

# NUTS and BOLTS

PART 12

## The Multitrack Session

BY ALEX CASE

This ought to be a piece of cake after the challenges of last month's live-to-two-track session. Right?



This month we continue our discussion of the recording session vocabulary, moving beyond preproduction and live recording and into the multitrack recording process.

We track instruments one at a time when live to two-track and live to multitrack aren't appropriate or possible. The making of the recording becomes now a 4-step process: basics, overdubs, mixdown, and mastering.

Mastering is the sole topic of a future Nuts & Bolts column. Mixdown was the focus in the April issue. This month we take on basics and overdubs.

The basics session is simply the first track-laying session. As all overdubs will be performed around these tracks, they are called the basic tracks.

In 99.9% of pop and rock sessions, 'basics' refers to drums and bass. When the band is to be recorded a piece at a time through overdubs, it is usually easiest to lay down the fundamental groove of the tune first.

Drummers and bass players usually play off each other and therefore like to be recorded simultaneously.

That's easy for the recording engineer to accommodate. Drums are placed in the biggest room available in the studio/loft/basement. The bass is recorded through a direct box and/or through a bass cabinet isolated in any way possible—stuck in another room or booth, tucked in a closet, or in the worst case surrounded by gobos and heavy blankets to at least minimize leakage into the drum mics. (Gobos are movable absorbent isolation barriers.)

The bass player stands in the same room as the drummer and the jamming commences. Recorded on the multitrack, these drum and bass tracks form the basic tracks.

### Guided by voices

With the exception of drum and bass music, playing a tune that consists solely of drums and bass is musically not very inspiring. It's easy to get lost during a take. So

the drummer and bassist don't get lost, we always keep them on a leash.

But I digress. So the drummer and bassist don't get lost within the tune, we also record scratch tracks. The singer, guitarist, keyboardist, and other members of the rhythm section are also recorded during the basics session. These additional rhythm section tracks are just meant as a guide to the drums and bass and will be re-recorded later.

The top engineering priority is the quality of the drum and bass tracks. Scratch tracks are compromised sonically in pursuit of better basic tracks when necessary. For example, to keep the guitar from leaking into the drums it might be run through a small practice amp instead of the louder-than-loud, World Trade Center twin towers of guitar rig. The vocalist might be squeezed into a small booth for isolation, singing into a second-choice microphone because all the good mics are on the drum kit.

The point of the scratch tracks is to feed the drums and bass information and inspiration; the point of the basics session is to get the most compelling drum and bass performance ever captured on tape. Period.

As always, it is a session priority of the engineer (and everyone else involved) to help ensure that the band is comfortable. They need to hear each other easily. Ideally they should also be able to see each other perfectly. Stuck in headphones, they'll be grumpy at first. Carefully dial up a great sounding mix in the headphones, adding some basic effects (reverb on the vocals at least), and try to make the basics session a satisfying place to perform.

You'll know you got a keeper take when the drummer likes it. Drummers know every single hit they're layering into the tune; they know the feel they are going for; they always know when they missed a fill; they'll certainly know when they nailed it. When they're happy, bring everyone into the control room for a loudspeaker listen.

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The engineer has to make sure the audio quality is top shelf. Sometimes the band nails it on the first or second take. That's good news musically. But it can be bad news sonically. Perhaps you haven't had a chance to tweak: solo the snare to be sure it is crisp or eq the floor tom so it sounds as full as you'd like.

With experience you can set up microphones and get levels onto tape that are perfectly usable as of Take One. That is, while it might have been nice to tweak the eq and add a dose of compression during basics, you've got a track recorded well enough that such processing can be dialed in during the mix.

The other thing you've gotta watch is levels. When the drummer and bass player fall into "the zone" they tend to play harder (i.e. louder) than in all the previous takes. Make sure when the band loves the take that the levels didn't head too far into the red zone and distort. If you record distorted tracks on the multitrack, you can't un-distort them later.

