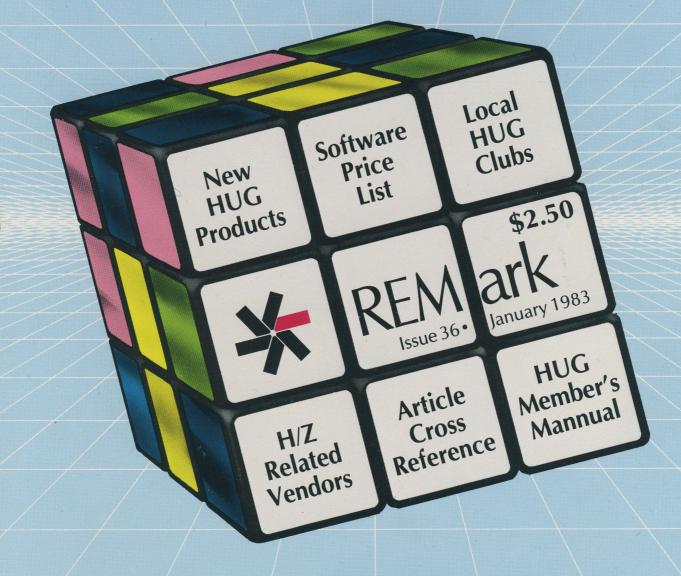
C



## **CROSS REFERENCE**



## on the stack

Just What is the Heath Users' Group All About?	4
Heath Users' Group 1983	6
Submittal Agreement	8
REMark Cross-Reference	
Hardware	11
Software	13
Programs	- 18
Heath Related Products	21
Miscellaneous	21
Corrections	22
New HUG Products	26
HUG Software List	29
Heath/Zenith Related Vendors	32
Current Local HUG Clubs	41
Interested in Starting a Local HUG?	47

HUG Manager Bob Ellert	on
Software Engineer Pat Sway	ne
HUG Bulletin Board	
and Software Developer Terry Jens	en
HUG Secretary Margaret Bac	on
REMark Editor Walt Gillesr	oie
Assistant Editor Nancy Stru	

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

\*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

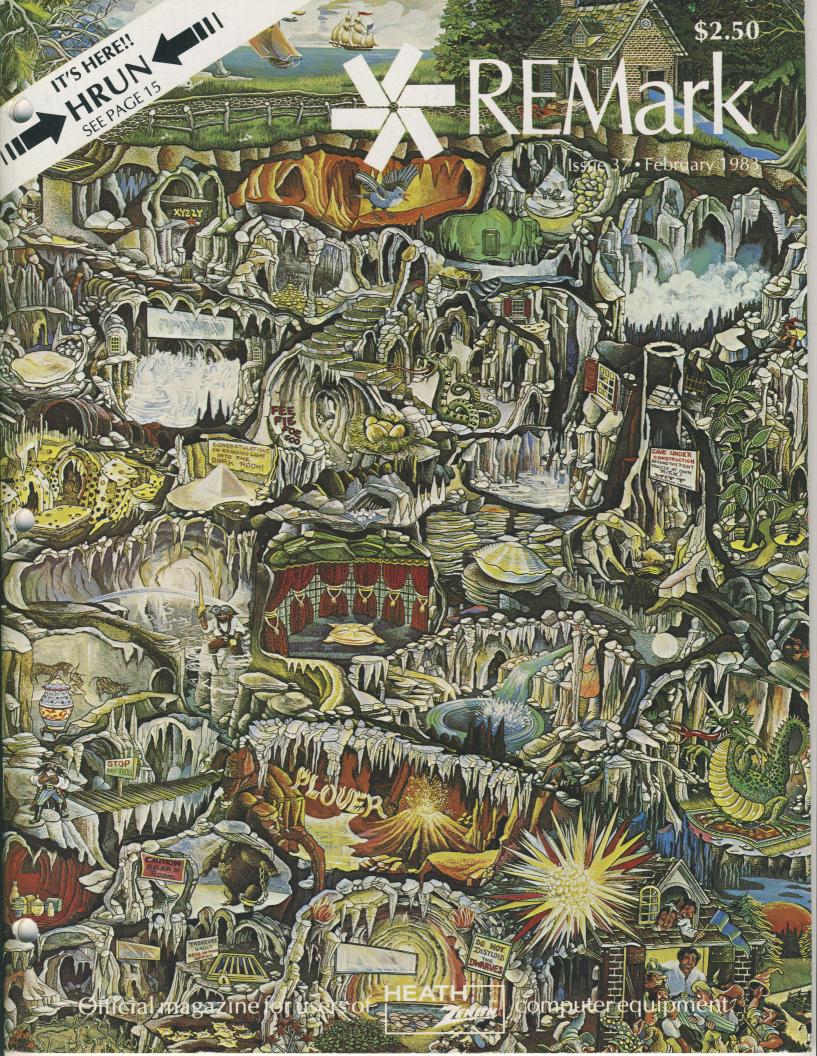
Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

