ProSoundWeb EXPERT SERIES

CAPTURED FOR POSTERITY: MICROPHONE CHOICE & APPLICATION FOR LIVE RECORDING

Chapter 6 of 6: Microphone Techniques Expert Series

Sponsored by

AUDIX

CAPTURED FOR POSTERITY: MICROPHONE CHOICE & APPLICATION FOR LIVE RECORDING

By Craig Leerman

When done well, a live recording captures the energy and personality of the performance, along with the ambiance and (if desired) audience response. There are many different ways to record a live show, but regardless of the approach, a good recording starts with the right microphones, correctly placed.

By "right" I'm referring to mics that fit the particular application, taking factors such as pickup pattern and SPL handling into account. Mics tend to be categorized as "live" and "studio." Yet while it's true that certain models are too delicate for live use, and other certain models lack the sonic char-

acteristics sought in the studio, today there's a plethora of models tough enough to handle the rigors of the live realm while delivering the desired audio quality.

There's also a wide range of types. Large and small diaphragm. Dynamic, condenser and ribbon designs. Cardioid, supercardioid, hypercardioid, and figure 8 patterns. Vocal mics, except when they're used on instruments. Instrument mics, except when they're used on vocals. Drum mics, except when they're used on other instruments... If you're not up to speed on mic types and technology, I recommend a visit to Microphone World on ProSoundWeb, which provides dozens of articles on these topics.

Stage Strategy

Before even thinking about mics and their placement for live recording, take a look onstage and see what can be done to maximize separation and isolation of instruments and amplifiers – from each other as well as the house and monitor systems. A good multi-track recording consists of clean isolated tracks, and we can use a few studio tricks to help. Separate the backline amplifiers away from acoustic instruments and each other. Try pointing the amps in a different direction (like offstage) to minimize bleed. Better still, spend time and convince the musicians to actually *turn it down* ("just this once" for the recording).

We can isolate between loud sources with damping materials, and they don't need to be fancy or expensive. For example, one trick I use is to set the boom of a mic stand to a "T" shape and then drape a packing blanket from my truck over the T. Voila! It's a portable, adjustable-height gobo that can be placed between loud amps and other mics. Plexiglass is another common way to isolate instruments onstage; a plexi shield around the drums and/or percussion can help keep the drum sound out of stage mics, while keeping the loud amps out of the drums mics.

Position stage monitors that are close to mics so that they play into a null spot in the pickup pattern of the mic(s). Better still, try to eliminate stage wedges and get the performers to use in-ear monitors. Try to close-mike instruments as much as possible in order to only pick up the intended sound. In the live world, we tend to like cranking the gain up until it's close to the red, but studio engineers often use only as much gain on a mic as needed to ensure a good dynamic range. The lower the gain, the less chance of picking up unwanted sound (and noise – remember, this is live).

Factor in monitor location when placing mics.

Overheads on drums tend to pick up a lot of sound we don't want, so bring them in as tight to the kit/cymbals as possible. On a loud stage I tend eliminate the overheads altogether and just close-mike the cymbals from underneath. This technique can also work well for straight-up live sound.

Keep stage rumble to a minimum. In addition to rolling off very low frequencies with EQ or high-pass filtering, I also make sure mic stands are in good shape and have rubber feet for isolation from the stage. If stage vibrations entering the mics are a problem, use shock mounts. When recording outdoors, keep windscreens handy.

A lot has been written about "correct" mic placement for recording but I follow a simple philosophy. In sound check, I put on a pair of headphones with a long extension cable, and then with the musicians playing, I move each mic about in different positions. The place where each mic sounds the best to my old ears, and where it most rejects the other instruments and amps, is where it ends up.

After positioning the mics, a quick listen to a test recording confirms if the placements work and it provides the opportunity to ID any trouble spots and make adjustments before the show starts. With that in mind, here are some of my approaches with microphones for live recording.

Vocals. Depending on the vocalist, I may use either a dynamic or a condenser but the focus is the narrowest pattern I can get away with, depending on the singer's mic technique. If there are wedges, I try to position them at a 30- 40-degree angle, which is usually the null zone of the mic's pickup pattern. For singers who hold the mic away from their face or down by their belt, I outfit them with a wireless headworn mic positioned near their mouth, or worst case, clip on a lav. The goal is to capture the full vocal between the two mics, which can then be optimized later in the recording mix.

Background/Multiple Vocalists. Many of us tend to use the same mic on every background vocalist so we have an easier job doing monitors. But when recording, I try choose a mic that suits each vocalist's voice, even if they all end up with different types.

