



PERFORMER

THE MUSICIAN'S RESOURCE
RECORDING GUIDE pt1

PERFORMER'S GUIDE TO RECORDING

mixing - tracking - EQ - compression - dubbing - mastering

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PERFORMER

2

Full Band Takes vs. Individual Tracking

Part
1 of 2

One fundamental question we get asked frequently in the studio is whether to record a band live or to record each instrument separately. Tracking one instrument at a time allows for perfect isolation and the ability to focus everyone's attention on getting that part recorded perfectly. So why not build every song this way? Why not have the drummer play to a click track, then lay each instrument over that separately until you're done? Well, hang on - we kinda do that in the studio, but not exactly. We strongly recommend in a typical band situation (drums, bass, guitar, keys and vocals), that the rhythm section record live together - including a scratch vocal take from the singer. We do it this way because bands are used to performing together and we aim to capture great performances.

Share a Room

Here at Night Train Studios, even though we have four iso rooms, we have learned that it often works best to have the drummer and bassist share the same room. These two are the rhythmic core of the band and even though they are wearing headphones with individual mixes, bassists often perform better when they can also "feel" the drums during a take. If the drummer is able to play to a click (and in our experience, very few are) we can feed a click track into just his/her headphone mix, which will help keep the band in time and makes for cleaner overdubbing later on.

In other iso rooms we'll setup the guitarist and keyboardist with their own headphone mixes and good sightlines to the bass/drum room. If everything goes well, after a take or two we'll have captured all the rhythm instruments performing live together. After everyone comes back into the control room and we pick the "keeper" take, we can then fix any mistakes. Flubbed bass, guitar or keyboard notes are relatively easy to fix. Once identified, the musician goes back into the iso room and before any mics have been moved or amp settings changed, they play along to the section with the mistake and overdub the corrected part.

Fix the Sticks

Fixing drums is a different story. They are the backbone of the song and because any flubs are picked up by multiple microphones, it is very difficult and time consuming to fix the performance



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digitally. If the drummer hasn't "nailed it" after about two or three takes, we worry about the performance becoming stale, so if we have identified isolated drum/timing mistakes, we typically have three options: 1) Do another take from the top (but now the drummer is extra nervous and more likely to be tense) 2) If it was a flubbed drum roll or transition, the drummer can overdub that part only or 3) Have the band go back in and record starting from the flubbed part until the end of the song.

It is very important to fix any drum mistakes before moving on to your other overdubs. Any awkwardness in the rhythm of a track can throw off your other overdubs later, and you don't want to end up spending entire subsequent sessions working on past drum mistakes (we speak from experience here!).

Overdubs: Horn Sections

Once we have captured a great rhythm performance, we now have what is analogous to a well-built building foundation - solid, well designed, square and plumb. From here we can focus on individual performances - layered rhythm guitar overdubs, guitar solos, lead vocals, backing vocals, horns, percussion, etc. That said,

there are still times when capturing more than one performance simultaneously is the way to go. For instance, horn sections, vocal harmonies and string arrangements fit into this category.

While it is easy enough to record these instruments individually, these performers are accustomed to playing with one another and you can get some strange results if you don't do it together. Take a typical horn section; say tenor sax, trumpet and trombone. The simplest way to capture their overdub performance might be to set up the players in a room with two microphones in a stereo X-Y or mid-side configuration and hit record. But what if the trumpet is too loud? You can try moving the trumpet player back further, but this usually causes more problems than it solves.

At this point you could ditch the stereo mics and individually mic each player. But what if the sax player is a bit sloppy on his timing? We'll usually go to Plan B at this point. Putting each player in a separate room with their own mics gives you the best of both worlds - isolation so you can fix things later and adjust levels independently - with the benefit of everyone hearing what they're used to hearing while playing live.