Copyright © 1983, Heath Users' Group

ON THE COVER: Artwork by Walt Gillespie, REMark Editor

REMark • Issue 36 • 1983





## on the stack

HUG Manager Bob Ellerto Software Engineer Pat Swayr HUG Bulletin Board	
and Software Developer Terry Jense HUG Secretary Margaret Baco	
REMark Editor Walt Gillespi Assistant Editor Nancy Strur	

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

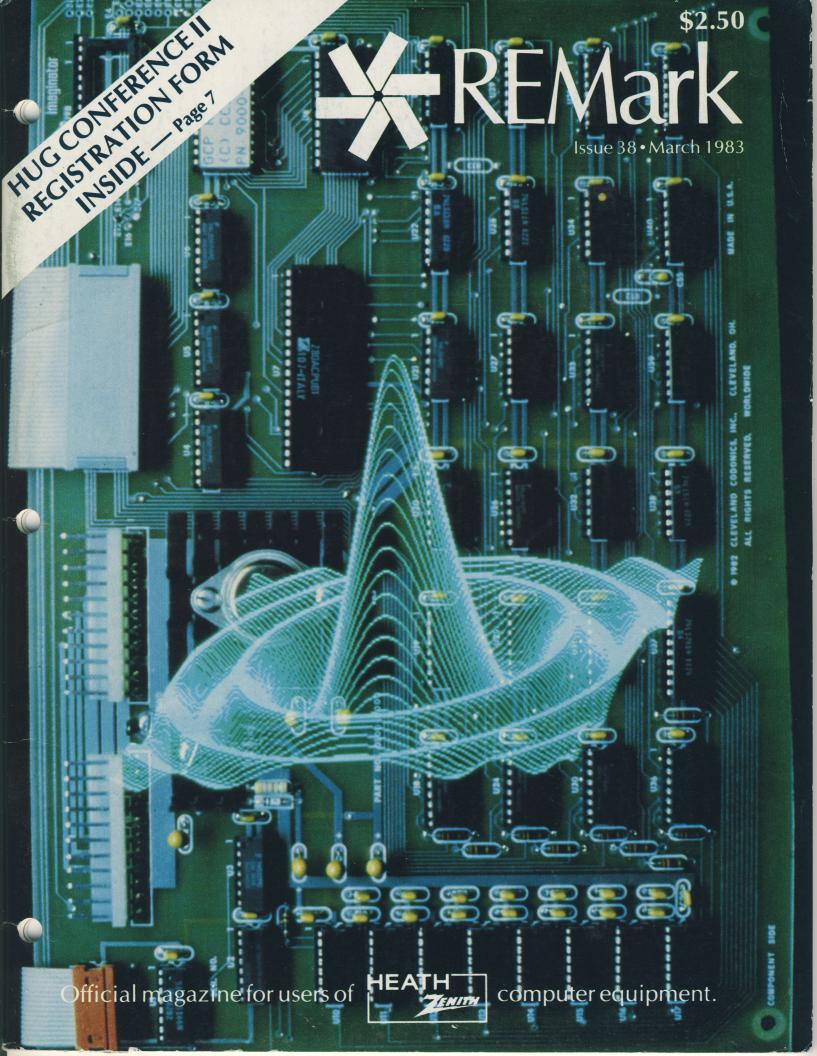
Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

Copyright © 1983, Heath Users' Group

Buggin' HUG	7
Questions & Answers	7
CheapCalc B.L. McFarland	8
HDOS for Everyone Pat Swayne	15
Weather Station—Computer Interface Edward T. Wright Jr	18
New HUG Products	26
Introduction to Z-BASIC Part III Gerry Kableman	29
Computer Romance Laura Sparrow	32
Venting Hot Air Bob Small	34
H-100 Kit in Review Terry Jensen	36
An HDOS Shell for CP/M Doug Alsip	38
Easy Livin' Pat Swayne	48

**ON THE COVER:** Reprinted by permission of Edmund J. Florimont of Greyhound Electronics (NJ) is a painting by famous American artist Susan Heinz of the wonderful world of Adventure. A limited quantity of 30"x40" full color poster reproductions (numbered and signed by the artist) are available from the Heathkit Electronics Center, 1013 State Hwy. 35, Ocean, NJ 07712, (201) 775-1231. Price \$39.95 plus shipping.





