

THE HBR ENHANCEMENT MEMORANDA

NEWS ABOUT THE MEMOS: 5 June 2011

1. **Enhancement Memo A** will be available for purchase commencing July 2011, book shipment to follow later in the third quarter. A description of that memo's contents and a table of its specific contents follows this page.

Click on "Memo Index" for purchase price

Click on "Order a Memo" for ordering instructions.

2. **Numbered** Enhancement Memos will be available commencing in 3Q2011 and probably extending into 2012 in connection with my overhaul and reconfiguration of the HBR-XX. Availability of each Memo together with a summary description of its contents will be announced on the GlowBugs Reflector (tetrode@googlegroups.com) upon its completion. Additionally, **a quarterly update of this Web page's Memo Index will be e-mailed to those registered on the "Recollections" e-mail list.**

3. All Memos will be laser jet printed on 20-pound copy paper, 8 1/2 x 11-inch format, printed one side, suitable for 3-hole loose-leaf binders (after punching by the buyer). They will be shipped in a 9 x 12-in envelope domestically anywhere in the 50 states by First Class Mail. References to "Recollection" chapters/pages are supplied where applicable for those who hold that book in a paper format. This configuration simplifies production of Memoranda copies using my existing computer, printer, and copy machine while including graphic material generated by my CAD system and Pentax K-1000 camera on a paste-up master basis.

4. Individual Memo pricing will be based to recover my cost of reproduction and delivery by mail, rounded up to the next half-dollar amount. This 1- to 49-cent "profit" for each Memo sold will go into the "kitty" that supports the expense of hosting this web page. Some **typical prices to expect for numbered memos** are -

- A 10 sheet memo = \$2.50 (includes mailing envelope plus First Class postage for U.S. delivery.
- A 20 sheet memo = \$4.00 (including mailing envelope plus First Class postage for U.S. delivery
- A 30 sheet memo = \$5.00 (including mailing envelope plus First Class postage for U.S. delivery

When multiple Memos are ordered, I will calculate a reduced price since only a single envelope is needed and the postal charges, levied by weight of package, do not increase in a linear fashion.

5. I recognize, from the standpoint of the Memo purchaser, that restricting publication to a paper format published on a serial one-at-a-time basis is more expensive than placing them all on a CD-ROM. However, given the fact that total Memo preparation will require a minimum of 12 months (and if things go sideways in my life, could extend to 24 months), the concept of "sooner rather than later" was more appealing. and in reality the only practical approach I could take. Once all the Memos have been developed and published, I will re-think whether to include all of them on the CD-ROM that will be used for the final production runs. There is plenty of vacant space on the present CD to support the Memos.

6. **To better define the scope and content of Memorandum A, following is a copy of that memo's title page and Table of Contents. This memo will likely be interesting to those who purchased "Recollections" primarily for the story of Ted Crosby and his HBR designs, as well as those specifically interested in the HBR-14/15 designs.**

HBR ENHANCEMENT MEMO A – 1 July 2011

Introduction

This Enhancement Memo applies to "Recollections of a Radio Receiver" (all versions), and provides design details and concepts revealed in 9 letters written by Ted Crosby W6TC (SK), dealing with his HBR-14, -15 and -16 models. These letters were in a collection of 35 letters owned by Don Knotts W7HJS, all originally sent to Les Bruhn W7EHS (SK) between June 1958 and June 1960. This letter collection was given to Don by Les Bruhn shortly before his death in 1995. Les was a member of Ted's "inner circle", a group of experienced HBR builders who followed Ted's double superheterodyne receiver design during its 12 years of development and popularity with homebrew amateur radio operators.

The letters chosen for this memo were those in the collection that contained the most essential HBR references and design intent. The remaining 27 letters were devoted to travel plans made by Ted for an "HBR tour" along California Route 1 in 1960 (stopping at various locations to meet with HBR builders), social exchanges, Ted's job problems as a broadcast engineer ABC transmitter site on Mt. Wilson, plus advice to others on amateur radio matters other than the HBR (e.g., antenna tuners, key-click filters, and other homebrew issues affecting amateur station equipment). Many of all these letters are so smudged and faded that, although readable, they befuddle the best of commercial photocopy machines - hence my computerized re-typing.

