



VOX pop

FREQUENTLY ASKED QUESTIONS: RECORDING LEAD VOCALS

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A great lead vocal sound can make all the difference between an average demo and a potential single. Paul White and Mike Senior answer some of your questions on vocal recording.

One of the most common concerns of SOS readers is that their recorded vocals leave something to be desired. The lead vocal inevitably generates the largest number of vocal-related reader queries, and rightly so — many tracks have been transformed into hits simply by an inspired vocal. It is in recognition of the importance of the lead vocal that top producers often spend such a large amount of time and money working on this one element of a finished track.



Looking through the SOS mailbag, there are numerous queries from readers starting out on recording vocals, so we've collected them all together here and provided answers which should help you get the clear, upfront sound you're after.

Q I'm currently using a dynamic mic for recording vocals, but I've heard that capacitor mics are better. What difference would I notice if I bought one?

For a start, capacitor (or condenser) mics are generally more sensitive than dynamic mics, which means you'll need less preamp gain to get the same signal level. However, when close miking lead vocals there is seldom a problem in getting sufficient signal level. The main difference you're likely to notice moving from a dynamic to a capacitor mic is that the

capacitor mic reproduces high frequencies more faithfully, producing a more open sound than a dynamic model with much more clarity and definition.

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Q Does it matter much which capacitor microphone I use for vocals?

There are tonal differences between the various mics, but you might be surprised at how little difference in fidelity there is between cheaper and more expensive models. For example, many people would be unlikely to perceive a vast improvement in the faithfulness of the recording when moving up from a Rode NT1 or AT3035, both under £200, to a mic costing over £1000, even though the technical specifications might be better.



So why pay the extra? The reason people are willing to pay for more expensive mics is because each of these has its own unique tonal identity, and there are few situations where the tonal identity of a mic matters so much as when you are recording lead vocals. It is for this reason that you should make every effort to try out as many different models of microphone as you can when you're planning to record vocals. It's by no means a foregone conclusion that the most expensive mic, or the one with the most prestigious brand name, will sound best for the singer you're recording.

Having said this, it's as well to point out that many singers favour the sound of large-diaphragm capacitor mics, so it would be worth making sure that you try at least one or two of these. Tube mics are also often considered particularly suitable for vocals, as they impart a subtly flattering warmth to the sound. However, tube mics are more expensive, and it's worth remembering that their sonic signature won't necessarily suit the voice you're wanting to record.

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Q Do I need a shockmount or are they just for posers?

A suspension shockmount of the type normally seen on large-diaphragm condenser mics isn't just for show — it can be extremely effective in reducing the levels of unwanted noise recorded. A studio mic can be very sensitive to mechanical vibrations, so the elasticated suspension is used to isolate it from the stand, reducing the degree to which stand-borne vibrations can reach the capsule.



If you're overdubbing vocals in a quiet room with a solid floor, then you can get away without a shockmount — provided that you're not in the habit of tapping your feet! But a shockmount can be very important in studios with wooden floors, or where several musicians are playing together in the same room.

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Q What polar pattern should I use?

Most engineers will use a cardioid pattern, which is more sensitive to sounds arriving from the front than from the back and sides, as this avoids capturing much in the way of ambient sound. However, cardioid designs colour the sound in a variety of ways. The most obvious of these is that they exhibit the 'proximity effect', whereby low frequencies become more pronounced the closer you move to the mic. However, the sound will also change if the singer moves off axis — in fact, even if the singer remains in front of the mic, any reflected sound arriving at the sides or rear of the mic capsule will still be subject to tonal change.

Some recording engineers occasionally use omni-pattern mics instead, which pick up sound equally from every direction. While this can often result in a more transparent sound, it is at the expense of a higher level of recorded ambience.

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Q Should I use the microphone's low-pass filter?

Any filtering introduces artefacts into the audio signal, even at frequencies that are well above the filter's cutoff, so it's best avoided if possible. However, there are cases when it can be useful, most notably in reducing the level of handling noise or vibrations transmitted through the mic stand to the body of the mic. Some filters are designed to compensate for the proximity effect, and while these can be useful, it's probably better to deal with this type of problem by repositioning the mic while recording or by using a well-specified parametric equaliser at mixdown.

Q My mic comes with a foam pop shield. Should I use this when recording vocals?

Foam pop shields are actually not very effective in reducing popping and their presence can also compromise the high-frequency performance of the microphone. A fine mesh pop shield mounted midway between the mic and the singer will work much better, and it ought not to significantly affect the sound. You can either buy such a pop shield (which often comes with an attachment to clip it onto the mic stand) or you can improvise your own using a wooden hoop or wire frame with a piece of nylon stocking material stretched over it. You can even use the fine wire-mesh splash guards used to cover frying pans, as these also work perfectly well.

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Q How far should I be from the microphone when I sing?

There is some leeway here, but between six and eight inches (15 to 20cm) is generally alright. If you get too close when using a cardioid mic, the bass boost caused by the proximity effect will increase, though this is sometimes the effect which is desired. The important thing is to try to keep the distance between the singer and the mic constant if you want to keep the tonal balance consistent — even slight movements can dramatically alter the sound if the mic is at all directional.

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Q Where's the best place in the room to put the microphone?