Printers ..... Imperial Printing St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

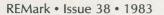
Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

Copyright © 1983, Heath Users' Group





#### on the stack

Buggin' HUG	7
Conference Registration	7
Changing Your Tone Frank Clark	11
Imagination Gone Wild! Jim Buszkiewicz	19
A Parallel Port for CP/M Jim helgeson	20
4MHz Update Pat Swayne	21
ASM for the Novice Rick A. Martin	23
New HUG Products	26
H.E.R.O. Yesterday's Dreams Today's Reality Bob Ellerton	31
Introduction to Z-BASIC Part IV Gerry Kableman	32
ZTERM Patches	34
In Defense of Magic Wand David B. Garwood	35
Forgotten .DOC File	37
A Programmable 3MHz H-8 Modification Pat Swayne	38
Computer Aided Instruction Part I Walt Gillespie	43
You Just Purchased BASCOM? Thomas E. Wiles	44
25th Line BASIC Subroutine Writer Tommy Towery	47
Z-100 Z-DOS Swap Program Marc O. Aagenas	49

**ON THE COVER:** Pictured is the IMAGINATOR graphics board for the H/Z-89 & H19, by Cleveland Codonics, which is reviewed on page 19. Superimposed over the board is a sample of its screen output. Slide composition is by E.C. Smith and Associates Inc., St. Joseph, Michigan. Photos by Jim Buszkiewicz.

Official magazine for users of

HER



computer equipment.

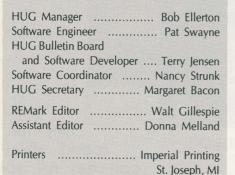
\$2.50

RUMUK

REMark Issue 39 - April 1983

COMPUTER FAIRE

- 18-28, ENC



REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

Buggin' HUG	7
Conference Registration	7
A Faster Benton Harbor BASIC Dahl B. Metters	11
A Tutoral For Better Screen Control David E. Warnick	19
H/Z-89 Memory Replacement With 64K Chips J. D. Ross	23
Introduction to Z-BASIC Part V Gerry Kabelman	24
New HUG Products	26
An Educators Best Friend, P.I.L.O.T. Kurt Albrecht	28
Getting Started With Assembly Language Pat Swayne	35
Z-BASIC Power to the Rescue Terry Jensen	39
HERO-I Chats with the H89	41
Local HUG Clubs	48
Heath Related Products	49
NAVPROGseven Updates Alan Bose	50

**ON THE COVER:** Shown is Donna Melland, new REMark Assistant Editor with the new Z-29 terminal, Zenith's latest release in it's terminal family that began shipping to the customer in late February. Also shown is the new dual 8" half height disk drive system, the Z-207-42 which was introduced at the West Coast Computer Fair last month. It is scheduled to be available sometime in May with the kit version, H-207-40 to follow.

\$2.50

REMark®

Issue 40 • May 1983

(DHOC

ANITH

Universal Dat

- B.

Official magazine for users of HEATH

INTHIS ISSUE THE FIRST IN A SERIES B3

HUG Manager Bob Ellerton Software Engineer Pat Swayne HUG Bulletin Board
and Software Developer Terry Jensen Software Coordinator Nancy Strunk HUG Secretary Margaret Bacon
REMark Editor Walt Gillespie Assistant Editor Donna Melland
Printers Imperial Printing St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



