



Heathkit Hi-Fi and Stereo Products

by: Chuck Penson - WA7ZZE

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Heathkit Hi-Fi and Stereo Products is Chuck Penson's third Heathkit book (Figure 1), each covering a specific product line; his previous two books cover the Amateur Radio Products¹ and the Heathkit Test Equipment Products². Chuck is also the author of *The Titan Handbook - A civilian's guide to the most powerful ICBM America ever built*; a fitting subject as Chuck is retired from the position of historian for the **Titan Missile Museum** near Tucson, AZ.

Heathkit's first audio product, the A-1 Hi-Fi amplifier was announced in their November 1947 flyer. It was only the third Heathkit offered, and the first non-test equipment kit. The two preceding kits were the O-1 oscilloscope and the V-1 VTVM. No Heathkits had yet received model designations at the time. It wasn't until almost five years later that Heathkit delivered the AT-1 amateur transmitter, its first ham radio product³ (excluding general coverage short-wave receivers). Kit Hi-Fi and stereo equipment remained a solid Heathkit product line into the eighties when low-cost equipment from overseas cut heavily into their bottom line. Thus this book covers a significant part of Heathkit business and Heathkit history.

Here is a link to the index of Heathkit of the Month (HotM) articles:

http://www.w6ze.org/Heathkit/Heathkit_Index.html



Figure 1: Book Front Cover (Photo from the front cover of the Fall-Winter 1961-62 Heath Catalog)

The book starts with an introduction, followed by five chapters, each covering a specific category of equipment, except the fifth chapter which contains a collection of remaining kits that do not fit one of the first four chapter categories. The sixth chapter presents the schematics for the W and WA series of Williamson amplifiers and preamplifiers, historic due to the improvement in fidelity from previous amplifier designs. The next three chapters are three indices of the contents of the book, they appear by model #, by product type and by chronology. **Table I** lists the chapters, number of kits they cover and pages in the chapter.

Introduction (Chapter i):

Don't make the mistake of skipping over the introduction in any of Chuck Penson's Heathkit books. They are easy reading and full of

Ch.	Title	# Kits ¹	Pages
i.	Introduction	-	14
1.	Preamplifiers	15	14
2.	Amplifiers	79	58
3.	Tuners	31	28
4.	Receivers	19	22
5.	Related Products	66	40
6.	W-Series Schematics	13	14
7.	Model Number Index	-	4
8.	Product Index	-	4
9.	Chronological Index	-	4

1. Items updated with new letter designations in their suffix are counted as a separate item.

Table I: Chapter Titles, Kits Listed and Pages

Heathkit history, well explained technical information, design styling nuances and history, safety notes, and general information about model numbering, sales and chronology.

It is in the introduction that the author describes his philosophy for the book, and provides the readers with information that will help them glean more from the rest of the book. He also takes a few paragraphs to explain many aspects of the Williamson amplifier (that offers very high frequency response, sometimes to over 100 kHz) and some history of output transformers and “Ultra Linear” amplifiers.

Hi-Fi amplifiers often received some of their specifications from the sales department rather than engineering. Chief among these specifications is power output rating. In an effort to thwart schemes to make the power seem higher than it is by competitors, Heath was upfront on how it determined power output. This is explained further in the introduction. Perhaps it worked, and that’s why creative sales representatives have moved to the ham and consumer antenna market, specifying antenna gain?

Chapters 1 through 5

The format that chapters one through five follow are similar. Each product is presented individually or grouped with its revised (“A”, “B” etc.) versions along with a photo or series of photos. Many of these photos were taken by the author, mostly from the Heathkit collection of Jerry O’Reilly. Other photos are from Don Peterson’s collection and from the Heathkit catalogs. In a few instances a photo is not available of an early product and then, when possible, a drawing from a Heathkit flyer is used. In some instances the actual product appears differently from the prototype photo or drawing offered initially, in that case both illustrations are often presented.

Included with each product are its specifications⁴ as shown in the manual or advertising. Also often included are charts and graphs showing aspects of performance, as well as drawings from the manual related to wiring options for specific reasons (such as using a different preamp, etc.) Below the kit model heading the original factory cost and span of production are given for each kit and any subsequent revisions.

One, up to more than a dozen paragraphs are written for each kit describing things like the kit’s timeframe, its origin (what kit it replaces, if any), it’s successor (what kit replaces it, if any), unique aspects of the kit and a general discussion of the kit, often including important tidbits. Heathkit occasionally updated the physical appearance of a product, changing the model number but making little or no changes to its circuitry or performance. These are noted in the book.

Preamplifiers (Chapter 1)

Frequently, preamplifiers are built into the amplifier and a separate preamplifier is not needed. The biggest exception being early Hi-Fi amplifiers such as the Williamson de-

sign amplifiers. Many later high-end stereo systems also utilized separate preamplifiers. The ones offered by Heathkit are discussed in Chapter 1 which covers the AA-11 through the WA-P2, fifteen preamplifiers in all.

