

JUNE '84

I-M 1 IN A MILLION CLUB NATIONAL NEWSLETTER

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HEXMART is dedicated to providing the APE computer owner with a collection of quality utility programs. We are not a game company, we prefer to think of ourselves as a company which provides the 'tools' to assist you with your programming needs.

SOFTWARE

SUPER BASNUM : The BASIC line renumbering program.

\$14.95 on cassette - loads in 8K, runs using no program RAM

Have you ever programmed yourself into a corner? You need a ten line subroutine but have space for only five lines. Don't worry, BASNUM is here! Renumber your entire program from the beginning OR renumber starting from ANY line. You specify the starting point, load your program and CALL BASNUM. It does the rest, including changes to all line references. It's loaded with error checking which makes it easy to use.

SUPER SORT : A machine language string sorting routine.

\$14.95 on cassette - loads in 8K, requires less than 1/2 K

If you have ever tried to sort a lengthy list of strings in BASIC, then you know how slow APE can be. No more! SUPER SORT is a machine language sorting routine which can be included in your programs to speed string sorts by over 100 times. A few simple POKEs followed by a CALL is all that's needed. You can include SUPER SORT in your existing programs (it is supplied with an APPEND routine allowing your program to be loaded 'behind' the machine code), or you can write a new program behind SUPER SORT. A truly powerful routine.

TAPE ASSEMBLER : A cassette based assembler for APE's Motorola 6800.

\$14.95 on cassette - loads in 8K, expandable to 16K

No, you don't need a disk system to write Assembly Language programs. Hexmart's TAPE ASSEMBLER allows you to write those programs using 6800 code. Buy now and receive the following: 1) two programs - screen only and line printer versions, 2) instructions - including how to use and incorporate Assembly code in the APE, 3) 6800 Assembly Language work sheets, and 4) a brief introduction to Assembly Language programming. Learn to make the APE fly!

DISK DIR : A master disk directory filing system.

\$12.95 on cassette - loads in 8K, transferable to diskette.

You say you have a house full of diskettes and your not sure which one contains that needed program? DISK DIR to the rescue! Creates a master file of up to 200 titles from the directories of all your diskettes. You name each disk with any three character code and DISK DIR automatically reads all program names on the disk, sorts them into alphabetical order, and stores them in the master file. Editing allows the master file to be updated as your collection of programs change.

DISK MOD / INIT40 : A two program set. For all serious disk users.

\$12.95 on cassette - both load in 8K, transferable to disk

DISK MOD - Numerous features allow the user to read any track and sector from an APE disk, display it on the screen, place it in RAM, modify it, or write it back to disk. Automatic stepping allows work on contiguous or separate sectors. READ/EXAMINE/MODIFY/WRITE. You can even read disks from other popular computers including Radio Shack and TI.

INIT40 - Tired of 34 tracks of 8 sectors? How about 40 tracks of 10 sectors! Yes, you can now INITIALize your diskettes beyond APE. These INITIALized disks are still compatible with APE's DOS. However when used with DISK MOD, you get an additional 32K of storage. These two programs are a must for any serious disk owner.

SUPERFILE : A Data base management system.

\$19.95 on cassette - loads in 16K, Requires single DISK drive.

The first fully flexible data base management system for the APE has arrived! No longer write your own custom programs for mailing lists, major league batting averages, parts inventory, etc. SUPERFILE handles these and many more by allowing full data format flexibility. Allows ten fields per record, up to 250 records per file. Field titles and field sizes are user specified. Sort on any field, create custom printer outputs using any or all fields.

DISK BACKUP : New from HEXMART, a disk file backup program.

\$12.95 on cassette - loads in 8K, transferable to disk.

Not to be confused with other backup programs! DISK BACKUP copies any type of APE file from one disk to another. Copied files are added to existing directory on backup disk. Copy single files or complete disk. Supports single and dual drive systems. Adjusts to use full computer memory with no program modification - runs in 8, 16, or 24K systems. Extremely useful for backing up data files.

All programs are supplied on quality cassette tape and are transferable to diskette. All (except SUPERFILE) will load and run in an 8K computer. Prices include all shipping and handling. Each program is sold with a 60 day replacement guarantee - if it fails, return the original copy to HEXMART for a free replacement.

Send NAME, ADDRESS, and CHECK or MONEYORDER to:

HEXMART SOFTWARE
1048 Alpine N.W.
Grand Rapids, MI 49504

GENERAL NEWS

TERM-1 & STORE DISPLAY PROGRAMS

DOUG SMITH-Fairfax, VA has been generous in submitting two original APF programs to the program library. These programs, as well as ALL others in the club library are FREE to all members as explained in the MARCH issue. The requirements for obtaining these programs are also stated in that issue. Activity in the library has been very LOW thus far, so we urge you to ACTIVATE IT!

TERM-1 is the software required to operate a modem with your IM-1 providing your computer is equipped with either a SI-232 or DC-232 serial interface. This program generates upper case characters only to the LINE, and any lower case characters coming in from the line will be converted to upper case when displayed on the screen. The program is a very basic terminal emulator program but does the job adequately and will allow you to access other systems via the telephone. The library designation is D8TERM-1.

The STORE DISPLAY program was used by retailers to allow customers to see the IM-1's graphic power and sound quality. The continuous complex and colorful HI RES graphic screens are extremely well done and are enjoyable to watch. If you want to see a good example of what the IM-1 can do graphically and experience a MORAL BOOSTER at the same time, be sure to include this program in your library selection. Program designation D9STORDI. Thanks again Doug for coming through for the club!

VINCENT JOHNSON--WRITER RESEARCH

To insure proper credit is given to the writers of programs appearing in the library, VINCENT JOHNSON has been instrumental in providing us with the following information:

D2MODELN was attributed to BRUCE NEUSTATER in APF's "YOUR LIFE WILL NEVER BE THE SAME" newsletter in Vol 1, NO.5, page 8.

D5WUMPUS was written by MIKE RUSSELL. D3ALSORT and D4NUSORT were both written by CHUCK CLANCY.

There is some doubt about who the writer of D4DATATAP could be. If anyone knows, please let us know.

Thank you Vincent for taking the time to find this information!

SCREENWRITER II NOW AVAILABLE

The most recent donation to the program library is one from KEITH PHILLIPS-San Jose, CA.

This program is in the form of a SCREEN PRINTER program that allows for hard copy reproduction of characters as they appear on the screen.

The program exhibits full screen editing at all times with CHANGE/DELETE/INSERT functions included. Both joystick/pad and keyboard are used. Complete step-by-step instructions come with the program and it is available from the library as designation D8SCNWII.

Many hours have gone into this complex program and it is written in BASIC with machine language routines incorporated for speed. MANY THANKS KEITH.

NEW PROGRAM COMING SOON!