### on the stack

Second National HUG Conference Bob Ellerton	7
Conference Registration	7
Buggin' HUG	8
Questions & Answers	9
Modem Tutorial 83 Walt Jung	11
The WCCF in HUGger Perspective Terry Jensen	15
Teaching HERO A Thing Or Two Pat Swayne	17
Introduction to Z-BASIC Part VI Gerry Kabelman	21
H/Z-37 Controller on Standard 8" Drives E. B. Blayer	23
New HUG Products	26
HUG Price List	27
Computer Aided Instruction Part 2 Walt Gillespie	29
Datetime for ZDOS Frank T. Clark	31
A Review of RT-11, Version 5 Ed Judge	34
Getting Started With Assembly Language (#2) Pat Swayne	36
CheapCalc Revisited Clifford C. Lundberg	39
Putting The H-8 LED's To Work Glenn F. Roberts	41
"ESCape" with FORTRAN and PASCAL John F. Sams	44
Heath Related Products Tom Huber	50
Pilot Corrections 27 Raiders Bug	27

**ON THE COVER:** A montage of modems (photo by Jon Falkner) to help kick-off the first in a series of articles by Walt Jung, "Modem Tutorial 83", on page 11.

\$2.50

# REMark® Issue 41 · June 1983

00000000

000000000000000

Official magazine for users of

- 1

WATLNAN ROMSE WATLNAN AVAILABLE WATUN AVAILABLE NOV see page 21 for details

0000000000

888 0 0 0 ê

8000808080000





#### on the stack

Registration Thermometer	7
Conference Registration	7
Buggin' HUG	8
Grocery Shopping Using SuperCalc Jim Johnson	9
Out In The Boonies With A Single Drive H/Z-89 Bill Pinkston	11
Getting Started With Assembly Language (#3) Pat Swayne	15
Introduction To Z-BASIC Part VII Gerry Kabelman	19
Using Binary Files With Benton Harbor BASIC David A. Sandage	23
New HUG Products	26
HUG Price List	27
A New Column Is Coming David E. Warnick	29
Helpful Hints For Builders of Hero I CHUG	30
The Best Book I've Ever Read On CP/M Jennifer T. McGraw	31
Morse Code Practice in MBASIC For The H/Z-89A Bob Horn	33
Using "C" For Fast Screen Action Games Clement S. Pepper	35
Get Rid Of "Echo On Delete" In CP/M-85 And MBASIC (And Other Patches) Pat Swayne	42
A Look At The FAC Herbert A. Friedman, MD	43
Guide To Setting Up Utilities As Device Drivers Charles E. Horn, P.E.	45
Basically Speaking Bob Eson	47
Heath Related Products	49
"Hero I Chats" Correction 10 ETLOAD Correction	

**ON THE COVER:** Pictured is the new Watzman ROM set. See page 27 for information. (Photo by Jon Falkner)

HUG Manager ..... Bob Ellerton Software Engineer ..... Pat Swayne HUG Bulletin Board and Software Developer .... Terry Jensen Software Coordinator ...... Nancy Strunk HUG Secretary ....... Margaret Bacon REMark Editor ...... Walt Gillespie Assistant Editor ...... Donna Melland Printers ....... Imperial Printing St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group

PZ.50 REMark® Issue 42 · July 1983

Ì

Official magazine for users of HEATH

HUGGERSPREAMERICE HUGGERORONALCE 2ND COsception of the state

272

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

St. Joseph, MI

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hillton Road

Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

#### **The Second National Hug Conference**

Approaches Bob Ellerton	5
Keyword-based Filing and Retrieval Jim Tysinger	13
A Z-100 Font Editor Marc Aagenas	19
Using the H/Z-29 Terminal Pat Swayne	25
The Wand vs. The Star John Immerwahr	29
Personal Checks and Balancing Don Thomas	33
Millionaire: A Stockmarket Simulator Tom and David Huber	37
Getting Started With Assembly Language (#4) Pat Swayne	40
A Simple Separate Keyboard for the	
H/Z-89 Ernst S. Duesterhoeft	43
"Changing Gears" in Your 4MHz H-89 Peter Shkabara	45
Using AUTOEXEC.BAT Gerry Kabelman	47
Addressing Envelopes/Labels Charles 'Karl' Romer	48
Programming Graphic Shapes David E. Warnick	55
Patch Page Pat Swayne	59
Draw and Print a Picture In MBASIC Ron White	61
Introduction to Z-BASIC Part VII Gerry Kabelman	63
BDOS ERROR Bill Simpson	65
Computer Aided Instruction Part 3 Walt Gillespie	68
Give HERO Something To Do With His Time Pat Swayne	71
Modem Tutorial 83, Part 2 Walt Jung	75
What Does SET SY: Set? Bill Tavolga	80
Schedule of Events	53
Discussion Group Schedule . 8 Update on Vendors	83
Conference Registration 9 Current Local HUG Clubs	86
Vendor/Booth Locations 10 Questions and Answers	91
Odds and Ends Sale 17 Buggin' HUG	92
HUG New Products 50	

**ON THE COVER:** Pictured is the National HUG Staff preparing to leave for the Second National HUG Conference in Chicago, III.