Amplifiers (Chapter 2):

Amplifiers - monaural, stereo and quadraphonic; tube-based and solid-state; both with and without built-in preamplifiers - are covered in Chapter 2. These amplifiers range from the 3-watt, tube-based EA-1 mono amplifier to the 250 watts-per-channel, solid-state, AA-1800 stereo amplifier.

Sixty different models, some with "A", "B" etc. revisions are included. Special detail is included for the eleven Williamson "W" prefixed amplifiers, the WA-A1 – W-7M which by themselves take up 15 pages in the chapter.

Tuners (Chapter 3):

Heathkit offered over the years 29 different monaural and stereo tuners, of which 11 are solid-state. Tuners came in five varieties, AM, FM, FM Stereo, AM/FM and AM/FM stereo.

Of interest are some AM tuners built in the day of promised extended fidelity AM broadcasting. Also of interest are the early FM tuners designed in the day when 100 MHz was considered a challenge for kit designing.

Receivers (Chapter 4):

Receivers are the "Prego" of stereo devices ("It's in there.") and include the preamplifier, tuner and amplifier all in one box. The tuner can be either AM/FM or FM only. Receivers can also include a tape deck, though Heathkit offered only 8-track decks on the two receivers that had decks.

All the receivers offered by Heathkit were stereo except for the lone AR-27 that was

monaural and the AC-1122 and AR-2020 that were 4-channel quadraphonic.

Many receivers originated as separate amplifiers and tuners, others gave birth to separate amplifiers and tuners. The author points these out throughout chapters two, three and four.

Related Products (Chapter 5):

This chapter is a potpourri of kits that don't fit in the first four categories. It includes phonographs and record changers, reel-to-reel tape decks, tape deck electronics, reel-to-reel tape rewinders, cassette tape decks, 8-track tape decks, stereo credenzas, stereo consoles, audio processors, audio scopes, equalizers, power meters, speaker selectors, headphone control boxes, spectrum analyzers, pink noise generators, graphic output indicators, crossovers, stereo and four-channel decoders, microphones, historic AM radios, reverberation units, FM monaural radios, stereo converters for FM monaural radios, FM stereo radios, and FM multiplex adapters. None of these, with (barely) the possible exception of phonographs and tape related products, are in a quantity great enough to warrant their own chapter; in many categories there is only one kit.

Chapter 5 is especially interesting in the fact that many of the devices listed are items the typical non-audiophile probably didn't own as part of their audio system. Still, many are likely items that sparked interest. The author spends an extra paragraph on some of the more unusual items in this chapter.

Schematics (Chapter 6):

To include all the schematics of the kits in this book would make a tome all itself. However, and with permission, the author has published the schematics for the early

MODEL NUMBER	PRODUCT TYPE	SOLID STATE	PAGE NUMBER	FIRST YEAR	LAST YEAR	YEARS IN CATALOG	PRICE	SPECIFICATIONS
AA-23	Amplifier		2-15	64	68	5	42.95	monophonic, 25 watts
AA-29	Amplifier	SS	2-15	70	76	7	169.95	stereo, 35 watts

Figure 2: Sample index entry.

Williamson amplifiers and their matching preamplifiers, thirteen in all.

Indices (Chapters 7 - 9):

Each of the next three chapters is a four-page index. They are identical except for the crucial fact that they are sorted differently, making it easy to find a specific item. Chapter seven is sorted by model number: A-1 (Amplifier) to XO-1 (Crossover). Chapter eight is sorted by product type: 4-Channel decoder (AD-2002) to Tuner (PT-1). And chapter nine is sorted chronologically: 1947 (A-1 amplifier) to 1984 (AD-1308 Audio spectrum analyzer). Each item in the index includes the model number, product type, whether it's solid-state, page number in book, chronological information, initial price and description. **Figure 2** gives a sample of a typical index entry.

What's not in the book:

The author purposely left some products out of the book, simple table and portable radios, which don't really fit into the Hi-Fi category, and turntables, all of which came assembled and were made by third parties. Most of these turntables could be bought at the average stereo store under the brand name. On the other hand, phonographs comprised of assembled turntables along with Heathkit electronics are included. Basically, any Hi-Fi or stereo related Heathkit you could buy and assemble in the U.S. is included.

One exception is the SK-107 Stereo Synthesizer; a simple kit that converts monaural audio into pseudo-stereo. It is covered in

HOM #69 and in the January 2016 issue of the *RF Newsletter*.

Some kits are included even if they don't fit Hi-Fi or stereo in the true sense. The reason is for their historic value. One such kit is the BR-1 AM radio.

Comments:

For the record, I have to mention that I played a very minor role in the book, advising on some technical issues and helping proof read and fact-check. I have no financial interest in the book.

