For my small condenser? Either a **Schoeps CMC 5U** (\$1324 with MK2H capsule), or a **DPA (B&K) 4011** (\$1850) or a **Neumann KM 84 / 184** (\$950). I know it is not exactly low budget, but the DPA 4011 remains

my most used SDC. For me, the focus and clarity of an SDC is needed in the studio to balance the large condenser and ribbon mics. For close miking of acoustic guitars, percussion, and overheads on drums/cymbals, I will go to the SDC. As far as a pair, it's hard to decide whether to take the large condenser pair over the small condenser pair. I think it would depend on the defined space I would be recording in. In general, I think the small condenser pair would be used more frequently in a smaller confined space.

With an unlimited budget, I would stick to the same categories. I would start with a great old **AKG C12** or an original **Neumann U47** or a **Telefunken 251** with a pattern select box that works so I could record in omni as an option. These mics are just the consummate vocal mics. They also shine as acoustic instrument mics and all around beautiful tools. As far as newer builds on tube mics in particular, Tracy Korby,

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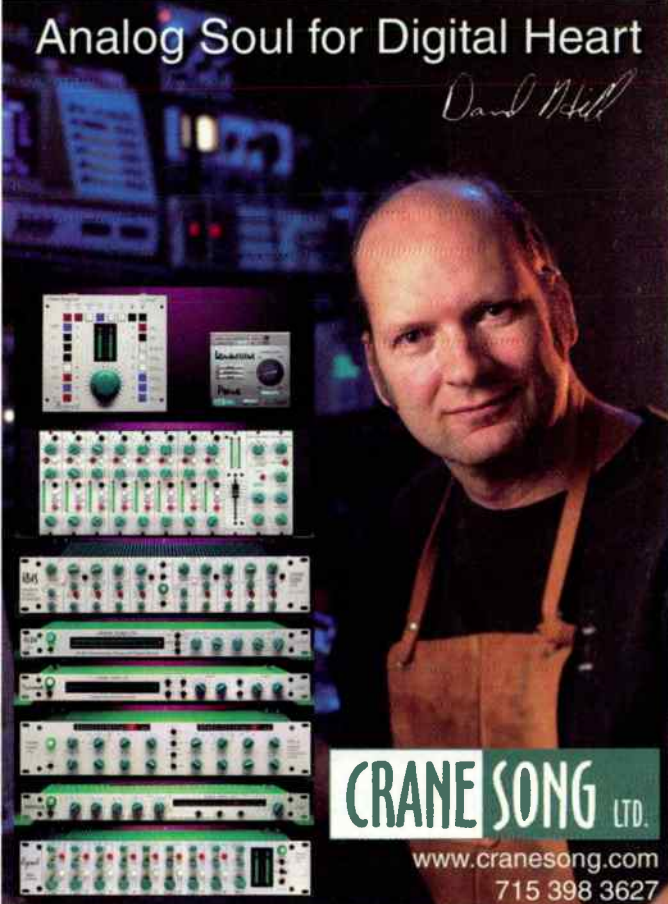


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MICROPHONECHECK 1, 2

Soundelux, Blue, and some others are doing very fine work.

Next I would add a stereo **Royer SF24** phantom-powered ribbon (\$3795). This is my new favorite mic. It's an amazingly detailed ribbon mic with many of the great attributes of condenser mics. These days I don't do a recording without having the SF24 up and ready.

Lastly I would probably go with an old **Neumann KM 54** as my small condenser, or still stay with the **DPA 4011**. The Neumann KM 54 is just a beautiful mic, with its nickel capsule. Either way I would be a happy guy.

RUSS LONG

On a budget, the **A-T 4047** (\$745) is an amazing sounding mic for an amazing price. It sounds vintage and is astonishingly versatile.

My new favorite dynamic is the **Heil PR-40** (\$325). It sounds every bit as good as any \$750 condenser, and it takes a ton of level. It can work wonders on kick and snare and then do just as well on a vocal

or acoustic guitar.

I'd pick a pair of **A-T 3031s** (\$259) as well. This mic works well on any acoustic instrument and is an all around great-sounding mic that only costs around \$200.