REMark® Issue 43 · August 1983



Official magazine for users of HEATH

St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S. Domestic	Canada & Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



### on the stack

Buggin' HUG	7
Questions and Answers	9
Programming Simplified Using Flow Charts David E. Warnick	11
Using Advanced Features of the H/Z-100 Computer Pat Swayne	15
HRUN Update Pat Swayne	17
SuperCalc As A Diet Manager Janet M. Johnson	19
ZDS Offers 16-bit, Software Directory	21
What's a Buffer? Jennifer T. McGraw	22
LPRINT in CP/M MBASIC Terry L. Jensen	24
HUG New Products	26
HUG Price List	28
PILOT/80 Revisited Kurt Albrecht	29
An Introduction to 'C' Brian Polk	30
The Time Saver George W. Stephenson, Jr.	31
Easy Cursor Control For The         NoviceAnd Others       Wallace M. Theodore	33
Processing H/Z-19 Special Functions Using Heath ASseMbly Language William R. Rousseau, M.D.	37
CONC.BAS File CONCentrator Roger Evans	40
Console Status Program Robert G. Traub	42
HERO - In Search of the Light Frank J. Lazorishak	45
Heath Related Products	50

**ON THE COVER:** Pictured is a new offering from Heath Co., the ET- 100 educational 16-bit computer. Watch for details in the upcoming Heathkit catalog.



Official magazine for users of HEATH



HUG Manager ..... Bob Ellerton Software Engineer ..... Pat Swayne HUG Bulletin Board and Software Developer .... Terry Jensen Software Coordinator ...... Nancy Strunk

Printers ..... Imperial Printing St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group

Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

Buggin' HUG	6
Questions and Answers	6
Conversion of IBM-PC BASIC Programs to ZBASIC John Stetson	9
Turning on the SUPER 89 Walt Gillespie	17
Getting Started With Assembly Language (#5) Pat Swayne	21
Programming Simplified David E. Warnick	22
HUG New Products	26
HUG Price List	28
Creating a Disk Master Catalog Frank and Mary Lynn Hutchison	29
An Introduction to 'C' Part II Brian Polk	32
CHEAPCALC Another Look B. L. McFarland	33
Patch Page Pat Swayne	39
A Software View of Operating Systems George Coade	40
WORD-SEARCH Puzzle Generator Leonard J. Oswald	41
Learning to Write Assembly Language Subroutines for MBASIC Under HDOS Fred Hochschild	44
Heath Related Products	47

**ON THE COVER:** Pictured is the SUPER 89 replacement CPU board from D-G Electronic Developments Co. See page 17 for a review.



HUG Manager ..... Bob Ellerton Software Engineer ..... Pat Swayne HUG Bulletin Board and Software Developer .... Terry Jensen Software Coordinator ...... Nancy Strunk HUG Secretary ...... Margaret Bacon REMark Editor ...... Walt Gillespie Assistant Editor ..... Donna Melland Printers ...... Imperial Printing St. Joseph, MI

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S. Domestic	Canada & Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

\*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to:

: Heath Users' Group Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

Getting Started With Assembly Language (#6) Pat Swayne	7
There Is Always A Catch Barry Deer	15
Making Hero Move Mike Curiale	16
Assembly Language Programming in CP/M-85 with	
the H/Z-100 Computers D. C. Shoemaker	21
Modem Tutorial 83, Part 3 Walt Jung	25
Three Usable Spreadsheets John P. Turrell	31
COBOL Corner I H. W. Bauman	36
2nd Heath Users' Group National Conference	
Walt Gillespie	39
Another Conference View Donna Melland	41
And Speaking Of The Conference Terry L. Jensen	45
HUGCON Goodies II Pat Swayne	54
Completing Our Game of Words David E. Warnick	59
H-17/H-37 Dual Controller Modification Robert Todd	65
The Single Step Approach to Recovering Deleted	
Files C. F. Webber	69
The HDOS Directory Structure David G. Pelowitz	74
Using a Speech Synthesizer Under CP/M Bob Brownlee	79
A SuperCalc Worksheet Program Elbert Rufus Rogers	80
More On Using a Hard-Sectored 96 TPI Drive D. Sandage	85
A Plug-In 4MHz Mod For The H89A G. Wintergerst	96
Buggin HUG 5 Patch Page	72
Questions and Answers 5 Heath Related Products	83
HUG New Products 10 Hands Off Demo	98
HUG Price List	99
And The Winners Are 52	

