

Sound Tips and Techniques in Print, Online

Three Audio Books Reviewed

BY ALAN HARDIMAN

When it comes to books about audio, I've always preferred the prescriptive type that attempt to tell you how to do something, as opposed to the descriptive variety that talk about products or people and how successful they have become. That's why I got pretty excited when Focal Press sent me three volumes for review. From the titles alone, I could tell I was in for a "how-to" feast.

Recording Tips for Engineers

First up is Tim Crich's *Recording Tips for Engineers*, Third Edition. The subtitle says it all: "Over 1,000 easy-to-use tips, hints, tricks, how-to's, set-ups and explanations for today's recording engineer, musician and home studio user." And Crich should know—his book is based on 20 years in the studio working on records by the likes of The Rolling Stones, John Lennon, Kiss, U2, Billy Joel, and Bryan Adams.

His tips are all in easy-to-digest bullet form—perfect for the attention deficit types among us, and for picking up now and again in the "throne room" as an alternative to *Readers Digest*. Much of the book concerns microphone techniques, and for that reason alone, it's worth the cover price of \$34.95 (slightly higher in Canada).

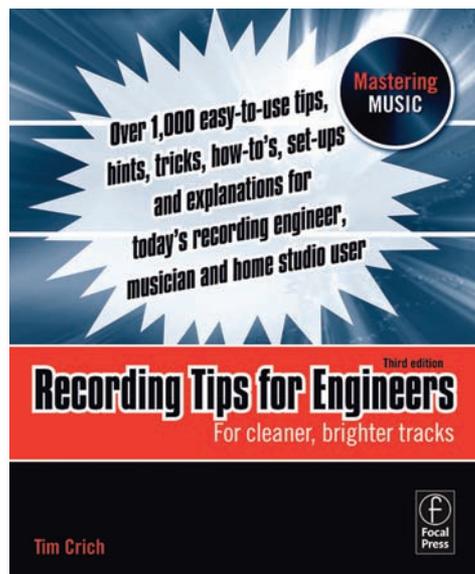
For example, one nifty little tip is to duck the reverb return on a vocal, using the vocal itself as the key input. "The vocal is usually the most important thing in the mix, so clarity is paramount. Try running the main reverb through a noise gate on the 'duck' mode. The singer sings and the reverb ducks to give the vocal some room. When he stops, the gate opens and all the reverb returns. This tricks the listener into thinking the reverb is on throughout the passage."

Arguably, the most pragmatic tip in the book is his Rule of

Thumb: "Make the guy who signs your check sound best."

My quibbles with the book are few, and concern mostly his forays into theory. A chart showing the ranges of various instruments within the audio spectrum places some instruments an octave too high, an error reinforced in the text when he writes that "the A string on an acoustic guitar vibrates at 220 Hz" when, in fact, the fundamental frequency is 110 Hz. Later in the book, he notes correctly that the low E string vibrates at about 81 Hz, so one can't help but wonder whether poor editing is at the root of the misinformation.

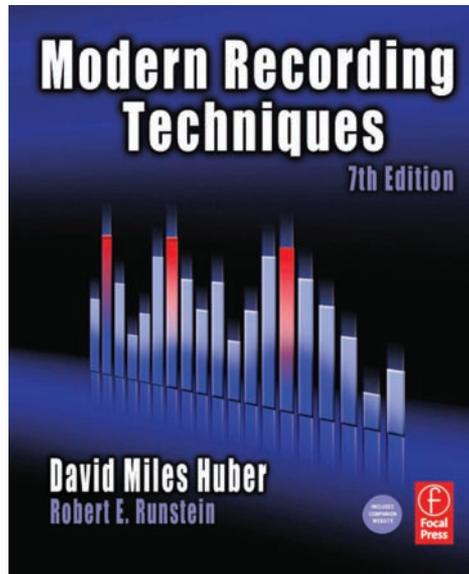
Discussing wavelength, Crich notes correctly that "wavelength is equal to the speed of sound divided by the frequency," but goes on to say, erroneously, that "220 Hz has a wavelength of about one-and-a-quarter feet; 440 Hz has a wavelength of about two-and-a-half feet." The wavelength of 220 Hz is, in



fact, double—not half—that of 440 Hz, being closer to five feet.