If price was no object, then the **Brauner VM1-KHE** (\$10,000) is the most amazing vocal mic I've ever heard and it's the only extremely high-end mic I've found that works on almost everyone.

Add a pair of **Earthworks SR-77** (\$2100/pair). They sound good on everything. Extremely natural with a great sounding top end (that extends to 30kHz).

And the **Royer R-122** (\$1,695), which makes guitars sound legendary.

F. REID SHIPPEN

Budget: **SM-57** (\$158): What can I say. It just sounds good.

Marshall V69 Mogami Edition (\$399): An amazing mic for an amazing price.

A-T 4051 (\$595): sounds killer on acoustic guitar.

Price No Object: **SM-57, U67** (x2)

Royer 121 or **Coles 4038** (\$1,424)

BIL VORNDICK

Budget: **Shure KSM-27** (\$575): works on vocals, instruments or amps. **Shure KSM 109** (\$305): works great on acoustic instruments. **Shure SM-57**: sounds good on anything.

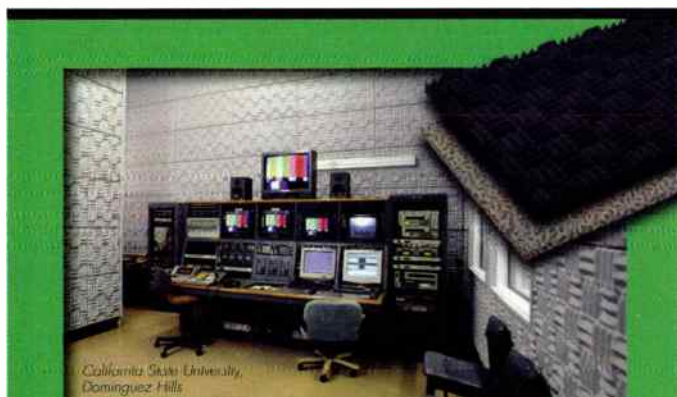
Price No Object: **Neumann U67**: because it sounds good in so many different applications. **Neumann U47**: you could use that to mic a whole drum kit.

Stereo AKG C-24: you could use it on anything else.

MICHAEL WAGENER

On a budget? Two **SM-57s** and an **SM-58** (\$188). I can make a record with those.

On the other end of the scale, the **Soundfield MkV** (\$8,580) would be on my list. It's the most natural sounding mic I've ever heard. It will do stereo and surround. Add a **Soundelux E47** (\$4,500) for male vocals and a **Royer 121** for electric guitars. I could be happy with just those three. **EQ**



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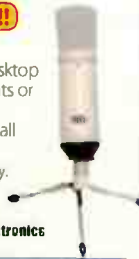
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The MOTU Power-on-Demand Studio

Digital Performer, the Traveler and a host of development partner products deliver on-demand processing and world-class sound.

The look.

Whether you've got a G4 PowerBook, G5 Power Mac or both, the Apple **90-inch Cinema Display** gives your MOTU power-on-demand studio the world class look your eyes want — and the look your clients respect. A 77% increase in screen real estate gives you the space you need to visualize your entire DP project. An eye-popping 2560x1600 pixel resolution lets you view 64 faders at one time in the Mixing Board!



The effects.

Cycling 74 **Pluggo™ 4.5** is an extraordinary, must-have collection of more than one hundred audio plug-ins that offer real-time interactive audio processing, modulation, and synthesis right inside DP. Delays, filters, pitch effects, distortion, granulation, spectral effects, modulators, multi-channel processing, synthesizers, audio routing, reverb, dynamics, visual display — the list is huge, and you'll have a blast exploring Pluggo's vast array of sounds and effects.



The help.

Of course, the tech support wizards at Sweetwater can help you with any operational issues you might encounter with your MOTU power-on-demand studio, but if you want complete peace of mind, the AppleCare **Protection Plan** is the perfect insurance policy. No matter what perils await your portable rig on the road or your studio setup at home, with AppleCare, you're investment in your Apple gear is totally protected.



The piano.

