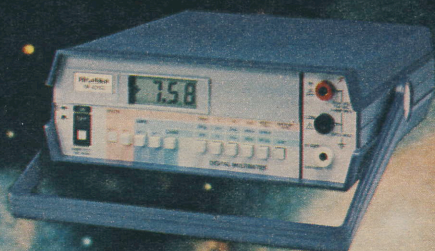


Heathkit®

THE LEADER IN HIGH-TECHNOLOGY ELECTRONIC KIT PRODUCTS
SPRING/SUMMER • 1982

NEW!

Competitively-priced Portable Digital Multimeter offers outstanding versatility, accurate readings. See page 14.



WATCH FOR HEATHKIT EARTH STATION DEMONSTRATIONS – at most Heathkit Electronic Centers! See page 87 for locations.

NEW!

Top-of-the-line Deluxe Portable Digital Multimeter features high accuracy, convenience features. See page 14.



NEW!

Microprocessor Interfacing Course covers advanced microprocessors, teaches interfacing. Turn to page 78.



NEW!

Advanced Programmable Electronic Doorbell plays one of three tunes, at front or back door! See page 68.



NEW!

Value-priced Digital FM Stereo Receiver has exceptional sound and specs, with AM and Dolby modules available. See page 93.



MAIL ORDER CATALOG NO. 857

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CALL TOLL-FREE!

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**FOUR NEW
STORES!**

Tucson, AZ – Jacksonville, FL –
Honolulu, HI and Greensboro, NC
– see p. 87 for grand opening details

All-In-One Computer: includes two microprocessors, 48K RAM, built-in disk storage, three serial ports, CP/M capability — and up to \$690 of software at no extra charge!

As low as
\$1895⁰⁰
Kit

- 48K bytes of RAM standard — expandable to 64K bytes
- CP/M capable — without modifications
- Stores up to 160K bytes of data internally (with optional Z-89-37 Double-Density Controller Board)
- Stores up to 12.16 megabytes with optional external disk storage
- Built-in video terminal has full keyboard, 12-key numeric pad
- Choose from 12" anti-glare or std. 2000-character CRT screens

48K bytes of standard memory power: The All-In-One Computer comes with 48K bytes of Random Access Memory (RAM) — enough memory power to perform most home and business computing functions. And built-in memory diagnostics are provided.

You get more standard memory power than before! The All-In-One Computer now comes with 48K bytes of Random Access Memory (RAM) — three times the previous standard RAM complement of 16K bytes. And built-in diagnostics are provided.

Expand the All-In-One Computer's memory capacity to 64K bytes of RAM with the WH-88-16 64K RAM Expansion Set (offered on page 29), to meet your advanced computing needs.

Two separate Z-80 microprocessors are built into the All-In-One — one for the computer, and one for the professional video terminal. The computer never has to share processing power with the video terminal, which enables the All-In-One to perform many high-speed tasks.

CP/M-capable, without modifications: All components necessary to run the Heath/Zenith CP/M Operating System are built-in. There are no modification kits to buy or install.

Three RS-232C serial ports are standard: The built-in EIA Standard Three-Port Serial Interface lets you add more peripherals (such as printer) to your All-In-One Computer.

Optional disk controller increases storage capacity: The H-89's built-in 5.25-inch floppy disk drive can store up to 100K bytes of data. With the optional Z-89-37 Double-Density Disk Controller Board (p. 31), you can expand the built-in drive's storage capacity to 160K bytes.

If you need more on-line data storage, buy the external disk system that fits your needs:

The H-77 Floppy Disk System (shown on page 31) can provide 200K bytes of data storage (100K bytes per disk drive — using one standard H-17-1 disk drive and one optional disk drive). It stores data on hard-sectored, single-density, single-sided 5.25-inch floppy disks.

The H-37 Floppy Disk System (page 31), which uses the Z-89-37 Disk Controller Board and soft-sectored, double-density disks, can provide significantly more data storage — up to 1.28 megabytes (640K bytes per drive — using one standard H-17-4 Drive and one optional drive).

For even more data storage — over 2.5 megabytes on two 8-inch floppy disk drives, select the Z-47 Commercial Floppy Disk System (shown on page 39; requires WH-88-47 Interface).

For maximum data storage in commercial uses (almost 11 megabytes), choose the Z-67 (page 40) — with a high-capacity Winchester disk drive and an 8" floppy disk backup.

Use the All-In-One as a professional video terminal (with appropriate software). It has all display functions of our H-19 Smart Video Terminal (shown on page 35). Up to twenty-four 80-character lines can be displayed on the 12" CRT screen, as well as a software-controlled 25th line.

The typewriter-format professional keyboard controls all terminal functions. The keyboard prints the entire ASCII set, upper and lower cases — along with 33 graphics symbols.

Select baud rates up to 9600 through the keyboard. Direct cursor addressing lets you insert or delete characters anywhere. Control 32 terminal functions from keyboard or computer. Reverse Video lets you emphasize any portion of the screen by reversing white on black.

Designed in calculator format, the 12-key numeric keypad makes entering arithmetic programs fast and easy. Shifted functions give you control to make insertions or deletions.

Save when you buy the All-In-One Computer — and if you plan to use it for business purposes, ask your tax adviser about possible tax credits which could provide additional savings.

Complete All-In-One Computer Systems — including computer and peripherals — are being introduced. There's a system for word processing/entry-level programming, one for small businesses and active programmers, and a third for medium business use. See page 30 for full details.

Make Heath/Zenith as your partner for all your computer needs

A computer purchase is the beginning of a long-term relationship between you and the people you buy from: Your ongoing need for state-of-the-art hardware, peripherals, accessories and software requires a partner who will stand by you with a growing line of products. And nowhere will you find a more complete line of microcomputer products than at Heath/Zenith.

Exceptional value: Your hard-earned dollar buys more computing power and versatility at Heath/Zenith, because our prices are among the computer industry's most competitive. Make your own com-

parison among computers — and find out how much you can save by choosing Heath/Zenith as your strong partner.

We're the All-In-One Computer Store: Heath/Zenith features a complete, integrated system of computer hardware, peripherals, accessories and software — designed to serve you and grow with you. We support your purchase with aggressive product development and outstanding service, too. Compare all the facts. You'll choose your strong partner — Heath/Zenith.

Here are strong reasons to choose Heath/Zenith computer products

- Savings on complete systems
- Outstanding external data storage — over 10 megabytes in commercial applications
- Full line of peripherals and software to provide even more applications
- Easier ordering method

Save money: Look throughout this section for many money-saving specials on hardware, software and complete systems.

High-capacity external floppy disk storage for the H/Z-89: Up to 640K bytes per 5.25-inch drive with the new H/Z-37.

Maximum data storage in commercial uses: The Z-67 Winchester Disk System (p. 40) provides 10.782 megabytes of disk storage for the commercial Z-89 Computer (p. 39).

Versatile peripherals: Printers, modems, a speech synthesizer, more (pgs. 35-42).

An expanding universe of software: We have a wide selection of operating systems, languages, utilities and applications for home, educational and business purposes. See pages 43-48.

An easier way to order: We've packaged four complete systems — including computer, peripherals and accessories — to meet your needs. See them on page 30.

Choose from our expanding selection of software: Operating systems: Most Heath/Zenith software runs under CP/M. Both the Heath Disk Operating System (HDOS 2.0) and the UCSD P-System with Pascal are also available. See page 45.

Utility and applications programs: New educational software — WordStar, Magic Wand and Zenith Electronic Typing Word Processors — new Peachtree business software — new IBM terminal emulator board and software — new Pearl application generator — new Micropro utilities — SOFTSTUFF tools — and the Heath Users' Group's over 500 programs (pgs. 43-48).

The All-In-One Computer requires either the Heath Disk Operating System (HDOS), the Heath/Zenith CP/M Operating System, the UCSD P-System with Pascal or similar operating system software for normal operation.

H-89A SPECIFICATIONS: CPU AND MEMORY: Clock: 2.048 MHz. Memory: 8K bytes used by system for ROM and RAM; 8K reserved. **VIDEO TERMINAL: CRT: Display Size:** 6.5" H x 8.5" W (16.51 x 21.59 cm). **Character Size:** Approximately 0.2" H x 0.1" W (0.51 x 0.25 cm). **Character Type:** Upper Case and Lower Case without descenders, 5 x 7 dot matrix; Lower Case with descenders, 5 x 9 dot matrix; Graphics, 8 x 10 dot matrix. **Keyboard:** 84 keys (60 alphanumeric keys and 12 function/control keys) — plus a 12-key numeric/control pad. **Cursor:** Blinking, non-destructive underline or block. **Cursor Controls:** Up, down, left, right, home, CR, LF, back space and tab. **Cursor Addressing:** Relative and direct. **Tab:** Standard eight-column tab. **Refresh Rate:** 60 Hz at 60 Hz line frequency; 50 Hz at 50 Hz line frequency. **Edit Functions:** Insert and delete character or line. **Erase Functions:** Erase line or page, from beginning of line or page, to end of line or page. **Bell:** Audible alarm on receipt of ASCII BEL. **Video:** Normal and reverse, by character. **ACCESSORIES:** Interfacing: Three EIA Standard RS-232C Serial Interface Ports are provided. **GENERAL: Operating Temperature:** 50-95 degrees F (10-35 degrees C). **Storage Temperature:** 32-122 degrees F (0-50 degrees C). **Power Requirement:** 120/240 VAC, 50/60 Hz, 90 Watts. **Dimensions:** 13" H x 17" W x 20" D (33.02 x 43.18 x 50.80 cm).





New H-37 High-Capacity
Floppy Disk System (p. 31)

H-89 All-In-One Computer

New H-25 Printer (p. 37)

Here's how to order the All-In-One Computer that fits your needs:

We put it all together for you, in the All-In-One: More standard features, an easier method of ordering and economical prices!

Three serial I/O ports allow you to add printers, modems and other peripherals to your All-In-One. Choose from our wide selection of peripherals.

Your choice of anti-glare and standard CRTs: Two different anti-glare CRTs (white and green), as well as a standard white CRT, are available.

High-capacity external disk storage: With our new peripherals, you can configure an All-In-One with up to 12.16 megabytes of disk storage.

All-In-One Computer Kits: CP/M-capable — with 48K RAM, single-density disk controller and — up to \$690 in software at no extra charge (see below).

Kit HS-89-1, with anti-glare white CRT,
Shpg. wt. 96 lbs. **1925.00**

Kit HS-89-2, with anti-glare green CRT,
Shpg. wt. 96 lbs. **1925.00**

Kit HS-89-3, with std. white CRT,
Shpg. wt. 96 lbs. **1895.00**

An assembled commercial version of this product is available. See the Z-89 on page 39.

Get up to \$690 of software at no extra charge!

Buy any two of ten specially-selected software programs on the same order with an H-89 All-In-One Computer, and write "NO CHARGE" in the price column! See page 30 for the full list of value-packed software programs available via this special offer.

H-89 All-In-One Computer/5.25" Disk System Configuration Chart

System Components	Single-Density, Hard-Sector Storage	Double-Density, Soft-Sector Storage	Total disk storage capacity
HS-89 (Note 1)	One 100 KB internal Drive	—	100 KB
HS-89 (Note 1) HS-77 (Note 2)	One 100KB internal drive and one (or two) 100K external drives	—	200 or 300 KB
HS-89 (Note 1) Z-89-37	—	One 160 KB internal drive	160 KB
HS-89 (Note 1) Z-89-37 HS-77 (Note 2)	One 100 KB internal drive	One (or two) 160 KB external drive(s)	260 or 420 KB
HS-89 (Note 1) Z-89-37 HS-37 (Note 2)	One 100 KB internal drive	Two 640 KB external drives	1.38 megabytes

NOTES: (1) When ordering an HS-89, use -1, -2, or -3 for desired CRT. (2) When ordering an HS-77 or HS-37, use 1- or -2 for desired number of drives. H-17-4 640 KB Drives must be used with the Z-89-37 Double-Density Controller Board.

All-In-One Accessories

16K Random Access Memory (RAM) Expansion Set. Retrofit your H/Z-89 All-In-One Computer up to 32K or 48K bytes of RAM with one or two of these memory expansion sets.

H-88-2, Shpg. wt. 1 lb. **39.00**

64K Random Access Memory (RAM) Expansion Kit expands the RAM capacity of your All-In-One Computer to 64K bytes. Requires H-88 or H/Z-89 with 48K bytes of RAM.

WH-88-16, Assembled, 1 lb. **150.00**

Three-Port RS-232C Serial Interface provides printer and telecommunications extendability for older All-In-One Computers.

HA-88-3, Shpg. wt. 2 lbs. **150.00**

Cassette Interface for All-In-One Computer. Use cassette storage (with appropriate software).

H-88-5, 2 lbs. **Was \$100.00 NOW 60.00**

Wire Wrapping Board with bus connectors. Design custom circuits for the H/Z-89 All-In-One Computer. This board accepts forty-eight 16-pin sockets (also fifty-four 14-pin sockets or other combinations). Uses HCA-6 Wire Wrapping Kit and HCA-7 Wire Wrapping Socket Kit (see page 33 for details on these accessories).

H-88-10, Shpg. wt. 1 lb. **30.00**

Black Fabric Anti-Glare CRT Filter. Use this high-quality filter on H/Z-89 All-In-One Computers not equipped with non-glare CRTs.

HCA-4, Shpg. wt. 1 lb. **19.95**

Dust Cover for the H-89 All-In-One Computer, the Z-89 Desktop Genius Computer and the H/Z-19 Video Terminal. Provides protection from airborne contaminants.

HCA-5-89, Shpg. wt. 1 lb. **14.00**

Choose the Heath/Zenith system best for you

Choose from four compatible computer systems:

An H-8 Hobbyist/Word Processing System;
an H-89 Hobbyist/Word Processing System;
an H-89 system designed for small business use and program development;
and an H-89 Commercial/Business System.

Get up to \$690 of software — at no extra charge!

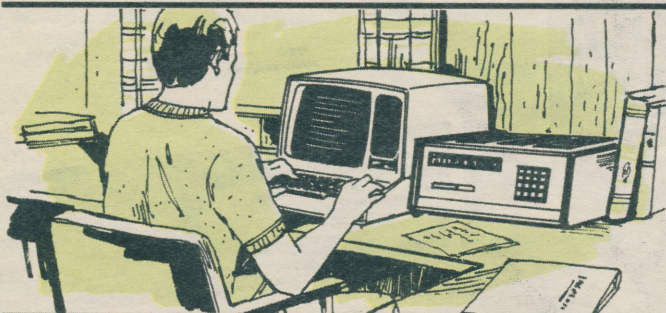
When you purchase one of the complete computer systems on this page — or when you buy any H-89 Computer — you can choose two programs from this specially-selected list of ten programs. It's a value of up to \$690 — at no extra charge! Just write "No charge" in price column of your order.

Choose from these Heath/Zenith software programs:
HDOS Operating System (p. 45) — and languages:
Microsoft BASIC Interpreter (p. 46);
Microsoft FORTRAN (p. 46).

CP/M Operating System (described on page 45) — and these CP/M-compatible languages, utility and applications programs:

Microsoft BASIC Interpreter (p. 46);
Microsoft BASIC Compiler (p. 46);
Microsoft FORTRAN (p. 46);
Microsoft COBOL-80 (p. 46);
Magic Wand Word Processor (page 48);
SuperCalc Electronic Spreadsheet (p. 47).

Please specify model numbers when ordering.



H-8 Hobbyist/Word Processing System

SAVE UP TO

\$1296⁰⁰

This H-8 system has 48K bytes of Random Access Memory (RAM), 100K bytes of disk storage and four EIA Standard RS-232C serial ports.

Included are the H-8 Computer, three WH-8-16 16K Memory Boards, the H-8-4 Four-Port Serial Interface, the HA-8-8 Extended Configuration Option, the 100K-byte H-17 Floppy Disk System and the H-19 Professional Video Terminal.

SAVE UP TO \$690 ON SOFTWARE! Select two programs, from the list above, for no extra charge! Specify model numbers when ordering.

HKS-85, Shpg. wt. 146 lbs. **\$2401.00 separately, NOW ONLY 1795.00**



H-89 Hobbyist/Word Processing System

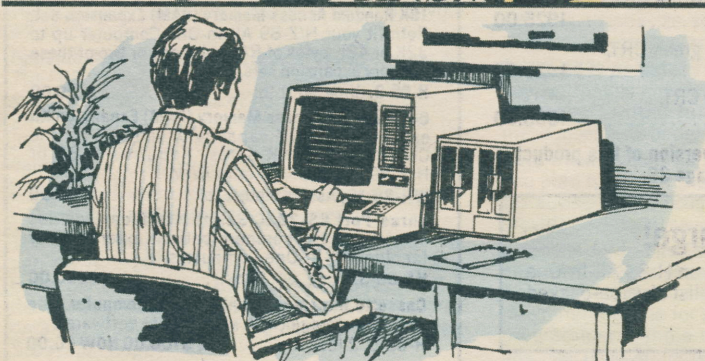
SAVE UP TO

\$690⁰⁰

Here's an H-89 computer system that's ideal for home and/or word processing use. It has 48K bytes of Random Access Memory (RAM), three EIA Standard RS-232C Serial Interface ports and 200K bytes of floppy disk storage on three 5.25-inch drives.

Order an H-89 All-In-One Computer (page 29) — now with 48K bytes of RAM and three serial I/O ports; and the HS-77-1 5.25-Inch Floppy Disk System (described on page 31).

SAVE UP TO \$690 ON SOFTWARE! This system qualifies you to select two software programs (from the list of ten programs above), with a value of up to \$690, at no extra charge! Specify model numbers when ordering.



H-89 Small Business/Programming System

SAVE UP TO

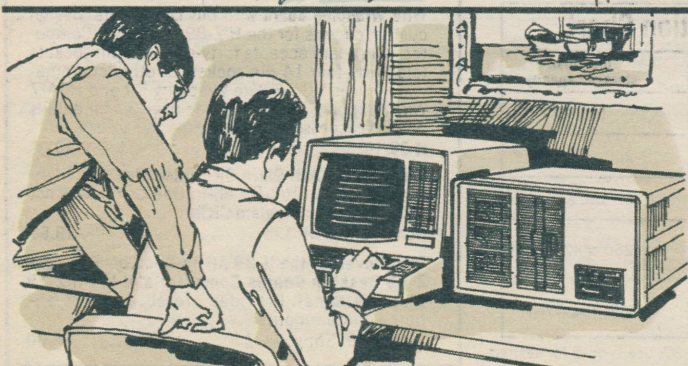
\$790⁰⁰

This H-89 system has 64K bytes of Random Access Memory (RAM), 1.38 megabytes of floppy disk storage on three 5.25-inch drives and three EIA Standard RS-232C Serial Interface ports.

Order the H-89 Computer (page 29) — now with three serial I/O ports; one WH-88-16 64K Wired Memory Expansion Board (page 29); the Z-89-37 Soft-Sector Disk Controller Board (page 29); and the new, high-capacity HS-37-2 Floppy Disk System (page 31).

SAVE \$100 ON THE Z-89-37 SOFT-SECTOR DISK CONTROLLER BOARD! Just purchase with this system (on the same order form), and deduct \$100.

SAVE UP TO \$690 ON SOFTWARE! Select two programs, from the list above, for no extra charge! Specify model numbers when ordering.



H-89 Commercial Business System

SAVE UP TO

\$1440⁰⁰

This is our maximum capability H-89 system — designed for commercial applications which require large amounts of memory and disk storage. It has 64K bytes of Random Access Memory (RAM), three EIA Standard RS-232C serial ports and 10.882 megabytes of disk storage.

Order the H-89 (page 29) — now with three serial I/O ports; a WH-88-16 64K Wired Memory Expansion Board (page 29); and the Zenith Data Systems Z-67 Commercial Winchester Disk System (page 40).

SAVE UP TO \$1440 ON SOFTWARE! This system qualifies you for maximum software savings! First, select two software programs from the list above, at no extra charge! Then, choose up to \$750 of additional software programs (choose any program offered by Heath/Zenith — also at no extra charge! Please remember to specify model numbers when ordering.



Add up to 1.28 megabytes of on-line disk storage to your H/Z-89 Computer with the H-37!

Expand your disk storage capacity: Designed especially for the All-In-One Computer, these external floppy disk systems give you even more flexibility in configuring the amount of disk storage you need for your computer applications.