Did anyone with a technical background ever proofread this volume, now in its third incarnation? These sorts of errors give rise to a lack of confidence in the author's grounding in his subject, and the book may have been better had the theory been omitted—or at least proofread by knowledgeable eyes.

My advice is to skip the theory chapters at the beginning and buy the book for the tips and practical advice. Even old dogs with decades of experience will learn a few new tricks. Recording Tips for Engineers, Third Edition is a “must have” handbook.



Modern Recording Techniques

The second book at hand is *Modern Recording Techniques*, 7th Edition, by David Miles Huber and Robert E. Runstein. This book has secured a place as the audio reference textbook in dozens, if not hundreds, of college courses. Coming in at over 650 pages, it covers the ground from audio theory to studio practice and everything in between, including contemporary production techniques such as grooving, looping, warping and beat slicing.

A companion web site, www.modrec.com, contains useful audio tutorials that are referred to in blue type throughout the book under the heading ‘DIY Do It Yourself,’ as well as an audio glossary, video tutorials, and audio web links. Most of the tutorials offer downloadable audio files that readers can play in order to learn more about such topics as masking, compression, proximity effect and phase, among many other things.

Watching a video of the author walking around a Telefunken M216 microphone and hearing him speak while different directional characteristics are switched in can only increase one's understanding of polar patterns and microphone selection. An audio tutorial on analog tape modulation noise featuring audio samples from a Studer A80 once owned by Bruce Swedien, and for comparison, an Otari 5050, is also highly instructive.

This book is rightly centred on the use of the digital audio workstation in audio production today. I doubt that there are very many studios of any size that do not use a DAW for at least some production tasks.

I still have a well worn copy of Runstein's original 1974 edition, in which digital PCM recording is mentioned only in the chapter on tape noise reduction techniques, alongside Dolby, dbx, and Burwen products! While much of that first edition was, naturally, given over to analog tape recording, and included highly detailed instructions for the

daily task of tape recorder alignment, the current edition witnesses the passing of tape technology by omitting any practical guidelines for analog recorder cleaning, demagnetizing, and alignment.

Given that analog recorders are still favoured by some prominent mastering engineers, however, it may be a simple matter to incorporate Runstein's chapter on magnetic tape recording, EQ, and alignment in a future edition, if only as an appendix.

This is but a small quibble, considering the monumental achievement of the authors in presenting a vast amount of material to beginning and intermediate students of audio through the media of print, audio and video. *Modern Recording Techniques*, 7th Edition is not so much a book as it is a multimedia excursion into the subject. Even at \$49.95 (slightly more in Canada), it's a steal—very highly recommended.

Small Signal Audio Design

I've saved perhaps my favourite book for last, Douglas Self's *Small Signal Audio Design*. This 550-page book—its technical heaviness balanced by the author's light hearted and good humoured approach—will take up residency on my shelf alongside Walter Jung's *Audio IC Op-Amp Applications* and *IC Op-Amp Cookbook*, and Don Lancaster's *Active Filter Cookbook*, two staples underpinning my modest design and repair activities.

Focusing almost exclusively on audio at the electronic component level, Self introduces the reader to the properties of integrated circuits, resistors, capacitors, inductors, and transistors as they apply to useful audio devices such as filters, equalizers, preamplifiers, volume and balance controls, inputs and outputs, signal switching circuits, mixers, metering, power supplies, and

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analog interfaces with the digital domain.

A generous assortment of sample circuits accompany the discussion of each type of device, and the author weighs their comparative advantages and shortcomings, usually concluding with his own well considered recommendation.

Along the way, he surveys a number of op-amps, concluding that the venerable 5534/5532 (single/dual) is pre-eminent in audio work and “a powerful reason is required to pick any other device.” Last notes that the 5532 has been “criticized by subjectivists who have contrived to convince themselves that they can tell op-amps apart by listening to music played through them. This always makes me laugh, because there is probably no music on the planet that has not passed through a hundred or more 5532s on its way to the consumer.”