JIM CLATFELTER has sent us a sneak preview of his newest creation called RECORD WRITER.

The program menu appears to be very similar to Jim's other word processing/business management programs, thus making it very easy to use if you are already familiar with the menu contained in the others. Even if you're not familiar with the other programs, RECORD WRITER is very easy to operate.

The program permits storage of user-defined records (10 lines each) and also contains SORTING, EDITING, and TAPE OR DISK SAVING features.

RECORD WRITER will be reviewed next month in detail along with several other excellent programs written for the IM-1. Thanks to the efforts of those who advertise herein, we now have TOP QUALITY programs available to us. The HIGH STANDARDS you have set are most sincerely appreciated!

ART CONTEST JUDGING IN PROGRESS-RESULTS SOON

If this issue arrives at your house after JUNE 10, the contest is officially closed. Copies of all entries are being forwarded to the judges and we are awaiting the scores. The winner will be announced in the JULY issue and the GRAND PRIZE AWARD will be given.

If you receive this issue before JUNE 10, there's still time to get your LO RES FRONT SCREEN in before the deadline. We'll be looking forward to it. HURRY!

HELPFUL HINTS

This category will be *EXTREMELY LENGTHY* this month in order to publish as much information as we can out of the large amount we have received. Because of this, some of the regular categories will not appear in this issue in order that we may bring you the following *SPECIAL INFORMATION*. We will return to our *REGULAR* format *NEXT MONTH*. I think I've been watching too many *SPECIALS!* In any event, the first *HELPFUL HINT* comes to us from *BILL LUNQUIST* as a result of a question submitted by *BILL BOWMAN*. Mr. Bowman asked, "How does one use a *STRING VARIABLE* to name a disc file using *DIRECT ACCESS*? Here's an example of the program I'm using when trying to generate a *DIRECT FILE* using the string variable *NA\$*:

```
10DIMNA$(8)
20INPUT"NAME",NA$
100CLOSE1:OPEN1NA$
110FORI=1TO12
120PRINT#1;A,B,C,etc.
130NEXT
```

The above is fine in *SEQUENTIAL*, but how do I let the computer know that I *WANT DIRECT*? If I add, or try to add a "D" after the *NA\$* (Line 100), the computer says "LINE 100 WHAT". If I spell out the name-no problem-but I want to be able to change it with an *INPUT* and still get *DIRECT ACCESS*. *INPUTTING* the *RECORD #* works OK but *NOT THE FILE NAME*."

Mr. Lunquist's reply is printed here exactly as it was received and a copy of the letter was immediately sent to Mr. Bowman. A later reply indicated that the solution worked, and the problem was resolved. Our thanks to *BILL LUNQUIST* for his detailed explanation and examples, and to *BILL BOWMAN* for his question. Here is the letter from *BILL LUNQUIST*:

GEORGE BAKER
GEO GRAFIX LIMITED
P.O. BOX 54
ARROWSMITH, ILL. 61722

Dear Mr. Baker,

I have two methods for dealing with opening a direct access file on the APF using a string variable for the file name. But first of all, there are a few things you should know about APF files. The single letter file type that is displayed when you do a *DIRectory* command has no bearing on how APF treats that file. That letter is generated when the file is saved or opened for the first time and never looked at again.

If you write a long sequential file and then use the same file name to write a shorter file, the disk directory does not free up the disk space that was assigned to the longer file. The space is freed if you kill the file.

If you kill a direct access file, the space it occupied on disk may or may not be made available. The people at *HEXMART SOFTWARE* are working on some disk utilities one of which will correctly kill a direct access file.

Now here are my solutions for how to open a direct access file using a variable. First of all I'll give you the quick and dirty way. I think that this will only work if the file is on disk zero. I have not found a way to open a file on drive 1 using a variable and the standard *OPEN* command.

HELPFUL HINTS

DIRECT ACCESS CONTINUED: BILL LUNQUIST

The first method works by using a variable to open a sequential file. Make sure that you pad the file name with spaces if it is less than 7 characters long, or it won't work properly and will be un-KILLable. AFTER the file is opened you can trick the APF system into thinking that the file is a direct access file by POKEing one location.

The pokes are:

```
IF FILE 0, POKE 41426,68
      1      41432,68
      2      41438,68
      3      41444,68
```

You can then read and write to the file using standard direct access commands. The file will still appear in the directory as a sequential file. It will have the same KILL problem as any other direct access file.

Now I'll explain the more difficult, but correct method. This method will allow using a variable for sequential or direct access file opening on either drive. The files will appear correctly on the directory.

My patch is in machine language so it must be put into a REM statement. It uses about 50 bytes of memory and can be relocated with no changes (except for the CALL) if you have other machine language routines at \$A407.

I have enclosed a printout from my assembler for anyone who wants to see what the routine does. This code can be entered directly using ROMMON or the APF monitor. I have also enclosed a BASIC program which sets up the routine and tests it. Line 0 is a REM statement with 50 A's to make room for the routine. Line 20 sets up where the routine will be placed in memory (in this case, \$A407). Line 30 POKES the code to memory and line 35 checks to see if there were any typing errors in the DATA lines.

Line 50 sets A\$ up as seven spaces. This is necessary if the file name will be less than seven characters long. If this is not done, it is possible to get zeros in your file name, which makes the file un-usable and un-KILLable without using DISKMOD. Line 90 is what you use instead of OPEN. CALL 41991 enters the routine which was poked into the REM statement. The comma separates the CALL from the file number and file name (A\$). Another comma must be used to separate the file type and drive number from the file number and file name. If you are using drive 0 for the file, you do not need to enter a drive number. The file type must be included and must be "I" for a sequential file or "D" for a direct file.

HELPFUL HINTS

DIRECT ACCESS CONTINUED: BILL LUNQUIST

If you intend to use this routine in your program, you can have the BASIC program set up the routine in memory and then delete lines 10-210. The routine will be saved with your BASIC program as line -0-. Line -0- will list as garbage, of course.

I hope that this letter will clear up this APF problem for you.