The H-37 provides up to 1.28 megabytes of additional data storage capacity — while the H-77 provides up to 320K bytes.

Use up to three drives in your system: When you use one of these systems with your All-In-One Computer, you have room for up to three high-capacity 5.25-inch floppy disk drives on a single controller. With multiple drives, you can mount operating system and program disks at the same time, for rapid access to programs and data. And because these systems are designed to work with the All-In-One, you'll have a harmonious system.

Space-saving design: Each floppy disk drive installs vertically into the system's tough metal cabinet, so the unit takes up less space than units with horizontally-mounted drives.

Built for heavy use: These systems have a special heavy-duty power supply, which provides enough power for the system — with enough extra capacity to stay cool, even under the heaviest use.

The H-37's double-density, double-sided, 96 tpi (tracks per inch) floppy disk drive provides up to 6.4 times the data storage capacity of our single-sided 5.25-inch floppy disk drive: Store up to 640K bytes per drive — for a total data storage capacity of up to 1.28 megabytes! For easier kitbuilding, the disk drives are assembled and tested.

Add these disk storage accessories

Soft-Sector Floppy Disk Controller Board for the H/Z-89 Computer. Doubles on-line data storage capacity of double-sided H-17-4 or single-sided H-17-1 disk drives below. Deduct \$100 when you purchase this board on the same order form with an H-89!

Z-89-37, Assembled, Shpg. wt. 4 lbs. \$395.00

Hard-Sector Floppy Disk Controller Board for the H/Z-89. Use only with H-17-1 Drives below.

H-88-1, Assembled, Shpg. wt. 3 lbs. \$120.00

Double-Sided Floppy Disk Drive for the H/Z-37 Floppy Disk System. Requires Z-89-37 Soft-Sector Controller above.

H-17-4, Assembled, Shpg. wt. 5 lbs. \$550.00

Single-Sided Floppy Disk Drive. Uses either Z-89-37 Soft-Sector Controller or H-88-1 Hard-Sector Controller (both above).

H-17-1, Assembled, 5 lbs. \$325.00

Backplate Modification Kit, Required to use the H-37, H-77 and H/Z-87 Floppy Disk Systems with non-current model All-In-One Computers (which don't have external brightness control).

H-88-6, Shpg. wt. 2 lbs. \$50.00

Dust Cover protects H/Z-37, H-77 and H/Z-87.

HCA-5-77, Shpg. wt. 1 lb. \$14.00

Save 5% on a Printer!

Buy a complete All-In-One system from the opposite page. Then, choose any printer in this catalog and take 5% off the list price (excluding shipping/handling)!

Enhanced software capabilities: With the double-sided H-37's ability to store a much greater amount of data on each disk (double the capacity of single-sided 5.25" disk drives), you can more fully utilize most of our software programs.

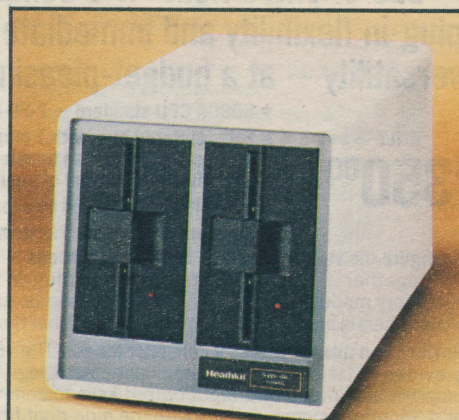
Many of our software packages are now available on soft-sectored 5.25-inch floppy disks, written especially for the H-37. Software package available on soft-sectored disks include the industry standard CP/M Operating System; Microsoft BASIC, FORTRAN and COBOL; the WordStar and Magic Wand Word Processing Systems; Peachtree business programs; and many more. See pages 43-48.

Field-proven H-77 available: We also offer the popular Heath H-77 Floppy Disk System. Using single-sided 5.25-inch floppy disk drives, this reliable data storage system is available with one or two drives — to provide up to 200K bytes of storage (up to 320K bytes when the new Z-89-37 Soft-Sector Controller Board is used).

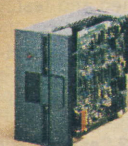
New, easier ordering method: Our ordering chart fully explains the different H-37/H-77 systems available. Data storage options range from 100K bytes to 1.28 megabytes. Order your H-37 or H-77 Disk System from the chart below.

For 120/240 VAC, 50/60 Hz power. Overall cabinet dimensions of the Heath H-37 and H-77 Floppy Disk Systems are 8.63" H x 8.88" W x 15" D.

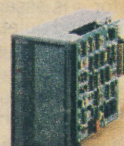
Assembled commercial products of this type are also available. For details on the Z-37 and Z-87 5.25-Inch Floppy Disk Systems, from Zenith Data Systems, turn to page 39.



Designed to match All-In-One styling



Uses higher-capacity double-sided, 96 tpi drive



Or single-sided 48 tpi drive

How to order external disk storage for your All-In-One Computer

All disk systems below include case and power supply. All require H-88-1 Hard-Sector Disk Controller (included with H/Z-89) or Z-89-37 Soft-Sector Disk Controller (included with Z-90), as listed (order from left).

Drives	On-Line Storage Capacity		Order Model	Weight	Price
	With H-88-1	With Z-89-37			
One H-17-1 (Single-Sided)	100K bytes	160K bytes	HS-77-1	34 lbs.	\$625.00
Two H-17-1 (Single-Sided)	200K bytes	320K bytes	HS-77-2	47 lbs.	\$895.00
One H-17-4 (Double-Sided)	—	640K bytes	HS-37-1	34 lbs.	\$850.00
Two H-17-4 (Double-Sided)	—	1.28 megabytes	HS-37-2	47 lbs.	\$1345.00

Current H/Z-89 owners — upgrade for maximum storage!

H/Z-89 Computers use an H-88-1 Single Density Hard-Sector Disk Controller and an H-17-1 Single-Sided 5.25" Disk Drive as standard equipment. (The Z-90 has the Z-89-37 Double-Density Soft-Sector Disk Controller.)

You now have five options to upgrade your present H/Z-89 All-In-One Computer to gain additional data storage capacity:

1. Add the H-77 Single-Sided 5.25" Floppy Disk System for up to 200K bytes (100K bytes per drive) of additional data storage.

2. Add the Z-89-37 Soft-Sector, Double-Density Disk Controller Board to your system. This new accessory will increase the data storage capacity of your single-sided 5.25" disks from 100K bytes to 160K bytes.

3. Add the Z-89-37 Soft-Sector Double-Density Disk Controller Board and the H-77 5.25" Single-Sided Floppy Disk System for up to 320K bytes (160K bytes per drive) more storage.

4. Add the Z-89-37 Soft-Sector Double-Density Disk Controller Board to your system; then, add the H-37 Double-Sided 5.25" Floppy Disk System to increase storage capacity by up to 1.28 megabytes (640K bytes per drive).

5. Add the commercial Z-67 Winchester Disk System's 10.782 megabytes of data storage capacity to your computer system.

NOTES: Hard- and soft-sectored software may be used on the same computer; compatible disk controllers are required. H-17-4 Drive may be used only with Z-89-37 Controller Board.



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

1 Bus-oriented Heath H-8 Computer offers plug-in flexibility and immediate programming versatility — at a budget-pleasing price

ONLY
\$350⁰⁰

- 8080A CPU standard — Z-80 CPU available separately
- Fully-buffered bus (with 7 plug-in positions) and heavy-duty power supply can handle up to 64K bytes of RAM and a full complement of input/output (I/O) devices
- Capabilities enhanced by expanding software line
- Save up to \$1296 on a system (see p. 30)

Configure the H-8 Computer to meet today's needs — and tomorrow's needs, too: Put together almost any combination of plug-in memory, interfacing and accessory modules in its seven module positions. And an expanding selection of peripherals and software provides exceptional flexibility.

Novices can use the H-8 as a computer trainer: The 16-key front panel keyboard provides octal data entry, direct access to registers/memory, one-button program load/dump and input/output keys to communicate directly with any port. Monitor program activity with the nine-digit front panel readout.

The H-8's newly-enhanced features add extra value: Its Random Access Memory (RAM) capacity of 64K bytes is now available on a single plug-in card (see page 33)! The CPU card — including the 8080A chip, clock, systems controller and ROM monitor — is assembled and tested for easier kit assembly and faster system setup. And quiet convection cooling is designed into the H-8.

Exclusive 50-pin fully-buffered bus: The H-8's special bus provides ample room for memory and interfacing. A built-in speaker gives audible feedback and special effects. Front panel lights keep you updated on status. With these features and more, the H-8 can serve as the heart of your computer system.

You can equip your Heath H-8 Computer with the powerful Z-80 microprocessor — the same CPU used in the popular Heath H-89/Zenith Z-89 All-In-One Computer! Learn more about the Heath HA-8-6 Z-80 CPU Board at right.

Heath disk systems, sold separately, provide greater data storage capacity: The H-17 (p. 33) provides 100K bytes of data storage. The H-17 can be expanded to store up to 300K bytes of data with available accessories (p. 33).

Choose the dual-drive Z-47 Floppy Disk System (shown on page 39) for up to 2.5 megabytes of storage and H-17 compatibility in commercial applications.

Soft-sectored, double-density, double-sided storage coming soon! A new interface board, which will let the H-8 access the high-capacity H-37 Floppy Disk System for up to 1.28 megabytes of storage, will be available later this year.

Design a complete H-8 system to meet your specific needs — and save a big 20%! Save up to a maximum limit of \$500 (see below). Choose from an expanding selection of peripherals and accessories — including additional memory and data storage, a video terminal, color graphics, printers, a music synthesizer system and two modems. See full details of this exceptional offer below.

Choose from an expanding software library: We support the H-8 with the Heath Disk Operating System (HDOS), CP/M and the UCSD P-System with Pascal. Languages include a Microsoft BASIC Interpreter, MBASIC Compiler, C BASIC, FORTRAN and COBOL. See pages 45-46 for more information.

Many new applications programs are being introduced — including problem-solvers for home, hobby and business. And the Heath Users' Group maintains over 500 programs — from business accounting and personal budgeting to computer-aided instruction, exciting games — even weather forecasting! Turn to pages 43-48 for details on these programs.

SAVE 20% on complete H-8 Systems

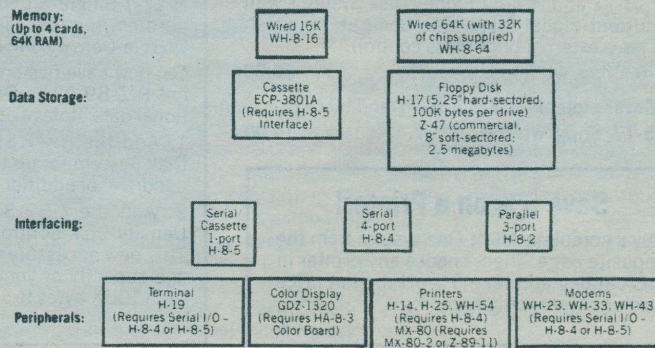
Buy these products on the same order form: An H-8, two or more WH-8-16 Memory Boards or the WH-8-64 Memory Board, the H-8-4 Serial or H-8-5 Serial/Cassette Interface, the H-17 Disk System or H-8-5 Interface, the H-19 Video Terminal and any other computer peripherals or accessories of your choice.

Save 20% (maximum: \$500). Choose an H-8 system including the components above plus other hardware of your choice. Then deduct 20% (maximum: \$500) from the total price of the system (excluding shipping and handling; one discount per customer).

With 7 plug-in positions for memory and I/O, your H-8 System can grow as your needs grow. You can expand to 64K of memory, and up to 1.28 megabytes of on-line data storage.

A pre-configured Heath H-8 Computer System, complete with peripherals and software, is now available. See page 30 for the HKS-85 system.

How to configure a Heath H-8 Computer System



1 Bus-oriented Heath H-8 Computer



Get added flexibility — at a budget-pleasing price: The Heath H-8 Computer requires 16K bytes of Random Access Memory (RAM — see opposite page) and operating system software (Heath Disk Operating System/HDOS, the Heath/Zenith CP/M Operating System, the UCSD P-System with Pascal, H-8-18 Cassette Software or similar operating system — see p. 45 and check minimum memory requirements of each operating system) for normal operation.

Kit H-8, Shpg. wt. 30 lbs. **\$350.00**

Z-80 CPU Card for H-8. Includes a powerful Z-80 Central Processing Unit (similar to the Z-80 CPU used in the H/Z-89), plus all features of HA-8-8 Extended Configuration Option below (at no extra cost) — which you'll need to use Z-47 and CP/M with your H-8. NOTE: The Z-80 CPU Card is not exchangeable with the H-8's standard 8080A CPU Card; trade-ins not accepted.

HA-8-6, Assembled, Shpg. wt. 5 lbs. **\$199.00**

SAVE 40% on Extended Configuration Option. Required to use Z-47 and CP/M in H-8s without HA-8-6 Z-80 CPU Card. Includes new front panel ROM (read-only memory) with single-button boot-up.

HA-8-8, Shpg. wt. 1 lb. **Was \$65.00, NOW ONLY 39.00**

Dust Cover for H-8. Protects computer from contamination when not in use.

HCA-5-8, Dust Cover for H-8, Shpg. wt. 1 lb. **\$14.00**

H-8 SPECIFICATIONS: Microprocessor: 8080A. Monitor: In on-board 1K x 8 ROM. Octal addresses, data input and display from the front panel. Monitor Functions: Memory display and alter, register display and alter, memory load and dump, single instruction execution, program execution, port input and output. Clock: 2.048 MHz. Interrupts: Seven, priority vectored. Power Supplies: +8 VDC at 10 amperes maximum, regulated to +5 VDC on each circuit board; +18 VDC at 500 milliamps, regulated to +12 VDC and -5 VDC on the CPU circuit board. Chassis Capacity: Seven locations on the mother circuit board for memory or interfacing cards. Four memory cards maximum. One bus expansion maximum. Operating Temperature Range: 32 to 104°F (0 to 40° C). Power Requirement: 120/240 VAC. 50/60 Hz, 150 Watts. Dimensions: 6.50" H x 16.25" W x 17" D. Net Weight: 21 lbs.



② H-17 5.25" Floppy Disk System
(shown with three-drive modification
and two additional drives installed)



H/WH-17 SPECIFICATIONS: Data Storage Media: 5.25-inch single-density, single-sided, hard-sectored floppy diskette. Number of Tracks per Floppy Diskette: 40. Number of Sectors per Track: 10. Number of Formatted Bytes per Sector: 256. Drive Type: Siemens Model 82. Track Seek Time: 30 milliseconds. Random Sector Access Time: Less than 250 milliseconds. Spindle Motor Start Time: 1 second. Spindle Motor Speed: 300 rpm, ± 1 percent. Data Transfer Rate: 128 kilohertz. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C). Power Requirement: 120/240 VAC, 50/60 Hz. Power Consumption: 75 Watts. Overall Dimensions: 6.25" H x 13.50" W x 13.50" D (15.89 x 34.29 x 34.29 cm). Net Weight: 25.25 pounds (11.45 kilograms).

NOW SAVE UP TO \$690 — GET SOFTWARE STARTER PACKAGE AT NO EXTRA CHARGE! Order two programs from our starter list (p. 30) on the same order with a 20%-off H-8 system or the HKS-85 system on page 30. We'll send you the programs at no extra charge.

H-8 memory, interfacing and accessories

64K Wired Memory Board lets you put the H-8's 64K-byte RAM capacity on a single board, using less room and power — so you can add other interfacing, accessories. Comes with 32K RAM; expand to 48K or 64K with HA-8-16 below.

WH-8-64, Assembled, Shpg. wt. 2 lbs. **449.00**

HA-8-16, 16K Byte RAM Chip Expansion Set for WH-8-64, 1 lb. **55.00**

SAVE \$100! WH-8-16, 16K Wired Memory Board, 2 lbs. **Was \$299.00, NOW 199.00**

SAVE 50% on PAMGO ROM. Allows 1- or 3-button boot-up, instead of 10. **H-8-9**, Shpg. wt. 1 lb. **Was \$20.00, NOW 10.00**

Wired H-8 to Z-47 Disk Interface, with two RS-232C Serial Interface Ports. Selects correct drive for write or read operation, handles data flow to/from drives. Includes ROM to operate system, RAM buffer memory.

WH-8-47, Assembled and tested, Shpg. wt. 2 lbs. **235.00**

Four-Port RS-232C Serial Interface connects H-8 to serial devices (such as printers, modems, others). Includes modem controls, WH-8-41 Cable.

Kit H-8-4, Shpg. wt. 2 lbs. **195.00**

WH-8-41, Adapter Cable, Shpg. wt. 1 lb. **15.00**

SAVE \$30.00 on 1200 Baud Serial/Cassette Interface. Includes one serial port for console terminal. NOTE: Not to connect H-8 to H/WH-14 Printer.

Kit H-8-5, Shpg. wt. 3 lbs. **Was \$125.00, NOW ONLY 95.00**

WH-8-51, Adapter Cable, Shpg. wt. 1 lb. **15.00**

Three-Port Parallel Interface. 8 bits of I/O per port. Universal handshaking.

Kit H-8-2, Shpg. wt. 3 lbs. **150.00**

Reusable Circuit Design Breadboard Card allows you to custom design digital and analog circuits. Includes 5 VDC power supply.

Kit H-8-7, Shpg. wt. 2 lbs. **79.00**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

② Save \$30 — get high data storage capacity, fast access with H-17 Floppy Disk System

\$595⁰⁰
Kit

- Provides up to 300K bytes of on-line data storage (using additional drives, accessory)
- Take advantage of hundreds of disk-based software programs available for the H-8 and H/Z-89
- Easy to build — takes as little as two evenings
- Assembled and tested disk drive system

The H-17 Floppy Disk System gives your H-8 Computer new versatility. It stores dozens of programs on a single disk. And you can rapidly access any one of those programs, anytime you need it.

The H-17 provides 100K bytes of on-line data storage (expandable to 300K bytes — see below). Data is stored on 5.25-inch, single-sided, hard-sectored floppy disks — which are easier to handle, and load, than paper tapes or cassettes.

This peripheral includes one disk drive, an interface/controller circuit board which plugs directly into the H-8's mainframe, and a built-in power supply.

For more data storage capacity, add the optional H-17-1 Second Drive and make your H-17 a more versatile dual-drive floppy disk system. With two drives, you'll have up to 200K bytes of program and data storage area. You'll be able to run operating system and program disks at the same time.

If you need even more on-line data storage, buy the new H-17-3 Three-Drive Modification Kit and another H-17-1 Drive. Add this kit to your H-17 in as little as one evening — and expand on-line storage capacity to 300K bytes.

To use the H-17 effectively, you need an H-8 with at least 48K bytes of RAM, as well as a Heath disk-based operating system (sold on page 45).

Your choice of operating systems includes the Heath Disk Operating System (HDOS), which many of the 500 utility and applications programs in the Heath Users' Group software library (p. 44) are based on; Heath/Zenith CP/M, with hundreds of existing programs available; and the UCSD P-System with Pascal, a modular system with a large library of utility and applications programs.

Kit includes one blank 5.25-inch single-sided, hard-sectored floppy diskette. **Kit H-17**, with one drive, 28 lbs. **Was \$625.00, NOW ONLY 595.00**

WH-17, Assembled, with one drive, Shpg. wt. 28 lbs. **695.00**

SAVE 23% on Three-Drive Modification Kit for H-17. Increases capacity to three 5.25-inch floppy disk drives, instead of two. Enjoy even more programming flexibility and versatility. The H-17-3 Modification Kit includes new sheet metal, fan and power supply components, three-drive cable. Easy kit assembly — takes as little as one evening. Requires H-17 or WH-17. Order one or two H-17-1 Drives separately (below). Operating system not included.

Kit H-17-3, Shpg. wt. 10 lbs. **Was \$85.00, NOW ONLY 65.00**

Optional Second or Third Drive adds 100K on-line bytes to your H-17.

H-17-1, Assembled, Shpg. wt. 5 lbs. **325.00**

HCA-5-17, Dust Cover for H-17 Floppy Disk System, 1 lb. **14.00**

Extender Board allows easier access to components for servicing, prototyping and debugging purposes.

