



# NUTS and BOLTS

PART 20

## Studio Documentation, Part 1—The Track Sheet

BY ALEX CASE

**In** the next two columns we'll look at ways to document every detail of each studio project. Take sheets, setup sheets, and recall sheets are all useful parts of the well-documented studio, and we'll get to those next month. This month we begin with the best-known of all studio documents, the track sheet.

### Identifying tracks

The track sheet's most obvious and vital function: identifying what's been recorded on which tracks. What's on track 1? "Hi-hat." What's on track 19? "Background vocal #3—Low

Part." This labeling must be done so meticulously that to see an empty space on a track sheet is to know with 100% certainty that it is a blank track available for recording.

Then there is other information that belongs on a track sheet, mostly fairly obvious items that nevertheless sometimes are omitted. What good is it to know that track 1 contains the hi-hat when you can't tell what the song is? So start filling in your track sheet by writing down the song title. Don't leave it at that—list the artist, producer, engineer, and assistant engineer. On the off-chance that the track sheet gets separated from the multitrack tape—something that should never happen—all this information will come in handy.

If you are the studio, the engineer, the producer, and/or the artist, put a phone number, email address, or both on every single document having anything at all to do with the project. Make it easy for anyone who finds the document to find you.

You can buy blank tape for \$X. But once you start putting music and studio time on tape, that tape quickly

becomes nearly priceless, literally and figuratively. By including all of this information you minimize the chance of losing your investment.

All this is important, but the point of this article is the not-so-apparent information that should be included on each and every track sheet. Of course, not every project is recorded on tape, let alone analog tape, and digital audio workstations take care of a lot of the housekeeping for you. But the central concepts should be obvious enough that you can apply them to other media.

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### How fast was I going, Officer?

It is essential that the playback speed of the tape be clearly indicated. Can you actually play back a tape at the wrong speed? Yep. Does it really ever happen? You betcha.

On analog machines, that means noting the speed in inches per second (ips). Typical speeds are 7-1/2 ips, 15 ips, and 30 ips. Generally speaking, the

faster tape speeds lead to increased dynamic range. But rolling tape at faster speeds also leads to higher tape costs—each tick up in speed will double your tape costs. If the project is on a tight budget or if the band is long-winded and aiming for a double album, this can be a big deal. You make this decision before the first session, and then you document it on every track sheet.

There is a similar parameter on digital tape and hard disk recorders: sample rate, which must be noted (in kHz). Most common are 44.1 kHz, 48 kHz, and increasingly 96 kHz. As with tape speed, higher sample rates arguably lead to better sounding master recordings. But the higher sample rates require more tape or hard disk

space to store the increased data. The machine will usually know at once what the sample rate is, but you don't—so if you need to match rates from tape to tape (or disk to disk), write it down.

#### Are you my master?

Note on Figure 1 that the tape machine used is identified (just above the sample rate). I can't overemphasize this point: always, always note the make and model number of the machine that creates any master tape—be it 24-track, 8-track, or even 2-track. This not only identifies the format (um, it won't fit in an ADAT-type machine), it also identifies the specific model number.

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In a perfect world this wouldn't be necessary. All tapes played on all compatible tape machines would perform without a hitch. Bad news: it's not exactly a perfect world. Sometimes a tape recorded on one machine won't play back on another machine without glitches. If you keep track of the type of machine used, you can lower the odds that this problem will haunt you.

When the tape won't play on Bob's machine, it may be because it is a different model. Find, rent, or borrow a machine of the same make and model originally used during tracking and the tape might play back again without errors and drop outs. Sometimes the only solution is to go back to the original recording machine itself. In this case, make a safety copy onto a different machine as soon as you can. And be thankful your track sheet identified the source machine.

