

Techniques For Recording Drum Set

Part One: Overheads

by Chris Munson



When I first began working as a session drummer and engineer in the early 1990s, I often speculated about the future of digital recording with my contemporaries. Since then the recording community has benefited from continued technological advancements and increased affordability. One result of this trend is the emergence of numerous project and home studios.

As is the case with many musicians, I have been in a variety of studio settings ranging from large tracking room and vintage mics to living rooms and homemade mics. Though the later example is on the extreme side, I regularly find myself at sessions where there are budget and equipment constraints. In these situations my experience as an engineer has often allowed me to make some simple suggestions to maximize perceived limitations.

Throughout this series I will explain some of the basics of recording drum set as well as some tips and tricks I've picked up over the years. I will share the most important concept with you right now: a good drum sound comes from drums that sound good. No amount of studio wizardry can polish a kit that has been poorly maintained.

Overheads

When recording, the overall sound of the kit begins with the overhead mics. Spot or close mics on the individual drums and cymbals enhance the sound of the kit and their usage often revolves around the style of music that is being recorded. As a general rule, engineers will use a stereo pair of condenser mics for their overheads.

You may be asking yourself what a condenser mic is and why it is the preferred choice. The term condenser (or capacitor) refers to how the microphone operates. Inside are two thin plates separated by a small space. The back plate is fixed while the front plate (or diaphragm) moves. As sound pressure moves the front plate back and forth, acoustic signal is converted to electric signal via a process called transduction. Condenser microphones have a very low output level and require an external source of power in order to be audible. This is referred to as phantom (or 48v) power and can come from either an internal battery or external preamp.

Condensers are an ideal choice because of their ability to accurately capture transients. A transient is recording lingo for a sound with a quick or sharp attack. Virtually every tool in the drum set arsenal falls into this category.

When selecting overhead mics (or any mic for that matter) it is useful to think of them as something akin to a paintbrush. The type of microphone(s) you choose and the placement technique you use will inevitably color your drum sound. When time and budget permit, I highly suggest experimenting with the microphones at your

Coincident Miking

Coincident miking is a technique more commonly referred to as X-Y. Ideally a matched pair of microphones is used. This is because selecting two microphones with different polar patterns and frequency responses will cause some serious sonic and phase issues when recording (we'll get in to this stuff later).

Typically these mics will have a cardioid polar pattern. The polar pattern is the area in which the microphone is sensitive to sound. As its name implies, the cardioid polar pattern is somewhat heart shaped. Therefore, a microphone using this pattern will be sensitive to sounds coming directly towards it while rejecting sounds coming from behind it. This polar pattern can vary from standard cardioid to ultracardioid. Tighter cardioid patterns provide a narrower field of response and a wider area of rejection.

The standard X-Y setup is fairly simple. Using a matched pair of small diaphragm condenser mics, place one capsule directly over the other at a 90 degree angle. A good starting point for placement is a few feet about the center of your drum set. This will likely be about where you are sitting. Additionally, the environment your drum set is in will affect the overall sound. That is, reflective surfaces like wood, tile, and glass will create a sound that is live versus surfaces like carpet, drapes, and foam that will be dry and dead.

Standard X-Y setup



There are three factors I will vary in demonstrating this setup:

- 1) Angle of the two capsules – The angle of incidence can be anywhere from 90 degrees to 135 degrees. I will use both of these angles
- 2) Height of the microphones – This will alter the ratio of direct to ambient sound. The closer to the mics are to the drum set, the more direct the sound. The further away they are, the more ambient or room sound will be present. I will place the mics at 3', 6', and 9' respectively.
- 3) Type of microphone – Going back to the paintbrush concept, I will use AKG 451s and Neumann KM 184s. I will place them in identical locations recording identical grooves.

Each listening example will contain a groove that has been recorded with the following mic placement changes: 90 degree X-Y then 135 degree X-Y at 3', the same angle changes at 6', and then again at 9'. Remember to be objective when listening to these examples. Different genres benefit from different types of recording techniques. Notice how the microphones both color the sound and balance the direct sound versus ambience.

In the next installment I will cover near coincident and spaced apart techniques. Experimentation is the key to success and remember to always trust your ears.

Chris Munson is currently the Director of Recording Arts at Eastern Kentucky University where he teaches courses in music technology and applied drum set. He has been a professional musician and audio engineer for over 15 years. Over that time he has recorded or performed with: Don Aliquo, David Amram, Darol Anger, Danny Barnes, David Carradine, Vassar Clements, Jeff Coffin, Joe Craven, Jerry Douglas, Tom Harrell, Jorma Kaukonen, Jon McEuen, Tim O'Brien, Greg Osby, Anders Osborne, Merl Saunders, Jamey Simons, and Trout Fishing in America. Albums he has appeared on have earned numerous awards including two Grammy nominations.