HA-8-1, Shpg. wt. 1 lb. **40.00**

SAVE \$44.00 on Music Synthesizer System. Board connects to stereo with two shielded cables (included). True D/A converter provides excellent 27.5-3300 Hz frequency response, up to nine harmonics. Four-part harmony (voices) in stereo. Enter any song from sheet music — even if you've never read music before. Documentation shows how to get maximum enjoyment. Software on hard-sectored 5.25" disk. Requires 24K RAM, H-17, terminal.

HA-8-2, Assembled, Shpg. wt. 3 lbs. **Was \$159.00, NOW ONLY 115.00**

Design and build your own custom H-8 circuits

Wire Wrapping Board accepts eighty 16-pin sockets, three 50-pin flat cable connectors. Includes bus connectors, heat sink, 5V regulator and miscellaneous hardware. Uses HCA-6 and HCA-7 below.

Kit H-8-10, Shpg. wt. 1 lb. **29.95**

Wire Wrapping Kit. Includes wire wrapping tool, 50 feet of wire and 200 pre-cut, pre-stripped wires (50 each in 1", 2", 3" and 4" lengths).

Kit HCA-6, Shpg. wt. 1 lb. **13.95**

Wire Wrapping Socket Kit. Includes 36 three-level wire wrapping sockets (ranging from 14-pin to 40-pin).

Kit HCA-7, Shpg. wt. 1 lb. **29.95**

Save a big \$2,735 — and get a complete, DEC-compatible educational/science computer system

ONLY

\$2595⁰⁰

Complete System
less Terminal

- System features full compatibility with DEC PDP-11/03 — at a very substantial savings!
- Includes 56K bytes of memory and 500K bytes of on-line data storage (in IBM 3740 format)
- Powerful 16-bit computer system features a half-size KD-11HA (DEC LSI-11/2) microprocessor

You can save over \$2,700 — and get DEC-compatible 16-bit power, with flexibility you need to run DEC programs and real-time laboratory applications. It uses the same microprocessors, memory, interfacing and operating system as the DEC LSI-11, and runs all DEC PDP-11/03 software.

[1] H-11A Computer has 16-bit power: Your choice of a 16-bit or 8-bit computer depends upon your needs. If you're a professional who needs full DEC compatibility, the 16-bit H-11A is your choice. It has adequate computing power, even for the more complex jobs that you will tackle later.

Smaller, yet powerful microprocessor: A KD11-HA (half-size LSI-11/2) microprocessor — makes the H-11A identical to the DEC PDP-11/03, at a fraction of the cost. The KD11-HA features PDP-11/34 instruction set, 380 ns microcycle time, resident firmware debugging (ODT), ASCII console routines, single and double operand instructions. With no on-board memory, you get more flexibility to match read-only memory (ROM) random access memory (RAM) and interfacing to your particular needs.

Seven plug-in slots: handle up to 56K bytes of memory and interfacing. You can even combine LSI-11 and LSI-11/2 components.

The easy-to-build Heath H-11A Computer includes cabinet, heavy-duty power supply, backplane with bus and assembled CPU board.

In this special system configuration, the H-11A also comes with two WHA-11-16-32K Byte Memory Expansion Modules to provide the computer with its maximum memory capacity — and H-11-5 Serial Interface Kit to communicate with peripherals via either RS-232C Serial Interfacing or a 20 mA current loop — and a WH-11-51 Cable for the Serial Interface.

[2] The H-27 Dual-Drive Floppy Disk System, included in the HKS-11 system, provides up to 500K bytes of on-line data storage — enough for most of your needs. It stores data on 8-inch disks, compatible with the IBM 3740 format.

You get fast access to data — The H-27's Z-80 microprocessor-based disk controller provides an average data access time of 250 milliseconds.

Full compatibility: The H-27 is compatible with DEC RX01 (PDP-11/03) and RXV11 (PDP-11V03) hardware and software — so you can use the hundreds of applications programs written for the DEC PDP-11 microcomputer.



Extra-value features: Single-board bootstrap/interface circuit takes just one H-11A backplane slot. Built-in diagnostics, mechanical interlock and write-protect function guard important programs.

Start programming right away — because this system includes both the HT-11 Disk Operating System and HT-11-1 FORTRAN (below).

Complete, ready-to-run H-11A 16-Bit Microcomputer System. Features 56K bytes (28K words) of Random Access Memory (RAM), two floppy disk drives with 1 megabyte of on-line data storage capacity, an RS-232C Serial Interface (which can also function as a 20 mA current loop interface), operating system and language software. Includes H-11A Computer, two WHA-11-16 Memory Expansion Modules, H-11-5 Serial Interface, WH-11-51 Adapter Cable, WH-27 Dual-Drive 8" Floppy Disk System, HT-11 Disk Operating System and HT-11-1 FORTRAN Language. This system would cost \$5330.00 if its components were purchased separately.

Kit HKS-11, Shpg. wt. 176 lbs., Motor Freight Collect **ONLY 2595.00**

Kit H-11A, DEC-compatible 16-Bit Computer, Shpg. wt. 43 lbs. **1395.00**

WH-27, Assembled Disk System, 69 lbs. Mtr. Frt. **2195.00**

Line Time Clock Switch Modification Kit (shown above right) places the LTC switch on the front panel for easier access. Includes new front panel.

Kit 830-35, Postpaid **53.50**

H-11A/WH-11-UL SPECIFICATIONS: Memory: 64K bytes total. RAM/ROM Addressed-0 to 56K; I/O Addressed-56 to 64K. Backplane: Eight 2-wide module slots. Power Requirement: 120/240 VAC, 50/60 Hz, 200 Watts. Dimensions: 6.5" H x 19" W x 17" D.

H/WH-27 SPECIFICATIONS: Data Transfer Rate: Average Access Time: 250 ms. Power Requirement: 120/240 VAC, 50/60 Hz. Dimensions: 7.75" H x 18" W x 20" D.

Add flexibility to your H-11A with these accessories and interfaces

Extended Arithmetic Chip increases your system's versatility — adds fixed point multiplication, division and extended shifts to your H-11A Computer. Features full floating point functions. Helps minimize arithmetic subroutines, speeds program execution and development, saves memory space. 40-pin dual in-line packaged integrated circuit (IC) plugs directly into socket in H-11A.

H-11-6, Shpg. wt. 1 lb. **190.00**

Serial Interface provides RS-232C or 20 mA loop interfaces. 50-9600 baud rates. Compatible with PDP-11V03, other LSI-11 computers. Plugs directly into the LSI-11 backplane. Includes mating connectors. To interface printers to H-11A, order WHA-11-5 (right).

Kit H-11-5, Shpg. wt. 2 lbs. **135.00**

WH-11-5, Assembled and tested, 1 lb. **150.00**

Adapter Cable for H-11-5 Serial Interface.

WH-11-51, Assembled and tested, 1 lb. **15.00**

Printer-to-H-11A Serial Interface Board.

WHA-11-5, Shpg. wt. 1 lb. **150.00**

Parallel Interface. 32 latched I/O lines, 16-bit word transfers and LSI-11 interface — as well as control logic for interrupt processing and vectored addressing. Drives cable up to 25' long. Compatible with TTL, DTL devices.

Kit H-11-2, Shpg. wt. 2 lbs. **125.00**

Wire Wrapping Board for designing custom circuits is punched, etched to accept 32 16-pin IC sockets (38 14-pin, other combinations). With card extractor hardware. Uses HCA-6 Wire Wrapping Kit, HCA-7 Socket Kit (p. 33).

H-11-10, Shpg. wt. 1 lb. **35.00**

Program your H-11A more efficiently with Operating System Software and FORTRAN Language

EXPAND applies user's or library's definition whenever source program references macro. **ASEMBL** Assembly Language outputs single relocatable binary object file, can also produce assembly listing with symbol table. **CREF** Cross-Reference appends index of symbol usage to assembly listing when specified as part of assembly output. All 3 programs support PDP-11 instruction set.

EDIT text editor creates, modifies ASCII source files

for input to other system programs. **LINKER** converts assembler or FORTRAN object modules into run-time format for loading, execution. Relocates code, links global references, creates runnable program file for system. **LIBRARIAN** creates, maintains subroutine libraries for linker.

PIP transfers, merges, moves, copies, renames and deletes files; lists, zeros and compresses device directories. **ODT** (On-line Debugging Technique) provides commands to display, alter the state of a running program.

BASIC INTERPRETER offers access to HT-11's I/O system and file structure through BASIC. Variable-

length strings, sequential files, virtual memory arrays, chaining, overlays. Calculator model performs calculations, aids in debugging.

Requires H-11A/H-27 system with 32K bytes (16K words) RAM, H-19 (p. 35) and H-11-5 (above).

HT-11 (Requires Sublicense Grant on page 81), Shpg. wt. 12 lbs. **350.00**

FORTRAN Language for H-11A. Binary software features complete ANSI Standard 1966 FORTRAN IV with extensions for increased speed. Requires H-11A/H-27 system with HT-11 O/S above.

HT-11-1 (Requires Sublicense Grant on page 43). Shpg. wt. 9 lbs. **250.00**



Save \$100 on the H-19A Smart Video Terminal — choose standard or anti-glare CRTs!

NOW ONLY
\$595⁰⁰
Kit
with standard
white CRT

- Available with anti-glare green, anti-glare white or standard white CRTs
- Z-80 microprocessor for fast data handling
- Heavy-duty typewriter-format keyboard with separate 12-key numeric keypad
- DEC VT-52 software-compatible
- Expandable to an All-In-One Computer

With exceptional capabilities for its price, the H-19A can be used with any computer system using an RS-232C Serial Interface. 32 functions can be controlled from keyboard or computer. The H-19A displays the entire ASCII character set, upper and lower case. Thirty-three graphics characters and 8 user-function keys are also available for extra flexibility.

The H-19's high-resolution video display screen shows 24 80-character lines (with software-controlled 25th line). Make corrections or edit — anywhere on the screen — using direct or relative cursor addressing.

Now you can upgrade your H-19A into an H-88A All-In-One Computer, with the new H-19-3 Conversion Kit (offered below). For 120/240 VAC, 50/60 Hz power. Draws 45 Watts. 13" H x 17" W x 20" D (33.02 x 43.18 x 50.80 cm).

SAVE \$100! Kit HS-19-1, w/anti-glare white CRT, 52 lbs. . . Was \$725, NOW 625.00

SAVE \$100! Kit HS-19-2, w/anti-glare green CRT, 52 lbs. . . Was \$725, NOW 625.00

SAVE \$100! Kit HS-19-3, w/standard white CRT, 52 lbs. . . Was \$695, NOW 595.00

H-19-1, Source Listings for ROM of H-19 and H-19A, 1 lb. 25.00

HCA-4, Black Fabric Anti-Glare CRT Filter for H-19/H-19A, 1 lb. 19.95

HCA-5-89, Dust Cover for H-19 and H-19A, Shpg. wt. 1 lb. 14.00

Convert the H-19 or H-19A into an H-88 All-In-One Computer with 16K RAM, without giving up your video terminal! Includes manual and parts. Add disk drive and controller board from p. 31, and expand to a full-fledged H-89!

SAVE \$300! Kit H-19-2, H-19 to H-88, 19 lbs. Was \$695.00, NOW 395.00

NEW! Kit H-19-3, H-19A to H-88, Shpg. wt. 19 lbs. 395.00

Versatile Acoustic Modem is ideal for any phone

- Assembled modem allows your computer to exchange data with other computer systems
- Includes RS-232C Interface

The economical, fully assembled Lexicon Lex-11 Acoustic Modem has many practical and useful applications. It lets your computer talk to other computers over standard telephone lines. This stand-alone, acoustically-coupled FSK (frequency shift keying) modem has selectable answer and originate modes. Operates in full duplex or half duplex modes. Compatible with Bell 103 modems. Two self-testing modes verify the Lex-11's capabilities. RS-232C Serial Interface is included with the Lexicon Lex-11 Acoustic Modem. Powered from 120 VAC, 60 Hz line by UL- and CSA-listed AC Adapter (included). Overall Dimensions of the Lexicon Lex-11 Acoustic Modem are 2.40" H x 10" W x 5.50" L (6.09 x 25.40 x 13.97 cm).

WH-23, Assembled and tested, Shpg. wt. 3 lbs. 159.00

Direct-Connect Modem offers excellent quality

- UDS Direct-Connect Modem offers higher data transfer quality than acoustic modems
- Includes RS-232C Interface

The WH-33 UDS Direct-Connect Modem offers more reliable, higher-quality data communications than acoustic modems — because direct connection eliminates loss and distortion of data associated with acoustic couplers. Full duplex communication at 300 baud. Originate/answer modes. Compatible with Bell 103 modems. RS-232C Serial and TTY interfaces. Two modular phone jacks. Connects to standard phone line. Includes phone-modem cable. Requires standard single-line phone with modular connectors. Powered by phone line. 1.13" H x 9.50" W x 6.13 L.

WH-33, Assembled and tested, Shpg. wt. 2 lbs. 195.00



H-19A SPECIFICATIONS: Display Size: 6.5" H x 8.5" W (16.51 x 21.59 cm). Character Size: Approximately 0.2" H x 0.1" W (0.508 x 0.254 cm). Character Set: 128 (95 ASCII, 33 graphic). Character Type: 5 x 7 dot matrix (upper and lower case) and 5 x 9 dot matrix (lower case with descenders). Keyboard: 84 keys (60 alphanumeric, 12 function), 12-key numeric pad. Cursor: Blinking non-destructive underline, or block. Cursor Controls: Up, down, left, right, home, CR, LF, back space and tab. Cursor Addressing: Relative and direct. Tab: Standard 8-column tab. Refresh Rate: Same as AC line frequency. Edit Functions: Insert and delete character or line. Erase: Page or line — or to end of line, end of page, beginning of line or beginning of page. Scroll: Automatic scrolling, line/page freeze. Video Modes: Normal and reverse, by character. Bell: On receipt of control G. Communications: Interfacing: EIA Standard RS-232C Serial Interfacing. Baud Rates: 110 to 9600. Communications Mode: Full or half-duplex. Parity: Even, odd, and none. Handshaking: Software, control S — control Q; all RS-232 Serial lines tied high internally. Buffered terminal is capable of keeping up with most operations and normal scrolling text output, at 9600 baud or less. Operating Temperature Range: 32-104 degrees F (0-40 degrees C). Net Weight: 45 lbs. (20.4 kg).

An assembled commercial product of this type is also available. See the Zenith Data Systems Z-19 Professional Video Terminal on page 39.

Move up to auto-dial, auto-answer convenience with the Hayes Stack Smartmodem

- Our best and most versatile modem
- Can auto-dial and communicate with other systems — or auto-answer incoming calls
- Compatible with dial, Touch-Tone phones using modular connectors
- Built-in audio monitor system



Here's our best data communications modem — the direct-connect WH-43 Hayes Stack Smartmodem, a complete high-performance auto-dialing/auto-answering system for RS-232C-compatible microcomputers. It analyzes and executes commands and in response sends result codes — which can be English words or decimal digits. The WH-43 can also communicate data to a local computer or terminal, when not on line.

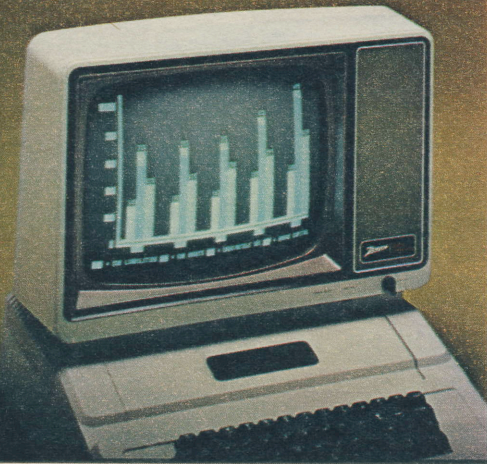
Program-controlled in any language by ASCII strings, the WH-43 accepts commands issued from a terminal keyboard — or under program control. You can change operational parameters — like dialing speed, how long to wait for a dial tone before dialing, and number of rings to answer on.

Connect to computer or terminal — or use as receive-only device: Full-, half- duplex operation to 300 baud. Compatible with Bell 103 modems. Includes phone cable, power pack. Requires HCA-11 Cable, single-line phone for use with terminals (not for party lines, pay phones); for H-8 or H/Z-89, serial I/O and CPS (p. 45) also required. Power transformer included. 2" H x 5.46" W x 9.53" H.

WH-43, Assembled and tested, Shpg. wt. 3 lbs. 279.00



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



Save \$20 on high-resolution Zenith Monochrome Video Display

NOW ONLY
\$159⁹⁵

- Styled to match "orchard grown" microcomputers
- Compatible with many popular microcomputers – including Apple II, Apple III and Texas Instruments
- 25 x 80 CRT display

Add the low-priced, high quality ZVM-121 12" diagonal Monochrome Video Display to your computer system – and get performance comparable with higher-priced units! Zenith's unsurpassed video engineering and manufacturing skills make this unusual combination of features, performance and reliability – the ZVM-121 – possible.

Designed to interface with most popular microcomputer systems, the ZVM-121 Video Monitor accepts NTSC composite video signals.

Super-sharp, high-resolution video display: The ZVM-121's special premium deflection system and green phosphor CRT provide a display of twenty-five 80-character lines that's remarkably easy on the eyes – and easy to read.

Improved character definition: Designed with a bandwidth greater than 15 MHz, the ZVM-121 has a rise time of 50 nanoseconds – which results in excellent character definition.

Conveniently-located operator controls include power, black level, contrast, horizontal and vertical adjustment, vertical size adjustment and a switch that allows you to select either 40-character or 80-character lines.

For 120 VAC, 60 Hz. Draws 26 Watts. 11.75" H x 16.25" W x 12" D. Was \$179.95.

ZVM-121, Assembled, 18 lbs. . . NOW ONLY 159.95



Type-'N-Talk Speech Synthesizer has every computer talking

\$375⁰⁰

- Easy-to-program text-to-speech synthesizer has unlimited vocabulary
- Built-in microprocessor has 750-character memory
- Uses RS-232C Interface

Your computer can talk to you, with an unlimited vocabulary – using the assembled WH-12 Type-'N-Talk Speech Synthesizer by Votrax. Type-'N-Talk can tell students when they're right or wrong – even praise a correct answer.

One of the easiest-to-program speech synthesizers available, Type-'N-Talk uses the least amount of memory, and gives the most flexible vocabulary.

Just enter English text and hear electronic speech through a 1-Watt, 8-Ohm speaker (amplifier included; external speaker not included).

Uses one RS-232 port at 75-9,600 baud; additional peripherals can be connected to Type-'N-Talk, eliminating the need for additional ports. Data switching capability allows for on-line usage.

Includes complete instructions. Requires HCA-13 below. 120 VAC, 60 Hz. 3.1" H x 7.7" W x 5.2" D. NOTE: Needs modified print driver routine. Although not difficult to implement, product is not recommended for novices at this time.

WH-12, Assembled, Shpg. wt. 5 lbs. 375.00

HCA-13, Custom RS-232 Cable to connect WH-12 to H-8 or H/Z-89, Shpg. wt. 1 lb. 20.00

Color Video Display complements computer, VCR, camera

\$399⁹⁵

- Assembled unit features 13" (diag.) color picture
- Accepts composite NTSC color video from computers, VCRs, cameras

The GDZ-1320 is designed for use with computers, VCRs and color TV cameras which produce an NTSC composite video signal – or with the HA-8-3 Color Graphics Board below. Its many features make it an outstanding value in its field.

With the GDZ-1320 and HA-8-3, you can take advantage of the color software offered by the Heath Users' Group (HUG) for the H-8 Computer.

A direct NTSC composite video signal feed assures a higher-quality picture – a better picture than that

produced by an RF modulator, because direct reception eliminates interference caused during modulation and demodulation of the signal. A 75-ohm RCA-type phono jack is provided to accept NTSC composite video input.

The GDZ-1320 also accepts a Hi-Z audio input, via a miniature phone jack.

Fully automatic color processing assures a consistently better all-around color picture. The picture stays so rock-steady that vertical and horizontal hold controls have been eliminated. A built-in audio amplifier and speaker faithfully reproduce each sound.

For 120 VAC, 60 Hz, 82 Watts. UL, CSA listed. Conforms to technical requirements of 21 CFR, Subchap. J, for X-radiation. High-impact styrene



cabinet measures 14" H x 20.25" W x 14.75" D.