In the analog tape machine world, identifying the source machine is

TRACK SHEET

L = 60/min

artist: SCRIBE  
 producer: SPELL CHECKER  
 engineer: AUSTIN CASE  
 assistant: HUMBLE SERVANT  
 title: WRITE IT ALL DOWN  
 date: 14 FEB 00  
 studio: A ROOM  
 tape: OAS 60 MP  
 machine: OA-38  
 sample rate: 44.1 kHz  
 rest: 2 OF 4

Can Am! ESE-1122

1 H HAT 451 0/00	9 BASS-AMP B-15 447	17 SHAKER / TAMBO 14710 CASH 5.174 CATE-1 AS-20 00
2 K 0-12-E	10 BAND START / BELLMAN EGT 14.01 0: 57 - AIRCASH DMM	18
3 SN 57 An Bx PAD!	11 GTR-1 LHRT 442	19 ELVIS -50 Q BGV 3-LOW 547 60700
4 L   T R	12 PIANO 07 ATL-1 440200 255000	20 4050 00 - 175000 BGV 2-H (AE)
5 R   Toms 721 421 421	13 AED TELL / BEANER EGT 500000 LHRT 14 401100 442 57 144 00 - 235000	21 info ANY BGV 1-H1 VMI 0 175000
6 L   O/H R	14 BAND START / TUN EGT 5000 87 0 440110 235000	22
7 87 0 (COUNTS)	15	23 SCATTER LV (ONE) 547
8 SEP BASS-01 AK-133 (PONS-Bus)	16 RIDGE 447 0 175000	24-30 Q 200 LV LA-34 175000

17-82  
3/53/00

NO  
FISH

5 La. P...  
 1. E...  
 C...  
 M...  
 M...  


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Figure 1

arguably even more important. Analog tapes will play back fine on most any type of machine. The dramatic muting on and off and the signature 'zipper' noise that only digital recordings gone wrong can make won't dog your analog project.

But analog recordings generally sound best when played back on the same type of machine that did the recording. Mastering studios often have several different makes of analog tape machines for this reason. They can match the same make and model

you used to get the best sound off tape possible. Or the mastering engineer can resort to a different tape machine on purpose (not by accident) to find a different sound. As you can see, noting the tape machine used is a good idea.

# NUTS and BOLTS

If eq had been used, I'd turn the track sheet over and make notes there too. Should we have to re-track part of the vocal—which could easily happen: the songwriter changes a line, the singer wants to change the phrasing, a previously unnoticed mistake now seems unbearable and must be fixed—we'll be able to match the sound pretty closely and record any changes we wish. The entire signal path has been documented. Match those settings on the equipment, let the singer do a few takes to match his or her earlier performance, and you are ready to re-record any or all of the vocal track.

## How 'bout a date?

Note the date of the first tracking on the track sheet. As you get into overdubs later, capture the date of those individual tracks too. Having the date can help you hunt down and identify problems. Months after making these recordings, you will start mixing them. You may notice at mixdown that the acoustic guitar sounds brighter in one song than in another. A little investigation reveals that the strings were brand new on one song, and two days of heavy playing older on another.

This is an important observation. When you start mixing a third song, you can glance at the date of the acoustic guitar overdub and know before listening whether you have a bright or dull tone to start with.

The date of each track can answer a range of other, similar questions:

For a given piano track, how long had it been since the piano was tuned?

Was this backing vocal cut before or after she had her cold?

Was that track recorded before or after we cleaned the heads on the multitrack?

The dates essentially provide an audit trail, should you want to answer some of these kinds of questions as sonic peculiarities unfold. It is quite possible you'll never need the dates. Keep track of them just in case. Some problems are darn

subtle and might go unnoticed for days, weeks, or even months. But once you discover that the pedal on the kick drum has developed a faint but powerfully annoying squeak, you'll want to figure out when in the course of the project this started, what songs might need fixing, and which ones are safe.

In no time you'll have six tracks dedicated to the guitar solo, and a dozen tracks for alternative, possible, 'I think so' lead vocal tracks.

## Signal path

As you can see from the hieroglyphs on Figure One, we squeeze still more information onto the track sheet. Ideally, try to describe the settings of each piece of gear in the signal path.

The Lead Vocal on Track 24 offers a good example. This particular overdub was recorded through an AKG 414 in cardioid pattern, without a pad, and without a roll-off. The microphone preamp settings and compressor settings are shown too. Granted, it is shown in a very abbreviated form, but it tells me what I need to know. Develop your own detailed code.

As you can see, for this session I always documented the vocal tracks fully. That is standard operating procedure; the vocal tracks are important enough to demand it. The tambourine track, on the other hand, only indicates the mic and date. I'm not really worried that I'll have to modify a piece of this track. Noting the mic reminds me of what sort of sound we were going for, and I can get close enough to that sound again if need be.

The electric guitar (noted EGT on track 10) needs a fuller description. The guitarist brought in maybe half a dozen guitars, and two amps. Moreover, the studio has five guitars and three other amps. The track sheet therefore notes the guitar, the amp, the microphones, and any signal processing going on.