Bill

Bill Lunquist
3739 Wentworth S.W.
Wyoming, Mi. 49509

```
0 REM AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
10 REM OPEN STATEMENT FIX BY BILL LUNQUIST 3/4/1984
20 X=41991: PRINT TAB (5):"- - LOADING PATCH - -": PRINT
30 READ A: IF A(>)999 THEN POKE X,A:X=X+1:CS=CS+A: GOTO 30
35 IF CS(>)5098 THEN PRINT "YOU HAVE A DATA ERROR. RE-CHECK": P
RINT "YOUR TYPING.": STOP
40 DIM A$(8): CLOSE 0
50 PRINT :A$=" ": INPUT "ENTER DIRECT FILE NAME",A$
60 IF LEN (A$)>7 THEN 50
70 REM USE THIS CALL INSTEAD OF -OPEN-
80 REM 1ST -0- =FILE #:A$=FILE NAME:D=FILE TYPE (DIRECT):2N
D -0- =DRIVE #
90 CALL 41991,0A$,D0
100 PRINT : PRINT "DIRECT FILE HAS BEEN CREATED": PRINT "OR OPE
NED."
110 CLOSE 0: PRINT : DIR
120 DATA 49,49,254,160,37
130 DATA 8,166,0,132,3
140 DATA 183,161,205,8,255
150 DATA 160,37,189,107,241
160 DATA 254,160,37,8,230
170 DATA 0,193,73,39,7
180 DATA 193,68,39,3,126
190 DATA 110,117,8,255,160
200 DATA 37,189,110,6,126
210 DATA 136,10,999
```

NAM OPEN FIX

```
*****
* PATCH TO CORRECTLY HANDLE THE -D- AND*
* -I- EXTENSION OF THE "OPEN" STATEMENT*
* BY Bill Lunquist 3/4/1984 *
```

(A407)	ORG	\$A407	IN BASIC REM STATEMENT
A407 31	INS		REMOVE CALL RETURN ADDR. FROM STACK
A408 31	INS		

HELPFUL HINTS

DIRECT ACCESS CONTINUED: BILL LUNQUIST

A409 FE A025	LDX	#A025	GET BASIC BUFFER POINTER
A40C 08	INX		TO PASS OVER THE ", "
A40D A6 00	LDA	A 0, X	
A40F 84 03	AND	A #3	A=FILE # 0-3
A411 B7 A1CD	STA	A #A1CD	
A414 08	INX		
A415 FF A025	STX	#A025	
A418 BD 6BF1	JSR	#6BF1	GET FILE NAME
A41B FE A025	LDX	#A025	
A41E 08	INX		TO PASS OVER THE ", "
A41F E6 00	LDA	B 0, X	S/B FILE TYPE -I- OR -D-
A421 C1 49	CMP	B #'I	
A423 27 07	BEQ	TYPOK	
A425 C1 44	CMP	B #'D	
A427 27 03	BEQ	TYPOK	
A429 7E 6E75	JMP	#6E75	"EXPRESSION ERROR"
A42C 08	TYPOK	INX	MOVE UP LINE POINTER
A42D FF A025	STX	#A025	
A430 BD 6E06	JSR	#6E06	CALL APF OPEN COMMAND
A433 7E 8B0A	JMP	#8B0A	BACK TO BASIC
	END		
00	ERROR(S)	DETECTED	

SYMBOL TABLE:
TYPOK A42C

FROM DWIGHT MEASEL

"The R8-K can be used in tandem 1 to 4. Power off and follow the manual instructions. Place up to 4 R8-K's in the BB-1. Set switches to ON/ENABLE on ALL R8-K's. Turn power ON (Basic cartridge in place) and INITIALIZE. When cursor appears set all switches to OFF/DISABLE. Now each R8-K can be used separately by turning each one on individually using one at a time. Be sure to turn one OFF before you enable another. Data WILL NOT BE LOST while switch is OFF and writing to another. Data in R8-k WILL NOT be lost even through a RESET IF the switches are OFF! All data in the R8-K's share common addresses at C0000-DFFFF (Dec. 49152-57343). I find it useful in machine language programming by keeping my original program in one location (R8-K) and using another to DEBUG and REVISE the program while keeping the original intact in the other cartridge."

ALSO FROM DWIGHT MEASEL

"I found a board that can be used in the BB-1 that is pre-drilled and copper clad on one side with holes at .1 off center. The board fits a 25/50 socket and provides several busses and various arrangements for I.C.'s. The board is a RADIO SHACK CAT# 276-164."

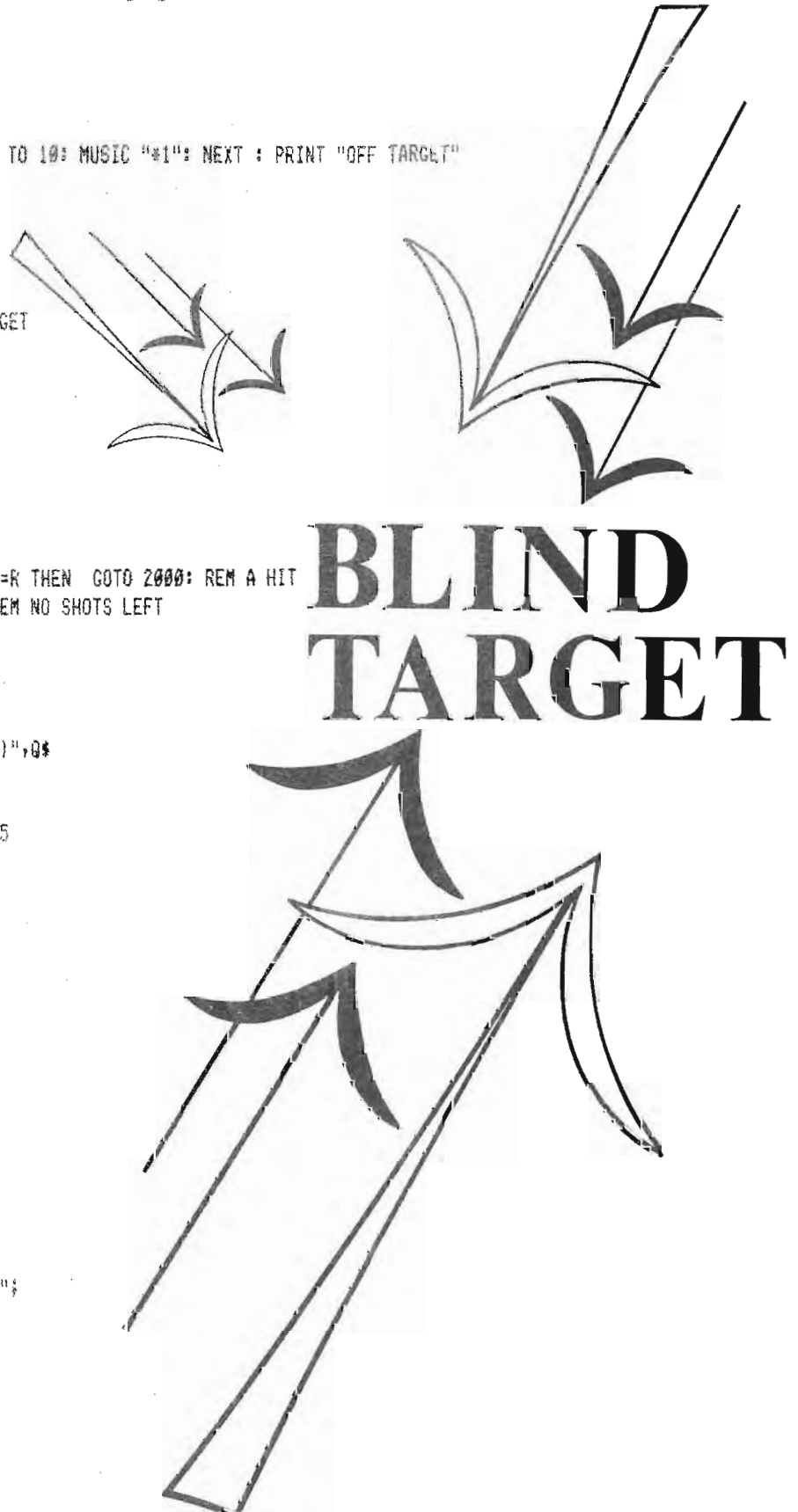
"I have also retrofitted the 'BASIC' printed circuit board with ZIF (Zero insertion force) chip sockets as BILL LUNQUIST used. The IC-2 can be replaced with a MCM2532. The IC-1 can be replaced with a MCM68764. These are 6V² erasable/programmable chips. The 2564 can be used with a 28 pin socket. Pins 1 & 28 are tied together internally and retrofitting requires a jumper to +5V. Pins 2 & 27 are then jumpered to GROUND. I did this on my first one before I found the MCM68764 (24pin).