GDZ-1320, Assembled, Shpg. wt. 42 lbs. . . 399.95

Save \$116, add colorful capabilities to your H-8 with the HA-8-3 Color Graphics Board

\$379⁰⁰

- Advanced TI-9918 Color Video Display Generator with 256 x 192 pixel resolution, 3 color display modes
- Includes AY-3-8910 Programmable Sound Generator
- Board can accept four X-Y joystick consoles and the AMD-9511 Arithmetic Processing Chip (both optional)
- Fully assembled and tested for easy installation

Add color to your H-8 Computer system. Connects to GDZ-1320 above (preferred), or to other devices which accept NTSC composite video. Advanced video generator produces pictures for color, B/W displays. Programmable sound generator makes nearly any sound desired.

Eight A/D conversion channels (each with 4 bits of parallel I/O for LEDs, switches) accept four X-Y joystick consoles (not included). AMD-9511 Arithmetic Processor Chip (not supplied) permits extremely rapid floating point, trigonometric and transcendental computations – as well as hardware multiplication and division of both integer and floating point numbers.

Demonstration software supplied on 5.25" disk; additional software now available from HUG. Proper operation guaranteed only when used with Heath memory boards – or other memory boards which use fully static single-supply RAMs.

HA-8-3, Assembled and tested, 3 lbs. . . . Was \$495.00, NOW ONLY 379.00



The Heath/Zenith H-25 Dot Matrix Line Printer features uncommon versatility, speed and quiet

\$995⁰⁰

- Our fastest printer — prints bi-directional at speeds in excess of 150 characters per second
- Prints most graphics characters provided with the H/Z-19, H-88 and H/Z-89
- Completely enclosed cabinet reduces the H-25's sound level
- State-of-the-art, heavy-duty design provides more features, assures longer periods of continuous operation
- Self-testing capabilities make checking the H-25's printing capabilities easier

Now you can get all the features you've been looking for in a high-quality, high-speed dot matrix printer — for only \$1095 kit! The state-of-the-art Heath/Zenith H-25 combines fast printing speed, versatile paper handling facilities and rugged construction.

Heath's fastest printer: The bi-directional H-25's maximum printing speed is over 150 characters per second — which means it can print up to 300 lines per minute when printing 10-column lines, and 65 132-column lines per minute.

Especially designed to use the full capabilities of most Heath/Zenith computers and terminals: The H-25 prints the full 96-character ASCII set (both upper and lower case, with descenders and underlining), using a long-life 9 x 9 dot matrix print head. It also prints the block graphic characters (except reverse video) provided with the Heath/Zenith H/Z-19 Professional Video Terminal, as well as the Heath/Zenith H-88 and H/Z-89 Microcomputers.

The H-25's quad tractor-feed features adjustable width — which gives this Heath printer the capability to handle standard edge-punched, single or multiple forms (up to six parts thick) or fan-fold paper.

"No-mess" ribbon replacement — when you need to change a ribbon, just remove the old ribbon cartridge and "plug in" a new extended-life ribbon cartridge.

An enclosed cabinet makes the H-25 the quietest Heath/Zenith printer ever.

User-selectable variable pitch (10, 12, 13.2 or 16.5 characters/inch) allows the H-25 to print up to 222 characters per line (at 16.5 cpi pitch on a 13.5"-wide line). Vertical line spacing can be either 6 or 8 lines/inch — selectable by hardware or software. Horizontal and vertical tabs are adjustable.

"Paper out" and "jammed" detectors help prevent loss of data. Self-testing capabilities are also included with the H-25.

The H-25 interfaces to most computers and terminals, using an RS-232C Serial Interface — or a 20 mA current loop — with handshaking control signals (reverse channel or busy signal). Baud rates, ranging between 110 and 9600, are user-selectable.

Kit H-25, Shpg. wt. 85 lbs. 995.00

An assembled commercial product of this type is also available. See the Zenith Data Systems Z-25 Printer on page 41.

H-25 SPECIFICATIONS: Printing: Throughput at 10 cpi pitch: 65 lines/minute (132 characters/line). Motion: Bi-directional. Pitch: Pitch selection by either hardware or software. Character Width: Variable, depending upon pitch. Paper Handling: Paper Types: Up to 6 forms (0.018") forms thick, fan-fold, 3.5"-17.78" wide. Form Lengths: 3-14 in. Communications: Data Format: Asynchronous bit serial, with 2 stop bits on 110 baud and 1 stop bit on all others. Line Buffering: 256 characters. Parity: Odd, even or none. Physical: Operating Temperature Range: 50-104 deg. F. Power Requirement: 120/240 VAC. Dimensions (without paper tray): 8.25" H x 26.50" W x 18.50" D.



The H-25 accepts edge-punched, fan-fold paper from 3.5-17.78" wide, 1-6 forms thick

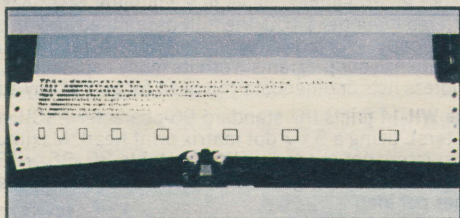
Has quad tractor feed for positive, accurate control of paper movement.

Nine-wire printhead for clear images

The H-25 accepts plug-in ribbon cartridges for no-mess replacement

Cabinet completely encloses printing mechanism during normal operation for maximum quiet

Convenient panel contains operator controls and status indicators



The Heath H-25 Line Printer's variable pitch, variable character width and 33 special graphics characters add extra versatility to your Heath or Zenith computer.



Sturdy desk-level Printer Stand

Here's a desk-level stand that will hold your new Heath/Zenith H/Z-25 Printer — as well as complement your other computer system components.

Especially designed to fit the H/Z-25, this stand has a special top channel which measures 1" H x 16.75" W x 1" D. It supports the printer at a level convenient for seated or standing persons. Ample platform is strongly supported by two steel legs with floor supports. The wire basket (included), which hooks onto the stand, keeps your hard copy output organized. This printer stand is partially assembled; not a kit.

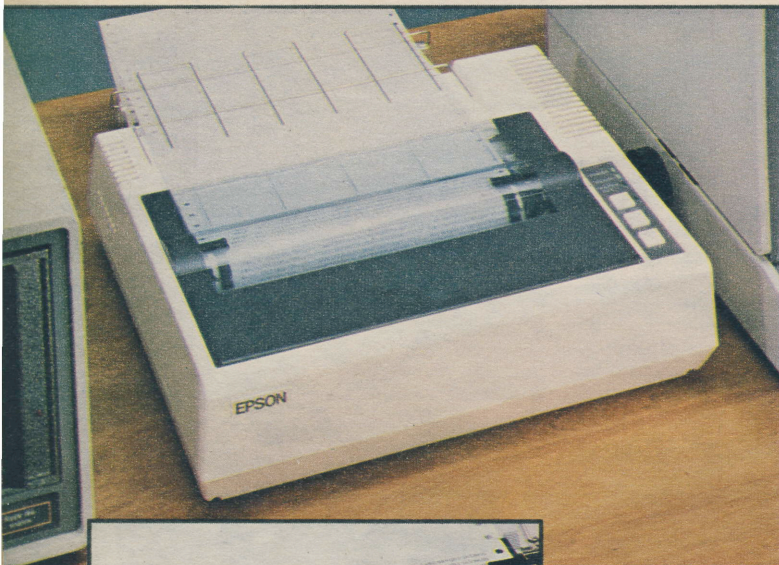
HCA-9, Shpg. wt. 21 lbs. 99.00



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

COMPUTERS/37

Get good performance and extra-value features, at a price you can afford, with the MX-80



\$545⁰⁰

- Bi-directional printing and advanced logic seeking circuitry maximize throughput rate
- Can interface with many different computers

Many printers, costing a lot more, can't touch the MX-80's performance. Using bi-directional printing and logically seeking the shortest lines, its throughput is a fast 46 lines per minute (using 80-character lines) – printing at speeds up to 80 characters per second.

Printing the full 96-character ASCII set and 64 block graphics characters, the MX-80 gives you a choice of 40-, 66-, 80- or 132-character lines – in as many as four distinct printing density modes. This provides a total of 12 different printing combinations, which can accommodate nearly any printing requirement. More than half of these printing combinations use multi-strike or multi-pass techniques to generate correspondence-quality printing.

An internal bell warns the user of paper out conditions or errors. A self-testing mode prints all characters in ROM.

This printer communicates with Heath/Zenith computers with the optional MX-80-2 RS-232C Serial Interface (below – requires HCA-10 Cable, p. 42), or the Z-89-11 I/O Board (p. 39 – requires HCA-14 Cable, p. 42). A Centronics-style 8-bit parallel interface is included with the MX-80.

Includes paper tray, one ribbon, 120 VAC, 4.2" H x 14.7" W x 12" D.

MX-80, Assembled, Shpg. wt. 15 lbs. 545.00

MX-80-2, RS-232C Serial Interface for MX-80, 1 lb. 65.00

HCA-5-80, Dust Cover for MX-80, 1 lb. 14.00

MX-80 SPECIFICATIONS: Printhead: 9-pin, replaceable. **Printing Method:** Serial impact dot matrix. **Print Rate:** 80 cps. **Print Direction:** Bidirectional. **Line Spacing:** 1/8", 1/6", 7/32" – plus programmable. **Character Set:** Full 96-character ASCII set with descenders. **Graphics Characters:** 64 block characters. **Printing Modes:** Standard, double (advance paper 1/200th page and repeat line), emphasized (shift right and double strike), double emphasized (combination of above). **Tabs:** Horizontal, 112 positions; Vertical, 64 positions. **Paper Feed:** Adjustable tractor-type pin feed. **Paper Width:** 4-10". **Forms:** 1-3. **Communications:** Interfacing: Buffer Size: 1 line. **Operating Temperature:** 41-95 deg. F. (5-35 deg. C). **Operating Humidity:** 10-80%, non-condensing. **Net Weight:** 12 lbs.

Assembled WH-14 Printer: outstanding value, features, compatibility and low cost

**NOW ONLY
\$395⁰⁰**

- Has extra features you won't find on comparably priced dot matrix line printers
- Use with most computers – communicates via RS-232C or 20 mA current loop interfacing

Here's an exceptional value in a microprocessor-based dot matrix line printer! Offered for under \$400, the fully assembled and tested Heath WH-14 provides hard copy – for added convenience in reading, editing, debugging and modifying your programs. With its many capabilities, the WH-14 can also print address lists or other data you need for almost any application.

The WH-14 prints the standard 96-character ASCII set (upper and lower case letters), using a 5 x 7 dot matrix print head. Maximum throughput rate is 75 characters per second, with selectable 80, 96 or 132 character line length. Vertical line spacing is 6 lines per inch, with a software-selectable option of 8 lines per inch.

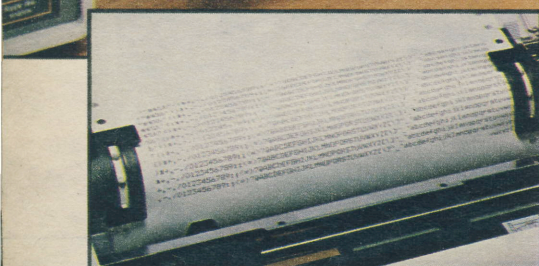
Baud rates are user-selectable, from 110 to 4800. Adjustable width sprocket feed handles edge-punched, 2.5-9.5" wide fan-fold paper, up to 0.006" thick.

The WH-14 connects to most computers with an RS-232C Serial Interface or 20 mA current loop. Includes 25-pin male EIA connector for fast, convenient hookup – and matching paper catch which keeps printer output handy and organized. 120/240 VAC, 4.80" H x 18.33" W x 14.33" D. Requires HDOS or CP/M Operating System for H/Z-89; H-88-18 Operating System for H-88; any Heath-offered operating system for H-8.

WH-14, Assembled, Shpg. wt. 27 lbs. Was \$495.00, NOW ONLY 395.00

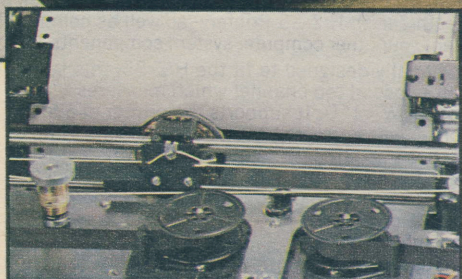
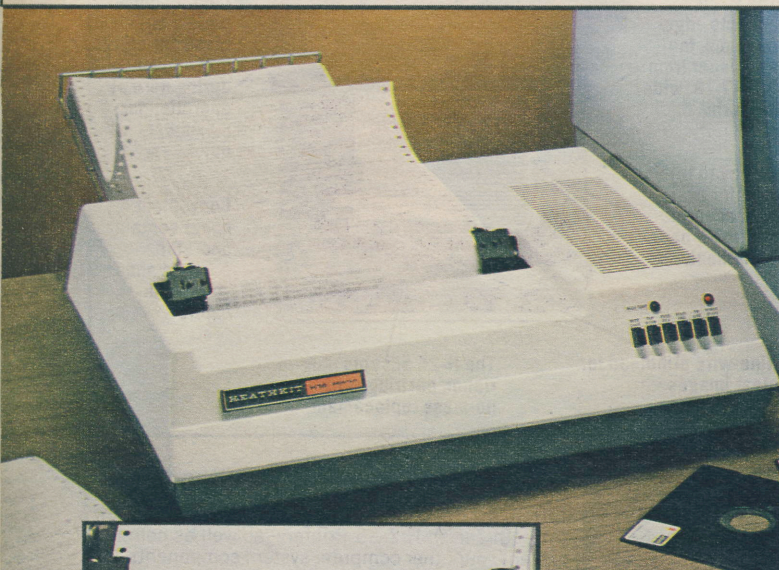
HCA-5-14, Dust Cover for H/WH-14, Shpg. wt. 1 lb. 14.00

WH-14 SPECIFICATIONS: **Printing Speed:** Initial time per full line is approx. 1.75 seconds on 60 Hz power line, 2.1 seconds on 50 Hz power line. Avg. throughput approx. 40 cps with 96 character lines. Print head temperature controlled by varying print speed. **Format:** 80, 96 or 132 cpi (96 cpi software selectable only). **Forms Handling:** Sprocket feed with adjustable (2.5-9.5") widths. **Ribbon System:** Standard typewriter ribbon with automatic reversing mechanism.



Has advanced features for maximized throughput

Prints 96 ASCII characters in a tack-sharp 9 x 9 matrix



With many convenience features, the WH-14 is one of the lowest-cost dot matrix line printers of its type available on the market today



Get many more extras, at no extra charge, with the Desktop Genius Computer!

ZENITH

data systems

Assembled commercial computer products for business applications

- You get CP/M, SuperCalc Electronic Spreadsheet and Microsoft BASIC Language Interpreter software
- Also includes Heath-exclusive, no-extra-charge 9-month carry-in maintenance agreement (plus normal 90-day limited warranty), \$18 HUG membership, \$100 Source and MicroNet time-sharing network membership, \$36 CPS communications program*

Two Z-80 microprocessors — today's industry standard — control computing and terminal functions. Up to 64K bytes of RAM can be addressed by the operator.

Two models come with convenient built-in floppy disk storage. External disk storage can increase on-line disk storage capacity to over 12 megabytes.

High-resolution video display, using a non-glare green CRT, can show up to 2,000 characters. Typewriter-style keyboard has 33 graphics characters for business presentations. Three RS-232C Serial Ports for printer/telecommunications extendability. 120/240 VAC. 13" H x 17" W x 20" D.

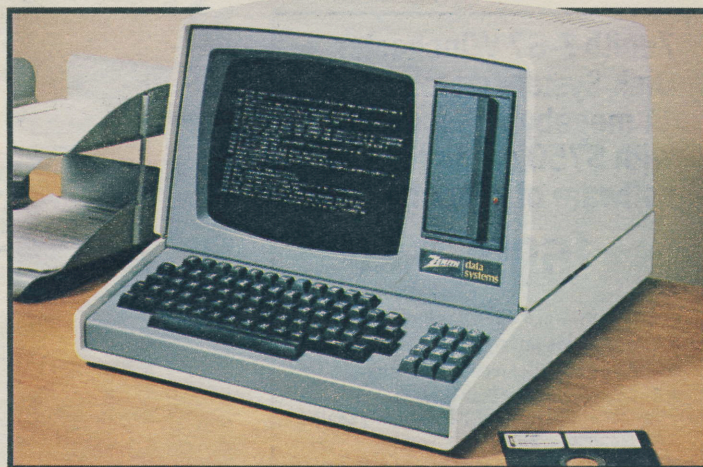
Z-89-81, Assembled with 48K bytes of RAM, built-in floppy disk drive for 100K bytes of data storage and three serial I/O ports, 55 lbs. **2895.00**

Z-90-80, Assembled with 64K RAM, Z-89-37 Soft-Sector Disk Controller, no internal disk storage (use Z-37 below) and three serial ports, 62 lbs. **2895.00**

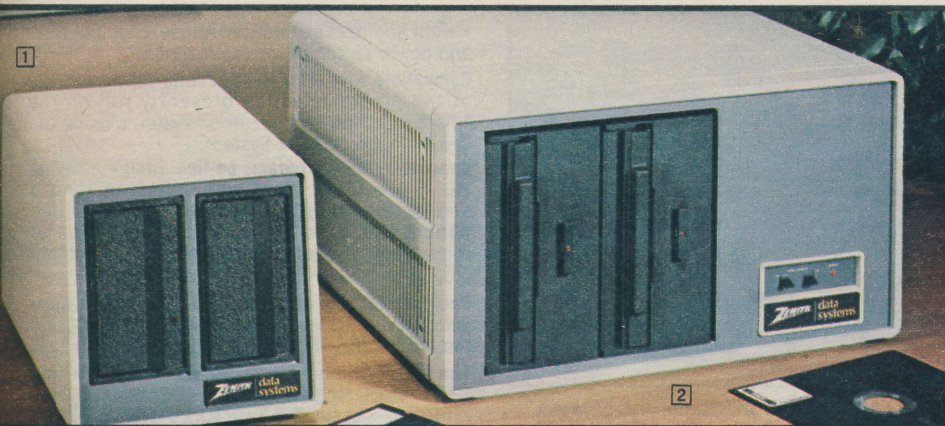
Z-90-82, Assembled with 64K bytes of RAM, Z-89-37 Disk Controller Board, built-in floppy disk drive for 160K bytes of data storage (use Z-87 for additional storage if needed) and three serial I/O ports, 55 lbs. **3195.00**

NEW! Z-89-11, Multi-Mode Interface Card (Centronics-style parallel interface allows H/Z-89 to directly interface with MX-80 Printer on p. 38 — or use with HWI-8917-1/8937-1/8947-1 software on p. 46 to enable H/Z-89 to emulate various IBM terminals), Shpg. wt. 1 lb. **150.00**

*Applies only to single-quantity purchases; write for quantity discounts.



Zenith Data Systems are designed for commercial use. Operation in residential areas may cause unacceptable interference to radio and TV reception — requiring the operator, pursuant to FCC regulations, to take the necessary steps to correct the interference.



1 Add up to 1.28 megabytes of data storage with Z-37 Disk System

\$1995⁰⁰

- Includes two high-capacity disk drives
- Plug-in adaptability to H/Z-89 computer systems

5.25" floppy disk drives mount vertically to take less space. Extremely accurate access to data. For 120/240 VAC, 50/60 Hz power. Dimensions, 8.625" H x 8.875" W x 15" D.

Z-37, Assembled Dual-Sided Disk System with two drives for 1.28 megabytes of data storage (requires Z-89-37 below for use with Z-89), Shpg. wt. 28 lbs. **1995.00**

Z-89-37, Soft-Sector Disk Controller Board, Shpg. wt. 4 lbs. **395.00**

Z-87, Assembled Single-Sided Disk System with two drives for up to 320K bytes of data storage, Shpg. wt. 28 lbs. **1195.00**

2 Z-47 Disk System provides over 2.5 megabytes of data storage

\$3500⁰⁰

- Compatible with H-8 and H/Z-89 computers
- Features fast 191 mS average data access time

The dual-drive Z-47 provides enough on-line data storage for extended accounting inventory and mathematical functions — up to over 2.5 megabytes. It accepts 8" IBM 3740 floppy diskettes.

For 120/240 VAC, 50/60 Hz power. 10.2" H x 18.9" W x 18" D (25.9 x 48 x 45.72 cm). Requires HA-8-8 Extended Configuration Option or HA-8-6 Z-80 CPU Card for use with H-8 Computer.