[Editor's note - read Part 2 in the next print issue and online at performermag.com]

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PERFORMER

3

Part
2 of 2

Full Band Takes vs. Individual Tracking



photo by Tim Hoyt

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OVERDUBS: HARMONIES

A similar situation can happen when you are recording multiple vocal harmonies as when you're recording horns. Sometimes one singer will do multiple parts, in which case you have no choice but to record each part separately. But if you have two or more harmony singers, you have two or more options. Can your singers record separately or do they need to sing live with one another? If they need to sing together live, you can again try setting them up in the same room with the same mic (a ribbon mic is a nice choice here because the figure 8 pattern allows the singers to

face each other). If one of them is louder than the other you can position Mr. Loudy further away from the mic. But what if one of them has a slight pitch problem? Again, you'll want to mic them up in separate rooms and have them perform live and record to separate tracks so that you can tweak their parts individually. So whenever you are in doubt about what you should do, mic separately!

OVERDUBS: PERCUSSION

Adding some percussion instruments to your mix can really round out the overall sound of a song and make a track feel more dynamic. Unlike some of the other overdubs, though, we would not recommend recording multiple percussion instruments on one mic. There are numerous percussion instruments including tambourine, wood block and maracas, all of which vary widely in dynamic range. So trying to capture a recording of two or more of these instruments on the same mic is more problematic than it is worth. Most of the time we track percussion instruments individually so that we monitor the performances more closely - since similarly to the drums, tightness is key. But if you find yourself working with a band that has multiple percussionists who want to track their parts simultaneously, the best way to capture the performances is to place your percussionists in separate iso rooms with their own headphones mixes, often times with a click track. As we mentioned in other sections of this article, this gives us the best flexibility for later editing/mixing.

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SINGER/SONGWRITERS

Acoustic guitarists/singers often pose a unique problem in the recording studio. Because they are creating two distinct performances simultaneously, it is very hard to isolate the tracks after they are recorded. Many performers simply cannot perform the guitar part of the song without also singing out loud and still be happy with the performance. Our first choice (usually) is to use the acoustic guitar's pickup (if it has one) instead of miking it. This gives you a clean guitar track with no vocal bleed. Unfortunately you will still have guitar bleeding onto the vocal track, so you will need to re-track the vocal. But this can be a good thing because now the singer can focus on delivering a strong vocal performance. But what if the guitar doesn't have a pickup or you are unhappy with it sonically once it's recorded? You can mic the acoustic guitar and try having them "sing" only in their head to capture a clean guitar track. If the musician has practiced doing this in the past then it usually works, but if they've never tried it before, it's usually a waste of time. Your final choice may be to record both simultaneously and do your best to position microphones so as to minimize bleed (which you won't be able to do completely, no matter how hard you try). You'll only have minimal control later over volume, panning, EQ and effects because of all the cross bleed, and fixes are nearly impossible.

IN CONCLUSION

And the winner of recording all instruments at the same time vs. recording them individually is... well, truthfully there is no winner here. We personally find that a combination of the two techniques work best, using live performances for our basic rhythm instruments and recording our lead parts through individual overdubs. By doing this, we preserve the raw energy and chemistry of a live band performing together, while also being able to perfect our leads without having the pressure of doing it live. Thus is the Ying and Yang of recording!

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Part
1 of 2

Tracking Harmonies and Background Vocals



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One of the most effective ways to get your songs above the fray and to the next level is by recording great harmonies and background vocals. Over the years we have found that the bigwigs in the music biz love to hear excellent lead vocals AND quality harmonies/background vocals. The problem we have observed is that many artists are used to hearing backing tracks and harmonies on songs without really noticing them. They know a song sounds good but when asked if there are vocal backing tracks on that recording, many actually don't hear them until they're pointed out. A lot of bands do not fully understand what vocal backing and harmonizing is until they get into the studio, but with a little coaching, most can learn how to record a good harmony and will soon be trying to write harmonies for all their songs.

At this point you must be asking yourself the burning question: What is the best way to record a harmony/background vocal?! In this article, we will detail some of the techniques that we have found are the most successful for recording, as well as some mixing tricks that will help give you those sexy harmonies to make your tracks pop!

Step 1...