**ON THE COVER:** A photo representation of The Second National HUG Conference. See pages 39-45 for a HUG Staff report.

#### \$2.50

REMark

Computer

#### Issue 46 • November 1983

Official magazine for users of

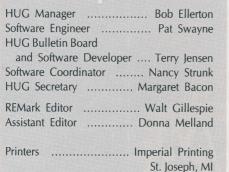


FORMAT

computer equipment.

ABCDE DATA SWITCH

# Heath/7



REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

Buggin' HUG	8
Use MBASIC and Machine Code To Load and Use "USR" Functions Jack Britton	11
A ZDOS Modem PackageMTERM Terry Jensen	16
PeachText 5000 Part I H. W. Bauman	18
On The Leading Edge (#1) William M. Adney	20
Getting Started With Assembly Language (#7) Pat Swayne .	23
Standards For Terminal Control David E. Warnick	25
What's an Algorithm Jennifer T. McGraw	28
Echoes of the Crash Mary Hess	30
The CP/M Directory Structure David G. Pelowitz	31
HUG New Products	34
HUG Price List	36
Heath/Zenith Related Products	38
Programming For Fun George Hill, Jr.	39
Building Block Subroutines Michael J. Caddy	44
Add the Underline Character To ASM Charles Winchester	48
COBOL Corner II H. W. Bauman	51
Z-100 WordStar: Some Added Flexibilities Robert A. Metz	54
More Assembly Language Programming—HDOS P. John Hagan	57

**ON THE COVER:** Pictured is part of the VOTECH ED Class at Benton Harbor High School, Benton Harbor, MI. See page 5.





Command:

Official magazine for users of HEATH



## Heath/7000 Users' Group

HUG Manager Bob Ellerton Software Engineer Pat Swayne HUG Bulletin Board
and Software Developer Terry Jensen Software Coordinator Nancy Strunk HUG Secretary Margaret Bacon
REMark Editor Walt Gillespie Assistant Editor Donna Melland
Printers Imperial Printing

REMark is a HUG membership magazine published 12 times yearly. A subscription cannot be purchased sparately without membership. The following rates apply.

St. Joseph, MI

	U.S.	Canada &	
	Domestic	Mexico	International
Initial	\$18	\$20*	\$28*
Renewal	\$15	\$17*	\$22*

#### \*U.S. Funds.

Membership in England, France, Germany, Belgium, Holland, Sweden and Switzerland is acquired through the local distributor at the prevailing rate.

Limited back issues are available at \$2.50 plus 10% handling and shipping. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath Users' Group

Hilltop Road St. Joseph, MI 49085

616-982-3463

Although it is a policy to check material placed in RE-Mark for accuracy, HUG offers no warranty, either expressed or implied, and is not responsible for any losses due to the use of any material in this magazine.

Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog or other HUG publications is performed by Heath Company, in general and HUG in particular. The prospective user is hereby put on notice that the programs may contain faults the consequence of which Heath Company in general and HUG in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

REMark is a registered trademark of the Heath Users' Group, St. Joseph, Michigan

Copyright © 1983, Heath Users' Group



#### on the stack

HUG ID Card - Gold At The End Of The Rainbow Bob Ellerton	4
Buggin' HUG	7
The CHUG Conference - Well Done!! Terry Jensen	11
Trade Your H/Z-89 For An H/Z-100? William Adney	14
CAD/CAM On A Z-100 Sarah Spencer	16
PeachText 5000 Part II H. W. Bauman	21
An Introduction To 'C' Part III Brian Polk	24
HUG New Products	26
HUG Price List	28
COBOL Corner III H. W. Bauman	29
Cassette Modem Software Pat Swayne	32
Automatic Title Program For         BASIC Programs       Ricky LeBlanc	34
Those Special Function Keys David Warnick	36
Getting Started With Assembly Language (#8) Pat Swayne	40
Heath Related Products	43

**ON THE COVER:** Christmas Wonderland developed using AutoCAD. See page 16 for an in-depth review.