
IM-1 MILLION
IN A

MARCH 1983

PAGE 1

HOWDY FOLKS, WELL HERE WE ARE
AGAIN. I HOPE THAT EVERYBODY
LIKES WHAT THEY HAVE SEEN SO
FAR FAR FAR FAR FAR

TO START WITH I NEED TO CORRECT THE WAY THAT WE ARE DOING SOME-
THING. IT IS THE TAPES THAT WE WILL BUILD FOR THE MEMBERS, I
HAVE DIVIDED THEM DOWN INTO GROUPS OF 5 AND FOR THE ONE CHARGE
YOU CAN PICK ANY 2 OF THE GROUPS PER TAPE THAT YOU ORDER. THE
WORK BEHIND PUTTING EACH PROGRAM ON THE TAPE ONE AT A TIME WAS
KILLING ME. I HOPE THAT THIS IS SATISFACTORY.

ANOTHER THING TO THE MEMBERS, MOST OF THESE PROGRAMS ARE WRITTEN
BY BEGINNING PROGRAMMERS AND ARE VERY GOOD, BUT FOR ANYBODY TO
EXPECT THEM TO BE PERFECT IS A LITTLE TOO MUCH. WE TRY TO
CORRECT ANY OBVIOUS PROBLEMS BUT WE CANNOT GUARENTEE THE LOGIC
OF EACH PROGRAM. MOST OF THEM JUST GIVE YOU A GOOD BASE TO START
FROM.

SOMEMORE REAL GOOD NEWS, THIS
LETTER IS BEING DONE USING THE
NEW LEVEL II BASIC BY MR. RECKER.
IT IS DUE OUT REAL SOON.

OK ON TO THE OTHER STUFF, IN THIS ISSUE WE ARE GOING TO TRY
AND ANSWER AS MANY OF THE QUESTIONS AS WE CAN THAT WE HAVE
RECEIVED. THEY SHOULD BE VERY HELPFUL FOR THE NEW MEMBERS AND
SOME OF THE OLD MEMBERS MIGHT LEARN SOMETHING.

*****GOOF CORRECTION TIME*****
FROM ELAINE HOM AND JOSEPH MIRABITO
HERE ARE SEVERAL CORRECTIONS FOR THE PROGRAMMING AND TECHNICAL
REFERENCE MANUAL.

IN CHAPTER VII PAGE 7

- | | | |
|-----------|-------|------------------------|
| 1. \$B55D | 34141 | ROUTINE TO SAVE MEMORY |
| 2. \$B5B4 | 34228 | ROUTINE TO READ TAPE |
| 3. \$A1E6 | 41446 | END OF MEMORY |

THANKS FOR THE CORRECTIONS**

!!
I WOULD LIKE TO ACKNOWLEDGE THE FACT THAT LOUIS BOLDUC
SENT IN THE SUGGESTION ABOUT THE DISC DRIVE MOTOR THING AT THE
SAME TIME THAT WE WENT TO THE PRINTER WITH THE FEB NEWSLETTER.
SINCE THEN HE HAS SENT IN SOME INFORMATION EXPLAINING HOW THE
DISC PROGRAM WORKS. IT IS QUITE LENGTHY AND WE WILL PUBLISH IT
AS SPACE ALLOWS. I HAVE READ IT AND IT SEEMS TO BE A VERY
ACCURATE DESCRIPTION OF THE WAY THE DOS FUNCTIONS. IF ANYBODY
WANTS ADVANCE COPIES (9 PAGES) SEND A STAMPED SELF ADDRESSED
ENVELOPE TO THE CLUB WITH \$2.00 TO COVER THE COST OF PRINTING.
I WILL TRY TO PUBLISH PARTS OF IT AS SPACE ALLOWS.

ATTENTION YOU HAMS OUT THERE

FROM GARY E SHELTON

THE GIANT HANDBOOK OF COMPUTER PROJECTS BY THE EDITORS OF '73' MAGAZINE, THIS BOOK HAS A LOT OF PROJECTS CONCERNING HAM AND PERSONNEL COMPUTERS. HE SAYS THAT IT CONTAINS LOTS OF PROJECTS FOR YOU.

IT IS BOOK #1169 AND COSTS \$10.95.....

THESE ARE SOLD AT THE LARGER BOOK STORES.!!!!!!LET ME KNOW WHAT YOU THINK!!!!!!!!!!!!