Of course, guitarists do a lot to shape their sound through the various tone and pick-up settings on the instrument, as well as the many settings on the amp and any stomp boxes being used. This gets tricky. Most guitarists I've had the pleasure of working with have given a lot of thought to their tone. They've mapped out all these settings for each and every song they track. They can dial them up consistently without writing them down. In this case, I let them keep track of their settings on the guitar rig mentally, and the assistant and I make notes of our settings in the studio manually.

Less experienced guitarists might need you to capture their settings too. This can slow down a session significantly, especially if you don't

Table 1: Some suggested abbreviations (make up and use your own):

Kick Drum -----K	Snare Drum-----Sn
Hi-Hat-----HH	Drum Overhead Microphones----O/H
Rack Tom 1 -----R <sub>1</sub>	Rack Tom 2 -----R <sub>2</sub>
Floor Tom-----Fl	Acoustic Guitar -----AGT
Electric Guitar -----EGT	Piano-----PNO
Tambourine -----Tambo	Lead Vocal-----LV
Background Vocals -----BGV	Double -----DBL
Do Not Use-----DNU	Do Not Erase -----DNE
To Be Erased-----TBE	Serve Pickles Often -----SPO

TRACK SHEET

artist: SCRIBE  
 producer: SPILL CANTON  
 engineer: ALAN CASS  
 assistant: HAMBLY SEBAST  
 title: SHARP PENCIL

date: 14 FEB 00  
 studio: A ROOM  
 tape: DAKS 00 MP  
 machine: DA-38  
 sample rate: 44.1kHz  
 reel: (1) of 4

track	notes	times	cues
1	AK184	5:34	16780
	6:13 ?	5:41	V1
	7:31 14?	5:52	
2 AGT	4:14 QP -	6:03	C1
		6:14	
		6:33	V2
		6:44	
3	ASAT/MRJA	6:55	"F"
MUTED EOT DFF 17FEB00	VERBOS DAKV	7:06	C2
		7:17	
4	DI = BSS - DAK - 1605	7:37	V3-SOLO
JAZZ BASS 17FEB00		7:48	MARKET
		7:59	
		8:10	C3
5	4:14 QP - C1, C2, C3		
HARM + OBL 18FEB	LAB102 +42 COUT	8:40	V4
	ABX1605 (LONG)		
		8:51	-2
6	4:050 QP -	8:56	
AGT SOLO 17FEB00	DAK - 30 Q	9:02	-3
	+ 3 @ 15kHz FMT	9:09	OUT
7	VM1 - DAK @ -30 Q		
LV VM1 17FEB00	-L31 (j) (i)		
8	-SERENA -Tambo -KIT		
SEQUENCE (Rough Mix) 14FEB00	-RINGS -Lead 909		
	-E-PAUL -Lead PAUL		
	DFF = 00:05:30		

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Figure 2

have an assistant engineer. In these situations, I encourage the guitarist to work with the guitar tone controls set to wide open (turned all the way up so that the tone controls aren't shaping the signal). This typically leads to a better tone anyway, and it

is easier to repeat at a later date.

The various settings on the amp are manually transcribed onto a sheet of paper. This sort of note taking in a session will be discussed in detail next month. But be forewarned: it is often necessary to write

down the settings of guitar amps, compressors, equalizers, etc. These notes are taken on a specialized studio document called a recall sheet. This enables you to, you guessed it, recall any studio setting that you may have recorded.

On the track sheet we've noted a good deal of information about the project and each individual track recorded. When there isn't room to document the entire signal path for a given track, we turn the track sheet over or reach for recall sheets. In this way, we have the paper-based support information needed for every bit of audio we are putting on tape or disk.

For the session shown in Figure One, each drum track has recall sheets associated with it documenting the settings of the equipment we used that day

you're now talking  
about dozens—  
or hundreds!—  
of takes...

during basics. So in the end, the track sheet only shows settings for select overdubs. There are pages and pages of notes (not shown here of course) associated with the other tracks.

A good track sheet presents this information clearly. Try not only to write neatly, but also to work visually. I use symbols and abbreviations wherever possible to make the document easier to read. By the end of the project, it's going to be a crowded piece of paper—Figure 1 makes this abundantly clear.