THANK YOU DWIGHT!

SHORT PROGRAMS

Here's a game written by VINCENT JOHNSON that tests your aim, judgement, and sharpshooting abilities! The object is to determine the location of an invisible target by information provided by the program, and to try to score a BULLSEYE with the amount of ammunition given. The program list continues on the next page. THANK YOU VINCENT!

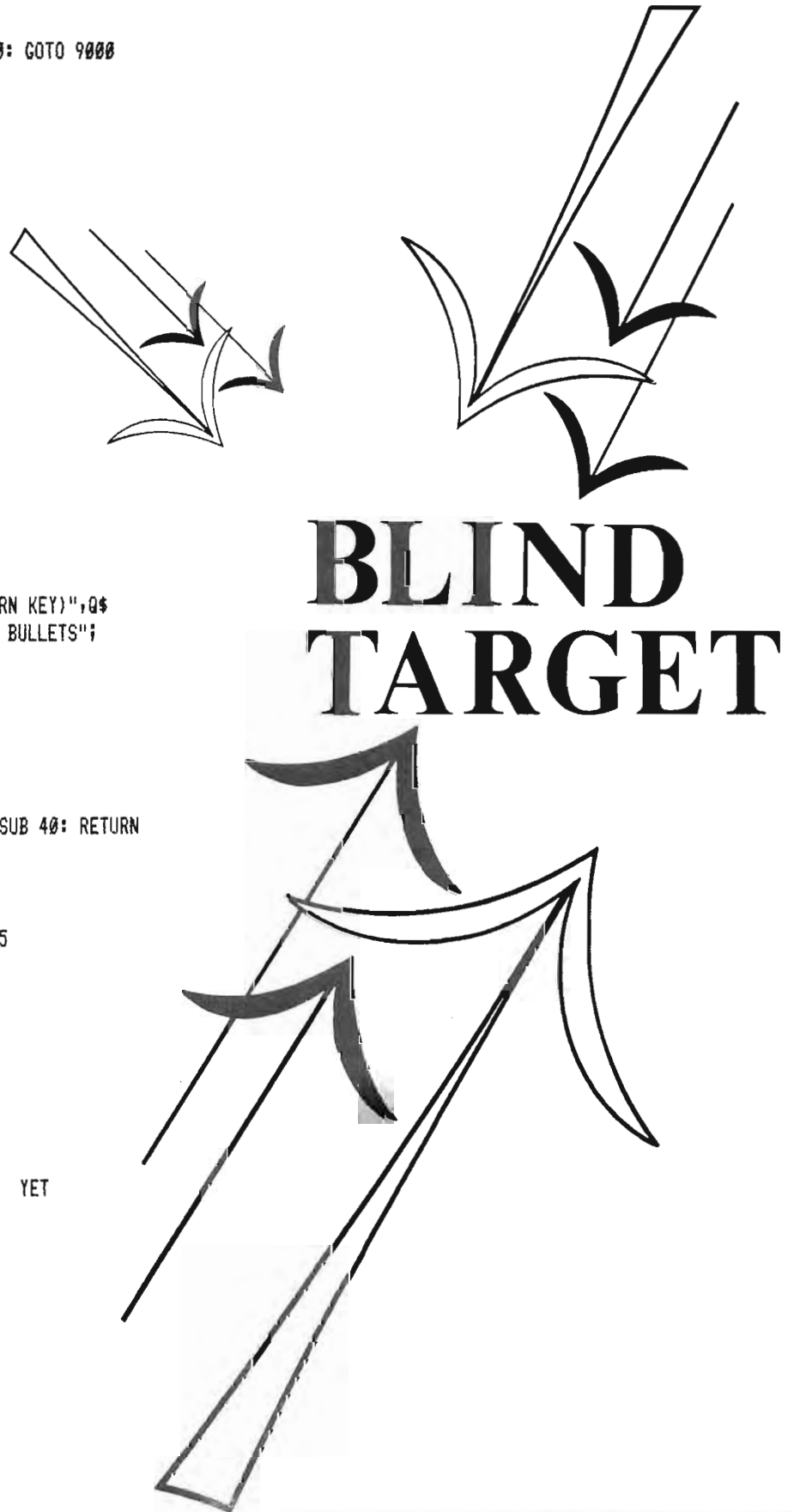
```
10 GOTO 1000
20 MUSIC "/1": COLOR =0
21 PLOT C1,R1: RETURN
30 IF (R1-2)*(R1-15)*(C1-5)*(C1-26)=0 THEN FOR I=1 TO 10: MUSIC "#1": NEXT I: PRINT "OFF TARGET"
31 GOTO 150
40 CALL 17046: POKE 40960,2: POKE 40961,0
41 RETURN
100 REM BEGIN PLAY
110 SHAPE =15
120 D= ABS (C-C1)+ ABS (R-R1): REM DISTANCE FROM TARGET
130 POKE 40960,2: POKE 40961,0
140 PRINT "DISTANCE "D;"SHOTS LEFT: "I
150 COLOR =4: PLOT C1,R1
160 MUSIC "I 1": Q$= KEY$ (1)
170 IF Q$="N" THEN GOSUB 20:R1=R1-1: GOTO 30
180 IF Q$="S" THEN GOSUB 20:R1=R1+1: GOTO 30
190 IF Q$="E" THEN GOSUB 20:C1=C1+1: GOTO 30
200 IF Q$="W" THEN GOSUB 20:C1=C1-1: GOTO 30
210 IF Q$="!" THEN MUSIC "/1": IF C1=C THEN IF R1=R THEN GOTO 2000: REM A HIT
220 IF Q$="!" THEN T=T-1: IF T<1 THEN GOTO 2500: REM NO SHOTS LEFT
230 IF Q$="!" THEN GOTO 120
240 GOTO 160
1000 POKE 24578,38: GOSUB 40
1010 DIM Q$(1):T=10
1020 MUSIC "I 1": INPUT "WANT THE INSTRUCTIONS (Y/N)",Q$
1030 IF Q$="Y" THEN GOSUB 40: GOSUB 3000
1040 GOSUB 40: GOTO 9000
1050 C= INT (20* RND (1)+6): REM BULLSEYE COLUMN 6-25
1060 R= INT (12* RND (1)+3): REM BULLSEYE ROW 3-14
1070 C1= INT (20* RND (1)+6): REM GUN COLUMN
1080 R1= INT (12* RND (1)+3): REM GUN ROW
1090 GOTO 110
2000 REM EXPLOSION
2010 GOSUB 40: CALL 17026: CALL 17026
2020 C=15:R=7:X=1:Y=1
2030 COLOR =Y: SHAPE =15
2040 FOR I=C TO C+X STEP X
2050 FOR J=R TO R+X STEP X
2060 PLOT I,J: NEXT J: NEXT I
2070 C=C-1:R=R-1:X=X+2:Y=Y+1
2080 COLOR =Y: IF C=7 THEN GOTO 2100
2090 GOTO 2040
2100 POKE 40960,2: POKE 40961,0
2110 PRINT "BULLSEYE" SPC (24): SPC (24): "BULLSEYE"
2120 FOR I=0 TO 500: NEXT I: REM READ PAUSE
2130 GOSUB 40: PRINT "PLAY AGAIN (CL KEY)"
```