The original letter text is presented in various formats ranging from photocopy of an original letter, a redacted version of the letter, a re-typed redacted letter (where poor condition of the original letter made decent photocopy impossible), and in one case a typed transcript of a hand-written letter. All re-typed text is in Arial font, and replicates Ted's ancient typewriter text. Underlining and capitalization shown in the re-typed Arial text duplicates that used by Ted. Text in *Arial italic* is used for my comments.

This memo is intended to reinforce material in "Recollections" with respect to the three HBR models noted, as well as to present Ted's design rationale for various design modules. Since some of the modules in the first 3 designs were re-used in latter models (HBR-8, -11, 13C, -20, -XX) material in this Memo is also pertinent where those modules were used in multiple designs. A substantial amount of design rationale is provided in "Recollections", but material in this memo was not received in time for blending with that existing in the book's final draft. In short, the technical material in this memo is intended to augment that now existing in the e-book. Minor repetition here of e-book material has been included, either directly or by e-book reference, in order to make this memo easier to read with cross-referencing.

A few words about Les Bruhn (1901 - 1995) (recipient of the letters) seems appropriate, particularly since some of Ted's letters respond to Les's problems or questions presented to Ted. Les resided in coastal Oregon, and together with Don Knotts and his father became interested in amateur radio when the Novice license program commenced (1956). Les was licensed as W7EHS, Don as W7HJS, and Don's father as W7HJR(SK); all three became involved in homebrew activities. Les was known particularly for his excellent workmanship in building amateur equipment, and was skilled in both metalwork and machine tools. He built a number of Ted's designs, commencing with the HBR-14 (which he later upgraded to the HBR-15). In his later years Les moved from coastal Oregon to southern Oregon, and at that time he gave his HBR-15 to W7HJS along with his letters from Ted, selections from which form the body of this memo. A photo of the HBR-15, which may well be the last remaining one, appears in following pages.

(Orig File 31DEC10HBRENHANCE3.MEM.doc)

Attch 1 to WEBNEWSMEM5.HBR.doc

Memo A Table of Contents

<u>Pages</u>	<u>Date</u>	<u>Archive</u>	<u>Bk Chapter</u>	<u>Subject</u>
-	12-31-10			Introduction
A2	12-31-10			Table of Contents
A-3	12-31-10			HBR-15 photo and Les Bruhn description
B1-1/2	1-30-58	B-1		BFO improvements, audio detection improvements, CW filter
B2-1/2	6-9-58	B-2		Improved HBR-14 coil specifications, improved thermal stability, negative temperature compensation, 1st oscillator above/below rule
B11-1/4	9-12-59	B-11		National SCN dial, L1/L2 tracking, 1st oscillator frequency shift caused by filament voltage variations, improper shielding
B21-1/3	1-7-60	B-21		Bandpass, BFO injection for SSB service, 100 kHz 2nd IF bandpass
B24-1/3	2-28-60	B-24		1600/1800 kHz 1st oscillator coil troubles and coil design intent, spurious signal calculations, actual HBR spurious signals, 6BE6 product detector detail, performance comparison of HBR vis-à-vis other homebrew receivers
B34-1/3	5-21-60	B-34		1600kHz/1800kHz 1st oscillator frequencies, spurious signals
B37-1/3	6-22-60	B-37		Protocol for operation of BFO
B-38-1/3	8-15-59	B-38		Miller 612 and 012 BFO coils, general parameters for couplers

Notes

1. All letters (other than Archive B-38) were addressed to Les Bruhn. Archive B-38 (handwritten original, re-typed for this use) appears to be addressed to Ed Kent with a blind copy sent to Les Bruhn.
2. Numbers under "Book Chapter" heading refer to individual chapters or page insert position in "Recollections".

Orig File (31DEC10HBRTBLCNT2.MEM.doc)

Attach 2 to WEBNEWSMEM5.HBR.doc