But for the engineer, the producer, and anyone else who works with us, the document communicates a lot of information in a little space. Table 1 highlights some of the common abbreviations I use. Many engineers doodle cartoon-like pictures for certain instruments. Create your own system. Just make sure you can read it in low light and write it quickly during more frenzied sessions.

#### Don't fear erasure

During an overdub session, it is pretty common to record multiple takes of the same part. EGT Solo, take one. Sounds great. Save it on track 11 and do another take on track 12. Take two is just okay. Erase it by recording over it. Record an additional take over again on track 12. The next take onto track 13, then track 14. On and on it goes until everyone is satisfied that they have the killer take of the universe.

Save the good takes and wipe (i.e. erase and record over) the so-so

takes. This process is often an effective way to capture a guitarist's best solo. The reason this is important is that unlike live performances, which disappear as soon as they occur, a recorded performance must stand up to repeated playing. It is essential to the success of the recording that listeners continue to enjoy the solo even after they've heard it on the radio 17 times. And the psycho-loyal fans are going to copy, transcribe, and critique the performance note by note, string bend by string bend.

This doesn't leave room for the other elements of the arrangement. The featured performer, the engineer, the band, and/or the producer should commit to the take as soon as possible. I recommend designating the favorite solo right there at the overdub session. At my most generous, I might let the band think about it and listen to it overnight. But the next session begins with a designation of the keeper track, and all the others get labeled TBE ("to be erased").

It is pretty common during a pro-

...and even if you don't have to erase them to make room on your disk, you'd darned well better have a good way to know which are the keepers, and fast.

Collecting takes onto different tracks is a decent approach. You can even edit together the best parts of various takes into a single meta-solo. However—and this is very, very important—the process is a total failure if you don't take the necessary second step.

Step Two: after you select the keeper take, get rid of the others. Filling up the multitrack with 'safety solos' that you are afraid to erase will come back to haunt you. In no time you'll have six tracks dedicated to the guitar solo, and a dozen tracks for alternative, possible, 'I think so' lead vocal tracks.

ject to invite/hire a special guest to sing or play across a number of tunes on the album. You've got maybe eleven different songs. In the course of this overdub session the guest talent flies from one song to the next. "Nice take, let's try that sort of thing on the other ballad." You've got to zip to the next song, pull-up a great sounding rough mix in the control room, dial up a terrific sounding mix in the headphones, and prepare to record the dub onto a free track.

That's a lot to do all at once. The track sheet needs to communicate clearly exactly where all the tracks

## Media

The track sheet—and all studio documents, for that matter—works best when it is recorded by hand, in pencil. It is tempting, in this age of slick computer graphics, to transcribe your track sheets into some sort of computer generated format. After a session, you kindly take the track sheets into the office and type them into the computer. Nifty. Cut and paste some graphics, select a cool font, and the print outs will look slick.

Please, don't do it! The track sheet is a living document. At any point in the project, from the basics session to the mastering session, the track sheet should welcome creative and free thinking. If the music suggests you should erase the cello and track a triangle, then do it. If you've gone to the trouble to type all the tracks into the computer, you'll hesitate an extra bit. Replacing the cello with a triangle means that tonight, after the session, you'll have to type in the change and print out a new one.

That's a chore. And it just isn't necessary. Moreover, if it diminishes, in any way whatsoever, the creative energy of the project, then it is a mistake. The manual track sheet system is the preferred approach.

In addition, a good track sheet has little scribbles and notes that, though meaningful to the engineer, may not seem important to the assistant transferring it into the computer. In computerizing it, some of that information is inevitably lost. Stick with hand written track sheets.

Some people, though talked out of using a computer for keeping track sheets, make a worse mistake: they use ink. Ink doesn't erase. Tape does. Use pencil. We record on tape or hard disk because it's easy to erase and record new ideas. Erasing and re-recording is an everyday part of modern multitrack music production. The track sheet should follow. Consider it law: track sheets (and all studio documents) should be done in pencil. Pens and laserjets are too permanent. They are strictly forbidden.

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# NUTS and BOLTS



of audio are, which tracks to use, which not to use, what can be erased, and so on.

It is wise to allocate tracks as consistently as possible across a project so that, for example, the snare is always on track three and the lead vocal on track 24. Allocate the more variable musical elements to other tracks. Not every song has piano. Some use clavinet, some just use guitar, etc.