BLIND TARGET

SHORT PROGRAMS

```
2140 Q$= KEY$ (1): IF Q$="" THEN T=10: GOSUB 40: GOTO 9000
2150 IF Q$="" THEN GOTO 2140
2160 STOP
2500 REM SOLUTI ON
2510 GOSUB 40: PRINT "SHAME ON YOU!!!": PRINT
2520 PRINT "NOW I'LL SHOW YOU WHERE YOU"
2530 PRINT "AIMED, AND WHERE THE BULLSEYE"
2540 PRINT "WAS.": FOR I=0 TO 500: NEXT
2550 GOSUB 40: GOTO 9000
3000 PRINT SPC (10);"BLIND TARGET": PRINT
3010 PRINT "YOU'LL BE LOOKING AT AN UNUSUAL"
3020 PRINT "TARGET. (PAINTED BY A CUBIST.)"
3030 PRINT "IT HAS A BULLSEYE, BUT YOU CAN'T";
3040 PRINT "SEE IT, NOR IS IT NECESSARILY"
3050 PRINT "IN THE CENTER.": PRINT
3060 PRINT "THE MARKER YOU WILL SEE IS WHERE";
3070 PRINT "YOU ARE AIMING THE GUN."
3080 PRINT "THE LEGEND ACROSS THE TOP SHOWS"
3090 PRINT "HOW FAR AWAY FROM THE BULLSEYE"
3100 PRINT "YOUR AIM IS, AND HOW MANY SHOTS"
3110 PRINT "YOU HAVE LEFT.": INPUT "MORE (RETURN KEY)",Q$
3120 GOSUB 40: PRINT "MOVES DON'T COST YOU ANY BULLETS";
3130 PRINT "BUT YOU MUST 'FIRE' TO SEE HOW"
3140 PRINT "CLOSE YOU ARE. HITTING THE"
3150 PRINT "BULLSEYE IN LESS THAN 10 SHOTS"
3160 PRINT "IS A SNAP.": PRINT
3170 PRINT "USE THE RIGHT JOYSTICK AND THE"
3180 PRINT "'FIRE' BUTTON.": PRINT
3190 INPUT "OKAY TO START (RETURN KEY)",Q$: GOSUB 40: RETURN
9000 REM DRAW TARGET
9010 PRINT "DISTANCE= ";D;"SHOTS LEFT: ";T
9015 COLOR =3: SHAPE =15
9020 PLOT 5,2: PLOT 5,15: PLOT 26,2: PLOT 26,15
9030 SHAPE =9:R2=2: FOR C2=6 TO 25
9040 PLOT C2,R2: NEXT
9050 R2=15: FOR C2=6 TO 25
9060 PLOT C2,R2: NEXT
9070 C2=5: FOR R2=3 TO 14
9080 PLOT C2,R2: NEXT
9090 C2=26: FOR R2=3 TO 14
9100 PLOT C2,R2: NEXT
9110 IF T>0 THEN GOTO 1050: REM NO SOLUTI ON YET
9120 SHAPE =15: COLOR =3
9130 PLOT C,R
9140 COLOR =4: PLOT C1,R1
9150 POKE 40960,2: POKE 40961,0
9160 INPUT "OKAY (RETURN KEY)",Q$
9170 GOTO 2130
```



PRODUCT REVIEW

AMWAY SA-13 by CARTHAN ASSOCIATES

This program is offered by CARTHAN ASSOCIATES-Washington, D.C. and is a specialized program written solely for AMWAY distributors wherever they may be.

Because of it's specialized nature, I will attempt to cover the main points of the program in this review and ask that anyone who may have further questions to write CARTHAN ASSOCIATES for full details. Their address appears in the CLASSIFIED SECTION.

Basically the program (16K) is made up of DATA statements that pertain to AMWAY products, their individual prices and stock numbers. The statements are in alphabetical order starting with HOME CARE PRODUCTS and continuing on with many other products (Over 200).

The program operation is simple and straightforward. You are prompted to input the total amount of sales of each individual product by it's appropriate product number. Initially you are asked for the date and order number. You must have the printer ready with your AMWAY totals sheet in place. After asking you for the order number, a HEADING containing your name and address along with your AMWAY number and sponsor is outputted to the printer. The quantity and product number are asked for and the cursor disappears for a while as it searches for the number. Once found, the information is pulled from the data statement and displayed by it's product description on the screen. If you want it printed, a carriage return is needed.

The information that is sent to the printer is a tally of each sale per product number and an overall summary of your sales pertaining to your purchase volume and other data. The program is formatted expressly for the AMWAY totals sheet.