Z-47-BA, Assem., 66 lbs., Mtr. Frt. **3500.00**

H/Z-89 to Z-47 Interface.

Z-89-47, Assembled, 1 lb. **195.00**

H-8 to Z-47 Interface.

WH-8-47, Assembled, 2 lbs. **235.00**



Z-19 Video Terminal now features over \$100 in no-charge extras!

NOW ONLY \$895⁰⁰

- Get \$18 HUG membership, \$14 dust cover, Heath-exclusive, no-extra-charge 9-month carry-in maintenance agreement*

Interfaces with most standard systems; compatible with ANSI, DEC VT-52 terminals. Z-80 micro processor allows complete screen control for easier data entry. High-resolution, non-glare green video display shows twenty-five 80-character lines. Typewriter-style keyboard has 72 keys, 12 special user-function keys (eight user-programmable), 12-key numeric pad. 33 graphics characters.

Edit by character or line. RS-232C Interface runs at 110-9600 baud. All features controllable from keyboard, computer or interior switches. 120/240 VAC. 13" H x 17" W x 20" D. Was \$995.00.

Z-19-CN, Assembled, 43 lbs. ... **NOW ONLY 895.00**

Alaska, Hawaii and Michigan Residents: Call 616-982-3411

COMPUTERS/39

Zenith Z-67 Winchester Disk System stores nearly 11 megabytes – comes with \$750 credit towards software of your choice!

\$5995⁰⁰

- With software, a \$6745 value!
- Now includes interface (\$195 value)
- Features 10.782 megabytes of storage
- 8-inch Winchester disk drive is permanently mounted, hermetically sealed for maximum reliability
- Winchester disk drive provides extremely fast 70 millisecond average data access
- 8-inch double-density, double-sided floppy disk drive allows easy transfer of data between compatible systems
- Floppy disk drive uses standard IBM 3740-formatted 8-inch floppy disks
- Compatible with most current software for the H/Z-89 All-In-One Computer
- Separate write-protect switches are provided for each disk drive

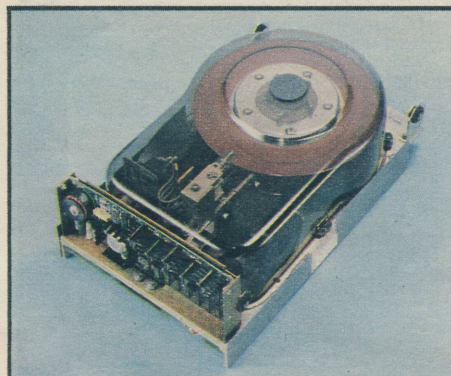
Do you need maximum on-line capacity to store large data bases? Or do you want the vastly better performance of a Winchester disk drive? The Z-67 Winchester Disk System will fill your needs. It represents another "quantum leap" in disk storage capacity – 12.961 megabytes unformatted/10.782 megabytes formatted, on an 8" Winchester disk drive and an 8" floppy disk drive!

Get \$750 worth of software, at no extra charge, with this peripheral. When you buy the Z-67, we'll automatically give you a big \$750 credit toward Heath/Zenith software of your choice. Just order as many software programs as you want, on the same order form with your Z-67 purchase, and deduct \$750 from the total price.

Field-proven, high-capacity Winchester disk drive: This permanently mounted, hermetically-sealed drive is designed to seal out contaminants, thereby reducing the chance of failure in this critical component. The Winchester disk has a track density of 195 tracks per inch, compared to only 48 tracks per inch on an 8-inch, double-sided, double-density floppy disk. The Winchester disk features 244 tracks per surface, x4 surfaces per disk, for a total of 976 tracks – compared to only 154 tracks per 8-inch, double-sided, double-density floppy disk. The Winchester disk has four recording surfaces – compared to two on a double-sided 8-inch floppy disk, and one on a single-sided 5.25-inch floppy disk (such as those used in the H-17-1 Single-Sided 5.25-Inch Disk Drive). The Winchester disk's data storage capacity is 9.76 megabytes. Average Latency Time for the Winchester disk drive is only 10.06 mS – compared to 83 mS for the floppy disk drive.

High-capacity, 8" floppy disk drive for data portability: You can copy data from the permanently-installed Winchester disk drive onto 8-inch floppy disks, which can be easily transported between compatible computers. You can store up to 1.022 megabytes (in double-density format).

More extra-value features: Front panel switches allow the operator to write-protect either the Winchester disk drive or the floppy disk drive. A front panel LED provides "power on" indication. A switching power supply minimizes



The Z-67 Disk System's Winchester disk drive is a field-proven, highly reliable state-of-the-art design

weight and heat generation. A fuse, EMI line filter and power switch are on the rear panel.

Compatible with most Heath/Zenith software: Most of the programs which presently run on the H/Z-89 Computer will run on systems using the Z-67 Winchester Disk System.

Keep many more programs on-line: Imagine having HDOS and CP/M, along with several utility and applications programs, on-line (stored on the Winchester disk) – and still having tens of thousands of sectors available to store other programs, or to perform other functions!

Designed for use with the H/Z-89 All-In-One Computer: It requires an H/Z-89 with 48K RAM and the Z-89-67 Interface (sold below).

The Z-67 Winchester Disk System operates on 120 VAC, 60 Hz power. Draws 190 Watts. Overall Dimensions of the Z-67 are 10.20" H x 18.90" W x 18.0" D (25.90 x 48.00 x 45.72 cm). Net weight is 65.8 pounds (29.9 kilograms).

Z-67 10.782-Megabyte Commercial Winchester Disk System, from Zenith Data Systems. Factory assembled and tested; not a kit. Includes \$750 worth of software (choose from our wide selection on pages 43-48) at no extra charge.

Also includes Z-89-67 Interface (\$195 value; required to interface the Z-67 to the H-89, Z-89 and Z-90 microcomputers). This interface, which is factory assembled and tested, installs inside the H-89, Z-89 or Z-90 cabinet.

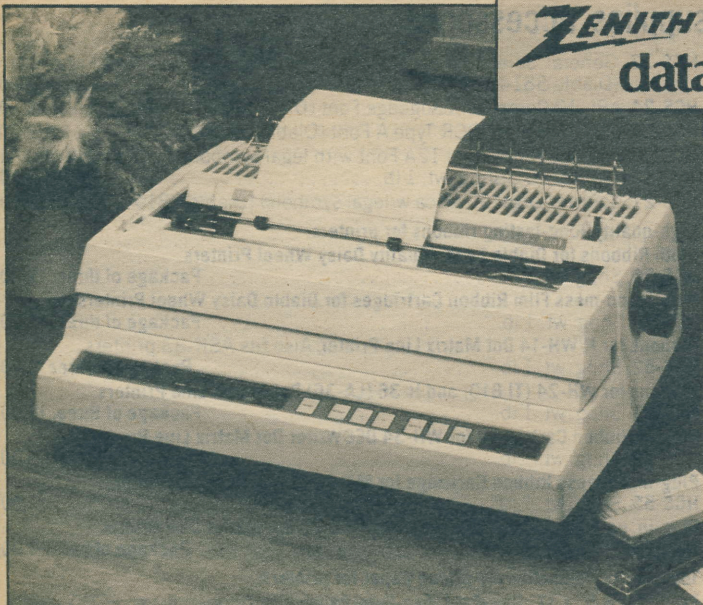
ZS-67, Assembled, Shpg. wt. 93 lbs., Motor Freight Collect \$5995.00

Z-67 SPECIFICATIONS: **Disks:** Capacity: Winchester Disk, 9.76 megabytes; Floppy Disk, 1.022 megabytes (in double density format) or 513 kilobytes (in single density format). **Recording Surfaces** Per Disk: Winchester Disk, 4; Floppy Disk, 2. **Tracks Per Surface:** Winchester Disk, 254; Floppy Disk, 154. **Recording Density:** Winchester Disk, 6100 bytes per inch (bpi); Floppy Disk, 6816 bytes per inch (in double density format) or 3408 bytes per inch (in single density format). **Track Density:** Winchester Disk, 195 tracks per inch (tpi); Floppy Disk, 48 tracks per inch. **Drives:** Spindle Motor Speed: Winchester Disk Drive, 2983 rpm; Floppy Disk Drive, 360 rpm. **Track-To-Track Move:** Winchester Disk Drive, 19.0 milliseconds (mS); Floppy Disk Drive, 3.0 milliseconds. **Average Track Access Time:** Winchester Disk Drive, 70.0 milliseconds; Floppy Disk Drive, 91.0 milliseconds. **Average Latency:** Winchester Disk Drive, 10.06 milliseconds; Floppy Disk Drive, 83.0 milliseconds. **General:** Power Requirement: 120 VAC, 60 Hz. Power Consumption: 190 Watts. Overall Dimensions: 10.20" H x 18.90" W x 18.00" D (25.91 x 48.00 x 45.72 cm). Net Weight: 65.8 pounds (29.9 kilograms).



data systems

Assembled commercial computer products for business applications



Diablo Printer for word processing systems

\$2295⁰⁰

- Diablo 630 RO is factory assembled and tested
- Uses high-quality metal, plastic daisy wheels
- Fewer parts, adjustments for reliable operation

Ideal for word processing and other applications which require high-quality printing: The WH-54 (Diablo 630 RO) Letter-Quality Daisy Wheel Printer combines the latest in microelectronic technology (eliminating most field adjustments) with a field-proven daisy wheel printing mechanism.

Uses both metal and plastic Diablo print wheels, with complete interchangeability: This capability helps provide maximum printing flexibility — and allows you to take advantage of the added durability of metal printwheels in high-production word processing systems.

Prints at up to 35-40 characters per second (cps): The WH-54 can output the full 96-character ASCII set (both upper and lower case).

This state-of-the-art product utilizes efficient bi-directional printing for maximum output speed: Its RS-232C Serial Interface (compatible with Bell 102, 113, 212 and equivalent modems) and 256-byte print buffer run at 110-1200 baud.

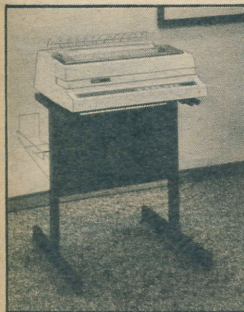
This versatile printer accepts forms up to 15.5 inches (39.3 cm) wide: Forms up to 27/1000 inch (0.0686 cm) can be accommodated with a single adjustment.

Includes friction platen, power supply, operator control panel, HCS-22 Print Wheel (Elite 12 with unslashed zero) and HCS-51 Film Ribbon: For 120/240 VAC, 50/60 Hz power. 9.25" H x 23.5" W x 15.75" D (23.49 x 59.69 x 40 cm).

WH-54, Assembled, Shpg. wt. 70 lbs., Motor Freight \$2295.00

Bi-Directional Tractor Feed Assembly: For WH-54 (Diablo 630 RO) and WH-44 (Diablo 1640) Letter-Quality Daisy Wheel Printers. Dual tractors allow moving paper backward through printer for improved registration in word processing, forms preparation, graphics and other applications.

HCA-1, Shpg. wt. 9 lbs \$259.00

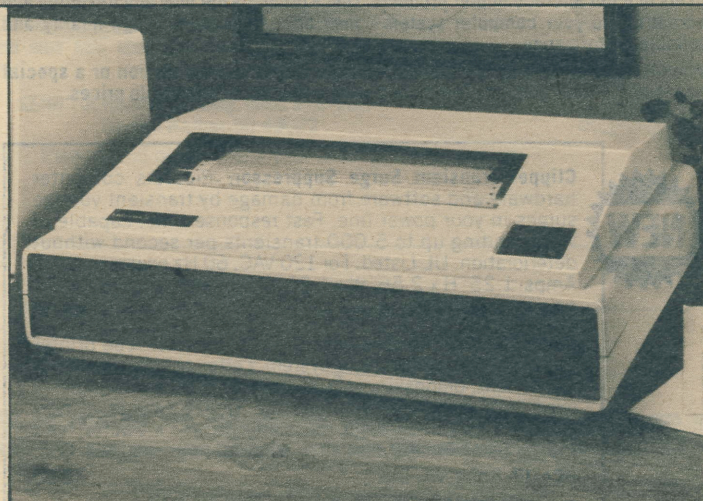


Universal Floor Stand for printers

Raises WH-24 (TI 810), WH-34 (DECWriter IV), WH-44 (Diablo 1640) and WH-54 (Diablo 630) to desk level for added user convenience and easier operation. Attractive styling complements any decor. Includes paper rack.

Overall Dimensions of this Universal Floor Stand are 24.5" H x 22.25" W x 32.5" D (62.23 x 56.52 x 82.55 cm), including paper rack. Printer not included. **NOTE:** Not for use with H/Z-25 Printer; utilize HCA-9 Floor Stand above. Also, WH-54 does not have holes for bolting printer to stand.

HCA-2, Shpg. wt. 28 lbs. \$99.00



High-speed Z-25 is packed with valuable features

\$1595⁰⁰

- Our fastest printer — over 150 characters/second
- 33 graphics characters — compatible with H/Z-19 Video Terminal, H-88 and H/Z-89 Computers

We've packed the latest state-of-the-art features into the Z-25! You get faster speed, versatile paper handling facilities, quiet operation and rugged construction — all at a low cost.

Fast printing speed: The bi-directional Z-25 can print over 150 characters per second — translating into up to 300 lines per minute (when printing 10-column lines), or 65 lines per minute (when printing 132-column lines).

Quiet printing: A specially-designed cabinet completely encloses the Z-25's printing mechanisms, reducing sound levels.

Full printing capability: The Z-25 can print the full 96-character ASCII set (upper and lower case, with descenders and underlining).

Also prints special graphics characters: The Z-25 can also print the block graphic characters (except reverse video) provided with the H/Z-19 Professional Video Terminal and the H-88, H-89 and Z-89 Computers.

Has quad tractor feeds with adjustable width: This allows the printer to handle standard edge-punched, single or multiple forms (up to six parts thick) or fan-fold paper. Ribbon cartridges "plug in" for easier, no-mess replacement.

Features variable pitch (10, 12, 13.2 or 16.5 characters per inch): This allows the Z-25 to print up to 222 characters per line (at 16.5 cpi on a 13.5-inch wide line). Six or eight lines per inch vertical spacing is available.

The Z-25 interfaces to most computers and terminals: Communication occurs via an RS-232C Serial Interface or a 20 mA current loop, with handshaking adjustable by reverse channel and busy control signals. Communication speeds are adjustable from 110 to 9600 baud.

More extra-value features: A "paper out" indicator, "jammed" indicator and self-testing capabilities are included with the Z-25.

For 120/240 VAC, 50/60 Hz power. The Z-25 measures 8.25" H x 26.5" W x 18.5" D (20.96 x 67.31 x 46.99 cm), not including optional paper tray.

Z-25, Assembled and tested, Shpg. wt. 82 lbs. \$1595.00

Desk-Level Printer Stand and Paper Tray for Z-25 Printer: Styled to complement your other computer system components. Supports Z-25 at a convenient level for seated or standing persons. Wire paper tray keeps your output organized. This stand is partially assembled; not a kit.

HCA-9, Shpg. wt. 21 lbs. \$99.00

We have a complete, value-priced selection of print wheels, ribbons, paper and other useful accessories for these printers. Turn to page 42 for full descriptions of these items.



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

COMPUTERS/41

Get top performance from your system with these supplies, accessories

Heath/Zenith offers this complete line of computer supplies and accessories to support its popular microcomputers, peripherals and software — and to support users of other microcomputer products. These products not only add flexibility and versatility to your computer system — they offer consistently high quality and reliable performance.

Whether you're looking for cables, ribbons, paper, a work station or a special accessory — look to Heath/Zenith for a wide selection at affordable prices.

NEW

Clipper Transient Surge Suppressor: Protects computer hardware and software from damage by transient voltage surges in your power line. Fast response time; capable of withstanding up to 5,000 transients per second without deterioration. UL Listed. For 120 VAC, 60 Hz power, up to 15 Amps. 1.25" H x 2.56" W x 1.25" D (not including 18" cord).

HCA-16, Assembled, Shpg. wt. 1 lb. 65.00

Paper Tractor: Inexpensively turns your tractor feed printer into a friction feed printing system. Letter or legal size bond, parchment, onionskin, vellum, NCR or manuscript paper — even letterhead — slides into the sleeve (which is pre-punched to run through most any printer's tractor feed mechanism). No installation or modifications required.

HCA-17, Shpg. wt. 1 lb. 12.00

Plastic 5.25" Floppy Disk Cabinet: This attractive accessory protects your 5.25" floppy disks from airborne contaminants. Features smoked glass cover. Each cabinet holds up to 50 disks. Has five dividers. 6.5" H x 6.75" W x 8.25" D.

HCA-15, Shpg. wt. 2 lbs. 24.00

Plastic 8" Floppy Disk Storage Cabinet: Protects your 8" floppy disks from airborne contaminants. Features smoked glass cover. Each cabinet holds up to 50 disks. 5 dividers. 9" H x 9.56" W x 10.5" D.

HCA-18, Shpg. wt. 5 lbs. 30.00

Pre-wired, 10'-long RS-232 Cables: Each cable connects pins 1-8 and 20.

HCA-10, Male to Male Cable, Shpg. wt. 1 lb. 20.00

HCA-11, Male to Female Cable, Shpg. wt. 1 lb. 20.00

HCA-12, Female to Female Cable, Shpg. wt. 1 lb. 20.00

NEW! Pre-wired, 10'-long special-application Connecting Cables:

HCA-13, Votrax Cable (connects computer to WH-12 Type-N-Talk Speech Synthesizer), Shpg. wt. 1 lb. 20.00

HCA-14 Parallel Cable (for use with Z-89-11 Multi-Mode I/O Board to connect computer/terminal to MX-80 printer), 1 lb. 25.00

Large selection of durable plastic Diablo printwheels:

HCS-20, Courier 10 (Diablo 38100), Pica with slashed zero, 1 lb. 8.00

HCS-21, Courier 72 (Diablo 38107), Pica with unslashed zero, 1 lb. 8.00

HCS-22, Elite 12 (Diablo 38102), Elite with unslashed zero, 1 lb. 8.00

HCS-23, General Scientific Font with Greek letters, superscripts and math symbols (Diablo 38141), Shpg. wt. 1 lb. 8.00

HCS-24, APL-10 Computer Language Font (Diablo 38150), 1 lb. 8.00

HCS-25, ANSI Standard OCR Type A Font (Diablo 38144), 1 lb. 8.00

HCS-26, Prestige Elite Legal 12A Font with legal symbols (including ©, ® and TM) (Diablo 38105), Shpg. wt. 1 lb. 8.00

HCS-27, Courier Legal 10 (Pica w/legal symbols) (Diablo 38104), 1 lb. 8.00

High-quality, long-lasting ribbons for printers:

Cloth Ribbons for Diablo Letter-Quality Daisy Wheel Printers.

HCS-50, Shpg. wt. 1 lb. Package of three, 18.00

Plug-in, no-mess Film Ribbon Cartridges for Diablo Daisy Wheel Printers.

HCS-51, Shpg. wt. 1 lb. Package of three, 18.00

Ribbons for H/WH-14 Dot Matrix Line Printer. Also fits ASR-33 printers.

HCS-52, Shpg. wt. 1 lb. Package of three, 8.00

Ribbons for WH-24 (TI 810) and H-36 (LA-36) Dot Matrix Line Printers.

HCS-53, Shpg. wt. 1 lb. Package of three, 18.00

Plug-in Ribbon Cartridges for WH-34 DECWriter Dot Matrix Line Printer.

HCS-54, Shpg. wt. 1 lb. Package of three, 29.00

Plug-in, no mess Ribbon Cartridge for MX-80 Dot Matrix Line Printer.

HCS-55, Shpg. wt. 1 lb. 14.00

Plug-in, no-mess Ribbon Cartridges for H/Z-25 Dot Matrix Line Printer.

HCS-56, Shpg. wt. 3 lbs. Package of two, 20.00

Top-quality, competitively-priced paper for printers:

Premium 8.5" x 11" One-Part, Fan-Fold Paper. Continuous form, 2700 sheets. Edge-punched to fit tractor feed mechanisms.

HCS-1, Shpg. wt. 28 lbs. 32.00

Standard 8.5" x 11" One-Part, Fan-Fold Paper. 3200 sheets. Edge-punched.

HCS-2, Shpg. wt. 31 lbs. 32.00

Standard 14.875" x 11" One-Part, Fan-Fold Paper. Continuous form, 3200 sheets. For all Heath/Zenith printers except H/WH-14 and MX-80. Edge-punched.