If you are an audiophile who owns Heathkit equipment this is a must for your library. Heathkit historians, or those just interested in the various Heathkit products will find this book an interesting read and later a useful reference. I've read about a few Heathkits in the book that now are of interest to me. I've always wanted an AM tuner. Heathkit never made a standalone AM solid-state tuner (just AM/FM), but they did make some tube AM only tuners.

Over the years I have owned just a few Heathkit audio products including the AJ-14 solid-state tuner and AA-14 solid-state amplifier that sit in a bedroom and are in use regularly. I own a few other Heathkit audio products including an FM-4 tube-based FM tuner, an AA-32 tube based amplifier. and the SK-107 Stereo Synthesizer. Each of these have been the subject of a *Heathkit of the Month* article. The majority of my Heathkits

are test equipment and amateur radio related, with a few household products thrown in.

Chuck Penson's other books have sold well. Both editions of the amateur radio book are sold out, and used prices have skyrocketed. The test equipment book is still available new on Amazon, but appears to be nearly sold out. With the many audiophiles out there who collect Heathkits, I imagine this

Notes:

1. **A Guide to the Heathkit Amateur Products.** (1st. and 2nd. editions) Out of print. A third edition is planned.
2. **Heathkit Test Equipment Products.** Available on Amazon
3. Heathkit did advertise an amateur transmitter between January and March 1948 in **Radio News**, but never in its own flyer. None were ever known to be sold and no examples ever found.
4. Specifications sometimes changed over the life of a product. The specifications used are from available manuals or catalogs, and may be different than as given in earlier or later manuals or catalogs.



About the author: Chuck Penson is an industrial archeologist and is retired from his position as historian for the Titan Missile Museum south of Tucson, Arizona. Penson has been studying the Heath company and collecting Heathkits since about 1980. His other books include *Heathkit: A Guide to the Amateur Radio Products*, *Heathkit: Test Equipment Products*, and *The Titan II Handbook: A Civilian's Guide to the Most Powerful ICBM America Ever Built*. Penson's other interests include amateur radio, astronomy, geology (with a special interest in radioactive minerals), the intersection of science and popular culture, Cold War history, hiking and pizza. He can be reached via email at: wa7zze@gmail.com.



Figure 3: Book Rear Cover (Photo: inside view of the Heathkit AA-100 25-watt tube-based Stereo Amplifier)

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book will sell out quickly too. If interested, you may want to get a copy while they are available.

73, from AF6C

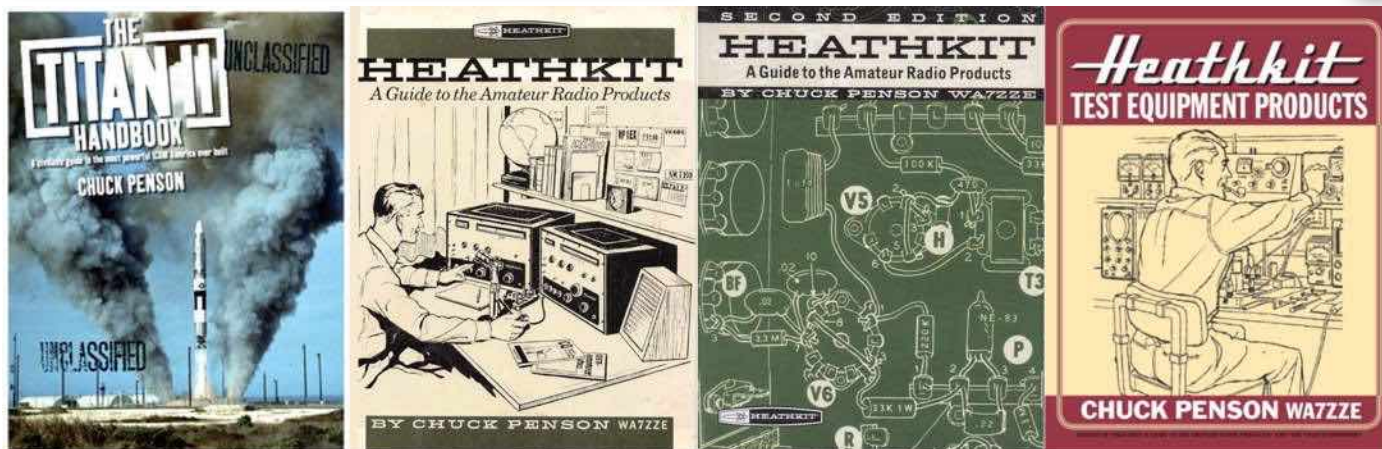


Figure 4: Other books by Chuck Penson - WA7ZZE: (L to R) *The Titan Handbook - A Civilian's guide to the most powerful ICBM America ever built*; *Heathkit - A Guide to the Amateur Radio Products* (1st edition); *Heathkit - A Guide to the Amateur Radio Products* (2nd edition); and *Heathkit Test Equipment Products*