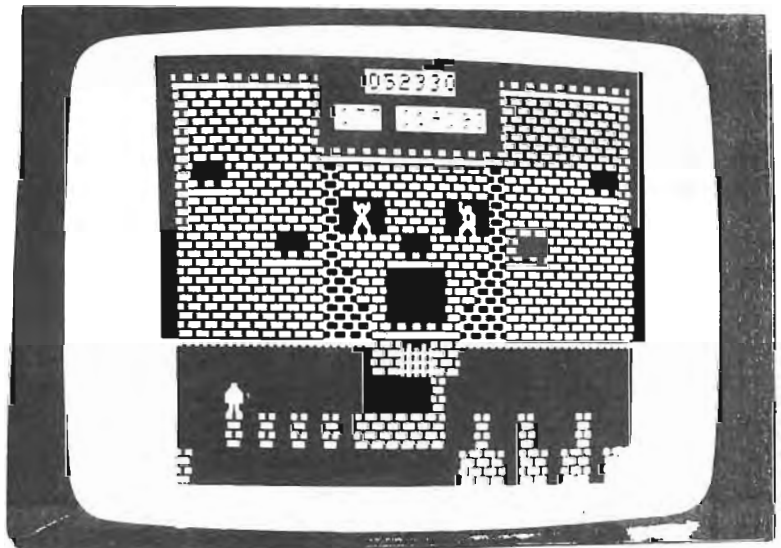
The large amount of DATA statements contained in this program limits other possibilities that it could have such as storage of data for future reference, menu driven control of the program itself, or comparisons, etc.. However, if people involved with AMWAY products find this program easy to operate and efficient the way in which it is structured, they are sure to make good use of it.

GRAYSKULL by George Karabin

If you appreciate excellent computer graphics, fast moving challenging games that include high variety and an equal amount of difficulty, read on!

One of the newest games from GEORGE KARABIN called GRAYSKULL includes these characteristics and is rated TOPS by everyone we've heard from.

One outstanding feature of this game is that it really gives you a feeling of accomplishment while playing it. The play is very smooth, the action is believable, and the enjoyment of simply playing the game seems to out-weigh the necessity of obtaining a HIGH SCORE. Here are some photos of the game in action along with a brief overview.



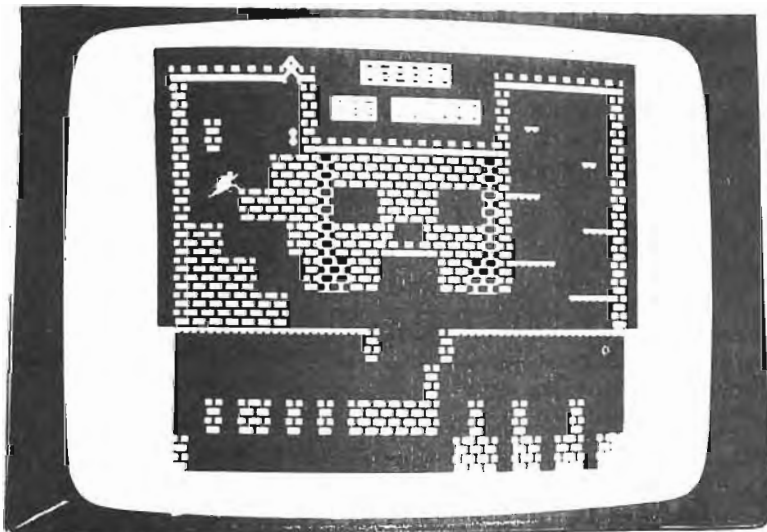
The player is given 100 seconds on the clock initially. You control (joystick) a little brawny guy called HEMAN and attempt to maneuver him to different areas outside and within the castle GRAYSKULL. HEMAN runs east and west, jumps up, leaps NORTHEAST, NORTHWEST, bravely draws his sword to deflect bombs dropped by those inside the castle, or can be positioned with his sword drawn facing left or right to ward off the onslaught of rolling rocks. The object is to get to as many areas within the castle as possible and return to the starting point within a given length of time. Each time HEMAN reaches the HIGHEST point in each tower, additional points are awarded, and if he returns to his starting point before time runs out, additional time is given to attempt either a different tower or a more difficult

PRODUCT REVIEW

one. Once both towers have been entered and climbed a BATTLE ROYALE (PHASE 3) takes place in the MAIN HALL of the castle. At this point HEMAN encounters the ultimate confrontation with two characters called SKELATOR and BEASTMAN. These guys stand atop the castle throughout the game and throw bombs and rocks at HEMAN. If HEMAN draws his sword and deflects these weapons, more points are added to the score. If he is hit by one, a 2 second time deduction results.

Once the battle has ended, HEMAN finds himself back at the starting point ready to try another round to increase the score even higher!

Each round becomes more difficult. For instance, HEMAN must LEAP over stone pilings to get to the castle. Initially the pilings are fairly easy to get to with a healthy leap. Later, the pilings have sizable gaps in them and you must be more careful with your leaps that you don't fall through. If this happens, HEMAN must be resituated so that he can try another leap. This takes time to do and time is fleeting in this game. Also, notice the perches in the right tower. After a round is completed, the perches contain gaps so that it is more difficult to accomplish a successful leap without falling through a gap and ending up at the base of the tower.



This game provides hours of fun for all ages. It is exciting, variety filled, and flawless. The character movement is very realistic and the actual game play is extremely interesting and FUN!

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ARROWSMITH

DATA SHOP

As mentioned last month, there are various types of modems available today, but the most common type is the DIRECT CONNECT modem. These modems are considered as BELL STANDARD 103 for 300 BAUD or BELL STANDARD 212 for 1200 BAUD modems. You may find a large assortment of options and/or features in these types such as AUTO ANSWER, CHARACTER BUFFERED, AUTO ORIGINATE, REVERSE CHANNEL, and so on, but if they are classified as 103 or 212 they will work with the IM-1.

Any modem that is classified as PRIVATE LINE is a DEDICATED type of modem and requires a dedicated physical line in order to pass HIGH SPEED DATA. These types are normally found where extremely large amounts of data must be exchanged between two or more systems in a short amount of time. The cost of the dedicated facility, the modem itself, and the requirements normally prohibit their use in the home computer environment. This article will relate to the direct connect dial-up type of modem only.

BAUD RATE

The term BAUD RATE is used to describe the SPEED in which data is transmitted. At 300 BAUD for example data is transmitted at approximately 30 characters per second (CPS) which is 1/10th the BAUD RATE. The 300 BAUD modem is rated to pass data at a MAXIMUM of 30 CPS but will operate at a slower rate such as 110 and 150 BAUD. It is very important to remember that the BAUD RATE that is set on your DC-232 or SI-232 must match the BAUD RATE setting of the equipment at the distant end but must not exceed the maximum BAUD RATING of the modems used on either end. Also, if a printer is used at the same time as the modem is used, the BAUD RATE on the printer must be set to match that of the IM-1. In other words, set ALL DEVICES to the same BAUD RATE SETTING.

CONNECTION

Most modems come with a standard RS232 cable and connector, however, the buyer must be aware of the CONNECTOR TYPE (Male or female) and the cable requirements before ordering. There are several cable types available with various pin placements and lead configurations. The connector required to interface a modem to the DC-232 or SI-232 is a standard RS232 type (DB-25) MALE 25 pin connector. Most modem cables do not come with ALL 25 pins wired because normally only a few are required to make the modem fully operational. Below is a list of the leads normally required when connecting a modem to the IM-1.