HCS-3, Shpg. wt. 47 lbs. 42.00

Reliable, high-capacity 5.25" and 8" floppy disks:

Hard-sectored, single-sided 5.25" Floppy Disks. Use with H-17-1 Disk Drives, H-88-1 Disk Controller. Each disk stores up to 100K bytes of data.

HCS-70, Shpg. wt. 1 lb. Package of ten, 40.00

Soft-sectored, single-sided, double-density, 48 tpi 5.25" Floppy Disks. Use with H-17-1 or H-17-4 Drives. Requires Z-89-37. 160K bytes per disk.

HCS-66, Shpg. wt. 1 lb. Package of ten, 45.00

Soft-sectored, double-sided, double density, 96 tpi 5.25" Floppy Disks. Require H-17-4 Drive and Z-89-37 Controller. 640K bytes per disk.

HCS-68, Shpg. wt. 1 lb. Package of ten, 55.00

Soft-sectored, single-density, single sided 8" Floppy Disks. Use with H/WH-27, H/Z-47, Z-67 and other disk systems. Each disk stores up to 250K bytes of data on 77 tracks. In IBM 3740 format

HCS-69, Shpg. wt. 2 lbs. Package of ten, 55.00

Soft-sectored, double density, single-sided 8" Floppy Disks. Use with H/Z-47, Z-67 and other disk systems. Each disk stores up to 500K bytes of data.

HCS-64, Shpg. wt. 2 lbs. Package of ten, 60.00

Soft-sectored, double-density, double-sided 8" Floppy Disks. Use with H/Z-47, Z-67 and other disk systems. Each disk stores up to 1 megabyte of data.

HCS-65, Shpg. wt. 2 lbs. Package of ten, 70.00

Computer Work Station organizes system in less space

\$395⁰⁰

- Heath-designed furniture provides easy access to your computer system components
- Two shelves are adjustable to accept different components

Gain attractive, rugged operating efficiency: The space-saving PD-12 Computer Work Station organizes your computer system components in less space.

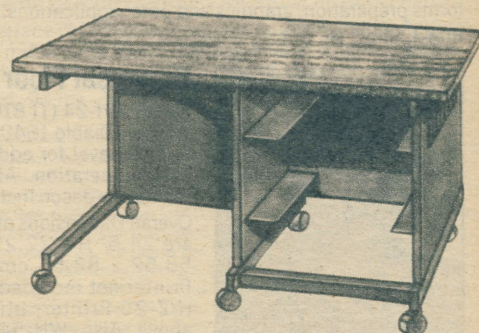
Designed to Heath specifications: The 48" W x 30" D easy-to-clean Formica top replaces desktop microcomputers, terminals and printers at a comfortable

height for use by seated operators. The roomy lower rack enclosure, with two adjustable shelves, can hold disk systems and other components.

Overall Dimensions: The PD-12 Computer Work Station measures 27" H x 48" W x 30" D (68.58 x 121.94 x 76.2 cm), including casters. The lower rack enclosure measures 22.25" H x 19.06" W x 24" D (56.52 x 48.41 x 60.96 cm).

Keep your computer operator comfortable and efficient: Welcome this attractive centerpiece to any office or home. The PD-12 Computer Work Station is factory assembled; not a kit.

PD-12, Assembled, Shpg. wt. 125 lbs., Motor Freight Collect, FOB Carson, CA 395.00



Heath/Zenith software provides practical solutions to your problems

Software defined: Not much can be done with a computer – unless you have a software program. A software program is a special set of instructions, written in a language your computer understands, that tells the computer how to perform a specified set of tasks (such as solving a problem, calculating a budget or preparing a document).

Time-saving, accurate and versatile software can provide solutions to many of your problems. Software can act as the bookkeeper you can't hire right now. It can aid you and/or your secretary in preparing error-free letters. It can do the work of a cost analyst who understands your budget parameters in depth.

Practical solutions: No one knows your business as well as you. And no one else truly understands your problems. That's why Heath/Zenith offers a wide selection of problem-solving software programs – solutions that are both versatile and easy to use. You can choose the programs that most closely match your needs. Specifically designed to run with Heath/Zenith computers (most of our software runs under the industry standard CP/M operating system), many of these software solutions use English-like commands.

A wide variety of software solutions – for home, hobby and business – are listed in this section. Identify your problem – then find the Heath/Zenith solution.

New catalog available: The Heath/Zenith Software Catalog contains complete descriptions of our software solutions. Send the coupon at right for your copy.

FREE!

SEND THE COUPON TODAY –
FOR YOUR COPY OF OUR
COMPLETE SOFTWARE CATALOG!



SEND TO: Heath Company, Dept. 815-002
Benton Harbor, MI 49022

☐ Please send me a copy of your latest software catalog.

Name _____

Address _____

City _____ State _____ Zip _____

SOFTWARE SUBLICENSE GRANT FOR MICROSOFT AND PEACHTREE PRODUCTS

(Check all boxes which apply, sign and return to HEATH COMPANY (HEATH). Another Sublicense Grant form should be used with future SOFTWARE orders.)

- | | |
|--|---|
| <input type="checkbox"/> Microsoft BASIC Compiler | <input type="checkbox"/> Peachtree General Ledger |
| <input type="checkbox"/> Microsoft BASIC Interpreter | <input type="checkbox"/> Peachtree Accounts Receivable |
| <input type="checkbox"/> Microsoft COBOL | <input type="checkbox"/> Peachtree Accounts Payable |
| <input type="checkbox"/> Microsoft FORTRAN | <input type="checkbox"/> Peachtree Inventory Management |
| <input type="checkbox"/> Microsoft MACRO-80 | <input type="checkbox"/> Peachtree Sales Invoicing |
| | <input type="checkbox"/> Peachtree Property Management |

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CP/M SERIAL NUMBER _____

HEATH COMPANY
By Jay A. Janett

ACCEPTED AND AGREED:
CUSTOMER'S SIGNATURE _____ DATE _____

SOFTWARE SUBLICENSE GRANT FOR DIGITAL EQUIPMENT CORPORATION (DEC) SOFTWARE PRODUCTS

(Check all boxes which apply, sign and return to HEATH COMPANY (HEATH). Another Sublicense Grant form should be used with further orders for additional SOFTWARE products.)

- ☐ HT-11 Operating System
☐ HT-11-1 FORTRAN

Write in the blank below your CPU make, model and serial number.
(If CPU is purchased with this order, HEATH will fill in the blank.)

CPU _____
(Fill in blank)

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HEATH COMPANY
By Jay A. Janett

ACCEPTED AND AGREED:
CUSTOMER'S SIGNATURE _____ DATE _____



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

HUG makes your Heath/Zenith computer even more powerful with its 700-program software library

Get more from your Heath/Zenith computer: A membership in HUG allows you to get the most from your computer. With HUG's 700-program software library, you'll have access to many useful utility and applications programs. With the REMark Magazine subscription, you'll be among the first to learn about Heath/Zenith technological advances. And REMark's interactive forum allows you to participate in an information exchange with other Heath/Zenith computer owners.

Here's what a membership in HUG gives you:

1. Access to the HUG Software Library: A constantly updated and expanded library which now has more than 700 low-cost, user-submitted utility and applications programs for your H-8, H-88 or H-89/Z-89 microcomputer. The library includes a diversified collection of programs, subroutines and procedures written on cassette and/or floppy disk by members of HUG (see partial list below).

2. The HUG Software Library Catalog: This catalog describes the complete contents of the HUG Software Library — including utility and applications programs in computer-aided instruction, business applications, personal finance, amateur radio and more. The catalog lists each program in the library by program name, program description, program language, version, hardware and software required to run the program and the HUG author.

3. A one-year subscription to REMark Magazine (now 12 issues, mailed monthly): REMark is an exclusive periodical for HUG members. Among the many important services it provides to members of HUG, REMark contains sneak previews of upcoming Heath/Zenith computer products — and also serves as an open forum, where members of HUG can share new hardware modifications, software enhancements, applications programs and other ideas about their Heath/Zenith microcomputers.

NEW! Start your HUG membership with a complete REMark library! Back issues are available in bound form (Vol. 1 — Issues 1-13; Vol. 2 — Issues 14-23; later issues, in annual installments). Limited quantities of back issues — and a cross-reference listing of all REMark articles to date, are available separately.

4. HUG's support of the no. 1 users' group bulletin board in the world, via MicroNet: The HUG Bulletin Board has the latest Heath/Zenith microcomputer news available instantly on weeknights and weekends. All you need is a HUG membership, the CPS Communications Program (p. 46) and a MicroNet time-sharing membership.

5. A vinyl-covered, three-ring HUG binder: The inside pocket contains the HUG Handbook, which explains why HUG was started, how to participate (some HUG members have even formed local users' groups to increase the benefits of belonging to HUG), and hints on making the most of your membership. Use this binder to store software documentation, back issues of REMark and other HUG membership materials.

6. The official HUG Identification Card: This card entitles you to all the special benefits available only to HUG members.

When you purchase a Heath microcomputer, you'll find a HUG membership application enclosed; When you purchase a Zenith Z-89 Desktop Genius Microcomputer, a one-year HUG membership is provided at no extra charge! Even if you don't own a Heath/Zenith microcomputer — or don't have an application form, you can still join HUG. Just fill out the application form below and mail to HUG Membership, Hilltop Road, St. Joseph, MI 49085.

GET MORE FROM YOUR COMPUTER: JOIN HUG NOW!

Send to: HUG Membership, Hilltop Road, St. Joseph, MI 49085.

Yes, I want to become a member of HUG and keep up to date on the latest Heath/Zenith microcomputer developments, while I increase my utility and applications software library.

I've enclosed \$_____ (U.S. Funds only) to cover the cost of my membership. NOTE: No charge orders or billings are accepted.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Country: _____

Signature: _____



- Gain access to over 700 software programs in the HUG Software Library
- Enjoy a one-year subscription to HUG's REMark magazine with your membership
- Participate with other Heath/Zenith owners in REMark's interactive forum
- Use HUG's Bulletin Board via MicroNet



Some of the software programs available from HUG include:

Small Business Package III: This powerful HUG software package includes accounts payable, accounts receivable, expense ledger, profit/loss statement and balance sheet. Runs under HDOS (Heath Disk Operating System, p. 45) and Microsoft BASIC Interpreter (p. 46). On three disks — all for just \$75.00!

- Memory test programs
- Many disks of CP/M programs
- HDOS-to-CP/M utility
- HDOS device drivers
- Time for HDOS
- Programs for printers
- Modem packages
- Disk dump and dup utilities
- Create-a-program
- File maintenance
- File cruncher
- Editors, text processors
- Sort, cross-reference utilities
- Fixed and floating pt. packages
- Assembly language routines
- Pilot language
- Stock and tax programs
- Home budget maintenance
- Checkbook programs
- Credit card management
- Loan amortization
- Cash flow
- Investments
- Annuities
- Business analysis
- Payroll
- Expense report
- Inventory
- Real estate programs
- Time management
- Mailing list
- Educational programs
- Basic letters
- Spelling words
- Vocabulary practice
- Music
- Weather forecasting
- Arithmetic practice
- Calculator
- Metric conversion
- Simultaneous equations
- Graphs
- Plotting
- Solar domes
- Electronic formulas
- AC circuits
- Op-amp programs
- Power supply design
- Morse code
- Antenna design programs
- OSCAR locator
- Games and graphic games

	HUG Membership Rates (per year, in U.S. Funds)		
	U.S.	Canada	Mexico
New Members:	\$18	\$20	\$28
Renewal:	\$15	\$17	\$22

Industry standard CP/M Operating System

- Over 200,000 microcomputer owners use CP/M
- Provides common hardware interface with flexibility

Features: CP/M, Version 2.2.03, frees the user from having to understand the details of underlying hardware. It has fully dynamic named-file allocation, program and peripheral output control and random or sequential data access. Has two-pass assembler, general-purpose editor, advanced 8080 debugger, file dump and copy between devices, system generation/relocation and file size/disk usage displays. CP/M requires an H-8/H-19 or H/Z-89 computer system with a minimum of 48K bytes of RAM and one disk drive (two disk drives are highly recommended). H-8 systems also require HA-8-8 Extended Configuration Option or HA-8-6 Z-80 CPU Card.

Related educational course: EC-1120 CP/M Course on page 54.

HOS-8917-2 (Needs Sublicense, p. 43), hard-sectored 5.25" disk, 5 lbs.	150.00
HOS-8937-2 (Needs Sublicense, p. 43), soft-sectored 5.25" disk, 5 lbs.	150.00
HOS-8947-2 (Needs Sublicense, p. 43), 8" disk for H-47, 5 lbs.	150.00
HOS-8967-2 (Needs Sublicense, p. 43), 8" disk for Z-67, 5 lbs.	150.00

Modular UCSD P-System with Pascal, Version II

- Easy-to-use system responds quickly to changing needs
- Runs on any microcomputer with a resident interpreter

A complete environment for program development and execution: Includes a Pascal compiler to produce universal P-code, an efficient P-code interpreter, screen-oriented and character-oriented editors for programs and text, a filer for rapid file manipulation, a macro-assembler which produces code to be linked with Pascal programs, and a system library of frequently-used utilities. Modular structure allows division of large tasks into smaller, easier tasks. Support, updates available from Softech Microsystems, San Diego, CA. Requires H-8/H-19, H-11A/H-19 or H/Z-89 (as listed below) with 48K RAM (64K recommended) and two disk drives (HOS-817-3 requires, supports only two hard-sectored 5.25" drives).

HOS-817-3, hard-sectored 5.25" disk for H-8/H-19 and H/Z-89, 8 lbs.	295.00
HOS-1127-3, soft-sectored 8" disk for H-11A/H-19/H-27, 8 lbs.	295.00



Peachtree business software includes CP/M with Microsoft BASIC (where needed), facilities to backup disks and sample data for practicing. They require an H/Z-89 with 64K RAM, an H/Z-37, H/Z-47 or Z-67 Disk System and a basic knowledge of accounting and computers. For a smooth transition, consultation with an accountant or data processing professional may be required.

General Ledger simplifies accounting functions

- Keeps records; writes balance sheet/income statement
- Provides comparative (current vs. year-ago) financial data

Maintains your financial history: Describes what has happened during a given period. Fully linked to other Peachtree business systems.

HRS-837-1 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk, Shpg. wt. 4 lbs.	395.00
HRS-847-1 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 5 lbs.	395.00

Automated Accounts Receivable System

- Complete invoicing and monthly statement generating system
- Tracks current and aged accounts receivable

HRS-837-2 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk, Shpg. wt. 3 lbs.	395.00
HRS-847-2 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 4 lbs.	395.00

Compatible Accounts Payable System

- Keeps track of both current and aged accounts payable
- Maintains separate records for each vendor

HRS-837-3 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk, Shpg. wt. 4 lbs.	395.00
HRS-847-3 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 2 lbs.	395.00

OPERATING SYSTEMS



HDOS has many functions of larger systems

- Sophisticated system controls your H-8 or H/Z-89
- Designed for efficient use of memory and disk space

Provides complete operating environment: The Heath Disk Operating System, Ver. 2.0, allows program writing, editing and storage – with assembly and checkout facilities. Features Extended Benton Harbor BASIC (Ver. 6.0) and ASM 8080 Assembly Language, 17 versatile commands list content, manipulate disks and files; run programs, select device driver options, display status reports and more. Facilities test disk drives and media; initialize disks and generate system images onto disks; allow you to debug programs and edit text. Supports all disk systems except Z-67. HDOS requires an H-8/H-19 or H/Z-89 computer system with a minimum of 48K bytes of RAM and one disk drive. Two drives are highly recommended, and may be required to use some other software with HDOS.

HOS-817-1, on hard-sectored 5.25" disk, Shpg. wt. 9 lbs.	150.00
HOS-847-1, on soft-sectored 8" disk, Shpg. wt. 5 lbs.	150.00

Useful H-8/H-88 Cassette Operating Software

- Helps form a solid base for future computer programming
- On audio cassettes, in convenient 1200 baud form

Convenience features make this system easier to use than others: Includes Extended Benton Harbor BASIC Language (Version 6.0), HASL-8 Assembly Language (a two-pass absolute 8080 assembler), TED-8 Text Editor, BUG-8 Console Debugger. Features automatic command completion, dynamic syntax checking and a special user configuration feature.

Min. hardware, software requirements: H-8 or H-88 Computer with 16K bytes of RAM, cassette interface (see below) and ECP-3801A (page 79).

H-8-18, for H-8/H-8-5/ECP-3801A systems, Shpg. wt. 11 lbs.	30.00
H-88-18, for H-88/H-88-5/ECP-3801A systems, Shpg. wt. 5 lbs.	30.00

AUTOMATED ACCOUNTING



Inventory Management for up-to-date information

- Provides better control of merchandise on hand

HRS-837-5 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk to handle approx. 4,000 items, 3 lbs.	495.00
HRS-847-5 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for use with H/Z-47 Disk System to handle approx. 5,800 items, 5 lbs.	495.00

Full-featured Peachtree Sales Invoicing System

- Check credit limits, stock levels before printing invoice

HRS-837-6 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk, Shpg. wt. 3 lbs.	295.00
HRS-847-6 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 4 lbs.	295.00

Property Management for multiple properties

- Versatile system helps track properties, leases, renters

HRS-837-7 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-sided 5.25" disk, Shpg. wt. 4 lbs.	995.00
HRS-847-7 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 4 lbs.	995.00

Multiple General Ledger System for CPAs and others

- Keeps unlimited number of general ledgers (up to 3/disk)

HRS-837-8 (Requires Sublicense Grant, p. 43), on soft-sectored, double-density, double-density 5.25" disk, Shpg. wt. 10 lbs.	995.00
HRS-847-8 (Requires Sublicense Grant, p. 43), on soft-sectored 8" disk for H/Z-47 Floppy Disk System, Shpg. wt. 5 lbs.	995.00



PROGRAMMING LANGUAGES

Available on both hard- and soft-sectored disks, these languages let you write microcomputer programs with surprising ease. And each program includes famous Heath/Zenith support — at your Heathkit Electronic center, by telephone or by mail.

Popular, powerful Microsoft BASIC Interpreter

- One of the most versatile general-purpose languages for micros

Scores of practical utility and applications programs available: MBASIC features an IF-THEN-ELSE control structure, which provides highly-structured programming capabilities. Also has direct access to CPU ports and memory locations, string and numeric constants, double-precision floating point number and double precision math, the ability to perform algebraic and trigonometric functions, powerful string processing functions and extensive program editing facilities.

All models require an H-8/H-19 or H/Z-89 system with 48K RAM, one disk drive, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 43.

H-8-21, Ver. 4.82 on hard-sectored 5.25" disk for HDOS, 4 lbs.	150.00
HMS-817-1, Ver. 5.21 on hard-sectored 5.25" disk for CP/M, 5 lbs.	175.00
HMS-837-1, Ver. 5.21 on soft-sectored 5.25" disk for CP/M, 4 lbs.	175.00
HMS-847-1, Ver. 5.21 on soft-sectored 8" disk for CP/M, 5 lbs.	175.00

Microsoft FORTRAN for science and engineering

- Comparable to FORTRAN compilers used on large mainframes, minis

Write and execute powerful scientific and engineering programs: This enhanced system includes all features of ANSI FORTRAN X3.9-1966, except for the COMPLEX data type. Has 32- and 64-bit floating point math, MACRO-80 Assembler, LINK-80 Editor, CREF Cross-Reference Generator, LIB-80 Library Manager (Ver. 3.4 only) and two libraries (one with single- and double-precision scientific functions, the other with FORTRAN utilities).

All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, two disk drives, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 43.

H-8-20, Ver. 3.35 on hard-sectored 5.25" disk for HDOS, 4 lbs.	175.00
HMS-817-2, Ver. 3.4 on hard-sectored 5.25" disk for CP/M, 5 lbs.	195.00
HMS-837-2, Ver. 3.4 on soft-sectored 5.25" disk for CP/M, 4 lbs.	195.00
HMS-847-2, Ver. 3.4 on soft-sectored 8" disk for CP/M, 5 lbs.	195.00



COMMUNICATIONS PROGRAMS

Using these programs, your Heath/Zenith computer can communicate with the outside world. One program lets your H/Z-89 emulate certain IBM terminals. CPS gives you access to CompuServe's time-sharing MicroNet mainframe. Use the RTTY Communications Processor to communicate with other Hams via computer.



