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NOT TYPICAL: UNUSUAL MICROPHONE TECHNIQUES FOR LIVE APPLICATIONS

Chapter 5 of 6: Microphone Techniques Expert Series

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NOT TYPICAL: UNUSUAL MICROPHONE TECHNIQUES FOR LIVE APPLICATIONS

By Bruce Bartlett

Getting a little bored with the same old "tried-and-true" microphones and techniques? Let's have some fun with fresh approaches that are off the beaten path.

Vocals

To create a differential (noise-cancelling) mic, tape two identical omni mics together, one over the other, separated by a block of wood (**Figure 1**). Mix both mics at equal levels but with one mic switched in opposite polarity. Have the performer sing close to the top of the mic, and roll off the excess lows caused by the proximity effect.

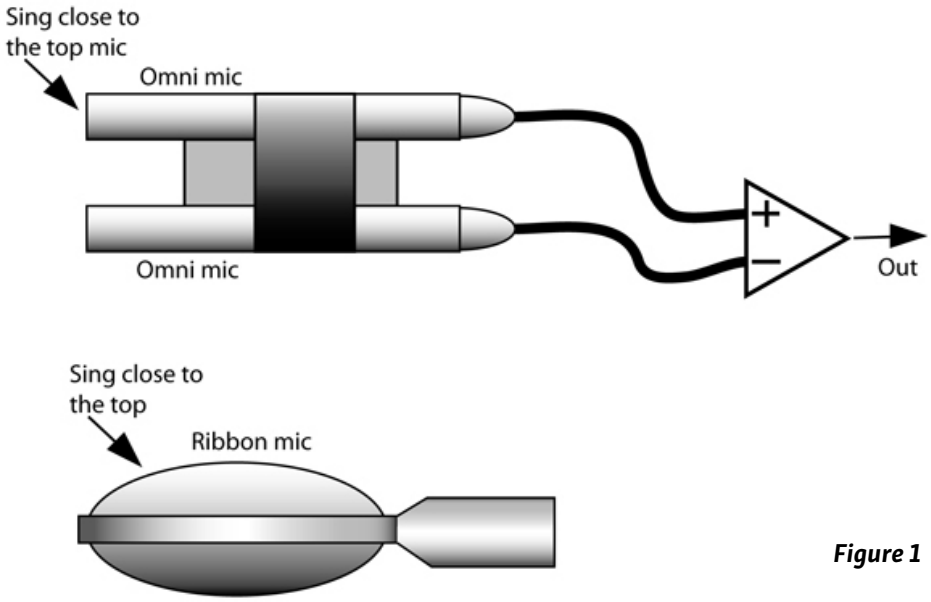

Figure 1

Figure 1: Two ways to make a differential (noise-cancelling) microphone.

Many years ago, the Grateful Dead used this method to cancel sound from a huge stack of amps on stage. It's actually the same as a figure 8 ribbon mic aiming up and down. It works best with in-ear monitors, and be sure to use a foam windscreen.

Need a zombie effect? Try a mic against the singer's throat. Want a comb-filter sound? Mike the singer with two mics at different distances, mixed together. Hollow sound? Sing into a mini mic placed inside the sound hole of a guitar. Also, have a singer use a megaphone, either acoustic or electronic.

Drums

Try the one-mic technique invented by engineer/producer Tchad Blake – take a large-diaphragm cardioid condenser and mount it over the kick drum top, aiming at the snare drum. It picks up a decent balance of the snare, toms, kick and cymbals all around it, and the balance can be tweaked by moving or rotating the mic, and raising/lowering the cymbals. There may be some off-axis coloration of the cymbals depending on the mic model and position, but in my experience it's not too serious.

Another single-mic method employs a mini omni condenser. Clip it between 1 and 4 inches over the snare drum rim, in the middle of the kit over the drummer's knee. It will pick up the snare, toms, and cymbals all around it (**Figure 2**). Put another mic in the kick. And for a punk band, try a single dynamic handheld mic overhead at the height of the drummer's forehead.