Meantime, the band and the producer have to make sure the playback through loudspeakers is as inspiring as the live take was. It isn't easy to keep the loudspeaker playback exciting. While the take was being recorded we had the benefit of watching the players.

The true test is the control room playback. Do you still feel that excitement when you can't see the performers? The basics session is complete when the performance passes the loudspeaker playback test.

Almost perfect? What if the take feels right except for a few minor mistakes? Many such mistakes are fixable (see below), but first decide if they should be fixed at all. It is tempting—very tempting—to fix every single flub so that the tracks on tape represent some ideal, best possible version of the song.

That's a fine approach, and many bands are famous for their "perfect" recordings. They are also famous for spending a lot of time (sometimes years!) in the studio, not a luxury we can all afford.

And sometimes such "perfect" tracks are accused of being too perfect, lacking life, warmth, or emotion. Pick your spots carefully so that your project falls at the appropriate spot between the high audio craft of Steely Dan and low-fidelity on purpose of Tom Waits.

## Spike the punch

Typically some fixes are called for at the basics session. The first thing repaired is the bass track. Mistakes in the drum track usually demand that the entire take be redone. There are exceptions, but try to avoid patching and piecing together a drum performance.

Track until you get a single, consistently strong drum take. Then evaluate the bass part. Most likely, when the bass player loves the take as much as the drummer you've still got some minor repairs to do. The bassist probably needs to punch-in a few spots to fix funny notes—notes that were early or late, notes that were sharp or flat, wrong notes, loud notes, soft notes, or notes that just don't seem to work.

Punching-in is the process of going into record during a track already recorded. You cue and play the tape/hard disk a few bars in front of the mistake to be replaced. The bass player plays along. You go into record while playing (typically you hold down the play button with one finger and feather touch the record button) at just the right spot. The red lights go on, and the bass player is live, laying down a new part while you erase the old part.

Don't go out for pizza now, because you've got to punch out. You've got to get the multitrack out of record (typically by pressing the play button alone, without touching record) so that only the mistake is replaced and the rest of the previously recorded track is preserved.

Punching in and out on a digital audio workstation is usually simple. Punching in and out on a multitrack recorder is tricky business. You'll acquire the skill only through practice. Sometimes you punch entire verses, but other times you might try to punch in and out on an individual eighth note of music or a single syllable of vocal.

At the basics session you have the unique pleasure of fixing the bass track. Bass is probably the most difficult instrument of all to punch. When we loop a sample, we know to reach for zero crossing points on the waveform to avoid glitches. We aim for the same target for punch points. Ideally we go into and out of record at something very close to a zero crossing point so that we don't get an audible click where the wave abruptly transitions from old to new.

The low frequency signal of bass presents a challenge. It has long, slow moving waves that spend a lot of time, compared to high frequencies, away from zero amplitude. Simply put, high frequencies cross the zero amplitude axis more often than low frequencies. As a result, our

odds of getting a click-less punch point are worse for lower frequency sounds like bass.

Many digital machines let you select a crossfade time for punches. This adjusts exactly how abrupt the transition from the track to the punch will be. As in editing and looping, a crossfade gives you a brief window in time during which both old and new track are mixed together. The intent is to help dovetail one track into another.

Done correctly, this helps make the punch point less audible. But setting a crossfade beyond 20 milliseconds often leads to other audible artifacts. The click you try to avoid is replaced by the flanging sound that comes from briefly hearing the two waveforms (old and new) simultaneously during a slow crossfade.

The key to successful punches is in selecting your punch points carefully. Because we are looking for a high frequency moment in the music so that we can punch during a zero crossing, try to perform your punch during the high frequency transients of the part.





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On bass, that means we hide our punch points in fret noise and pick noise. Punch in and out at the instant the bass player is articulating a new note. The buzz and grit when the bass player digs in on a down beat gives you an instant of high frequency activity where your punch can hide.

Your punching technique is enhanced by a second element to your strategy: punch when no one is looking, er, I mean listening. That is, select punch points on bass that are going to be masked by some other loud and distracting event. A slamming snare hit, for example, will temporarily fill the mix with so much noise that a small error in punching in or out over on the bass track is covered up.