Remote Batch Terminal Emulator Software to communicate with IBM, other mainframes

- Allows your H/Z-89 microcomputer to emulate IBM 3780, 2780, 3741 and 2770 terminals

Use in remote job entry, down-line loading and distributed processing network applications: The Remote Batch Terminal Emulator (RBTE) Program allows the H/Z-89 microcomputer to emulate various IBM terminals (the IBM 3780, IBM 2780, IBM 3741 and IBM 2770) — so that your microcomputer can communicate with most major mainframe computers, using IBM- and industry-standard binary synchronous protocol. Also allows user-written terminal emulation.

Features: RBTE runs unattached — no operator interaction is necessary, once the program has been initialized. Both binary and ASCII data can be transmitted or received. RBTE performs its own on-line diagnosis of communication problems. An off-line diagnostic verifies the operation of the serial port when connected to a modem in loop-back test mode.

Minimum hardware requirements: The Remote Terminal Batch Emulator (RBTE) Software Program requires a Heath H-89 or Zenith Data Systems Z-89 microcomputer system equipped with at least 48K bytes of Random Access Memory, one or more disk drives and the Z-89-11 Multi-Mode I/O Board (see page 39).

HWI-8917-1, on hard-sectored 5.25" disk, Shpg. wt. 4 lbs.	895.00
HWI-8947-1, on soft-sectored 8" disk, Shpg. wt. 4 lbs.	895.00

46/COMPUTERS

MBASIC Compiler speeds general programming

Eliminate time-consuming interpretation and speed program execution by compiling programs with the single-pass Microsoft BASIC Compiler. Has run-time library, MACRO-80 Assembler, LINK-80 Linkage Editor and other utility programs.

All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, two disk drives, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 43.

HMS-817-4, Ver. 5.23 on hard-sectored 5.25" disk for CP/M, 4 lbs.	250.00
HMS-837-4, Ver. 5.23 on soft-sectored 5.25" disk for CP/M, 4 lbs.	250.00
HMS-847-4, Ver. 5.23 on soft-sectored 8" disk for CP/M, 5 lbs.	250.00

C BASIC gives you more programming flexibility

Min. hardware and software requirements: All models below require an H-8/H-19 or H/Z-89 system with 48K bytes of RAM, one disk drive and CP/M.

HCM-817-1, Ver. 2.0 on hard-sectored 5.25" disk for CP/M, 2 lbs.	115.00
HCM-837-1, Ver. 2.0 on soft-sectored 5.25" disk for CP/M, 1 lb.	115.00
HCM-847-1, Ver. 2.0 on soft-sectored 8" disk for CP/M, 2 lbs.	115.00

Program faster with MACRO-80 Assembly Language

All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, one disk drive (two drives recommended), HDOS or CP/M and the Sublicense Grant on p. 43.

HMS-817-51, on hard-sectored 5.25" disk for HDOS, 2 lbs.	65.00
HMS-837-51, on soft-sectored 5.25" disk for HDOS, 4 lbs.	65.00
HMS-847-51, on soft-sectored 8" disk for HDOS, 4 lbs.	65.00
HMS-817-52, on hard-sectored 5.25" disk for CP/M, 2 lbs.	65.00
HMS-837-52, on soft-sectored 5.25" disk for CP/M, 3 lbs.	65.00
HMS-847-52, on soft-sectored 8" disk for CP/M, 4 lbs.	65.00

Run powerful, business-oriented COBOL-80

All models below require H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, HDOS or CP/M and the Sublicense Grant on page 43. 64K RAM and the H/Z-37 or Z-67 Disk Systems recommended for applications involving large disk files.

HMS-817-31, Ver. 4.0 on hard-sectored 5.25" disk for HDOS, 4 lbs.	395.00
HMS-837-31, Ver. 4.0 on soft-sectored 5.25" disk for HDOS, 4 lbs.	395.00
HMS-847-31, Ver. 4.0 on soft-sectored 8" disk for HDOS, 4 lbs.	395.00
HMS-817-3, Ver. 4.0 on hard-sectored 5.25" disk for CP/M, 5 lbs.	395.00
HMS-837-3, Ver. 4.0 on soft-sectored 5.25" disk for CP/M, 4 lbs.	395.00
HMS-847-3, Ver. 4.0 on soft-sectored 8" disk for CP/M, 5 lbs.	395.00

Computerized Phone System (CPS) gives your microcomputer access to much more information

- Allows data transfer between computer and the time-sharing mainframe computers of MicroNet and the Source

Experience time-sharing: After you write a computer program, the Computerized Phone System (CPS) allows you to store that program on either the CompuServe MicroNet or Source time-sharing systems. Run your own programs, access other computers via modem and access programs in the MicroNet or Source libraries. Features automatic log-in, screen elapsed time clock and programmable keys for functions like mail check. Compatible with SF-8512 HDOS-to-CP/M (and vice versa) File Converter — for translation of file onto compatible media.

SF-9503, on hard-sectored 5.25" disk for HDOS and CP/M, Postpaid	40.00
SFS-9103, on soft-sectored 5.25" disk for CP/M, Postpaid	40.00

RTTY Communications Processor Software adds more fun to your Ham Radio Hobby

- Use your Heath/Zenith computer to communicate with other Hams
- Send, receive data at same time with split-screen feature

High-technology meets Amateur Radio: Use your computer to send and receive messages with amateur radio operators all over the world. Split-screen display allows copying of incoming messages, editing outgoing messages at the same time. Status board shows time, CW identification and your choice of ASCII or Baudot operation. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS.

SF-9006, on hard-sectored 5.25" disk for HDOS, Postpaid	100.00
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Credit Card Orders Call TOLL-FREE: 800-253-0570

Our broad line of utility tools extends the capabilities of your Heath/Zenith computer in many different ways. Each program includes a manual with complete documentation, and a master copy of the program. And you get famous Heath/Zenith support and consultation with each purchase.



PEARL Level 3 generates software programs to solve your applications problems

- You define the application, PEARL generates the solution
- Can generate both simple and complex applications programs

Greatly reduces program-writing time: Interactive, menu-driven system is designed for most computer owners. Use it to generate programs that fit your unique needs. Requires H-8/H-19 or H/Z-89 system with 64K RAM, two high-capacity disk drives (H/Z-37 or H/Z-47), CP/M and C BASIC.

HCP-837-1, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 649.00

HCP-847-1, on soft-sectored 8" floppy disk, Shpg. wt. 4 lbs. 649.00

WordMaster: tool for program development

Don't waste memory space: WordMaster Video Text Editor, Ver. 1.07, is 80% smaller than WordStar (w/o printer interface or formatting) — and much faster functions. Requires H-8/H-9 or H/Z-89 with 48K RAM, one disk drive and CP/M Operating System.

HMP-817-5, on hard-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 99.00

HMP-837-5, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 99.00

HMP-847-5, on soft-sectored 8" floppy disk, Shpg. wt. 4 lbs. 99.00

These selected Heath/Zenith software products add new capabilities to the CP/M Operating System. They include full documentation, so you can take advantage of those capabilities right away. They also include famous Heath/Zenith support — by mail, by phone or at your Heathkit Electronic Center.

Transform your computer into a versatile electronic spreadsheet with SuperCalc

- Helps planners make better use of time and energy
- Easy-to-read, easy-to-use spreadsheet format

Pencils, paper and a calculator have been replaced: Use SuperCalc to help answer those "what if" and "now what" questions. More versatile than many similar packages, you can examine and alter numbers and text within a 63-column by 254-row matrix. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and CP/M. If printouts are desired, a printer is also required.

HSC-817-1, on hard-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 295.00

HSC-837-1, on soft-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 295.00

HSC-847-1, on soft-sectored 8" floppy disk, Shpg. wt. 2 lbs. 295.00

Condor Relational Data Base Management System has capabilities usually found on larger systems

- Develop data bases without a programmer's assistance
- Use for inventory, accounting, personnel, other functions

Now even the "first-time" computer user can create affordable, productive programs — quickly: Features exceptional speed. Has self-contained English-type language; no host language required. Requires H-8/H-8-6/H-19 or H/Z-89 with 64K RAM, two high-capacity disk drives, CP/M and a printer.

HCD-8937-1, on soft-sectored, double-density, double-sided 5.25" floppy disk (requires H/Z-37 Floppy Disk System), Shpg. wt. 4 lbs. 899.00

HCD-8947-1, on soft-sectored 8" disk, Shpg. wt. 4 lbs. 899.00

Source listings for selected Heath/Zenith software

Complete listings for H-8-18 and H-88-18 Cassette Operating Software: Includes these source listings: H-8-52, H-8-53, H-8-54 and H-8-60. This package would cost \$100.00 if purchased separately.

HKS-50, Shpg. wt. 8 lbs. 65.00

SAVE 50% on Source listing for Heath Disk Operating System (HDOS), Ver. 2.0: Has H-8-51 listing for H-17 (below), all other utilities are device drivers. Purchasers eligible for updates when new releases are available (at normal charge).

HOS-1-SL, Shpg. wt. 11 lbs. Was \$195.00, NOW 95.00

UTILITY PROGRAMS



Enter, retrieve, update data with DataStar

Power and facilities usually found only on large key-to-disk systems: Form and file generation are simplified; high-volume operations are allowed. Files compatible with Mail/Merge and SuperSort; compatible with any CP/M-supported language; can be used as data entry portion of your applications programs — usually without modifications. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and CP/M. If printouts are desired, a printer is required.

HMP-817-4, on hard-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 295.00

HMP-837-4, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 295.00

HMP-847-4, on soft-sectored 8" floppy disk, Shpg. wt. 2 lbs. 295.00

Make sorting faster, easier with SuperSort

Makes sorting so simple, it's in a class by itself: SuperSort can sort and merge up to 32 input files in a single file — at the fast rate of 560 records per minute. Accepts nearly any kind of record format. Specify up to 32 different sorting criteria. Three output options. Can work with BASIC, Assembly, Microsoft FORTRAN and Microsoft COBOL programs — as well as with text editors. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and CP/M.

HMP-817-1, on hard-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 195.00

HMP-837-1, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 195.00

HMP-847-1, on soft-sectored 8" floppy disk, Shpg. wt. 4 lbs. 195.00

UTILITY/APPLICATIONS PROGRAMS



Advanced MAC-Assembler is easy to use

- Has Intel-compatible definitions
- Generates SID-compatible symbol table file for debugging

Designed for sophisticated Assembly Language programmers: Compatible with CP/M's ASM Assembly Language. Has additional conditional operators, other features. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive, CP/M.

HDR-817-1, on hard-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 85.00

HDR-837-1, on soft-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 85.00

HDR-847-1, on soft-sectored 8" disk, Shpg. wt. 2 lbs. 85.00

DESPOL provides simultaneous printer operation

- Allows you to perform two tasks simultaneously

Wait no more: DESPOL maximizes your computer system's efficiency. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and CP/M.

HDR-817-3, on hard-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 50.00

HDR-837-3, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 50.00

HDR-847-3, on soft-sectored 8" floppy disk, Shpg. wt. 2 lbs. 50.00

Upgrade the CP/M DDT Debugger with SID/ZSID

- Get both 8080-compatible SID and Z-80-compatible ZSID in one package — save substantially over separate prices

Two programs in one: Many advanced debugging features. Functional in DDT-type mode w/o symbol file. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive, CP/M and MAC, LINK-80 or D.R. Linkage Editor.

HDR-817-2, on hard-sectored 5.25" floppy disk, Shpg. wt. 2 lbs. 125.00

HDR-837-2, on soft-sectored 5.25" floppy disk, Shpg. wt. 4 lbs. 125.00

HDR-847-2, on soft-sectored 8" floppy disk, Shpg. wt. 2 lbs. 125.00

H-8-51, Source listing for ROM of H-17 Disk System, 1 lb. 25.00

H-19-1, Source listing for ROM of H-19 Video Terminal, 1 lb. 25.00

H-8-60, Source listing for Cassette Version of Extended Benton Harbor BASIC Language, Shpg. wt. 2 lbs. 25.00

H-8-54, Source listing for Cassette Assembler, 2 lbs. 25.00

H-8-53, Source listing for Cassette Text Editor, 2 lbs. 25.00

H-8-52, Source listing for Cassette Console Debugger, 1 lb. 25.00

NOTE: All of these source listings are copyrighted. Reproduction of these listings is expressly prohibited. Updates of source listing for HDOS are available for a nominal charge, as described at above left.



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



WORD PROCESSING

WordStar Word Processing Software features exceptional power, CP/M compatibility

A CP/M-compatible, screen-oriented word processor with integrated printing capabilities: Text entry, alteration and formatting are done on-screen. Has powerful editing commands, flexible find/replace commands. Hyphen-help stops when a hyphen is necessary, and lets you choose the hyphenation point. Automatic page numbering, print enhancements (underlining, boldfacing, subscripts, superscripts, 1/120" horizontal spacing and 1/48" vertical spacing) and several other options are supported on capable printers). Print spooling (requires 64K RAM) allows you to print one file while working on a second file.

WordStar's unique "Help" system, with four levels of user-selectable menus, eliminates the need to refer to a manual. Includes set-up/operating manual and master disk. Requires H-8/H-19 or H/Z-89 system with 48K RAM, two disk drives, a printer and CP/M. We recommend the WH-54 Letter-Quality Printer on page 41. Mfr.'s suggested list price, \$495.00.

HMP-817-2, on hard-sectored 5.25" disk, Shpg. wt. 2 lbs. 395.00
HMP-837-2, on soft-sectored 5.25" disk, Shpg. wt. 4 lbs. 395.00
HMP-847-2, on soft-sectored 8" disk, Shpg. wt. 2 lbs. 395.00

Add mailing list, file merging to WordStar

By adding MailMerge to WordStar, you can create personalized form letters — or store and print an entire list of mailing labels: MailMerge features merging of data from one file to another, automatic chained printing of several files, and printing of "nested" files. Requires H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, CP/M, WordStar and a printer (we recommend the WH-54 on p. 41).

HMP-817-3, on hard-sectored 5.25" disk, Shpg. wt. 4 lbs. 135.00
HMP-837-3, on soft-sectored 5.25" disk, Shpg. wt. 4 lbs. 135.00
HMP-847-3, on soft-sectored 8" disk, Shpg. wt. 4 lbs. 135.00

SOFTSTUFF
Affordable Software Tools

SOFTSTUFF offers a full line of quality software tools, priced to fit your budget. All SOFTSTUFF programs have been tested on the Heath/Zenith hardware indicated. Documentation has been improved. SOFTSTUFF products are supplied on 5.25" floppy disk (unless otherwise indicated), and are shipped postpaid. Specify operating system (HDOS or CP/M) when ordering.

NEW! Typing Tutor: Helps you learn fast, efficient touch typing H-8/H-19 or H/Z-89 with 48K RAM, one disk drive.

SF-9018, on hard-sectored 5.25" disk for HDOS, Postpaid 39.95

NEW! Vocabulary Builder: Library helps students learn English words. Needs H-8/H-19 or H/Z-89 with 48K RAM, one disk drive.

SF-9019, on hard-sectored 5.25" disk for HDOS, Postpaid 39.95

NEW! U.S. President's Game: Learn about the men who have led the U.S. Ready to run, has HDOS. Needs H-8/H-19 or H/Z-89 with 48K RAM, one disk drive.

SF-9020, on hard-sectored 5.25" disk for HDOS, Postpaid 39.95

Full Screen Editor: Uses H-19 or H/Z-89 CRT as window into file. Type changes anywhere on screen; use search, block move, scroll functions. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and either HDOS or CP/M.

SF-9200, on hard-sectored 5.25" disk for HDOS or CP/M, Postpaid 50.00

Text Formatter: Performs errorless fill and justification (straight right margin) functions on editor-prepared text. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (as listed below).

SF-9001, on hard-sectored 5.25" disk for HDOS, Postpaid 55.00

SF-9101, on hard-sectored 5.25" disk for CP/M, Postpaid 55.00

General Ledger II: Keeps your books up-to-date. Features custom chart of accounts, comprehensive printouts, automatic entry checking and more. Requires H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, HDOS or CP/M (as listed below) and Microsoft BASIC Interpreter (p. 46).

SF-9004, on hard-sectored 5.25" disk for HDOS, Postpaid 125.00

SF-9104, on hard-sectored 5.25" disk for CP/M, Postpaid 125.00

SFS-9104, on soft-sectored 5.25" disk for CP/M, Postpaid 125.00

595-2500, General Ledger Software Manual (Purchase price refunded when complete General Ledger II System is purchased), Postpaid 15.00

48/COMPUTERS

Magic Wand Word Processing Software combines ease of use, versatility and power

More powerful than Zenith Electronic Typing, has sample learning exercises: Magic Wand features EDIT and PRINT modes. EDIT features full scrolling, insertion by character or full insertion, full deletion, search/replace commands, block moves and copying of blocks, and the ability to include all or part of any pure ASCII file on disk into the text you're editing.

PRINT features printing in background (print spooling) to let you print one file while working on another, underscoring, boldfacing, subscripting and superscripting, automatic hyphenation, proportional spacing and mail list merging, 1/120" horizontal spacing and 1/48" vertical spacing (on capable printers). Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive, CP/M and a printer (we recommend WH-54, p. 41).

HRS-817-9, on hard-sectored 5.25" disk, 3 lbs. 295.00

HRS-837-9, on soft-sectored 5.25" disk, 4 lbs. 295.00

HRS-847-9, on soft-sectored 8" disk, 3 lbs. 295.00

Zenith Electronic Typing — our low-cost, easy-to-use word processing software system

Control the cost of paperwork: Zenith Electronic Typing makes word processing practical for both single-secretary offices and departmentalized secretarial staffs. A self-instruction course (included with the system) shows you how.

Features include upper/lower case video display; creation, addition or revision on up to three 5.25" disk drives; scrolling and two search modes; the ability to copy or move blocks of copy; automatic realignment to save hours of retyping; many other print enhancements; and the ability to print a clean copy of the document on a separate printer (not included) at up to 450 words per minute. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and a printer. Not for Z-90, Z-37, Z-47 or Z-67. Any Heath/Zenith-offered printer will work; we recommend the WH-54 on page 41.

H-8-40, on hard-sectored 5.25" disk, Shpg. wt. 6 lbs. 195.00

Small Business Inventory Package: Helps facilitate analysis of a business' inventory. Can provide up to 12 items of information on each part. Requires H-8 or H/Z-89 with 48K RAM, one disk drive, HDOS or CP/M (as listed below) and Microsoft BASIC Interpreter (p. 46).

SF-9005, on hard-sectored 5.25" disk for HDOS, Postpaid 90.00

SF-9105, on hard-sectored 5.25" disk for CP/M, Postpaid 90.00

SFS-9105, on soft-sectored 5.25" disk for CP/M, Postpaid 90.00

Mailpro Package: For use as mailing list system — though most any information can be stored and retrieved. Random access files. Sort and retrieve on any field. Has error trapping routines. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive, HDOS or CP/M and Microsoft BASIC Interpreter (SF-9109 requires 64K RAM, but not MBASIC Interpreter).

SF-9009, on hard-sectored 5.25" disk for HDOS, Postpaid 40.00

NEW! SF-9109, on hard-sectored 5.25" disk for CP/M, Postpaid 40.00

Roots-89 Ancestral Genealogy Software: Helps track your roots. Stores thousands of facts about your family. Computes relationships, shows important anniversaries. Includes 100-page course in genealogy. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (as listed below).

SF-9008, on hard-sectored 5.25" disk for HDOS, Postpaid 125.00

NEW! SF-9108, on hard-sectored 5.25" disk for CP/M, Postpaid 125.00

HDOS-CP/M File Converter: Effectively doubles the information-handling ability of your computer. Transfer HDOS files to CP/M disks — and vice versa. Requires H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, HDOS and CP/M.

SF-8512, on hard-sectored 5.25" disk for HDOS and CP/M, Postpaid 30.00

Mychess Computer Chess Game: Provides hours of challenging competition. Consistently beats Sargon. Nine skill levels. Switch sides with computer at any time. Full black-and-white graphics. Requires H-8/H-19/HA-8-6 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (as listed below).

SF-9010, on hard-sectored 5.25" disk for HDOS, Postpaid 40.00

SF-9110, on hard-sectored 5.25" disk for CP/M, Postpaid 40.00

Air Traffic Controller Game: Tests your confidence and decision-making ability. Control traffic around your own airport. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (as listed below).

