Small Group Setup for Live Recording

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Life in studios is getting awfully complicated these days. New this, digital that, advanced and integrated the other, all very complex, all very glitzy, and most about half-understood.

IN FACT, IF NOT FOR BUDGET CON-straints, the modern engineer wouldn't get any work done at all; he'd be too busy reading books on the new equipment. It would be nice if somewhere in the midst of all the complexities there was something simple and dumb that just worked.

There is.

Before getting to all those wonderful toys, with their hundreds of knobs and infinite capabilities, there's the matter of putting out microphones and picking up sound from the instruments. That's the raw material. If it sounds good, you can do tricks with it and maybe make it sound very good. If it sounds lousy, you can do tricks with it and make it sound lousy. The only way to make a silk purse from a sow's ear is to start with a silk sow.

Short of going out and playing everything himself, the engineer can't upgrade the sow. A bad band will be bad under any conditions, and a great recording only reveals the horrible details of just how bad it really is.

On the other hand, the engineer can damn near kill the sow. It's possible to condemn a good band to bad performance with an inappropriate setup, and it happens, because musicians are peculiarly vulnerable to environment.

A musician who spends his entire life practicing by himself can learn to play very well. By himself. Musicians who play in groups learn to do that by practicing in groups, as often as not on stage during public performances.

The performance environment is where musicians develop their ensemble skills, and it's the one in which they are accustomed to playing at their best. That environment can be fairly described as too many players cramped into too little space at one end of a large, very noisy room. Since that's where your clients learn to play at professional levels, a good case could be made for duplicating it in a studio. Make 'em feel at home. It won't work. For one thing, putting almost anything close to a wall screws up isolation, and for another, audiences are pretty much out unless you're faking a remote. Lots of fun, by the way, but only when it's intentional.

Just because you can't have it all doesn't mean you can't have some of it, though, and the basic bandstand setup works very well in a studio. This brings us to the fundamental purpose of setting up for a session, which is not, repeat *not*, to make the engineer's job easy, nor to correct for rotten studio acoustics, nor even to arrange things for pretty pictures.

THE FUNDAMENTAL PURPOSE OF SETUP IS TO MAKE THE PLAYERS HAPPY AND COMFORTABLE

Happy and comfortable in this context defines a situation in which musicians can play as well as possible, and know it. Given that, they'll likely perform to the max. They'll sound terrific, and with a little luck so will you. If not, they probably won't, which means you can't, no matter what you do in the control room. A band that goes into a studio knowing it's good but comes out sounding like a bunch of amateurs is not a great ad for the business. Worse, you can't defend yourself.

It's a fact that nobody can tell the difference between rotten playing and a rotten mix. Nobody includes the mixer, who has repeatedly got egg on face by blaming the band for miserable sound before getting up off his dead butt and listening in the studio.

Since we all know that the engineer is automatically to blame for everything that goes wrong in a studio, and musikers are not famous for admitting to crummy playing, it's in your interest to arrange things so musicians can play to the best of their abilities.

Besides, it's your job.

Engineers are hired to get good sound. If you do, you're a hero. If you don't you're a bum, and nobody much cares how you did it either way.

It's commonly said that eighty percent of a mixer's work is the setup, and it's true, but setup is not just a matter of getting appropriate isolation or using the best possible mics.

Great sound comes from well-recorded great performances, and the studio setup is critical to a group's ability to perform, as opposed to merely playing some notes in the same place at the same time.

A last argument for good setups is that they are competitive. A mixer who consistently makes poor setups will turn out consistently shabby sound from both first rate and not so great bands, and one who uses competent setups will drive that turkey into the ground like a tent peg.

And so, finally, on to the what, why, and how.

In the beginning, there were drums.

DRUM MIC'ING

There still are, and we start with them. Mic'ing drums is its own subject, but since that's been covered in a previous article (see **db Magazine**, November/December 1990), we'll pass on except to put the drums in the middle of the room with a low three-sided absorptive screen around the back and sides of the kit. Proper screen height is just over three feet.

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The screen is not there to kill the drum sound in the room. Nothing but a closed room will do that, and a booth puts the drummer out of contact with the rest of the musicians. There's always headphones, but if they were any good, we wouldn't spend multiple thousands of dollars building acoustically-correct control rooms for speakers. Besides, when's the last time you saw people wearing headphones on stage?

Headphones are occasionally useful, but they're nowhere as good as speakers, and they don't even compare with live sound for cueing. Avoid them. If you need cueing leave the studio speakers on (which works better than you might think), or do what the experts do: use stage monitors.

Since a decent setup mostly eliminates the need for artificial cueing anyway, back to the drums.