Conveniently, the drummer is required by the Rock-N-Roll Drummers' Union to hit the snare on beats 2 and 4, and the bass player is going to articulate a new note on most of those snare hits so that many punch points become available.

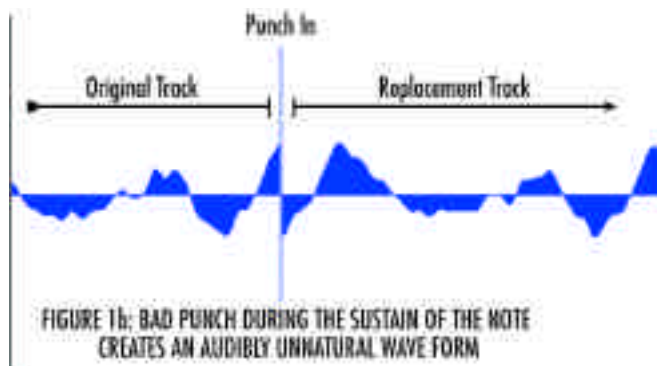
## Overdubs

After recording the killer drum take of the century and performing maybe a handful of bass punches, you've completed the basics session for the tune. Time to move on to phase two of the multitrack session: overdubs.

During overdubs you record single instruments or small sections onto separate tracks of the multitrack. In this way you build up the pop music arrangement around all the other tracks already recorded.

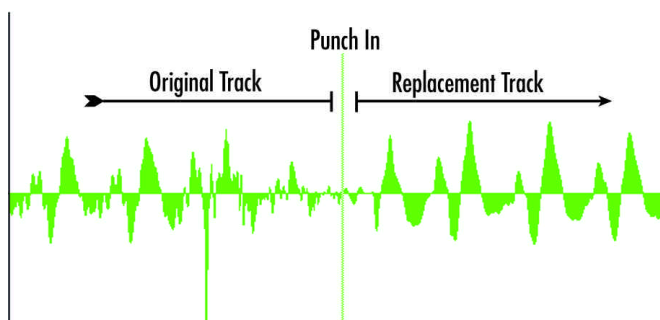
Overdubs are typically less stressful and less crazy than basics or live session work. You are given the mental relief that comes from focusing your energies on perhaps a single musician with a single instrument, using maybe a single microphone. You get the chance to hear out the many subtleties of the recording discipline.

It is during the calm, late night overdub that you get to hear the difference moving a mic one inch makes, the change in sonic character that comes when you change from one mic to another, the audible effect of recording on a wood floor versus carpet, and so on.



As engineer you've got a fair amount of freedom now. I encourage you to use overdubs as a chance to experiment with recording ideas and refine your ever-developing recording technique.

For example, a straightforward electric guitar overdub can be as simple as sticking a single, brave dynamic cardioid up close to the amp and hitting record. If the tone at the amp is good, this recording technique will never fail.



But as the producer and the guitarist and the other band members experiment with alternative musical ideas, you can stick a few alternative microphones up next to the trusty dynamic already there to see how the sound changes. You can experiment with alternative mic placements. Find out what a ribbon microphone in the corner sounds like. Try an omnidirectional large diaphragm

condenser over by the brick wall to see if the sound works. Or whatever—check out Bill Stunt's 'Another Article About Recording Electric Guitars?' 2/00 or Bob Ross's 'Eclectic Electric Guitar' 7/97 for some other hints and craziness.

During overdubs, don't be afraid to throw experimental signals over on extra tracks. If you like the sounds, keep the alternative track and be a hero. If it sounds weak, erase it and explore other ideas on tomorrow's overdubs.

So many instruments reward distant miking, stereo miking, and experimental miking techniques.

There is no obvious way to learn all the options and know which ones work. And session budgets can rarely afford to let the engineer experiment. Do this sort of work on the side, while the session is distracted by something else. Overdubs onto spare tracks represent a terrific opportunity.

