

ProSoundWeb EXPERT SERIES



DRUM MIKING: CREATIVE SOLUTIONS TO CAPTURE THE KIT

Chapter 3 of 6: Drum Microphone Expert Series

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NECESSITY, INVENTION: “ON THE FLY” MICROPHONE TECHNIQUES TO CAPTURE THE DRUM KIT

By Craig Leerman

Countless articles and online forum posts over many years have been written on microphone techniques for drum kits, but most run along the lines of “insert favorite mic here” on every drum and add a stereo pair of pencil condenser mics as overheads and perhaps an additional mic on ride cymbal.

This approach does indeed provide the mix engineer with a lot of control over individual drum/cymbal volume and tonal balance, but at a cost: channel usage. A typical five-piece drum kit with two overheads will require a minimum of seven input channels – eight or even nine channels if an additional bottom snare mic is employed for a little more “snap” and/or a ride cymbal mic also joins the party.



If the drummer has more toms, even more channels are required. I recently worked a show that used 13 inputs on the kit, while the rest of the band, including the vocalist, only required seven channels. Normally the higher channel count isn't a problem, with consoles/mixers offering 16, 24, 32 or more inputs, but sometimes we get thrown a curve ball and there aren't enough inputs.

Hitting That Curve Ball

A third stage at a festival my company worked years ago was supposed to only have small (mostly solo and duo) acts performing. Many of the performers were singing to tracks, while a few also played guitar. The riders showed the largest act on the bill would require six inputs (a trio with three vocals, two guitars and cajón). With our inventory stretched to serve the other stages, we opted for a small mixer with eight inputs with mic preamps as well as two stereo inputs for playbacks.

All was fine until I received a call on the comm to come over to that stage to help. It turns out that the "cajón" player showed up with a drum kit while one of the "guitar" players was actually a electric bass player, so what was supposed to be an acoustic trio turned into a rock trio.

Knowing we needed three inputs for vocals and two for guitar and bass



meant only three inputs were left for the drum kit. I placed a large-diaphragm mic on the kick, so there were two channels remaining. After listening to the drummer play for a few moments when he was setting up, I came up with a game plan: place a dynamic mic behind the hi-hat, pointing at the snare, and then position a condenser mic about four feet above the ride cymbal.

During sound check, our tech for the stage listened at the board on headphones as I adjusted the position of the hi-hat and overhead mics to capture a balance of the kit. He gave me a thumbs-up when he thought the kit sounded right. I stepped out into the coverage area to give it a listen over the PA, and was surprised at how full the kit sounded with only three mics.

Going To The Well

Since then I've employed "creative" mic techniques several other times. For example, there was a gig providing audio services for a concert association presenting educational concerts in a school auditorium for students during the day and a general admission show in the evening.

One of these featured a jazz trio and the group's rider asked for just two mics, one on the kick drum and the other positioned behind the drummer just above his head and pointing at the drum set, basically picking up what the drummer was hearing. I offered to mic the entire kit but they just wanted the two mics on the kit, so I set up a large-diaphragm model on the kick and positioned a small-diaphragm condenser behind the drummer, about a foot above his head and pointed at the rack tom.

Then I inverted the polarity on the condenser, listened to the result, and was amazed at how natural the kit sounded. With very dynamic drummers in soft



stage volume situations, this dual mic technique has consistently proven to work quite well. In fact, I've since used it for a few jazz acts in small theaters.

Another two-mic technique for jazz and acoustic acts picked up from a "senior sound citizen" several years ago has a large diaphragm mic placed high above the kit (like an overhead) and pointed down at the snare. Make sure it's at least four feet above the snare so it picks up the toms and cymbals as well. Another large diaphragm mic is placed in front of the kit at the same distance away from the middle of the snare as the overhead is above it.

Note that this approach only works with acts that have quiet stage volume because the mics are located rather far from the drums, and they can also pick up other louder instruments. A variation on the technique uses a shotgun or hypercardioid mic in the front position, with the tighter pattern reducing the potential of stage bleed.

Here's another one deployed for a show with a seven-piece band with horn players and only an eight-channel mixer. (The main console died for some reason and we only had the small mixer as a backup for the opening acts while a truck was dispatched to get another console.)

I arranged the three horns around a single mic, and utilized three direct boxes (DIs) on the two keyboards and bass guitar. The drum kit was captured with a pair of condensers overhead and a mic on the kick. A wireless system with handheld transmitter was plugged into a line input, provided to the band leader/sax player so he could talk to the audience between songs. This gig



(and a corporate show where the main console also failed) are the reasons I always now carry a 16-input “utility” mixer as a backup on every gig.

Change In Plans

Recently I was freelancing for an A/V company that provided a 16-input digital console to handle meetings in a hotel ballroom for the week. On Friday, the meeting ended at noon and the room was flipped for dinner and a show featuring a performer singing to tracks. In addition to the usual pile of loudspeakers and podium mics for a corporate presentation, the A/V company had also provided some subwoofers, stage monitors and a wireless system (with backup) for the singer.

During the transition of the room, I was on stage unplugging the podium mics when a guy with some keyboards showed up. He informed me that the singer would be accompanied by a live band, and in fact, they were unloading as we spoke.

I realized that there might not be enough mics (and stands) to handle the expanded setup, and quickly took stock of what was available on site. The keyboard player could go mono, and we had some DI boxes, so that was covered. The bass player’s amp had an XLR output so we could go direct to the PA. A dynamic handheld serving as a board mic was repurposed for the guitar player — I draped the cable around his amp handle and hung the mic in front of the loudspeaker.

Now it was time to figure out the five-piece drum kit. Two dynamics that

had been used for audience Q+A (question and answer) during the meeting could be repurposed, and I always carry an extra dynamic in my gig bag, so there were three handheld mics for drums, along with a few 18-inch gooseneck podium mics (the type with XLR connectors on the end). We also scrounged up three round-base/straight stands as well as a desk stand.

The dynamic mic from my gig bag was applied for the kick because it would handle the higher SPL and offered response down to 50 Hz. It was positioned inside the drum with the desk stand, which rested on a folded tablecloth borrowed from the hotel to provide some isolation.

With only the straight stands to work with, traditional overhead placement was out of the question. Instead, my solution was to place two podium mics on the stands to act as overheads, with the tall goosenecks providing much-needed extra reach and flexibility in aiming. These flanked the kit, one pointed down at the floor tom and the other pointed down at the rack toms.

One of the audience mics went into the last stand, directed at the hi-hat, while the other was gaff-taped to the hi-hat stand and pointed to capture the snare. While none of these mic selections were “ideal,” it all still worked quite well. (Both my A1 and the lighting tech back me up on this.)

One other neat trick is to position a podium mic underneath a ride cymbal. It's out of the way of the drummer (and the sticks), with the gooseneck allowing easy positioning for tailoring, and is a great way to get some of the “ping” of the ride cymbal into the mix. Podium mics also come in handy on hi-hat.

The moral of the story is that while it's ideal to have a mic on every drum and overheads on the kit, sometimes we need to come up with creative solutions to make the gig happen, and at as high of a level as possible.

Craig Leerman has worked in a wide range of roles in professional audio for more than 30 years in a dynamic career that encompasses touring, theater, live televised broadcast events and even concerts at the White House. Currently he owns and operates Tech Works, a regional production company that focuses on corporate events based in Reno, and is a senior contributing editor to ProSoundWeb and Live Sound International.

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.

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