The drum screen is used partly to give the drum mics something absorptive to work into and partly to prevent the drummer's hearing three sets of reflections from the kit. With the screen in place there's only one, from the control room wall and glass. He (she?) can play the other way, but the screen makes things a little more comfortable. Drummers like it.

With the drums centered and screened, the piano goes beside them with the hinge side toward the kit. A couple of ribbon mics work best on piano, but if you don't have them, use what you've got. Don't use more than two mics; you'll never get them in phase. Positions are shown in plan on *Figure 1*. The high end mic is usually 18 inches off the strings, and the low end mic is at about six.

If you don't have ribbons, or the studio acoustics are a problem, a six by eight foot screen will get you respectable isolation on the piano.

ELECTRIC/ELECTRONIC INSTRUMENTS

Bass and guitar are usually electric, in which case the amps can be placed at the front edges of the drum screen with their sides toward the kit. Put the amps up on chairs or the equivalent. The musicians can hear them better that way, and it improves isolation quite a lot.
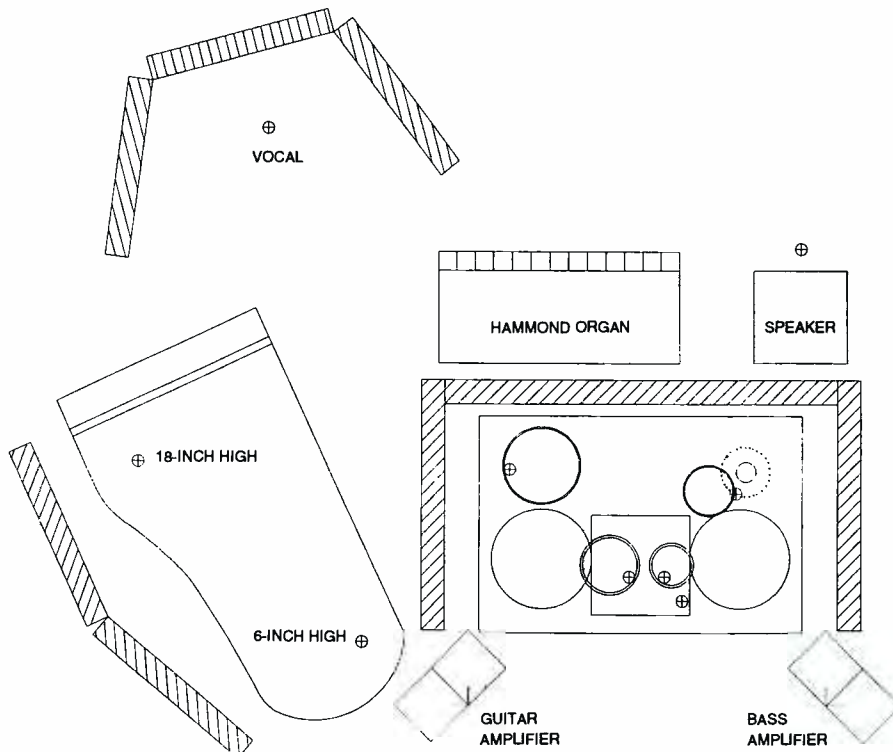

Figure 1. Absorbtive flats and mics in a typical small setup.

Electric instruments are typically picked up with direct boxes, but if mics are needed, the speakers can be close mic'd at their edges, or the amps can be put in three-sided 4 x 4 absorber screens similar to the drum unit to get some isolation with the mics a few feet off.

Given acoustic instruments, the 4 X 4 absorbers afford surprisingly good isolation with the instruments in about the same positions while preserving a tight setup. Don't forget to give the bass a resonator. A four foot square of wooden flooring (even plywood will do) on 2 X 4s will amplify and improve the bass sound a great deal. Basses and celli are made to work on wood floors, and without the floor, you're working with half the instrument.

Mics are dealer's choice here, but if you've got a condenser on a bass, look out for very low frequency energy. You may find the bass is badly out of balance on a small speaker

because of excessive signal below 60 Hz. Some 700 Hz boost will bring it up on the little speakers, and a 60 Hz cutoff will bring it down on the big ones. The cutoff helps a lot on poorly damped electric basses, by the way, and they're getting real common of late.

Drums are directional. Except for cymbals, there is surprisingly little sound back of a kit, and even that can be killed by making the back of the drum screen higher than the sides. Coming up to five feet will do it. Looks funny, but it works well.

The quiet area back of the drum kit makes vocal placement obvious. Close to the piano eliminates some cueing problems and generally works out nicely.