Three incredible grand pianos, Bösendorfer®, Steinway®, and Yamaha®, in one Virtual Instrument for Digital Performer. **Synthogy 4000™** has been knocking the critics flat with its stunning realism and unsurpassed playing experience! It features more than 32 GB of premium piano samples and a custom engine built exclusively for the exacting demands of recreating the piano. Produced by piano sound design pioneer Joe Ierardi and DSP wiz George Taylor, you have to play it to believe it. Trust us, you will!



Waves on-demand processing.

The Waves **APA-44M** delivers on-demand Waves processing to your MOTU native desktop studio via standard Ethernet. Open your existing Waves plug-ins as usual in Digital Performer via the new Waves Netshell™. But now you can run up to 6 Waves IR-1 Convolution reverbs at 44.1kHz at once, and save your CPU power. Need more Waves processing? Just add another APA-44M with the snap of an RJ45 Ethernet cable. It's that simple. For extreme processing needs, connect up to 8 units to your network. The APA-44M is equally at home connected to a laptop, desktop or both. Just transfer your Waves authorized iLok. You can even share a stack of APA-44M's among several computers across the Waves Netshell network. The APA-44M ushers in a new era of state-of-the-art, distributed-network Waves processing for your MOTU power-on-demand studio.



The mix.

The new Grace Design **m902 Reference Headphone Amplifier** is the final word in high fidelity headphone amplification and is the new must-have tool for audio playback in your MOTU power-on-demand studio. Combining a full compliment of analog and 24-bit/192kHz digital inputs with dual headphone and unbalanced line outputs, the m902 is an ideal solution for critical editing, mastering and monitor control for a MOTU studio of any scope.



Mastering & restoration.

Your DP mastering and processing lab awaits you: **BIAS Peak Pro 5** delivers award winning editing and sound design tools, plus the world's very best native mastering solution for Mac OS X. With advanced playlisting. Superb final-stage processing. Disc burning. Plus PQ subcodes, DDP export (optional add on), and other 100% Redbook-compliant features. Need even more power? Check out our Peak Pro XT 5 bundle with over \$1,000 worth of additional tools, including our acclaimed SoundSoap Pro, SoundSoap 2 (noise reduction and restoration), Sqweez-3 & 5 (linear phase multiband-compression/limiter/upward expander), Reveal (precision analysis suite), PitchCraft (super natural pitch correction/transformation), Repli-Q (linear phase EQ matching), SuperFreq (4,6,8, & 10 band parametric EQ) and GateEx (advanced noise gate with downward expander) — all at an amazing price. So, when you're ready to master, Peak Pro 5 has everything you need. It's the perfect complement to DP. Or, perhaps we should say, it's the perfect finishing touch.



The feel.

Looking for the ultimate compact keyboard controller for your MOTU studio? The Alesis **Phonon™ X25** delivers the revolutionary Alesis XYZ controller dome and ten 360-degree rotary knobs, giving you powerful hands-on MIDI control of your Digital Performer studio and software plug-ins. Advanced features include 24-Bit 44.1/48 kHz USB audio I/O with balanced stereo audio inputs and outputs, 25 key, velocity sensitive keyboard, full-size pitch and modulation wheels, and an LCD screen with dedicated encoder for fast and easy set-up.



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World Radio History



The MOTU Power-on-Demand Studio

Audio Ease **Altiverb V5™**

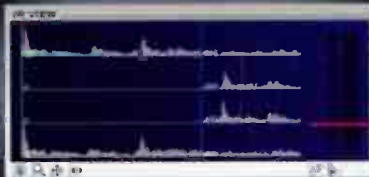
Your first choice in convolution reverb

Altiverb broke new ground as the first ever convolution reverb plug-in, delivering stunningly realistic acoustic spaces to your MOTU desktop studio. Altiverb V5 continues to lead the way with cutting edge features. Altiverb V5's ever growing Impulse Response library provides the most diverse and highest quality acoustic samples on the market. Recent additions are shown below from the Altiverb Fall 2004 East Coast Tour. Version 5 delivers more seconds of reverb, more instances, and less CPU overhead than any other convolution reverb. And its new adjustable parameters are a snap to use! Altiverb takes full advantage of the Altivec™ processor in your PowerBook G4 or desktop Power Mac G4 or G5. THE must-have reverb for every MOTU studio.