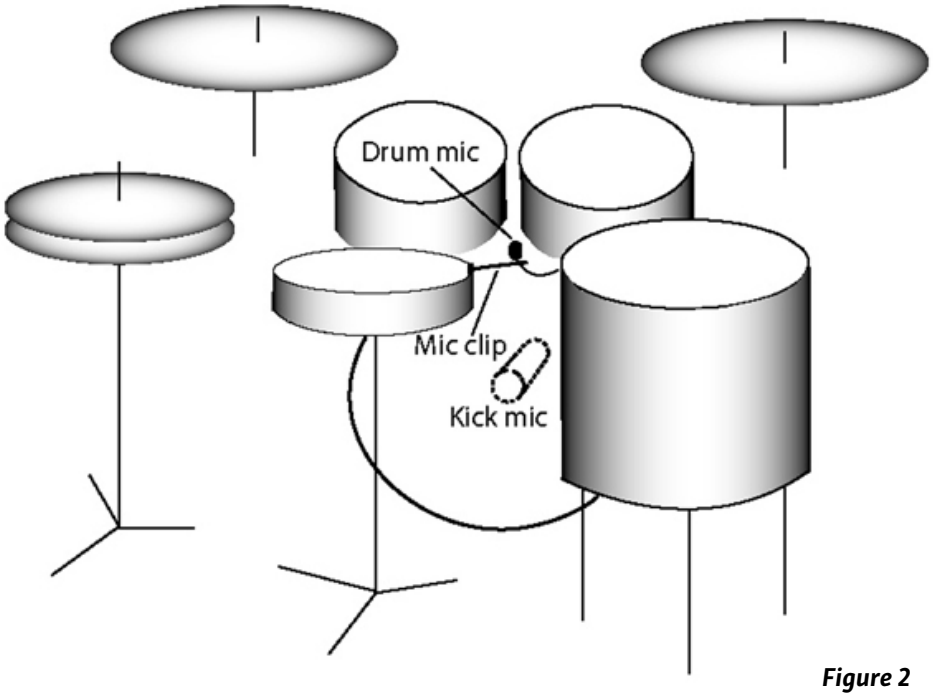

Figure 2

Figure 2: Miking a drum kit with a mini omni mic.

Additional drum ideas:

- Tape a couple of boundary mics (such as Crown PZMs) to the inside of a clear acrylic drum gobo. Add a boundary inside the kick taped to the shell. Another trick: tape a boundary to the drummer's chest. This works especially well in picking up a large group of percussion instruments as the player moves around. For some added fun, tape a mini mic to each maraca, bongo drum, cowbell, etc.
- Mike a child's toy drum set instead of a regular pro set.
- Hit the cymbals lightly with some rugged dynamic mics while amplifying their signals. That is, use the mics as drumsticks. The cymbal sound will bloom and shrink as it's played.

Acoustic Guitar & Mandolin

Try a small-diaphragm condenser near the player's right ear, aiming down at the bridge (**Figure 3**). You'll hear a natural sound in this location, but watch out for feedback. Tape a mini omni condenser mic just inside the sound hole, and roll off 100 Hz about 10 dB to compensate for the boomy tone in there. This method provides

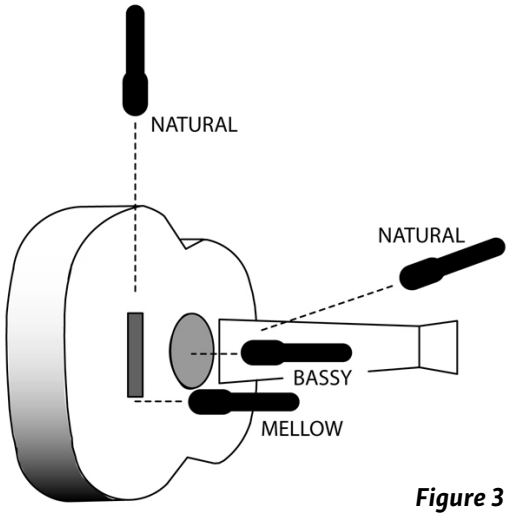

Figure 3

Figure 3: The tones of several guitar mic placements.

excellent isolation. It also works well on a ukulele or an oval-hole mandolin.

How about an f-hole mandolin? Take a mini omni condenser, wrap its cable in felt or foam about an inch behind the capsule, and stuff it under the strings between the tailpiece and bridge (**Figure 4**). Roll off the lows and highs a few dB.

Figure 4

Figure 4: A mandolin miking method (courtesy of Weogo Reed)

To capture a singing guitarist without phase interference, use two ribbon mics with their tops touching in a coincident-pair array. Aim one at the mouth and the other at the guitar. The null of the vocal mic aims at the guitar, while the null of the guitar mic aims at the mouth.