FROM JEFFREY A ROSTON

I HAVE A RADIO SHACK LINE PRINTER VII WITH AN AUTOMATIC LINE FEED THAT CAN'T BE DISABLED. AS A RESULT I GET 2 LINE FEEDS WITH EACH LINE. HOW DO I STOP IT.?

ANSWER: FOR THE 'LIST' THERE IS NOTHING WE CAN DO. FOR THE 'PRINT' THE ONLY EASY WAY TO GET RID OF THIS IS TO END YOUR PRINT STATEMENTS WITH ";" AND PUT IN CHR\$(10) FOR LINE FEED AND CHR\$(13) FOR CARRIAGE RETURNS. THE PROBLEM IS THAT THE R.S. PRINTER DOES A LINE FEED WITH EACH CARRIAGE RETURN AND THE IM-1 PUTS OUT BOTH A CR & LF. THE ";" AT THE END OF THE 'PRINT' WILL STOP IT.

FROM GARY NEPERUD

COULD YOU TELL ME HOW I CAN GET THE HIGH RESOLUTION GRAPHICS?

ANSWER: IN ONE LETTER NO, WE DON'T HAVE THAT MUCH ROOM. IN THE FIRST 2 ISSUES WERE A COUPLE OF GOOD PROGRAMS TO USE AS LEARNING AIDS FOR HI RES. WE HOPE TO GO INTO IT IN GREATER DETAIL LATER.

FROM JIM KISSOCK

1. WHAT IS THE BB-1 INTERFACE USED FOR??

ANSWER: THIS IS A UNIT WHICH IS USED TO PHYSICALLY AND ELECTRICALLY CONNECT THE FOLLOWING TO THE IM-1.

SI-232=PRINTER OR MODEM INTERFACE

FI-100=FLOPPY DISC DRIVE INTERFACE

8K RAM=MEMORY EXPANSION

2. WHAT IS THE TM-150 MODEM COMPATABLE WITH?

ANSWER: THE TM-150 USES A VERY COMMON METHOD OF COMMUNICATING SO IT IS COMPATABLE WITH ALMOST ALL OF THE ASYNC MODEMS.

3. WOULD WE NEED A PROGRAM IN THE IM-1 TO USE THE MODEM??

ANSWER: YES, THE IM-1 REQUIRES A SMALL PROGRAM TO COMMUNICATE WITH OTHER COMPUTERS.

4. HAS ANYONE USED A OKIDATA MICROLIN 82 OR 83 WITH THE APF?

ANSWER: YES

5. HOW MUCH MORE POWERFUL WOULD THE FLOPPY DISC DRIVE MAKE MY SYSTEM??

ANSWER: QUITE A BIT. IT SPEEDS UP THE LOADING OF PROGRAMS AND STORING OF DATA PLUS ALLOWS LARGER AMOUNTS OF DATA TO BE STORED.

6. WHAT ARE YOU USING TO PRODUCE THE NEWSLETTER??

ANSWER: RIGHT NOW WE ARE USING A PROGRAM WRITTEN BY GLENN JONES. FOR A PRINTER WE HAVE A EPSON MX-80.....

FROM DONALD HILTS

1. HOW DOES THE REVERSE VIDEO WORK? I HAVE TRIED IT AND ALL I GET IS THE NORMAL CHARACTERS.

ANSWER: I THINK THE EASY WAY TO EXPLAIN THIS IS WITH THIS TEST PROGRAM TO SHOW YOU WHAT HAPPENS.

```

10 DIM A$(20)
100 FOR I = 0 TO 3
200 INPUT A$
300 NEXT I
400 IF KEY$(0)<>" THEN POKE 8193,60: GOTO 400
500 POKE 8193,52: GOTO 400

```

AT THE INPUT COMMAND KEY IN ANYTHING, IT WILL LET YOU KEY IN 4 LINES AND THEN IT WILL LOOK AT THE KEYBOARD AND IF ANY KEY IS DEPRESSED IT WILL DO THE REVERSE VIDEO AND PUT IT BACK TO NORMAL WHEN KEY IS RELEASED.

FROM JOHN MUSSER JR

I WOULD LIKE TO LOAD SEVERAL PROGRAMS ON ONE CASSETTE TAPE. I TRIED TO DESIGNATE EACH ONE BY CLOAD 'A', ETC. THIS DID NOT WORK IS THERE A WAY TO PERFORM THIS OPERATION??