The first thing that you should do when getting ready to record harmonies and background vocals is to have rehearsed and written vocal parts before the session! Many bands do not even think about this, so if you want to save yourself some money, spend a little rehearsal time working out some background vocals before going into the studio. Once you have your background vocals rehearsed, you must then figure out who will be singing them. Some groups will only have a lead vocalist, so in these instances you will have him/her record harmonies to their already-tracked lead part. In other cases, you may have multiple vocalists. Once you have all of this established, you are ready to move on to the next step, which is...

Headphone Mix

Every engineer's favorite thing in the whole recording world! (Note the sarcasm). Getting the perfect headphone mix can be one of the most time-consuming parts of any session, much to the dismay of us engineers. At Night Train Studios, we have recently adopted the Behringer Powerplay P16-M Personal Mixer system. This allows for the artist to control their own headset mixes, which has made our lives (and theirs) a lot easier. But many studios still use a more traditional headphone amp system, where you have

to manually adjust the headset mixes of your artist, so there are some good tricks to keep in mind. One thing we would recommend trying is adding some reverb to the vocals. A little reverb can help your performer feel a little less "naked" when they hear themselves through the cans, and give them more confidence while performing. Most singers do better hearing themselves naturally, which will often times play a role in deciding which headphones we will select. There are two categories that most headphones fall into - closed and open. Closed cup phones (like the Sennheiser HD 280 PRO) block out much of the ambient room sound and work great when other loud instruments are present; they also help keep the music from leaking into a hot mic. Open cup (like the AKG K 240) have a more natural feel but allow more unintentional leakage. If time allows, let the talent audition a few different pairs to see which they prefer. Headphones give singers a version of themselves that they may not be used to, so we often suggest they experiment a bit as they warm up by moving one cup off their ear until they find a sweet spot between the room and headphone mix. Once a vocalist finds a pair of headphones they like, we often recommend that they purchase a pair and use them all the time so that singing with them on becomes second nature.

Microphone Techniques/Selection

Background vocals rehearsed: Check! Headphone mix created: Check! Now we need to pick out which mic we're going to use. We almost always use a pop filter to help eliminate plosives P's and B's when recording background vocals. We also like to use a mic isolation shield (like the Auralex MudGuard) to help minimize unwanted room reflections that can color a vocal performance. These are especially helpful if you are forced to record in a less-than-optimal space. While there is no right or wrong answer when it comes to mic selection, you hardly ever can go wrong with a large (3/4" - 1") diaphragm condenser mic on vocals. If your budget is limited, there are many low-cost mics that do a great job - check out the MXL 990 or Audio Technica AT2020, great choices for under \$100. For a few hundred bucks, the choices are virtually limitless and many vocal mics double as great instrument mics, too.

Tracking Separately

A veteran vocalist knows how to move during a vocal take, sidling up close to the pop screen during intimate passages and taking a half step back and turning slightly when the chorus comes and it's time to belt it out. Let's also mention here that you might be tempted to record two or more vocalists simultaneously for a backing vocal track - fight that temptation. Unless the vocalists are pitch-perfect pros, you will be left with a track with imperfections in pitch and volume that you will have trouble fixing in the mix. Better to track each vocalist separately with two or more takes each so that you can focus on individual performances and can easily tweak any inconsistencies later on.

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Part
2 of 2

Tracking Harmonies & Background Vocals



photo by Marie-Celine Vayssade

[Editor's note - read Part 1 in last month's issue and online at performermag.com]

BACKING PHILOSOPHY

One of the first things we will do after recording our background vocals is to cut out all the unnecessary "air" (the space between actual singing parts) from the track. These usually do not contain anything that we want or need in our final mix and at times can even have pesky background noise that is not visually noticeable in the waveform (breathing, shuffling of lyric sheets, etc). If you're pressed for time, you could patch in a gate plug-in, but it may miss extraneous coughing, paper shuffling, etc.

Next, solo the backing vocal take with the lead vocal at equal volumes and listen to each part VERY closely. These have to be lined up precisely, so now is also the time to chop words and phrases on the backing track and move them until they are tight with the lead. You should also decide if certain words aren't needed - if so, you can mute them entirely or fade in/out words that don't help but just muddy things up. Open vowel sounds are pleasing, but harsh consonant sounds are not, so unless the backing vocalist's performance took this into account, you will probably have some editing to do. For example, if the vocal line is "Chillin' with my baby," you might want to fade in on the word "chillin'" to eliminate the harsh "ch" sound.