Good habits laying out the track sheet consistently from song to song reduce the effort associated with advancing to the next song for the next overdub. With maybe drums, bass, and rhythm guitar already set up and sounding balanced for control room and headphone monitoring, you can tweak the didgereedoo and trombone as required for this particular song and get on with the overdub.

Clear notes like TBE communicate exactly which tracks can be nuked if necessary to accommodate additional overdubs. The session loses momentum if you have to pause the overdub session and look for an available track. "Umm, it says here,

Good habits laying out the track sheet consistently from song to song reduce the effort associated with advancing to the next song for the next overdub.

'tambo, take 3.' I think we're going with take 2. Hang on a minute while the producer and I listen to all five tambourine parts and figure out which one we can erase. Oh! You're sounding great. Love the energy in that last take. Give us five or ten minutes and we'll do another."

And all of this goes double for those nifty modern hard disk recorders that let you save gazillions of takes per final track! Some manufacturers, like Roland, provide you with a certain number of alternate takes per track; others, like Akai, offer a generalized pool of available edits and alternate tracks. Either way, you're now talking about dozens—or hundreds!—of takes, and even if you don't have to

erase them to make room on your disk, you'd darned well better have a good way to know which are the keepers, and fast.

Push the decision makers to decide. If you are the producer or if it's your music, step up to the plate. But even if you are just acting in an



engineering capacity, help the session by coaxing these sorts of commitments out of the key players. Hedging your creative bets by archiving countless mediocre takes will needlessly increase the studio time (a budget breaker) at the very least.

Worse, and more likely, it will rob the project of its creative and performance edge. Safe albums don't usually sell.

Next month we discuss the rest of the studio documents: take sheets, setup sheets, and recall sheets. Good studio documents are a session tool you can have without parting with too much money. Sure it would be more fun to buy another microphone or compressor, but it's worth the effort to develop and use these documents thoughtfully.

Alex Case doesn't stop at studio documents. You should see his grocery list. Send questions and suggestions to [case@recordingmag.com](mailto:case@recordingmag.com)



## Home Made Documents

If you've got a printer and some graphics skills, by all means go ahead and create your own studio documents. You'll need a track sheet—maybe both an eight-track and a twenty-four-track version, maybe others. You'll also need a take sheet suitable for any type of session, live to two or multitrack. You'll want a setup sheet that outlines the basic studio setup for any session you might encounter. You'll create recall sheets for every piece of you own so you can document their use in any application. And—my favorite—design a professional looking invoice. That's the itemized list of expenses for a session (studio time, engineering time, tape costs, shipping, special gear rental, meals, limos, etc.). The cool part of the invoice is the part at the bottom that says, "Please pay \$X,XXX dollars. Make checks payable to the order of, "Me, the engineer."

In creating these documents, you'll naturally want to give them a professional look that supports your image and reputation. You'll give them a consistent, integrated look, using the same font for example. Go to town. But here are some other things to consider:

### Space

Leave adequate space where required for the document to work. A large logo might look cool now, but it won't leave room for the engineer to write all the information legibly. On a track sheet, the space for the tracks should be as large as conveniently fits. I've seen track sheets where the number in each track space was so large I couldn't write the words, "Lead Vocal." When blank, the track sheet should be mostly open space for notes. When used, the document should welcome, even inspire, clear note taking. In addition to the tracks themselves, I leave room to write particularly important items like the name of the artist and the song titles in larger print.

For eight-track projects, I use a separate track sheet that leaves even more room for all kinds of notes (see Figure Two). This month's article discussed the wealth of information that must be recorded on the track sheet. As the attached Eight-Track Sheet shows, even more is documented when possible. Scribble cues off to one side of the page during the course of the first playback of the song so that you can instantly find verse four when asked. Note when the harmony vocal is singing (e.g. choruses only). Note the times of problematic spots to go back and check. I think I heard a flubbed note on the Acoustic Guitar at about 6:43 and a fret buzz around 7:31.

### Paper

These documents get pretty rough treatment. You'll use them at the basics session, at every overdub session, and finally during the mix sessions. They'll get written on, erased, written on again, and erased, and written on again.... It's inevitable that they'll be used as coasters, scratch paper, and note paper. They'll document audio tracks, phone messages and food orders. If your track sheet does all these things, it's a session asset. And it will better survive all this abuse if you print it on to heavy paper. Even card stock isn't a bad idea.