Some singers/guitarists hunker down so that their head is just above the guitar. Capture them both with a single small-diaphragm condenser below the guitar, aiming up.

Flute

Get a headworn mic that has a gooseneck-mounted mic capsule. Have the player wear the mic and place the capsule between the mouthpiece and tone holes.

Electric Guitar

Mike the guitarist's strumming hand to capture the pick sounds, and mix it with a mic on the amp. Another one: Using a Y-cord, feed an electric guitar through an amp and through a Leslie speaker. Mike both and pan left and right. Phase heaven! Try it on a vocal, too.

For lots of lows and highs from a guitar amp, aim a dynamic mic straight at the center of a speaker cone, next to the grille. To reduce lows and highs, hang the mic from over the top of the amp so it picks up the speaker at 90 degrees off axis. There's no proximity effect at that angle.

Bassoon, Clarinet & Oboe

Here's a way to give the musician some mobility. Clip a lavalier mic to the player's shirt, even with the center of the instrument. It will pick up the instrument from behind. You might mix in another mic taped near the bell.

Bagpipes

Mike the handheld chanter about 8 inches from the side, and mike the pipes overhead. But why would you want to amplify a bagpipe anyway? (Some folks would say the same thing about banjo).

Cello & Acoustic Bass

Get a miniature omni and stiffen its cable using a 3-inch long coat-hanger wire taped just behind the capsule. Wrap a windscreen around the wire, and stuff it between two strings under the bridge. Place the mic near the body of the instrument (**Figure 5**).

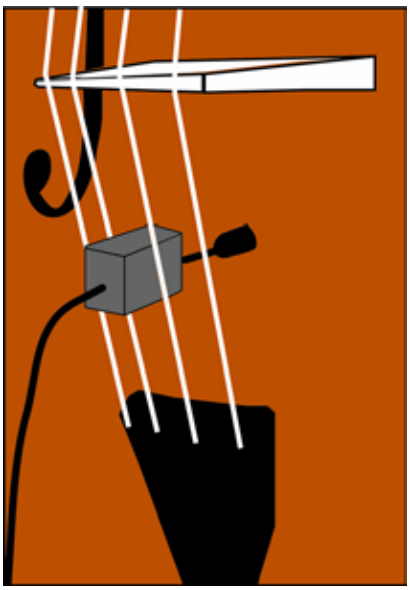

Figure 5

Figure 5: A miking method for cello or acoustic bass.

Grand Piano

Miking a tone hole gives a restricted, mid-rangy sound that can add a lot of color, while miking the sound board from underneath gives a dark, full tone. Also consider placing a mic at the piano tail looking inside the slightly raised lid. Or, try a couple of boundary mics gaff-taped to the underside of the raised lid over the bass and treble strings.

Synthesizer

To add some grit, run the synth through an amp and mike the amp.

Blues Harmonica

Rather than using a "bullet" mic, place an dynamic mic next to a guitar-amp speaker. Mike the harmonica close up, and run that input through the amp using an XLR-to-phone impedance converter. The amp's distortion and high-frequency roll-off might deliver just the sound you want. (And try it with a vocal as well.)

World Acoustic Instruments

For instruments like pipa, bouzouki, oud, and sitar, try a small-diaphragm condenser about 3 to 8 inches away. If there's a sound hole, place the mic fairly close to where the fingerboard meets the body, and if there's not one, place it in front of the body. The sound hole resonates at a low frequencies with the air inside the instrument, producing a bassy, thumpy tone.

Concertina, Accordion & Bandoneon

Grab a couple of mini omni mics, put a wide rubber band on the base of the fingers of each your hands (or wrists), and insert the capsules and 1 inch of cable through the rubber band, which holds each mic close to the tone holes. Or gaff-tape the mics to the instrument first, so when the player comes on stage, he/she can remove the mics and mount them on the hands.

Anything

Capture an instrument or vocal with a cheap piezo mic, bullet mic, or headphones. Tape a paper towel or TP tube to the end of a mic – it creates a resonator unlike any EQ you've heard. Just watch out for feedback. Or place a mic inside a tin can to get a unique coloration. Unusual miking methods can create some intriguing, original sounds to dazzle the audience.

AES and SynAudCon member Bruce Bartlett is a recording engineer, audio journalist, and microphone engineer (bartlettaudio.com). His latest books are "Practical Recording Techniques 7th Edition" and "Recording Music On Location, 2nd Edition."