He also advocates the use of ± 17 V power supplies in audio circuits versus the more common ± 15 V supplies because they increase headroom and dynamic range by 1.1 dB with no sacrifice in cost or reliability. Moreover, he warns that moving from ± 17 V rails to ± 18 V rails yields only 0.5 dB more headroom and is “going

to cause difficulties if you want to run op-amps with maximum supply ratings of ± 18 V from the same power supply.”

He then provides a straightforward design for a ± 17 V power supply that can be built using 15 V IC regulators, the ubiquitous 7815/7915 pair, and modified to provide the extra ± 2 V.

I found the chapters on volume and balance controls and signal switching particularly illuminating if only because these are parts of audio equipment that we most often take for granted, rarely giving them a second thought unless they fail. It is reassuring to read that that while a mechanical switch is as ‘on’ as the resistance of its contacts and connections allows, it is in general terms a good deal less ‘off’—typically “the offness is only -66 dB, and grounding the unused side of the switch only improves offness by about 2 dB,” Self writes.

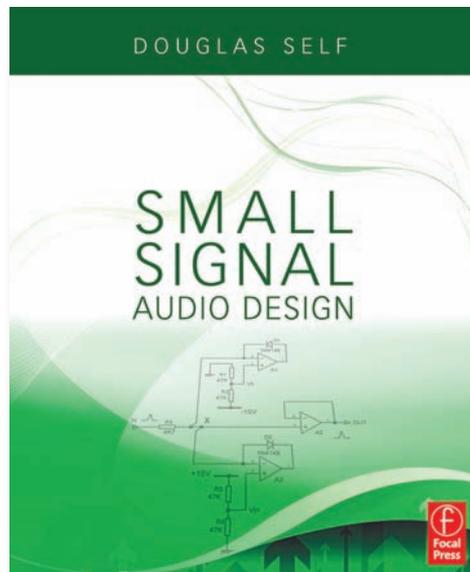
(So that’s why at high levels you can still hear muted channels on a Mackie mixer if you leave the channel faders up!)

The author then examines a number of alternatives to mechanical switches in a most instructive discussion, with a view to increasing signal attenuation in the ‘off’ position and eliminating the annoying click when the switch is actuated. Like Huber and Runstein, Self maintains a website to which he adds new material on an ongoing basis, and where he can be contacted by readers wishing to discuss matters in detail.

The website also contains a list of printing errors that should be consulted prior to constructing any of the circuits in the book, since some component values are wrong as they appear in the book (<http://www.douglas-self.com/ampins/books/errata.htm>).

Finally, PCBs, kits, and built circuit boards of some of the designs in the book can be obtained online at a companion website, www.signaltransfer.freeuk.com.

At \$73.95 (slightly higher in Canada) Small Signal Audio Design isn’t cheap, but it may just motivate you to dig out the old soldering iron, roll up your sleeves, and sit down at the bench for a satisfying afternoon that will no doubt drag on into the evening. It might even make you feel like a kid again. **B**



Book Reviews in a Minute!

A quick summary of Alan Hardiman’s reviews:

- > **Recording Tips for Engineers**, 3rd edition, by Tim Crich. Written in bullet form, this is a handy practical guide of useful information. Lots on mic positioning for various situations, as well as humorous but common sense things (e.g., “always make the guy who pays your check sound best.”)
- > **Modern Recording Techniques**, 7th edition, by Robert Runstein and David Myles Huber. A complete, comprehensive approach to the studio, covering all the bases. Currently the standard, it has replaced John Woram’s Recording Studio Handbook, now long out of print. Completely revised and updated.
- > **Small Signal Audio Design**, by Douglas Self. A great desk and workbench reference coming in at 550 pages, covering components, transistors, op amps, and applications in building and modifying filters, mic preamps, mixers, line inputs, balanced I/O devices, metering and so much more. Most helpfully, circuit boards and component layouts for many of the circuits examined here are available online.



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