SI-232 or DC-232 PIN

1 FRAME GROUND
2 TRANSMIT DATA
3 RECEIVE DATA
4 REQUEST TO SEND
5 CLEAR TO SEND
6 DATA SET READY
7 SIGNAL GROUND
8 CARRIER DETECT
20 DATA TERMINAL READY

MODEM CABLE PIN

1 FRAME GROUND
3 RECEIVE DATA
2 TRANSMIT DATA
4 REQUEST TO SEND
5 CLEAR TO SEND
6 DATA SET READY
7 SIGNAL GROUND
8 CARRIER DETECT
20 DATA TERMINAL READY

The modem you choose may vary from this pin arrangement and may not correspond to this chart, however, the SI-232/DC-232 pin designations are correct and your modem cable should be re-pinned to match. Modems such as the ANCHOR MARK VII and VOLKSMODEM require cable lead changes (re-pin) before they will work with the IM-1.

NEXT MONTH.....a look at the PRINT=1 and PRINT=2 functions and some samples of data exchange between TWO IM-1's using these commands.

SHORT PROGRAMS



```
1 REM BERNARD E. COUTURE
2 REM WATERVILLE REGIONAL VOCATIONAL CENTER
3 REM WATERVILLE MAINE 04901**LETTER LOCATER**
```

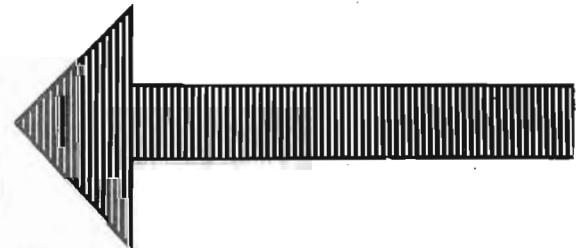
```
4 DIM A$(2): DIM L$(2)
5 CALL 17046:X=0
6 A= INT ( RND (0)*26+1)
7 IF A>18 THEN 11
8 IF A>9 THEN 10
9 ON A GOTO 12,13,14,15,16,17,18,19,20
10 A=A-9: ON A GOTO 21,22,23,24,25,26,27,28,29
11 A=A-18: ON A GOTO 30,31,32,33,34,35,36,37
12 L$="A": GOTO 100
13 L$="B": GOTO 100
14 L$="C": GOTO 100
15 L$="D": GOTO 100
16 L$="E": GOTO 100
17 L$="F": GOTO 100
18 L$="G": GOTO 100
19 L$="H": GOTO 100
20 L$="I": GOTO 100
21 L$="J": GOTO 100
22 L$="K": GOTO 100
23 L$="L": GOTO 100
24 L$="M": GOTO 100
25 L$="N": GOTO 100
26 L$="O": GOTO 100
27 L$="P": GOTO 100
28 L$="Q": GOTO 100
29 L$="R": GOTO 100
30 L$="S": GOTO 100
31 L$="T": GOTO 100
32 L$="U": GOTO 100
33 L$="V": GOTO 100
34 L$="W": GOTO 100
35 L$="X": GOTO 100
36 L$="Y": GOTO 100
37 L$="Z": GOTO 100
```

This program was written by BERNARD E. COUTURE an electronics student at WATERVILLE REGIONAL VOCATIONAL CENTER in Waterville, Maine.

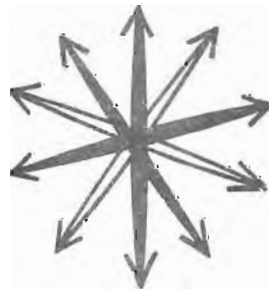
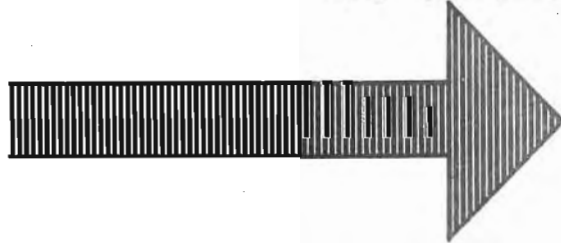
The program challenges your typing ability by allowing you a short period of time to recognize and enter the character displayed on the screen.

Thanks to Bernard for writing it and to RICHARD HALLEE, Bernard's electronics instructor, for submitting the program for publication!

LETTER



LOCATER



```
100 PRINT L$
105 A$= KEY$ (0)
110 IF A$=L$ THEN 400
113 IF A$<>" " THEN 300
115 IF X>15 THEN 500
120 X=X+1
130 GOTO 100
300 CALL 17046: PRINT "YOU PRESSED THE WRONG KEY!!": PRINT "YOU ARE GOING TO HAVE TO DO": PRINT "BETTER!!"
310 FOR ZZ=1 TO 2: MUSIC " 7 2": NEXT : GOTO 600
400 PRINT "YOU LUCKED OUT THIS TIME": PRINT "BUT I'LL GET YOU NEXT TIME!!": MUSIC "50 30": GOTO 5
500 CALL 17046: PRINT "TOOOO LATE TO TRY!!": PRINT "YOUR TIME HAS EXPIRED!!": MUSIC "4000 4000 40 400 6000 40 2000 100 2000"
600 PRINT "PRESS RETURN' TO CONTINUE": INPUT XX: GOTO 5
```

THE ARCADE

We stopped last month in mid-stream after typing in a short BASIC program, just before examining the data contained in the program. Refer to the MAY issue and type the program in again. After entering the program type CALL28672 to enter the monitor mode.

Eric will begin this issue explaining the data beginning at A407.

Try typing in DA407. This is one of the first addresses in your USER RAM. The 41's are all the A's in your first line of BASIC. Remember line 10 and what it contained. Now hit carriage return and try typing in MA407. With this command you only display 1 line at a time but can also change the data AT the address you are looking at by simply typing in the new data and depressing the slash (/) key. We use the M command to write our programs and you can also use it to look at data only. Try typing in MA407 again. Now if you hit the / key without entering any data, the next address (A408) will be displayed along with its data. Keep hitting the / key until you get a different number than 41 as your data. The next numbers are 0D which means that this is the end of a line in BASIC. The next 2 locations are 00 and 20 which is the NEXT BASIC LINE NUMBER in your program. The next few addresses contain the ML code for the BASIC REM STATEMENT which are followed by a line of 72's. These are all the B's that we put into BASIC line 20. Continue to / or list and you should come to all zero's which is the end of your BASIC program. If you hit shift N or the comma, the lines will be displayed going backwards. This is very handy when going back just a few lines. The third command is the G command or GOTO. With this command, the ML monitor will go to any address you specify after typing the G. GA407 would immediately jump to that address and start running from that point. We can use the G command to get us out of the monitor mode and back into BASIC by typing in G8894. This puts us back into BASIC where you will again see your normal cursor.