- Highest quality samples on the market.
- Legendary concert halls and studios.
- Versatile sample and hires-EQ section
- Click-and-drag 3D sound placement
- 'Size' parameter shifts resonances and room modes.
- Gains and delays for direct early-reflection and tail.
- Waterfall diagram shows time/frequency behavior in 3D.
- Surround up to 192 kHz.
- Snapshot automation for mixing and post-production



See a 15 minute demo movie at www.audioease.com



Shift resonances and room modes while adjusting reverb times.

The new multi-channel waveform overview reveals crucial detail about gain levels and timing during the first tenth of a second of a reverb tail. The rotatable and zoomable 3D time/frequency plot reveals even more about damping, EQ and resonances.

A rotating Virtual Reality movie helps you feel the presence of each space.

Snapshots let you automate complete preset changes.



Altiverb is the most efficient convolution reverb. Reduce CPU load even further with extensive settings.



Place the violins stage left, cellos stage right, and percussion in the back, all in stereo.



Use up to four bands of EQ, tailored for reverb tail adjustment, to fine-tune the sound.



Allaire studios — Shohan, NY

Haydn Hall — Eisenstadt

Mechanics Hall — Worcester, MA

Forest Austerlitz — Netherlands



www.allairstudios.com

Schubert Hall — Vienna

www.mechanicshall.org — Photo by Steve Rosenthal

Sound on Sound Studios — NYC
www.soundonsoundstudios.com

The control room.

The PreSonus **Central Station**™ is the missing link between your MOTU recording interface, studio monitors, input sources and the artist. Featuring 5 sets of stereo inputs (3 analog and 2 digital with 192kHz D/A conversion), the Central Station allows you to switch between 3 different sets of studio monitor outputs while maintaining a purely passive signal path. The main audio path uses no amplifier stages including op amps, active IC's or chips. This eliminates coloration, noise and distortion, enabling you to hear your mixes more clearly and minimize ear fatigue. In addition, the Central Station features a

complete studio communication solution with built-in condenser talkback microphone, MUTE, DIM, two separate headphone outputs plus a cue output to enhance the creative process. A fast-acting 30 segment LED is also supplied for flawless visual metering of levels both in dBu and dBfs mode. Communicate with the artist via talkback. Send a headphone mix to the artist while listening to the main mix in the control room and more. The Central Station brings all of your inputs and outputs together to work in harmony to enhance the creative process and ease mixing and music production.



The faders.

Imagine the feeling of touch-sensitive, automated Penny & Giles faders under your hands, and the fine-tuned twist of a V-Pot™ between your fingers. You adjust plug-in settings, automate filter sweeps in real-time, and trim individual track levels. Your hands fly over responsive controls, perfecting your mix — free from the solitary confinement of your mouse. Mackie Control delivers all this in an expandable, compact, desktop-style design forged by the combined talents of Mackie manufacturing and the MOTU Digital Performer engineering team. Mackie **Control Universal** brings large-console, Studio A prowess to your Digital Performer desktop studio, with a wide range of customized control features that go well beyond mixing. It's like putting your hands on DP itself.

The desk.

When you're on the road and looking to record a full band, the Mackie **Onyx**™ series of mixers from Mackie is the perfect complement to your MOTU Traveler. Whisper quiet and built like a tank, Onyx mixers feature an all-new mic preamp design capable of handling virtually any microphone. With the optional Firewire card, you can connect an Onyx mixer to your laptop with a single Firewire cable and have all the extra mic preamps and line inputs you need to capture every drum mic, vocal mic, individual synth output and DI the band throws at you. Since Digital Performer works seamlessly with multiple Core Audio devices, configuring a Traveler/Onyx system is a snap.



The monitors.

The Mackie **HR Series Active Studio Monitors** are considered some of the most loved and trusted nearfield studio monitors of all time, and with good reason. These award-winning bi-amplified monitors offer a performance that rivals monitors costing two or three times their price. Namely, a stereo field that's wide, deep and incredibly detailed. Low frequencies that are no more or less than what you've recorded. High and mid-range frequencies that are clean and articulated. Plus the sweetest of sweet spots. Whether it's the 6-inch HR-624, 8-inch HR-824 or dual 6-inch 626, there's an HR Series monitor that will tell you the truth, the whole truth, and nothing but the truth.