PITCH CORRECTION

The dreaded phrase all vocalists hate to hear! As the producer/engineer, it is very important to use pitch correction on your background vocals. There are very few things more distracting in a mix than an off-key harmony. Once you've established what the key of the song is, you can easily apply a pitch correction plug-in to your vocal track set to that key. If you don't set a key for your pitch correction software, you'll be forced to use chromatic tuning, which only pulls a note to the nearest half step and can often make the

problem even worse. Also be aware that many songs may change key during a bridge or chorus, so those vocal parts will have to be moved to another track with the pitch correction set to a different key than the rest of the song.

Occasionally you run in to a vocalist whose harmonies are so poor that even the software cannot fully correct it without turning the track into a comically garbled mess. In this situation you have a few choices: a) Fire your vocalists and have someone else record the part or b) Use a manual pitch correction plug-in. We like to use **Roland's V-Vocal**, which allows you to see the pitch of the vocal take on a graph and manually click and drag parts of the waveform to the correct note. You can also draw in the waveform, which is great for straightening out wobbly vocal takes and creating more natural note transitions, whereas an automated pitch correction can sometimes sound robotic.

MIXING

Now that we have tracked and trimmed the fat from our background vocals, it's time to start mixing. We usually start with dynamic processing (compression/limiting). Much like everything else in the world of recording, there is not one "set in stone" way to approach compression with background vocals. We suggest playing around with your compressor presets and see what fits. We find that a vintage **LA-2A** compressor preset is a good starting point for most backing tracks, as it has a way of smoothing out the performance. Play around with boosting the output gain somewhere in the +6 to +10dB range while adjusting the threshold to -6 to -18dB.

Now, solo both the lead and backing vocals together at the same volume and start EQing the backing vocals. We usually like to roll off the low-end frequencies, starting around 150Hz, because the low-end of background vocal tracks have a

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tendency to muddy up the mix. From here we may boost some of the high-end frequencies a little to create a thinner, brighter overall sound. The goal is to get the backing vocal to enhance the lead, so don't be tempted to EQ the backing part by itself; we don't really care how it sounds alone.

PANNING & REVERB

Once you've got the two working well together, bring the volume down on the backing part until it just sits below the lead and move on to panning. If the background vocal parts are harmonies that follow a lead vocal very closely, we will only slightly pan the background vocals, maybe 10-20% in either direction. The idea with a harmony part like this is to have it blend with the lead vocal, so you don't really want to have it hard panned, as this will ruin the synchronicity of the lead and background parts. If we are dealing with a background vocal that does not mirror the lead vocal, then you might want to try hard panning the track. By doing this, your backing tracks will be less likely to clash with the lead.

When it comes to volume and reverb, you could take a wide variety of approaches. You generally want to make sure the levels of your background vocals are balanced enough so that they blend well with each other and the lead vocal. Reverb should be used to enhance the amalgamation of parts, so in the case of background vocals, we tend to put more of it into the mix than we do with the lead vocal, which we often leave more dry.

Don't be afraid to give backing vocals a try on your next tune. Many artists are hesitant to experiment because they associate harmonies with a certain musical era, but when done right, backing vocal tracks can make a song come alive. We hope you'll try these techniques on your next recording session!