When a Hammond organ is on the menu, it can be placed in the otherwise useless spot just back of the drum screen. That keeps the keyboards close, and both can cue off the vocalist's live sound.
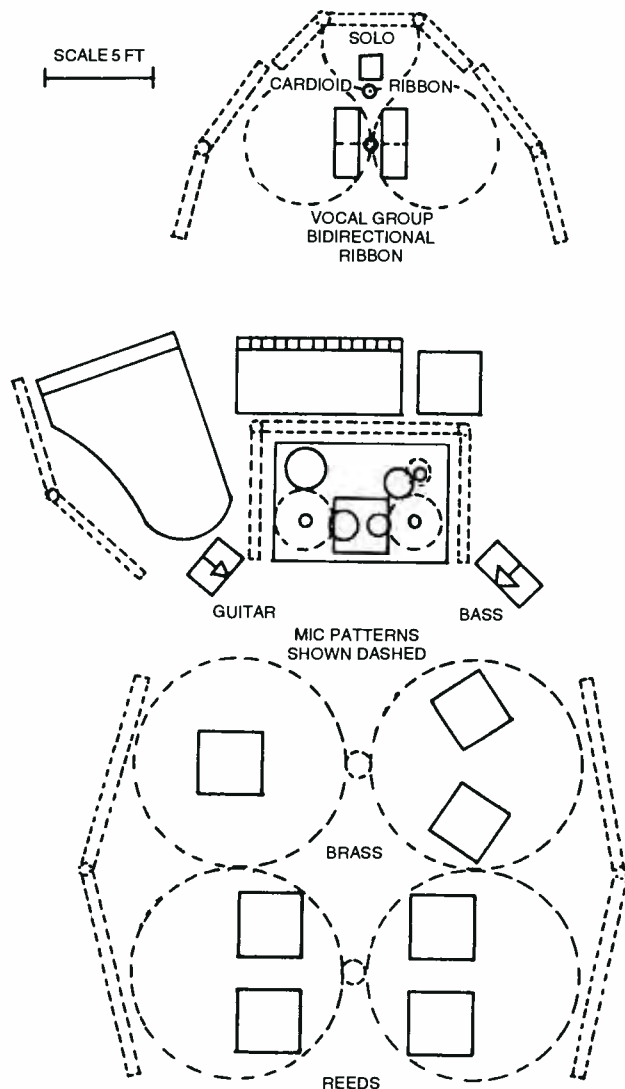
Figure 2. Typical mic pickup patterns are shown in this layout.

than most, which makes stringing a short section out in a line a really bad idea. The obvious solution is to seat them facing each other at ninety degrees to the drum kit, and the logical pickup is bi-directional mics in the middle. You can run into ego problems here as a good many section players tend to think of themselves as soloists in concert rather than members of a group. Actually musicians are both, but they sometimes feel very strongly about being individually mic'd. If that happens, use individual mics with the same seating pattern. It's not optimal, but when clients insist on telling you how to do your job, do it their way and let 'em find out why you like yours.

The overall result of all the above is a very tight setup in which no instrument is playing into another's mic, the players can hear each other without cue systems, and in which they can pass a note without standing up. It's about as close as you can get to the normal performance environment. The communications are excellent, the feeling of "groupness" is strong, and when the band hits a tutti, you can hear the room modes WHOMP! in response. That's the sound of power. Very satisfying stuff.

As to performance, you know you've got a session when the musicians remark that they're having a good time, and the setup system detailed here is designed to produce that feeling. Additionally, it's dead reliable. It works every time without anything much in the way of adjustments after the session starts.

Best of all, it's probably somewhat familiar. A great many live session engineers set up along these general lines as we all face the same problems and so find similar solutions.

To put it another way, this setup is neither a revelation nor a revolution. It is, however, a well-integrated system that has been worked out and used over a course of nearly thirty years of live session work without ever having needed to be revised on session.

There are a bunch of ideas here. If you see one you like, try it. It works for me, and it might work for you. ▣

A Hammond needs no screening, but a vocal does. Three-piece six-footers at the usual four-wide do very well. Four inch casters bring the final height up to about six-feet-five, and with the vocal mic pointed down as in film practice, that's enough. Down mic'ing vocals from eye level has a bunch of other advantages anyway, so nothing's lost.

Vocal backups are best worked as close to the lead as possible, especially for gospel and the like. A very useful trick for that situation uses either a bi-directional ribbon or two cardioid whatevers at right angles to the lead mic, and about three feet away. With a ribbon the lead-background isolation is absolute, and it's only two steps from one mic to the other. A ribbon mic is excellent for gospel, where you have very tight arrangements and interchanging lead vocalists. Depending as always on studio acoustics, extra screens may prove useful on either side of the background mic(s).

HORNS

Horn bands are a special problem, mostly because when brass instruments play loud they tend to go sharp, but the reeds go flat. That doesn't create a problem for big bands as the sections are separated enough so they don't mix, but with a only a few instruments you get studio intermodulation distortion, and it sounds terrible.

That's not to say horn bands can't play in tune. They can and do, but they need to hear each other better