

# Using Your Portable Studio

A complete course in the art of using a portable studio. Over 30 recording "recipes" throughout the book and the special Portable Studio Cookbook section can show you how to produce professional results on a home-studio budget.

by Peter McIan



moves. From the trail you can recreate the journey the slug took. The slime trail is an analog of a slug out for a stroll.

Those are the basic mechanics of how the tape recorder works and how sound gets onto tape. Seems simple enough.

## Simple? So How Come My Recording Sounds Borderline Lousy?

Oh yeah. That's because there's a lot of opportunity for error in the process. The key term that I will pound away on is **signal-to-noise ratio**; that is, the relationship between what you want to hear and what you don't. Noise is what you don't want to hear. At all. Ever. Unfortunately, some noise is an inherent part of the recording process. And so the battle begins. Remember: noise is the enemy — it is Darth Vader to your Obi-Wan Kenobi, it is the dark side, the yin to your yang, the Riddler to your Batman, and so on ad nauseam. In short, noise is a bad thing. But it can be defeated if, as the old saying goes, you “know thine enemy” and are ever vigilant. A big part of the rest of this book is devoted to getting rid of noise in one way or another.

## Noise

Music is organized sonic energy. Noise, quite simply, is random, unorganized energy. If you want to see what noise looks like, check out your TV picture when you're flipping between stations. All those white dots called “snow” are noise. They show the presence of energy transmitted to the tube that doesn't add up to anything recognizable (unless you are, shall we say, a very unusual person).

When we're talking about audio recording, noise is *the random excitation of oxide particles on the tape*. When the energy going to tape is organized you have an analog of whatever you're recording. When the energy going to tape is disorganized you have the auditory equivalent of snow.

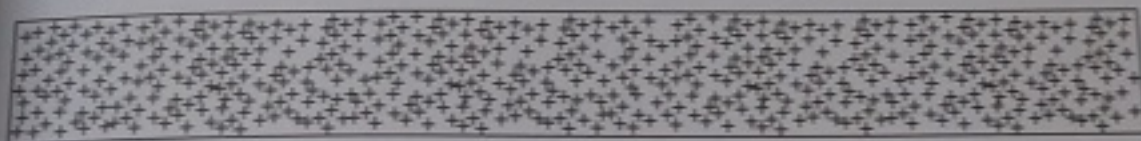
## So Noise Sucks! Well, Mostly.

Here's a general rule. Whenever signal is being transmitted there is the possibility of noise, and an effort has to be made to avoid it. But not all noise is unintentional. A very specific kind of noise is actually necessary to the recording process. This is called **bias signal**.

## Bias

The subject of bias can be one of the great black holes of recording education. The physics of bias and magnetic fluxivity have been the topic of whole incredibly technical dissertations. Real high-octane stuff read and used by genuine brainiacs. I don't think we need that just now. So let me describe it in a little more functional way. All you really need to know is that tape recorder bias is a high-frequency low-level signal sent to the tape by an oscillator in the machine whose function is to get the molecules of oxide moving around so they are ready to accept signal. You see, molecules of oxide won't move unless they have to (which is often the case with me, too). The biasing signal is sort of a little electronic goosing used to overcome inertia so the molecules are ready to line up and go to work when called upon.

Magnetic tape before charging by recording



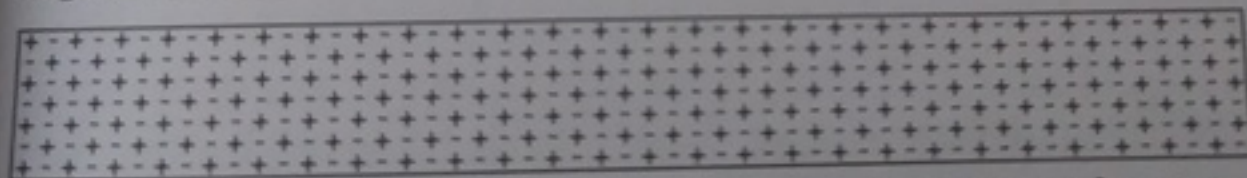
thin plastic backing—oxide particles are randomly distributed

Put into record mode



bias signal is sent to initialize tape

Signal is recorded



record head organizes particles in response to input from source

Why this becomes important to you, the recordist, is that the bias while necessary, is for all its noble purpose, noise. It is a random exci