What does an overdub session really look like? If you are picturing a single

microphone in front of a single instrument in an otherwise empty room, you're missing out on a lot of the fun. The typical day of overdubs fills the studio with as many microphones as a basics session. Here's how it goes.

Maybe the day begins with an electric guitar overdub. The engineer sets up the tried and true approach plus an experimental set of mics, should there be time or motivation during the overdub to reach for another kind of tone.

When the guitar track is done and the session moves on to the next 'dub (tambourine for example), leave the guitar setup as is. Bring out another mic for the tambourine. Of course there is room to experiment.

Compare a dynamic to a condenser, or an omni to a cardioid. Even the humble tambourine track welcomes some engineering exploration.

Then move on to the next overdub, maybe didgeridoo.

As the various overdubs are done, the room fills with microphones. This is handy for a couple of reasons. First, with the electric guitar amp previously set up and ready to go the band and producer are free to experiment freely. They can reach for the guitar with a second's notice to try out a new musical idea.

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A few hours into an overdub session you might have emptied the mic closet and used up all the mic stands. The recording room is ready for action. Mandolin? Good idea. Have a seat where we tracked the acoustic guitar a few hours ago and we'll start from there. It'll only take a second. Rain stick? Cool idea. Just step up to the tambourine mic.

The overdub session becomes a comfortable place to explore multi-track recording ideas, liberating the musicians, producer, and engineer to work fast and freely.

Accumulating the various overdub arrangements within a single room not only makes getting the different overdubs done more quickly and easi-

best suited to the task (see Nuts & Bolts Part 4, 10/99, and maybe Parts 5 and 6 as well, 11/99 and 12/99).

During an intense day of overdubs you may find yourself faced with a tambourine overdub, and all your condenser mics are spoken for. Try a moving coil mic. You might be pleasantly surprised by how accurate that new-fangled dynamic you just bought is.

Or possibly the more colored sound of El Cheapo Dynamic mic might give the tambourine the edge the tune needs. If the tune is full of high frequency tracks already (cymbals, acoustic guitars, shaker, bright pads, etc.), the tambourine may sound better via a dynamic than a condenser.

Explore multiple recording techniques at once through this 'don't take it down until the end of the session' approach to overdubs.

ly, it also leads to some fun exploring of engineering ideas. While the band plays with different parts on the didgeridoo, you can open up different mics in the room to see how it sounds.

That is, while they record into the intended set of microphones, you can raise the faders over on the electric guitar mics in the corner, the tambourine mic in the center of the room, and the acoustic guitar mics by the stone wall, and so on.

With each different overdub you'll learn a bit more about the recording craft, because you'll get to hear half a dozen different kinds of microphones and mic placements all from the comfort of your chair behind the console/DAW. You are occasionally rewarded. But separate from those welcome accidental discoveries, you are giving yourself a chance to learn ever more about the never ending process of tracking.

Leaving the microphones set up after each overdub forces you to explore new recording techniques. Perhaps you always record tambourine with a condenser. Good call. Since tambourines are a percussion instrument full of transients and high frequency energy, it makes perfect sense to use the type of microphone

There's one other reason to follow this approach to overdubs. Some people think it's cooler if they are hanging out in a room full of microphones. They feel more like a power session player, they like the vibe that comes from filling a room with equipment, and they feel like they are getting their money's worth from the studio if most of the mics get used.

Whatever floats their boat. But I am certain that this approach to overdubs gives the engineer a lot more pleasure.

In developing your familiarity with microphone makes, models, and placement strategies, there is no substitute for experience. The more time you spend in the studio the better you'll get at it.

But it is the overdub session most of all that lets you make progress here. Explore multiple recording techniques at once through this 'don't take it down until the end of the session' approach to overdubs. Have fun.

Alex Case wonders: in New Zealand and Australia, do they call them underdubs? Request Nuts & Bolts topics via [case@recordingmag.com](mailto:case@recordingmag.com).