One important thing to stress here is

that it is crucial to remember never to use the HEX number 0D in your MACHINE LANGUAGE PROGRAM. This is an interpreted function that means END OF LINE MARKER and cannot be used in ML programs. This symbol is used in BASIC as explained previously.

There are ways to program around using HEX 0D or 13 in decimal. We'll learn later that in HIRES, our screen memory is from HEX address 0000 to 0180. There are two screen addresses which contain 0D and they are 000D and 010D. Since we will want to use the whole screen for our game, we will have to learn how to program around using 0D in our ML program.

Let's do a comparison in speed of ML versus BASIC. We'll start with a BASIC program that moves a block across the screen. In LOW RES graphics we can use the alpha characters or the graphic characters. Every graphic character has a HEX code that can be directly put into the screen memory or on your TV. The code for a white block is decimal 15 or HEX 0F. If we poke 15 to the screen, you would see the block. The low res screen is from decimal address 512 to 1023 or HEX 0200 to 03FF. Address 512 is in the upper left corner of the screen and there are 32 blocks across to 543 in the upper right corner. Address 544 would be below 512 and it continues for a total of 16 rows down. The whole screen is made up of 16 rows of 32 squares. If we poke 751,15 we see a white block in the middle of the screen. To erase it you can poke 751 with 128 (BLACK) or with a 32 (GREEN).

Type in the following BASIC routine and run it. You will see a white square moving across the screen and from top to bottom.

```
5CALL17046
10FORI=512to1023
20POKEI,15
30FORX=0TO50:NEXT
35POKEI,32
40NEXTI
50PRINT"DONE":PRINT:PRINT:STOP (Now RUN)
```

Notice the speed that the shape moves across the screen. CSAVE this program for next month's instruction. See you then!

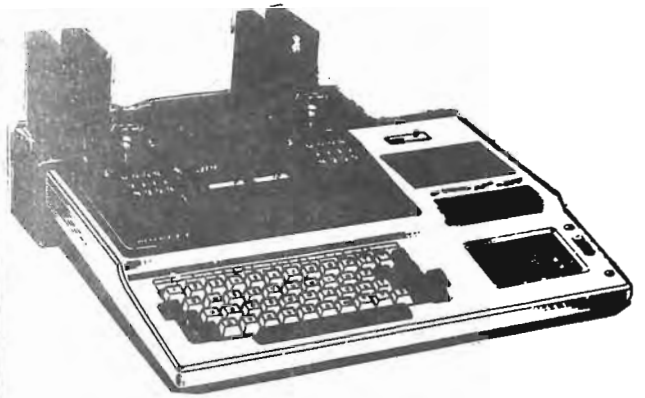
HELPFUL HINTS

The following information was submitted by GARY SHELTON - Bloomington, Illinois. The list contains important data pertaining to SYSTEM USAGE, INTERNAL CONTROL FUNCTIONS, SERIAL INTERFACE BUFFER, TAPE INTERFACE, VARIABLE LABEL LIST, and CURSOR LOCATIONS. This is a PARTIAL listing of some of the IM-1 system operations contained within the unit. The information was gathered from the PROGRAMMING TECHNICAL ASSISTANCE MANUAL and is provided as a quick reference. Thank you Gary for your work in compiling this list!

Overview of 8k Ram Memory Addresses Beginnings at 40960/\$A000.

.....

40960	\$A000	MSB of CURSOR location. (MOST Significant Byte)
40961	\$A001	LSB of CURSOR location. (LEAST Significant Byte)
40967	\$A007	MSB of LOW memory address/location to SAVE to TAPE.
40968	\$A008	LSB of LOW memory address to SAVE to TAPE.
40969	\$A009	MSB of HIGH memory address to SAVE to TAPE.
40970	\$A00A	LSB of HIGH memory address to SAVE to TAPE.
41001	\$A029	MSB Address to MOVE TO. (Used in assembly routine)
41002	\$A02A	LSB (to move blocks of memory to new add.-location.)
41003	\$A02B	MSB Address to MOVE FROM. (#/o above routine.)
41004	\$A02C	LSB (LDA B with # bytes to be moved-call 30464/\$7700.)
41009	\$A031	MSB of NEXT FREE add. to STORE the CONTENTS of a VAR.
41010	\$A032	LSB of NEXT FREE add. to STORE the CONTENTS of a VAR.
41155	\$A0C3	1st LABEL of variable TABLE LIST.
..VARIABLE..		Each LABEL=9 bytes. First 2 bytes are for name in ASCII.
...LABEL....		The remaining 7 bytes give info. on whether variable
....LIST....		is of the SIMPLE, SINGLE or DOUBLE subscript type, the
.....		two-byte location, and if numeric or string variable.
41164	\$A0CC	2nd variable LABEL.
41173	\$A0D5	3rd variable LABEL.
41388	\$A1AC	END of VARIABLE TABLE-LIST. (26 var. * 9 = 234 bytes)
41446	\$A1E6	MSB pointer (FLAG) indicates END OF SYSTEM MEMORY.
41447	\$A1E7	LSB pointer (FLAG) indicates END OF SYSTEM MEMORY.
41448	\$A1E8	
41449	\$A1E9	
41450	\$A1EA	
41451	\$A1EB	
41452	\$A1EC	FLAG-POINTER to indicate which 512-byte block of memory
		to save to TAPE. If = 0, then screen memory is saved.
41728	\$A300	Beginnings of INPUT/OUTPUT BUFFER.....256 bytes.
.....		(to/from disk drive)
41983	\$A3FF	END of I/O BUFFER. (also 1024 bytes from 40960)
41984	\$A400	MSB pointer-FLAGS NEXT FREE ADD. TO STORE A PROGRAM STEP.
41985	\$A401	LSB pointer-FLAGS NEXT FREE ADD. TO STORE A PROGRAM STEP.
41986	\$A402	Beginnings of ACTUAL FREE USER MEMORY space.
.....		(program contents)
49151	\$BFFF	END OF MEMORY for an 8k system. (USER MEM.=7,166 bytes)
57343	\$DFFF	END OF MEMORY for a 16k system. (USER MEM.=15,357 bytes)



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SPACE PANIC

It was announced in the February issue of the newsletter as Krazy Kong -- a version of Donkey Kong. Well, as I worked on the game the name Space Panic came into mind. Similar to the Donkey Kong screen you have to reach the top of a building by climbing up ladders. Also, you have to try to jump over the space men coming after you. This is the first and only version of a Donkey Kong style game available for the APF computer. The regular price is \$7.50 but from now until July 1, 1984 it is \$1.00 off!

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