Kick Drum. I have two approaches, depending on the style of music. To capture the attack sound of a drum that has a hole in the front head, I place a large-diaphragm dynamic inside the drum, within 4 to 12 inches of the front head, pointed about halfway between the center of the drum and the rim. This is joined by a boundary flat plate type mic sitting on foam or a pillow inside the drum, which captures more of the shell sound. If there isn't a hole (common with jazz, for example), I put the large-diaphragm dynamic on the beater side to get the attack sound and use a standard sized dynamic on the rear head to get some of the ring sound.

Hi-Hat. A small-diaphragm condenser is my "go to" mic, but a dynamic can also work well if it needs to be positioned where there's a chance it will be hit with a drumstick.

Snare. A single dynamic placed an inch or two away from the head, pointed near the rim, is my live approach. For recording I sometimes place a cardioid condenser a few inches from the bottom head to capture more of the "snap," tailoring the position based on what I hear.

Toms. Cardioid dynamics are a good choice, but small clip-on condensers designed for drums can work great.

Overheads. Cardioid or supercardioid condensers are my first choice, positioned as low as possible and pointed mostly at the cymbals.

Getting close to capture toms.

Ride Cymbal. This is a must-have mic for me with both live and recording. A small cardioid or supercardioid condenser located about 6 inches under the cymbal halfway, between the bell and the edge, is a good starting point.

Percussion. For conga, djembe and other small drums, dynamic cardioid or supercardioid near the rim works well, pointed toward the middle of the head and making sure the mic isn't in the way of the musician. For bongos, it's a cardioid dynamic placed in between the heads, about 8 inches away. Clip-on condensers designed for percussion are also a good fit here.

Grand Piano. This can be one of the easiest or hardest instruments to mike, depending on who you ask. I go for simplicity and normally deploy two small cardioid condensers. They're placed over the strings near where the hammers hit, one located at about the middle of the bass single strings and one positioned about one-third inward from the high strings. Both are pointed away from the keys to reject page-turning noises. If the piano is full size, I also opt for a larger diaphragm mic over the low strings. A single boundary plate mic taped to an open lid can also work well in picking up the entire keyboard.

Acoustic Guitar. Depending on the guitarist, the choice is one or two mics. I always point a cardioid condenser between the neck and soundhole, a few inches away from the guitar, and if extra tone is needed, a second large diaphragm condenser is pointed below the hole.

Electric Guitar/Bass Amps. For guitar amps, cardioid dynamic placed off-axis of the speaker (or one of the speakers) is a quick way to get a good sound, but a newer ribbon mic marketed for guitar amps is a great choice if available. For bass amp, a large-diaphragm dynamic placed about 6 inches away and off center from a speaker, combined with a DI feed, works well.

Acoustic Bass. On a quiet stage, a large-diaphragm dynamic on a short stand, pointed at one of the bass "f" holes, produces a good result. On a

An Audix i5 placed on a guitar amp via a CabGrabber mount.

louder stage, a cardioid dynamic "vocal" mic with the body wrapped in foam, stuffed under the tailpiece and pointed at the bridge, picks up pretty well and does not get in the player's way.

Banjo. A small-diaphragm condenser is the first thing I grab for a banjo, aimed at the sound bridge and placed 6 to 12 inches from the head.

Organ w/Leslie. A large-diaphragm dynamic about 6 inches from the bottom rotor joined by two small-diaphragm condensers for the top horn – one at each side of the cabinet about 6 inches from the spinning horn – captures the unique sound of this instrument. Make sure the mics can handle a decent amount of SPL.

Horns. Brass instruments get loud, so I choose large-diaphragm dynamics that can withstand the SPL. For most players I simply place the mic in front of the bell at least 6 inches (and often a foot) away. For tuba, I've actually used a clamp to hang the mic inside the bell.

Harmonica. Many players carry their own mic, but if not, a cardioid dynamic vocal-style ball mic is usually a solid first choice. If the signal is sent to an amp, the approach is the same as with a guitar amp.

Noted harmonics artist Alex Rossi with a ball-style mic for his instrument.

Audience. Usually we want a live recording to be just that: live. To capture the audience, I place a few shotgun-type mics at the stage wings on stands, pointed at the crowd and positioned higher than the first few rows (or that's all they'll pick up). I've also suspended cardioids over an audience with good results.

Live recording doesn't require dozens of different microphone models. Just take stock of what you have available, select the best ones for each application, be patient and diligent with positioning, and you'll be good to go.

Craig Leerman senior contributing editor of Live Sound International and is the owner of Tech Works, a production company based in Reno.

About Audix Corporation

Audix is a U.S. manufacturer of high-quality dynamic and condenser microphones, as well as wireless microphone systems for the live sound, recording, and installation markets. From concept to completion, Audix's on-site research and development team combined with an in-house manufacturing facility, enable them to proudly provide products from their headquarters in Wilsonville, Oregon.

www.audixusa.com