Most of the time when recording vocals it's best to keep the effect of the room on the sound to a minimum, so keeping well away from the walls is a good idea. In particular, try not to have a reflective wall directly behind the singer. Another thing to avoid is recording in the exact centre of a room, as any standing waves will be in phase at this point, and this will tend to exaggerate the room resonances in the recording. Balancing these two considerations means that you're likely to wish to record close to, but not directly at, the centre of the room.

If you're still getting a boxy sound, no matter how you position things in the room, the first thing to try is working a little closer to the mic — it is usually the nature of the recording room's ambience which causes boxiness. Obviously, the proximity effect may often limit you a little here, and so four inches (10cm) is probably a sensible minimum distance — this will still improve the direct-to-reflected sound ratio. The other thing you can do is ensure that there's something non-reflective behind the singer. Use curtains or hang up drapes,

duvets or sleeping bags to soak up the reflections. If the sound is still boxy then it may be that the room is simply too small or too badly behaved and that you should try a different room. However, this is a rare occurrence, except in the case of poorly designed vocal booths.

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Q Should I EQ vocals as I record?

My approach is not to use any EQ when recording, as this gives me more scope for adjustment when mixing. In any event, a good mic in front of a good vocalist should sound 90 percent of the way there before you add compression or EQ. Furthermore, you can never really tell what EQ is needed until you hear a sound in context with the other elements of the mix. However, some engineers prefer to EQ as they record, particularly if they wish to take advantage of analogue equalisation before recording onto a digital medium. If you'd like to work this way, be sparing with the processing you do — you won't necessarily be able to remedy any problems later. My recommendation would be to start working without EQ at the recording stage, but if after a period of time you find yourself repeatedly adding similar EQ at the mixing stage, then try using this during recording instead.

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Q What do people mean when they talk about using EQ to add 'air' to vocals?

A broad-band, high-frequency EQ can often be useful to enhance the sense of clarity of a sound, and such processing is often referred to as 'adding air' to a recording. Typically, this is achieved using a parametric equaliser set to a fairly wide bandwidth and with a centre frequency of between 14 and 16kHz. In fact, it is because analogue equalisers can often do this without introducing harshness that many engineers prefer to add at least this EQ while they record.

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Q Should I compress vocals on the way to the recorder?

If you have an analogue compressor, perhaps as part of a voice channel, then adding a little compression during recording is a good idea, helping to even out the signal levels and also maintaining a good signal-to-noise ratio by using up more of the available recording headroom more of the time. A compressor can also prevent the singer from overloading the input of your recorder, and this is particularly important with digital recorders which can produce ugly distortion if their A-D converters are clipped. Nevertheless, remember that it's not easy to reverse the effects of overcompression, so err on the side of undercompressing — you can always add more in the mix if you need to.

If you're using a digital recording system then any compression you do during recording should be carried out in the analogue domain in order to get the best out of your A-D converters. Compressing in the digital domain during recording will have no audible benefits over doing this same processing during mix down, so it is probably best left until then.

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Q What's the best way to get a good performance out of a vocalist?

The complete answer to this question probably requires a degree in psychology, but there are a few simple things you can do. Firstly, set up a headphone monitor mix which is



comfortable for the singer, with a little reverb on the monitored vocals to aid natural performance and pitching. Be careful, though, to avoid adding too much reverb — keeping the reverb time below about one second ought to keep you out of trouble.



Some singers have trouble pitching when wearing headphones, because it can be difficult to hear yourself. Sometimes inverting the phase of the vocal's cue feed can help here, because this changes the way the direct sound (via bone conduction in the singer's head) mixes with the sound from the cans. You'll also find that some singers work best with one earpiece on and one off. If this is the case, try to arrange your headphone feed so that you can switch off the phone not being worn, otherwise the sound will leak back into the vocal mic — panning the mix to one side is often possible. (The art of setting up a good cue mix was dealt with in depth in SOS March 2001's Basic Overdubbing feature, if you're after some more tips.)

A singer's environment can make a great difference to the way in which they perform, so many engineers pay special attention to this. This can simply be a question of providing the singer with their choice of refreshment, but can also extend to using subdued or coloured lighting and checking that the recording room is the right temperature. Unnecessary onlookers (and even necessary ones!) can be intimidating to singers, so find out if they prefer to be in their own booth.

If the singer is isolated in a separate room, for whatever reason, then it is extremely important that talkback is used at every opportunity to communicate with and encourage them. Much of the art of producing a great vocal performance is in knowing what to say to the vocalist in between takes. Without a doubt, the best general advice for the aspiring vocal producer is to take any opportunity to encourage and compliment the singer — don't underestimate how much a singer's performance depends on his or her emotional state. If there are problems with a vocal part then suggestions, rather than criticisms, are usually the best bet, for example. If you can keep your vocalist feeling good, the performance will only gain from it.

A final thing to remember is that the first takes a singer does can often be the best. For a start, singers often get fatigued more quickly than instrumentalists, particularly if they are straining to produce their vocal sound — Curt Kobain could apparently only do about three takes of certain songs before his voice was wrecked. Also, many singers find it difficult to sustain their emotional involvement with the song beyond a few takes. For these reasons, many top engineers record even the level-setting run-through, as this can sometimes be the most vibrant and uninhibited performance.

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