AccessionIndex: TCD-SCSS-T.20160121.004
Accession Date: 21-Jan-2016
Accession By: Peter Canavan
Object name: HP-16C Computer Programmers Calculator
Vintage: c.1982
Synopsis: Hewlett Packard's first and only hand-held calculator especially targetted at computer programmers. S/N: 2437A33074.

Description:
The Hewlett-Packard *Voyager* series of programmable reverse-Polish calculators were introduced in 1981. William Kahan of University College Berkeley, architect of the IEEE-754 standard for floating-point arithmetic, designed the numerical algorithms for the calculators. The calculators are *keystroke programmable*, i.e. they can memorize then re-execute sequences of keystrokes, including branching and looping. Eventually the series (also called the 10-series) included the HP-10C, HP-11C, HP-12C, HP-15C and HP-16C calculators, all for different market segments.

The HP-16C was a computer programmer's calculator, designed to assist in computer debugging. It provided unsigned, one's complement, or two's complement binary integer arithmetic including reciprocal and square root, and Boolean logic operations including left and right shifting and bit masking, as well as 56-bit floating-point decimal arithmetic. Word size could be set to 1 to 64 bits, where long binary values could be scrolled along its 10-digit seven-segment LCD display, and binary values could be converted to/from octal, decimal and hexadecimal values.

The HP-16C used HP's proprietary *Nut* silicon-on-sapphire CPU, with included 61kbits of ROM, 2.2kbits of RAM, and, in common with all the Voyager series, supported *continuous memory*, i.e. persistent memory, unusual at the time. The SoS technology consumed very low power (0.25mW), typically yielding up to 12 month life for its 3 x LR44 1.5V button cell batteries. It was also relatively light at 113g. The HP-16C in this collection and its batteries are in good working order as of Jan-2016.

The HP-16C really belongs to the era of assembly language programming. It was fairly rare at the time and is probably of little use nowadays, but is now highly sought-after by collectors. Hewlett-Packard has not yet made another programmer's calculator, but has incorporated the HP-16C functions into later calculator models.

Many thanks to Peter Canavan, Network Manager, Broadcast Operations, Australian Broadcasting Commission (ABC), who donated this item from his personal collection. It has an early ABC asset number (in itself a relic) attached, but the calculator has been written off by the ABC.

The documentation is properly part of the Literature category of this catalog, but is listed here too for convenience.

Accession Index	Object with Identification
TCD-SCSS-T.20160121.004.001	HP-16C Computer Programmers Calculator. A.B.C. asset number: E12587 S/N: 2437A33074
TCD-SCSS-T.20160121.004.002	HP-16C Leather Case. S/N:
TCD-SCSS-V.20160121.005	HP-16C Owner's Handbook, P/N: 00016-90001 Rev.D, Hewlett-Packard, 1984.

References:

1. Wikipedia, *HP-16C*, see (last browsed to 29-Jan-2016): *https://en.wikipedia.org/wiki/HP-16C*

2. Eric A. Evett, *A Pocket Calculator for Computer Science Professionals*, HP Journal, pp.36-40, May-1983.

3. Hewlett-Packard, *HP-16C Owner's Handbook*, P/N: 00016-90001, 1982, see related folder in this catalog.

See the extensive set of documents in the related folder in this catalog

Figure 1: HP-16C front three-quarter view, cover on

Figure 2: HP-16C front three-quarter view, cover off

Figure 3: HP-16C front view

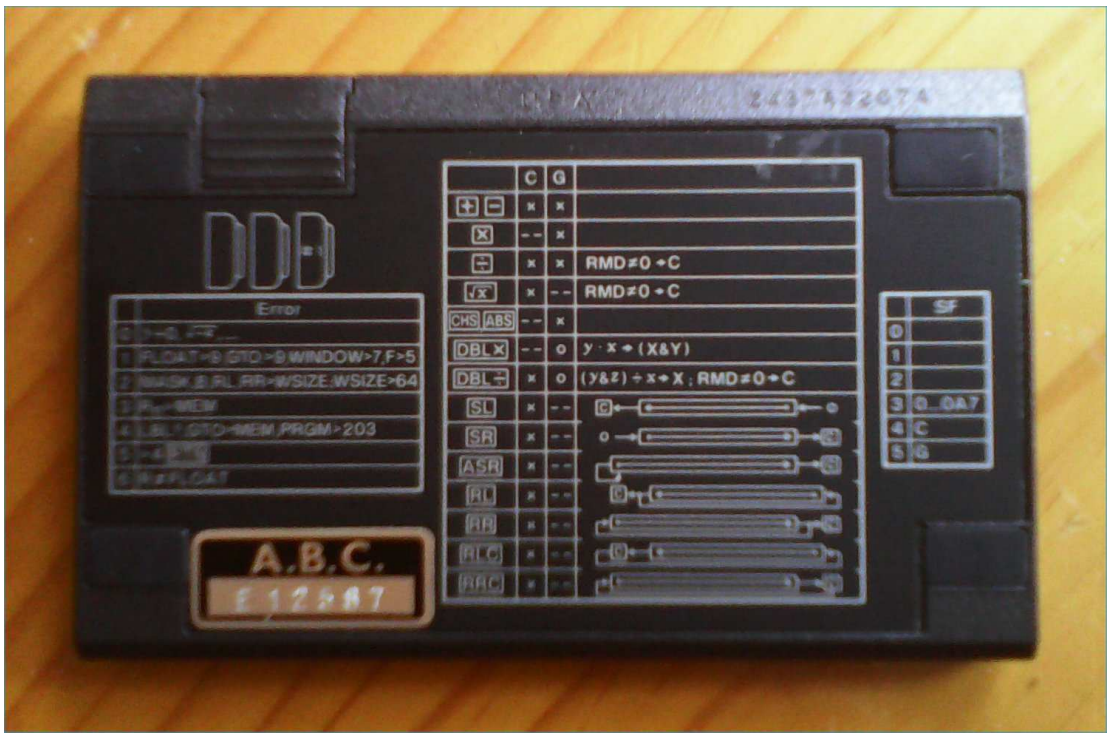

Figure 4: HP-16C rear view

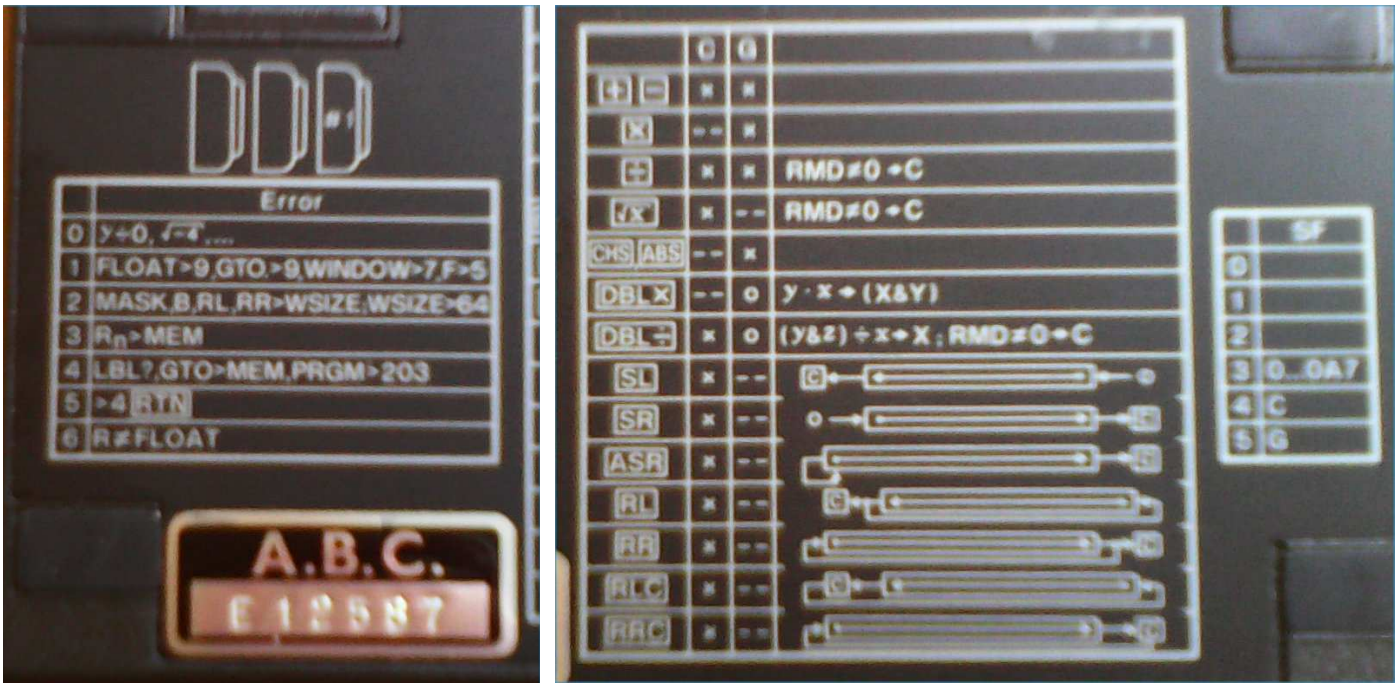

Figure 5: (a) HP-16C rear left-side label (b) HP-16C rear right-side label
A.B.C. asset number: E12587

