

2.6. Microphone Choice and Placement

In this matter there are no right or wrong choices, in most cases the experience will decide, and most important of all—your ear is the judge. If it sounds good, it is what matters. The tips bellow are only starting points for beginners, do not take this as rules to be followed.

Vocals

- The usual choice is a condenser microphone.
- Cardioid pattern to pick up only the direct sound in a dry room.
- If the ambience of the room is desired, an omnidirectional will pick up both direct and ambience. The alternative is to add a cardioid away from the singer to pick up the ambience.
- As a general rule the axis of the microphone should be pointed between the nose and the mouth.
- A popscreen or windscreen is usually used to avoid the explosive sounds of consonants such as "b," "d," "p," or "t." A little off-axis placement might help as well.

Acoustic Guitar

- The performer, the style, the type of strings, and the style will determine the type of microphone.
- Condenser microphones get a fuller and brighter sound
- Dynamic microphones reduce the bass and noises from strings because of the low transient response.
- The distance is usually three to six inches away.
- Positioning the microphone right in front the sound hole may cause a "bassy" sound, and a frequency roll-off might be necessary.
- The microphone closer to the bridge reduces pick and string noises, and the sound is brighter and less "bassy"
- Ambience might be recorded with a second microphone about four feet away. If this is the case, record them in separate tracks to be able to balance them later.
- Stereo pairs sound usually good. It adds space and clarity. The technique must be decided according to the situation.

Upright Piano

- One or a stereo coincident-pair (X-Y) in the center of the top opening with the lid open.
- A spaced pair (A/B) carefully placed so they pick up the high and low strings evenly.

Grand Piano

The recording of a grand piano depends on many variables such as make and model, performer and music style. Here are some possibilities to start.

- Place one or a stereo coincident pair (X/Y) in the middle, about 8 " from the hammers and 6" to 12" above the strings.
- If more bass is needed one microphone might be placed underneath the piano.
- Place a spaced pair (A/B) pointing to high and low strings in the middle of the two internal harps.
- For classical music and in general, one or a stereo pair placed a couple feet away from the piano to pick up the sound of the whole piano.
- In general very dry rooms work better, but if some ambience is necessary, other microphones might be placed around the room.

Electric Guitar

The electric guitar is also an instrument that can perform many different sounds and the decision has to be made according to the situation.

- Without amplifiers, the electric guitar can be recorded using a Direct Box, a little device that transforms the weak guitar signal into a balanced microphone level. This usually works for clean sounds.
- In general, guitarists prefer the sound of coming from the speakers of their amplifiers. There are several ways to mike them.
- The sound from the microphone and the Direct Box can be mixed.
- The microphone preferred by most guitarists is dynamic cardioid such as Shure SM 57. This type of microphone captures the whole "body" of the sound and because of its transient response it does not respond to high frequency noises created by the guitar effects.
- The placement of the microphone can be 2 feet to 1 inch distance from the speaker.
- The microphone pointing to the center of the speaker produces a very bright sound.
- Placement of the microphone a little off-axis produces a more mellow sound.

Electric Bass

- The direct sound (through a Direct Box) for the electric bass is usually good.
- As for the electric guitar, bassists sometimes prefer their amplifier sounds. In this case dynamic cardioid microphones work well.

Drums

It is difficult to record drums because of the many parts with all ranges of frequencies present. Any configuration from one microphone to as many as the drums have parts or more can be used. A stereo pair (X-Y) over the instrument is called “overheads” and can be used alone. In addition, one microphone in the snare and one in the kick pick up the most important parts and can be blended with the overheads.

In most cases, one microphone on each piece recorded in separate tracks, results in a complete control over the tonal balance in the final mix, and it is preferred.

Each piece has its own sound characteristic and here are some ideas for recording.

- Bass (Kick) drum - The kick has obviously the lowest frequency of all but in addition it has a mid-high frequency sound called “attack” or “slap” around 2.5KHz to 5Khz. Special large dynamic microphones are designed to this purpose such as AKG D-12E, AKG D-112, or Electro-Voice RE-20.
- Snare Drum - A dynamic cardioid is usually placed at an angle very close to the head (about 1î) so it does not disturb the performer.
- Tom Toms - Individual dynamic cardoids can be placed close and recorded in separate tracks to create stereo effects such as drums fills panned left and right. Sometimes drummers prefer a single microphone between the two.
- Hi-Hat - If the sound from the snare microphone is not desirable, another can be placed above the top cymbal.
- Overheads - These pick the sound of the cymbals plus the overall result from all drums. The usual choice is flat response condenser microphones.