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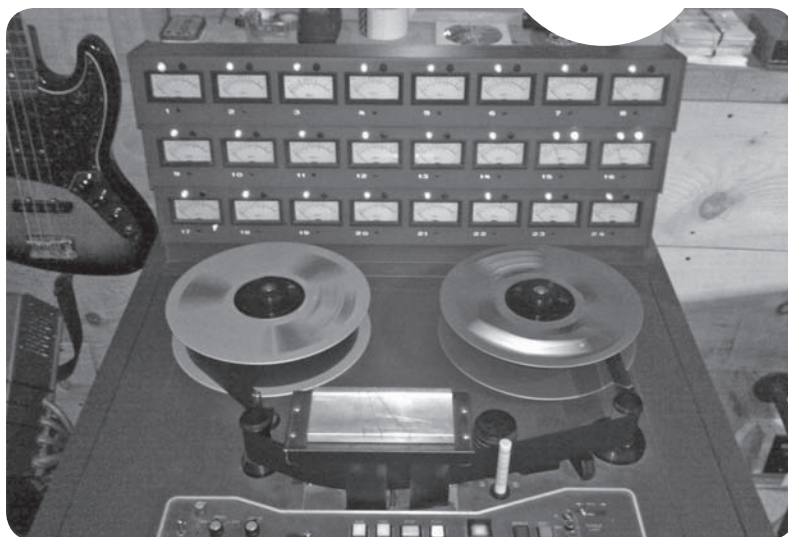
PERFORMER

6

Studio Lessons

Quality vs. Quantity

Part
1 of 2



“How many songs do you think we can record in X hours”? It’s the number one question we get asked by artists in pre-production meeting. We once recorded, overdubbed and mixed nine songs for a band in eight hours. We have also spent weeks working on only one song. That’s quite a range – so what’s the answer?

ESTABLISH GOALS

The question I ask back is this: “What is your goal”? And of course I am usually met with blank stares. Obviously the goal is to record as many songs as possible, right? Unfortunately, that’s not usually a great goal for a recording project, and many artists seem to be of the mindset that a recording project is like going to an all-you-can-eat buffet: the more plates of food you bring back to your table the better (where plates of food = songs). There is nothing wrong with that, I suppose, but it’s usually not such a memorable meal (other than the indigestion). And that’s the problem with trying to squeeze too many songs into a recording session; usually you end up with a bunch of songs that could have been so much better.

A “goal” that many artists have is to record a demo for “getting gigs,” and they usually mention to us that they want to record five or six songs to show off their “range.” I guess they imagine that venue bookers will open the CD, put their feet up on their desk and listen to all these tracks for half an hour, before turning to their assistant and

saying “Wow, listen to that range! We’d better book these guys!” I try to point out when I hear this strategy that it isn’t how it works. In reality, what they really want to know, even more than “How good are they?” is “How many drinking fans can they bring to our venue?” If a booker is listening for anything it is 1) what genre the artist is 2) how good the vocalist/front musician is and 3) how tight they are rhythmically.

Another frequent band “goal” is to record an EP to sell at shows. Not a bad idea, you say? There’s this pervasive theory that if an artist has an EP, they will be taken seriously. As a music publisher, I have to say, we pay attention to artists who have one amazing song. We don’t even remember artists who have six “okay” songs. It only takes one song to launch a music career, so why wouldn’t you focus all of your energy on that one song in the studio?

SESSION BREAKDOWNS

So here’s what a typical session looks like when a band wants to record six songs in two days: Day 1: Hour 1 – set up, miking instruments,

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getting levels and explaining how the individual headphone mixers work. Hours 2-7 – rhythm tracking (drums, bass, guitars, keys, scratch vocals), with usually two to four takes of each song until the band feels like they performed it tight. Time is then spent coming back into the Control Room to listen closely to good takes. Hour 8 – rough mixes that the artists can go home with to take notes. Day 2: Hours 1-4 – overdubs of lead vocals, backing vocals, solos, percussion and any necessary fixes to flubs. Hours 5-8 – final mixing of the six tracks.

So what’s wrong with this picture? Well for one thing, it’s hard to focus the attention of a band on the intricacies of six songs up to the standards necessary for capturing a recording that will last forever. Timing, energy, “do we switch to E-minor for one bar before the pre-chorus after the bridge?” – it can be hard to keep it all straight. Then there are the overdubs. The lead vocalist will usually record several takes of each song – that’s the equivalent of singing 12 to 24 full songs in four hours! Then after all the overdubs, that only leaves three hours to mix six songs (read: half hour for each song, max). That’s barely enough time to get a rough mix going, let alone start laying down meaningful automation and panning, dialing in the right compression and EQ and assigning fx for each track. By the time the band realizes that they’ve squeezed too many songs into too little studio time, they are out of time. Sure they can come back and keep mixing, but now instead of having great tracks to start with, they have so-so tracks laid down. Fixes take time; overdubs on less-than-perfect vocals take time.