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www.sweetwater.com





Room with a VU

by Vincent Rose

STUDIO NAME: The Creation Lab

CONTACT: www.thecreationlab.com

LOCATION: Turlock, CA

KEY CREW: Michael Everett, producer, chief engineer; Matt Swanson, producer

CONSOLE: Yamaha DM2000 96-channel digital recording console

RECORDING FORMATS: RADAR II, Studer A800 2" analog tape machine, Pro Tools HD 3 accel

MONITORS: Genelec 8050A, Mackie HR824, JBL 4206

MICROPHONES: Neumann U-87 and KM-84s, RCA 77 DX, AKG 414s, Sennheiser MD 421s, Audio-Technica AT 4033s and 3055s, AKG D112

PRE-AMPS & DI'S: Neve 34128s, LaChapell Audio tube amp, Countryman DIs

COMPRESSORS/LIMITERS: Neve 33609s, Urei 1176N, Urei LA-4s, Dbx 165A Overeasy

EFFECT PROCESSORS: Aphex 602B Aural Exciter, Aphex Compellor's, Audio Design F769x Vocal Stresser, Urei 565, Lexicon 224x, Lexicon PCM 70

COMPUTERS: 2-Macintosh G5/3G/250 23" Apple cinema display

STORAGE: Glyph GT 103, DVD-R, FireWire support, external drives (80-100)

KEYBOARDS: Yamaha Motif ES8, Hammond B3 organ

STUDIO NOTES: If you don't know California there's no way to really describe Turlock except to try to use a local corollary that hits sort of close to the bone of surprise that we feel when we hear that there's actually a studio here. Try Bayonne, New

Jersey. Try Maumee, Ohio. Or maybe Delta, Utah, is more your style? You see it's as likely that there *would* be a studio here as anywhere and really, wise-guyisms aside, why *wouldn't* there be a studio here?

But, you know, there's *still* that Snoopy doghouse shock when you see what KIND of studio there is here. Acoustically designed by Chris McCollum, he of Masterfonics, Quad Studios, the Grand Ole Opry, the Holler, and Kevin Anderson, whose bona fides extend to the Eagles and Ronnie Milsap, the Creation Lab is a little slice of country IN the country, or at least as much of the country as the Central Valley has to offer, replete with all that authentic cow-country appeal, duallies on dusty roads, rodeos, and people who actually know the difference between the real country and the faux one.

And according to Mike Everett, that's about all that's different. "We've got all of what anybody would want anywhere else added on top of being able to pull in all of what might be needed to get something done from start to finish from original songs, producers, and studio musicians to publishing needs, consultation, cd and dvd duplication, whatever. And it's a lot closer for those west of the Continental Divide than Nashville."

Indeed.

So yeah, there are the gold records, the celeb stories (ooo, love that Henry Kaiser was there) and so on, but in the end, probably the coolest part about the Creation Lab outside of the fact that they're in Turlock, are the thumps and slide guitars tumbling out of their monitors.

Check it out. . . .

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Towers of Power.



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Prepare to be surprised at the power and performance of the new M-Audio BX8a and BX5a—the successors to our popular BX8 and BX5. Our engineers pushed the laws of physics with new material combinations and integral cabinet/electronic design concepts, followed by countless hours of critical listening and tweaking. One result is that the low-frequency drivers operate more efficiently and behave as if they were actually in a larger cabinet—and that means tighter bass. Overall, the BX8a and BX5a deliver better accuracy and detail than monitors costing hundreds of dollars more. Audition them at your M-Audio dealer today.

- **Kevlar low-frequency drivers** > durability
- **silk high-frequency drivers** > longevity
- **custom port design** > low turbulence
- **integral design** > better performance
- **custom damping** > enhanced bass



"My M-Audio monitors are accurate and easy on the ears at a variety of volumes and listening positions, even after 12-hour sessions. They let me give the mixing engineer tracks that didn't require much tweaking for integration into the rest of the project—so I know my music remains faithful to my vision."

—Mark Isham, composer, "Crash"

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