SF-9014, on hard-sectored 5.25" disk for HDOS, Postpaid 30.00

SF-9114, on hard-sectored 5.25" disk for CP/M, Postpaid 30.00



Credit Card Orders Call TOLL-FREE: 800-253-0570

NEW

CP/M Course makes the industry standard operating system easy to use

- Use with an H-8 or H/Z-89 — or with any 8080 or Z-80 microcomputer which runs CP/M
- Covers CP/M 2.2 and earlier versions, teaching both built-in and transient commands
- Audio-tutorial teaching method reinforces important concepts before they are forgotten
- Hands-on computer exercises give you experience, using this versatile operating system

Now first-time computer users can learn how to use CP/M, the industry standard microcomputer operating system. This Heathkit/Zenith self-instruction course covers all aspects of the CP/M Operating System.

No previous background in CP/M is necessary to take this Heathkit/Zenith educational course, and knowledge of Assembly Language is not required.

The 500-page self-instruction text and five audio cassettes cover CP/M 2.2 and earlier versions, including built-in and transient commands, in ten units:

Unit 1 is an Introduction to the CP/M Operating System. **Typing CP/M Commands**, **Unit 2**, covers writing basic CP/M commands — using CP/M's major control functions — and diagnosing causes for errors from CP/M error messages. **Built-In Commands** of the Console Command Processor (CCP), are discussed in **Unit 3**. **CP/M's Transient Programs** are covered in **Unit 4**. **Unit 5** teaches you how to use the **STAT** and **CONFIGUR** Commands.

Unit 6, Using **PIP** shows you how to transfer files from one disk to another. **Unit 7** is an **Introduction to ED**, CP/M's text editor. **Unit 8**, **Editing Existing Files**, shows you how to use **ED** to change current files. **Advanced ED Functions**, including the creation and use of combined commands, macros and libraries, are discussed in **Unit 9**. **Unit 10**, **Submitting Command Files**, covers the use of CP/M's **XSUB** and **SUBMIT** commands.

This course's effective audio-tutorial teaching method is like having a tutor in your home — the text presents the basic concepts, and the narrator expands upon the facts. And to assure greater comprehension and retention, each unit has self-test reviews.

Hands-on computer exercises reinforce concepts taught in the text, and give you

Learn COBOL, the business computer language

- Field-proven, audio-tutorial techniques make learning COBOL Language easier than before
- Practice programs provide hands-on experience

COBOL Language is used in accounting functions, inventory control and other business applications — because it's more efficient than BASIC Language in manipulating large, structural data files — and offers greater productivity than Assembly Language.

Learn the language of business computers — COBOL — with this Heathkit/Zenith course. It covers the basics of encoding, input characteristics, program hierarchy, identification, environment, data and procedure divisions. Both the ANS 74 and ANS 68 versions of COBOL are covered in this course.

The Heathkit/Zenith COBOL Programming Course uses the effective audio-tutorial learning method. You get a clearly written self-instruction text full of diagrams, tables, illustrative programs and unit tests.

A set of nine audio cassettes complements the text, allowing you both to see and hear each concept as it is presented.

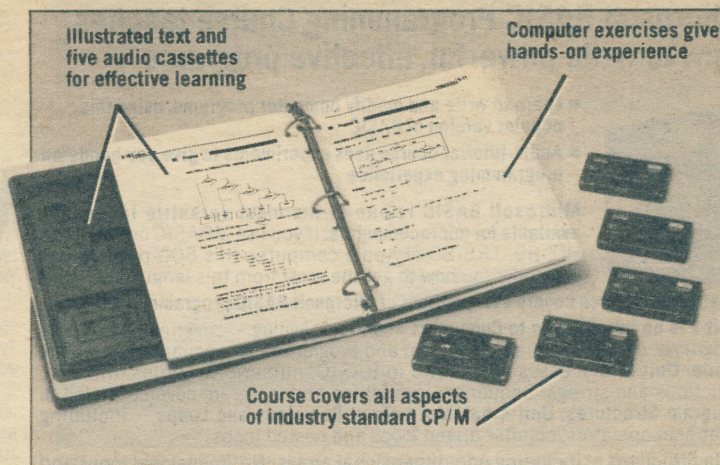
The course covers these aspects of COBOL: a sample COBOL program; program variations; structure and syntax; simple arithmetic statements, comments and diagnostics; advanced arithmetic and control statements; additional data concepts; magnetic tape and disk concepts; and much more.

A set of six practice COBOL programs is included at the end of the workbook. You can work on them at specified points in the course, or you may prefer to wait until the end of the text.

Learn the programming language that thousands of businesses use world-wide. Order the effective Heathkit/Zenith COBOL Programming Course today. To get the most benefit from this course, we recommend an H-8 Computer/H-19 Video Terminal system — or an H/Z-89 Computer system — equipped with two floppy disk drives, CP/M and the Microsoft COBOL Programming System.

Earn 3.0 Continuing Education Units (CEUs) and a Certificate of Achievement — pass the optional final examination with a 70% or better score.

EC-1105, Shpg. wt. 7 lbs. 149.95



Illustrated text and five audio cassettes for effective learning

Computer exercises give hands-on experience

Course covers all aspects of industry standard CP/M

valuable experience with the CP/M Operating System.

Upon completion, you'll know how to get the most from the CP/M Operating System. You'll also be able to operate CP/M-based applications programs, and use the CP/M editor to create and manipulate text files.

This course is designed for use with an H-8/H-19 or H/Z-89 system with 48K bytes of RAM and the Heath/Zenith CP/M Operating System. It can also be used with any 8080, 8086 or Z-80-based microcomputer which runs CP/M. To get full benefit from the course, we recommend the use of a printer.

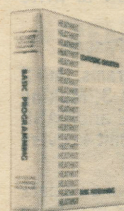
Earn 2.5 Continuing Education Units (CEUs) and a Certificate of Achievement — pass the optional final examination with a 70 percent or better score.

EC-1120, Shpg. wt. 6 lbs. 99.95

MONEY-BACK GUARANTEE: If you're not satisfied with any Heathkit/Zenith Educational Systems course, return the course materials and your proof of purchase for a refund of the purchase price.

Learn to program in popular BASIC Language

- BASIC is an easy-to-use computer language
- Heathkit/Zenith makes BASIC easy to learn with this effective self-instruction course
- Programming experiments reinforce concepts
- Use with any BASIC-programmable computer



Learn to write programs in popular BASIC Language, with this effective course. It covers many versions, formats, commands, statements and procedures of BASIC — plus special problem-solving tips you can use while writing your own programs.

This Heathkit/Zenith course is divided into 14 easy-to-follow programmed-instruction segments which will teach you the standardized words of BASIC, and the operation that each standardized word causes the computer to perform. You'll get a grasp on the tools of BASIC Language programming — including numbers, statements, functions, loops, lists, arrays and strings.

You'll participate in the decision-making factors which are part of writing a meaningful BASIC program, as well as in the creative aspect of program writing. Learn to define and plan a program, format and write it, and how to adapt programs to suit your specific needs. Interactive experiments give you hands-on experience in writing and running BASIC Language programs.

The course material includes a programmed-instruction text, workbook of programming instructions, and experiments you can perform on your own computer. Also included are handy reference cards with Benton Harbor BASIC statements, ASCII number codes, BASIC direct command statements and a reference chart for math and Boolean algebra operations.

When you complete this course, you'll be able to write BASIC Language programs that instruct a computer to perform specific directed tasks.

Earn 3 CEUs — pass the optional final exam with a 70% or better score.

See the classroom version of this Heathkit/Zenith course on page 83.

EC-1100, Shpg. wt. 7 lbs. 44.95

College-Level Examination. See page 71 for more information.

ECC-1100, Shpg. wt. 1 lb. 25.00



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

COMPUTER EDUCATION/49

Microsoft BASIC Programming Course teaches how to write powerful, effective programs



- Learn to write and modify computer programs, using this popular version of BASIC
- Audio-tutorial course uses experiments to give you hands-on programming experience

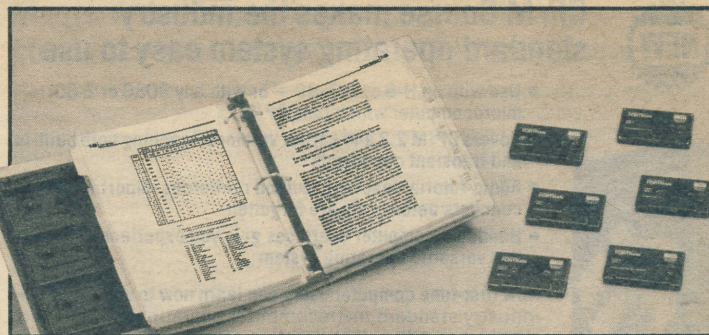
Microsoft BASIC is one of the most versatile languages available for microcomputers. If you use MBASIC on your H-8, H/Z-89, TRS-80 or Apple computer, this 800-page course will show you how to get the most from this language.

The 12-unit course covers every aspect of Microsoft BASIC programming:

Unit 1 is an **Introduction to Computers and Programming** — covering computers, programs, data, the computer system and programming languages. **Immediate Mode, Unit 2**, discusses arithmetic in BASIC, numeric variables, intrinsic functions and strings. Sequences, branching and loops are covered in **Unit 3, Program Structures**. **Unit 4** has **More about Decisions and Loops** — including relational operators, counter-driven loops and nested loops.

Data Structures — including one-dimensional arrays, N-dimensional loops and strings records — are taught in **Unit 5**. User-defined functions and subroutines are covered in **Unit 6, Subprograms**. **Unit 7** discusses **Complex Structures** — such as logical operators, multiple branching and structured programming.

The last five units cover operations and extensions available on disk versions of MBASIC. **Major Language Extensions, Unit 8**, teaches program editing; data type extensions; extended functions, operators and statements. **Sequential Disk Operations, Unit 9**, covers program storage, program retrieval and sequential data files. **Unit 10, Random Access Disk Operation**, covers random access buffers and fields — as well as storage and retrieval of numeric data. **Error Trapping and**



Memory Conservation are the topics of **Unit 11. Optimization and Machine Interfacing** are covered in the final unit.

This audio-tutorial course utilizes a specially-written text and three audio cassettes, which work together for effective learning and greater retention. Experiments provide extensive hands-on programming practice.

Self-test reviews let you check progress at specified points in the course.

The features of the **Microsoft BASIC Interpreter** (described on page 46) are included, except for the TRON/TROFF debugging utility.

Upon completion, you will be able to write MBASIC programs that instruct a computer to perform specific tasks (sorting, organizing and more).

For full benefit from the course, you must have access to a computer.

To earn 5 CEUs, pass the optional final exam with a 70% or better score.

EC-1110, Shpg. wt. 7 lbs. 99.95

Learn to program in Pascal Language



- Pascal is the ideal language for both beginning and experienced program writers
- Our audio-tutorial format shows you how to program in this powerful, modular language

If you've been around programming languages — or even if you're new to computers — you can learn how to write programs in popular Pascal Language.

The 11-unit self-instruction text completely covers Pascal:

The introduction shows how to identify and write simple Pascal programs. **Unit 2** covers identifying and writing **Self-Contained Procedures**. **Unit 3, Making Decisions**, teaches how and when to incorporate IF...THEN...ELSE and CASE statements in Pascal programs, and how to use Boolean variables. **Unit 4** covers **REPEAT...UNTIL, WHILE...DO** and **FOR** loops.

Unit 5 discusses **Pascal Data Types** and teaches you how to declare your own data types. **Unit 6, Arrays and Character Strings**, shows how to use arrays in solving problems. **More About Procedures, Unit 7**, covers the writing of complete Pascal procedures to perform desired tasks. **Records and Sets** are covered in **Unit 8, Unit 9, Pointers**, covers the difference between pointers, linked lists, stacks, queues, binary trees and statements. The last unit covers **sequential files and standard Pascal files**, showing how to store Pascal data files on floppy diskettes.

This effective audio-tutorial course uses a professionally-written, 500-page self-instruction text and audio cassettes, working together for an integrated, effective learning experience.

When you complete this course, you'll be able to write modular Pascal programs that instruct a computer to perform specific directed tasks.

Earn 4 CEUs — pass the optional final exam with a 70% or better score.

EC-1111, Shpg. wt. 7 lbs. 99.95

FORTRAN Course teaches science/math language



- Interested in FORTRAN programming? Learn the economical, effective Heathkit/Zenith way
- Audio-tutorial presentation, hands-on programming experiments reinforce learning three ways

FORTRAN Language simplifies complicated scientific and mathematical problem-solving. Using this Heathkit/Zenith course, you'll learn FORTRAN programming fundamentals.

The 11-unit text includes a special **Introduction to Computers**,

Unit 1, Getting Started, shows you how to analyze a FORTRAN program, introduce you to statement types, elements and the character set. **Unit 2** covers **Arithmetic Operations**. **Elementary Input/Output (I/O)** is discussed in **Unit 3**. **Unit 4** covers **Library Functions**. **Other Control Statements** are taught in **Unit 5**. **Unit 6** introduces you to **Arrays**. **Programming Practices** are taught in **Unit 7**. **Unit 8** teaches other **Variables**. **Unit 9** teaches **Advanced Input/Output (I/O)**. **Unit 10** covers **Subprograms**. **Special Input/Output (I/O)** is discussed in **Unit 11**.

This course uses the effective audio-tutorial teaching method, with a 500-page text and six cassettes working together to provide more complete learning.

Interactive hands-on experiments give you actual experience in writing FORTRAN programs — coding forms are included. The text also offers extensive practice in writing FORTRAN programs and using the character set. Self-test reviews let you check your progress at specified points throughout the course.

When you complete this course, you'll be able to write FORTRAN programs that instruct a computer to perform specific tasks.

To get the most from the course, we recommend an H-8 or H/Z-89 with 48K RAM and two disk drives. HDOS or Health/Zenith CP/M (see page 45) and the Microsoft FORTRAN Programming System (page 46) are also recommended.

Earn 5 CEUs — pass the optional final exam with a 70% or better score.

EC-1101, Shpg. wt. 7 lbs. 99.95

Computer Dictionary is a complete reference source of computer terms

Need a dictionary to understand computer terms? Here's a handy reference book for hobbyists, technicians, engineers, programmers and other professionals who deal with computer-related terms. The EB-1020 Computer Dictionary, from Heathkit/Zenith Educational Systems, is a complete sourcebook of computer terms.

Thousands of definitions: This dictionary contains thousands of com-

puter-related words and phrases, along with complete definitions. Definitions are made clear and explicit throughout the text.

Full of information: Browse through this dictionary and you can learn significant details about the products, procedures, problems and proliferating applications of the microcomputer revolution.

EB-1020, Shpg. wt. 2 lbs. 14.95



Learn to maximize your computer efficiency with this Assembly Language Self-Instruction Course

\$49⁹⁵

- Self-instruction format for effective learning
- Programming exercises reinforce concepts
- Do more in less memory space than BASIC Language
- Write programs which execute 10 to 1000 times faster than interpreted BASIC



Assembly Language translates to greater computer efficiency! Anything you can do in any other language on a computer system you can do with Assembly Language.

Assembly is a true programming language, not just a convenient notation for machine code. The use of labels, computed operands, comments and assembler directives allows the Assembly Language programmer to create a source code that is adaptable to the system and easily read. Assembly language uses a mnemonic for every machine operation. There's no time wasted in interpreting – so your programs require less memory space and run much faster.

Assembly Language utilizes your computer system's memory more efficiently. Shorter, more explicit codes allow you to store more data in less space. Symbolic notation and easy to implement documentation methods make program listings easy to understand.

Objective: When you complete this unique self-instruction course, you'll be able to program your computer in Assembly Language.

Content: You'll learn flowcharting, device polling, code conversions, masking, subroutines, 8080 instruction set, I/O routines, multi-precision math and more.

Teaching method: The Assembly Language Course's programmed-instruction text and workbook work together, reinforcing textbook learning with interesting visual illustrations and hands-on programming experience.

Learning aids: The workbook provides hands-on experience in Assembly Language programming. It has programming experiments you can perform on your computer.

In addition to the workbook experiments, the course includes a special

"Computer Concepts" aids business decisions

\$49⁹⁵

- Learn how to determine data processing requirements for your small business
- Uses field-proven self-instruction techniques
- Audio cassettes let you see and hear each concept



Thinking of buying a computer for your small business? This Course will help you select the system that fits your needs.

When you consider making a computer investment that can run into thousands of dollars, you need to know as much about computers as possible – before making the investment. The Heathkit/Zenith Computer Concepts Course is designed to give you the knowledge you need to evaluate the usefulness of a computer in your business.

Proven self-instruction methods – using an effective-text and three audio cassettes – teach you how to evaluate the benefits that a computer offers your business. Three appendices to the text reinforce course material.

The course is divided into four concise, easy-to-understand units – which present computer concepts in business terms. **Unit 1 – The Computer and How It Works** – covers different types of memory, input/output devices, capabilities of different types of storage media and applications software. It explains what a computer can do in a small business environment.

The Data Processing Department and Personnel, Unit 2, teaches you how to organize a data processing (DP) department. It explains the roles of the DP manager, data processing engineer, systems analyst, operator and other personnel. **The third unit of this Course, Alternatives in Computer Services**, compares the advantages of owning your own computer system – versus a time-sharing arrangement or using a computer service bureau.

How to Select a Computer, the fourth and final unit, shows you how to define and fulfill your data processing requirements.

A passing score of 70 percent or better on the optional final examination will earn you 1 Continuing Education Unit (CEU) and a Certificate of Achievement from Heathkit/Zenith Educational Systems.

EC-1103, Shpg. wt. 5 lbs. **49.95**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

Specially-written
400-page text

Includes
handy
reference
placard

Workbook provides
hands-on training

Reference Card which lists all 244 Assembly Language instructions – as well as a complete ASCII code chart.

Hardware compatibility: The Heathkit/Zenith Assembly Language Course is specifically designed for 8080/8085-based microcomputers which use standard Intel 8080 mnemonics. The Assembly Language taught in this course can be used with the Heath H-8, Heath H-88, Heath H-89 and Zenith Data Systems Z-89 Microcomputers. (The H-88, H-89 and Z-89 Microcomputers use the 8080 subset of the Z-80 microprocessor.)

Hardware recommendations: To perform the optional experiments in the Heathkit/Zenith EC-1108 Assembly Language Self-Instruction Course, you must have access to a computer (such as the H-8, H-88 or H-Z-89 Computers).

Credit: Earn 6.0 Continuous Education Units (CEUs) and a Certificate of Achievement from Heathkit/Zenith Educational Systems – Pass the optional final examination with a 70 percent or higher score.

Now is the time to learn the computer language that puts you in command of your computer's full potential – Assembly Language.

EC-1108, Shpg. wt. 7 lbs. **49.95**

Microcomputing Course explains computers

\$39⁹⁵

- Learn how a computer can help you
- Explains computers in everyday terms, so little technical knowledge is required
- Self-instruction text, cassettes for effective learning



Here's your chance to learn the basics of microcomputers and BASIC Language programming – even if you have no prior technical background. The award-winning Heathkit/Zenith Microcomputing Course shows you how to determine if your particular problem can be solved by a computer. You'll cut through technical terminology, and understand what a computer can do – in easy, simple terms.

No extensive math, electronics or computer background needed: The effective audio-tutorial teaching format – featuring a self-instruction textbook and two audio cassettes, lets you see and hear each concept in our Microcomputing Course.

Five easy-to-understand units explain different parts of the computer system:

In the first unit, Computers and Data: you'll find out how to apply the capabilities of a computer to your specific problems. You will see how computers "understand" electronic data – and how to convert written words into the electronic data computers understand.

Unit 2, Hardware, shows you how to compare computers – by understanding how each computer performs. **Systems and Interfacing, the third unit**, teaches how to evaluate small computer systems by understanding how different components perform. You'll find out how the computer communicates with other components – and how to distinguish between analog and digital data. **Software, Unit 4**, shows you how to choose software programs that help solve your problems.

In the last unit of this course, BASIC Language Programming, you'll actually learn to write short computer programs – using BASIC.

By passing the optional final examination with a score of 70 percent or better, you'll earn 1 Continuing Education Unit (CEU) and a Certificate of Achievement from Heathkit/Zenith Educational Systems.

EC-1000, Shpg. wt. 5 lbs. **39.95**