Next time we tackle focusing on one song, and breaking up sessions into more manageable parts. [Ed. note – read Part 2 in next month’s issue]

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PERFORMER

7

Studio Lessons

Quality vs. Quantity

Part
2 of 2



photo by Pete Weiss

In part one (see last month's issue or read it online at performermag.com), we examined how artists can spend their time in the studio unwisely, and how session days/hours can be broken down into parts (arranging, tracking, mixing, overdubbing, etc). The point was to illustrate how much less focused a group is on tracking multiple songs in a limited studio timeframe.

FOCUS ON JUST ONE TRACK

What if they had started by just focusing on *one song*? They would have picked their best song. They would have rehearsed just this *one song* until it shined. They would have come into the studio with just this *one song* on their mind and with a little luck, they would have tracked it beautifully. All the attention would be on this *one song*. Ideas, discussions, things to try in the mix would have all been focused on this *one song*. When it was finished and released, people would want to hear it again – and that's what you want, to leave them wanting more. Have them begging for more. Have your fans focused on this *one song*, sharing this *one song* with friends. Have the venue bookers humming this *one song* as they book you at the club.

Okay, did it work? Did our attempt at written subliminal suggestion work? Are you thinking about going into the studio and focusing on just one song now? Something magical can happen when a group of musicians, engineers and producers focus all of their efforts on bringing one song to life. Ideas to try a subtle shaker percussion track or perhaps a third vocal harmony on just one line in the chorus, now can be tried without worrying about whether there will be time to mix half a dozen more songs today. It's this intense focus and ability to experiment that is the strength of studio recording. The studio is THE place to try

out ideas that are impossible while playing live. It is a magical canvas with an erase function.

TIPS TO REDUCE WASTED STUDIO TIME

And this is the realization that many artists come to after too many "squeezed" recording sessions. It is what you experience along the journey, not the miles traveled that counts here. So maybe by now you believe us that it's better to focus on one song the next time you head to the studio. "But we can't afford to spend 8 to 16 hours on one song," we hear you say. Well here are two tricks that can help reduce your time in the studio:

1. PREPARE, PREPARE AND PREPARE SOME MORE. Focus on and rehearse that one song till it shines, till everyone knows it backwards and forwards. Record the rehearsals and make sure everyone is happy with the arrangement. Can you get to the first chorus faster? Is the first verse too long? Then type up a lead sheet for the song and bring plenty of copies to the studio. Nothing fancy, just chords and lyrics laid out by section. This allows the engineer to quickly get around the song instead of spending time hunting for where the line "she's not coming back" is in the song. When doing overdubs, for instance, now both the talent and the engineer are on the same page when the singer says, "I'd like to fix the second line of verse two."

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2. BREAK IT UP. Fight the urge to stuff the whole session into one long day. Instead book (for example) a four-hour session to record the rhythm tracks and overdubs and go home with a rough mix. Then have everyone in the band take copious notes over the period of at least a week. Then meet *before* the next mixing session to discuss these notes with everyone. Make a Master List of what you like and don't like about the rough mix. Be precise about what needs to be fixed: "bass flub at 1:24," "flat note on the vocal at 2:31," etc. For your second mixing session, don't expect to get it 100% perfect and try not to spend too long mixing; after about four hours of hearing the same song over and over, you lose perspective. Go home with your near-perfect mix and repeat the last step of taking notes and making another Master List. Only when your head is clear can you hear the mix properly to make decisions about its quality and effectiveness.

If you still aren't convinced that quality is more important than quantity, we challenge you to take your favorite artists' best studio album and research how long they spent in the studio working on it before they were finished. Then go onto ReverbNation and find an artist with a six song EP that's just so-so and send them an email asking how long they spent in the studio.