Figure 6: HP-16C rear view
S/N: 2437A33074

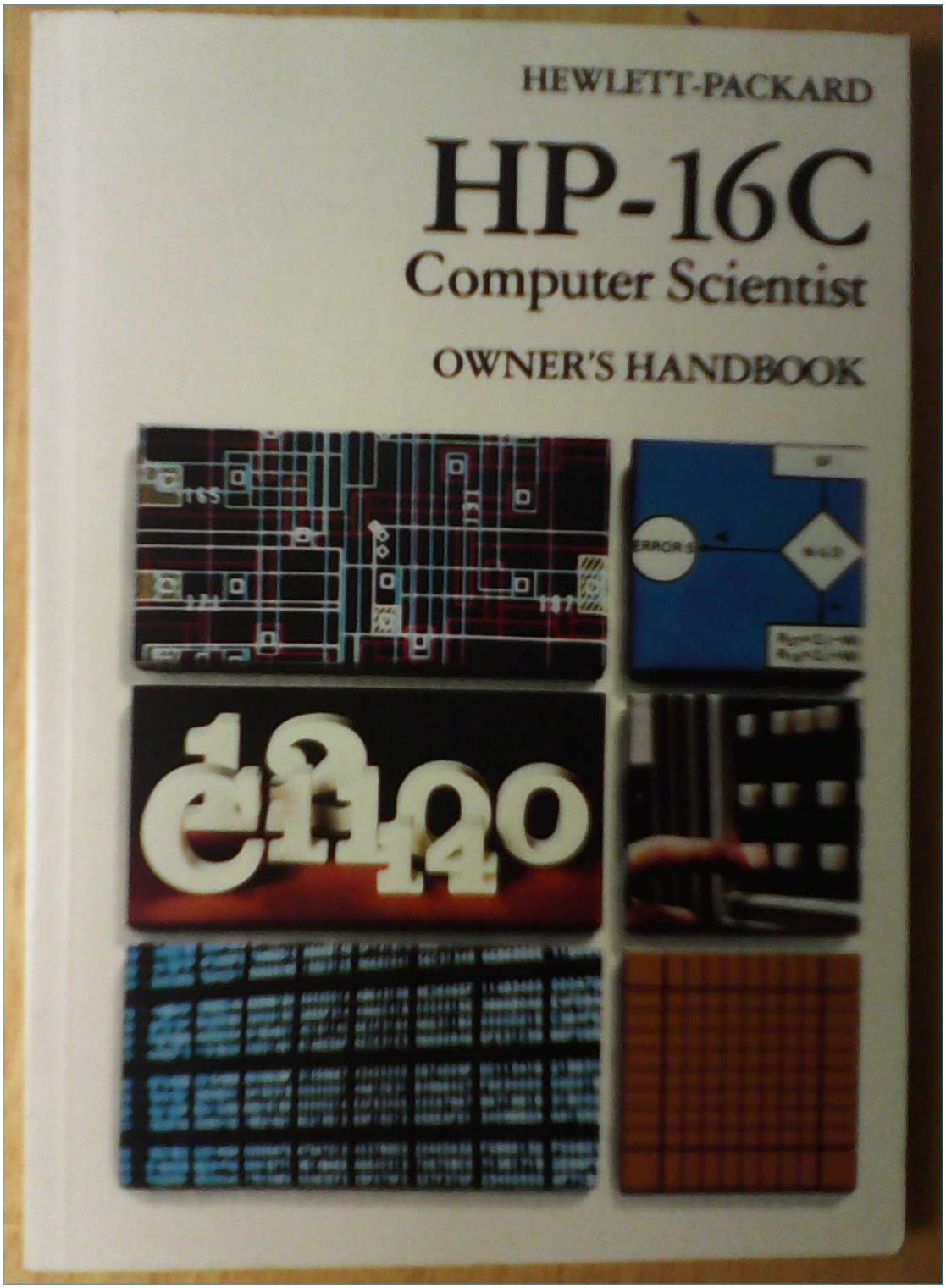

Figure 7: HP-16C Owner's Handbook front cover