ANSWER:: AT THIS TIME I DON'T KNOW OF A WAY TO DO IT UNLESS YOU WANT TO WRITE A SPECIAL MACHINE LANGUAGE PROGRAM AND PUT IT IN THE UNUSED PORTION OF DISPLAY MEMORY AND USE IT TO LOAD THE PROGRAMS. THE EASIEST WAY IS JUST RECORD WHAT THE TAPE COUNTER IS AT AND USE IT TO POSITION THE TAPE.

!!!!!!IF ANY MEMBERS HAVE ANYTHING ALONG THESE LINES LET ME KNOW AND I WILL LET EVERYBODY KNOW!!!!!!

FROM WESLEY DUKE

HOW DO YOU COPY YOUR PROGRAMS FOR BACKUP WITHOUT THE CSAVE STATEMENTS BEING ON THE SCREEN WHEN THEY ARE RELOADED???

ANSWER::: THIS ONE WILL BE A LITTLE TRICKY, I HOPE YOU CAN FOLLOW MY EXPLANATION. A LOT OF WHAT YOU WILL BE DOING WILL NOT BE DISPLAYED ON THE SCREEN SO YOU WILL BE WORKING IN THE BLIND. STEP 1. PLACE TAPE TO BE COPIED IN THE TAPE DECK.

STEP 2. POKE 40960,255 AT THIS TIME THE CURSOR WILL DISAPPEAR

STEP 3. HOLD THE CTRL KEY AND HIT THE RETURN KEY ONCE.

STEP 4. RELEASE THE CTRL KEY AND HIT THE RETURN KEY ONCE.

THE AUDIO OF THE TAPE DECK SHOULD TURN ON NOW.

STEP 5. PRESS PLAY ON THE TAPE DECK AND SEE IF TAPE STARTS MOVING. NOW WHEN YOU EITHER HEAR THE TONE AT THE BEGINNING OR THE COMMAND FROM THE TAPE TO 'HIT RETURN' HIT THE RETURN KEY. AT THIS POINT YOU SHOULD START LOADING THE PROGRAM FROM TAPE. THE ONLY WAY TO TELL WHEN IT IS DONE IS WHEN THE COUNTER STOPS. THERE WILL NOT BE AN 'OK' ON THE SCREEN.

STEP 6. REWIND YOUR TAPE AND PUT THE BACKUP TAPE IN WITH IT IN THE PROPER POSITION.

STEP 7. HOLD DOWN THE 'CTRL' KEY AND HIT THE 'LINE FEED' KEY ONCE.

STEP 8. RELEASE THE 'CTRL' KEY AND HIT THE 'RETURN' KEY ONCE.

STEP 9. PRESS PLAY AND SEE IF COUNTER STARTS MOVING IF IT DOES HIT 'RETURN' ONCE AND THE PROGRAM SHOULD START WRITING TO TAPE. YOU SHOULD HEAR THE INCREASED AUDIO SOUND.

YOU WILL KNOW IT IS DONE WHEN THE TAPE STOPS MOVING. THIS MIGHT REQUIRE SOME PRACTICE BEFORE YOU GET THE PROCEDURE RIGHT.

HEY FOLKS I AM OUT OF QUESTIONS
FOR NOW BUT KEEP THEM COMING.

 HERE IS THE BEGINNING OF THE INFORMATION FROM **LOUIS BOLDUC**
 BEFORE ANY EXPLANATION, HERE ARE A FEW DEFINITIONS:

- 1-A DISKETTE CONTAINS 34 TRACKS, THEY ARE NUMBERED FROM 0 TO 33 AND EACH TRACK CONTAINS 8 SECTORS, NUMBERED FROM 1 TO 8.
- 2-GAT :GRANULES ALLOCATION TABLE. A GRANULE IS THE MINIMUM ALLOCATABLE UNIT OF STORAGE FOR ANY FILE, IN THE TRSDOS, ONE GRANULE IS 3 SECTORS LONG. ON THE APF, IT IS ONE SECTOR. THE GAT IS LOCATED ON TRACK ZERO, SECTOR ONE.
- 3-FSAT :FILE'S SECTORS ALLOCATION TABLE. THIS TABLE IS USED TO INDICATE THE SECTORS USED BY THE FILE. THERE IS ONE FSAT FOR EACH FILE. THE GAT, INDICATES THE FREE SECTORS ON THE DISKETTE
- 4-DIRECTORY :CONTAINS THE FCB OF EACH FILE ON THE DISKETTE. IT IS LOCATED ON TRACK ZERO, SECTOR TWO.
- 5-FCB :FILE CONTROL BLOCK. THERE IS ONE FCB FOR EACH FILE. IT IS 16 BYTES LONG AND IT CONTAINS THE INFORMATION REQUIRED TO HAVE ACCESS TO A FILE. EACH FCB IS DEFINED AS FOLLOWS:

FILENAME/20(HEX)/FSAT TRACK/FSAT SECTOR/FILE TYPE/NOT USED
7 BYTES 1 BYTE 1 BYTE 1 BYTE 1 BYTE 5 BYTES

BYTE 8 IS ALWAYS SET TO 20 HEX AND THE LAST 5 BYTES ARE ALWAYS SET TO ZERO. FILE TYPE IS EITHER S,I,D,A,E. SINCE THE DIRECTORY IS ONE SECTOR LONG (256 BYTES) AND ONE FCB IS 16 BYTES LONG, YOU CAN UNDERSTAND EASILY WHY THE FILE LIMIT IS 16.

**TO BE CONTINUED IN THE NEXT
 EXCITING ISSUE !!!!!!!!!!!!!**

*****BASIC BOX*****

HERE ARE SOME MORE OF THE MORE CONFUSING BASIC COMMANDS.

1. **ABS(X)** = THE ABSOLUTE VALUE OF 'X' IS CALCULATED. THIS COMMAND IS USED TO MAKE SURE A VALUE IS NOT A NEGATIVE VALUE.

EXAMPLE: ABS(-1.2) = 1.2
 ABS(0) = 0
 ABS(1.45) = 1.45

2. **INT(X)** = IT RETURNS JUST THE INTEGER (WHOLE NUMBER) VALUE OF 'X'. IT IS USED TO DROP OFF THE FRACTIONAL PORTION OF A VARIABLE OR NUMBER. THE 'INT' COMMAND DOES NOT ROUND NUMBERS OFF IT JUST DROPS THE FRACTIONAL PORTION.

EXAMPLE: INT(12.45) = 12
 INT(-1) = -1
 INT(0) = 0

EXAMPLE PROGRAM USING BOTH 'ABS' AND 'INT'

```
10 X=-1.3333
20 PRINT X,INT(X),ABS(X)
```

PRINT OUT = -1.333 -1 1.333

```

1 REM SPACE DUEL SUBMITTED BY DON HILTS
10 CALL 17046: POKE 24578,54
11 DIM R$(9),L$(9)
12 DIM X$(1),Y$(1)
13 X=33:Y=350
15 REM INSTRUCTIONS
20 PRINT "*****SPACE DUAL***": PRINT
25 PRINT ; TAB (3);"THE OBJECT OF THE GAME IS TO DESTROY YOUR OPPONENT BEFORE HE DESTROYS YOU.": PRINT
30 PRINT ; TAB (3);"EACH PLAYER TAKES TURNS TAKING ONE MOVE PER TURN.": PRINT
32 INPUT "RIGHT PLAYER",R$: PRINT
33 INPUT "LEFT PLAYER",L$: PRINT
35 FOR T=1 TO 1500: NEXT T
40 POKE 8193,60: POKE 8194,150
45 REM SET UP SHAPE '0'
50 FOR A=512 TO 516: POKE A,0: NEXT A: POKE 517,20: POKE 520,20: POKE 518,85: POKE 519,85: POKE 521,85: POKE 522,65: POKE 523,65
55 FOR B=524 TO 527: POKE B,0: NEXT B
60 REM SET UP SHAPE '1'
65 FOR D=528 TO 535: POKE D,0: NEXT D: POKE 536,255: FOR B=537 TO 543: POKE B,0: NEXT B
70 REM SET UP SHAPE '2'
75 FOR A=544 TO 559: POKE A,12: NEXT A
80 REM SET UP SHAPE '3'
85 FOR A=560 TO 575: POKE A,0: NEXT A
90 REM SET UP SHAPE '4'
95 FOR A=576 TO 579: POKE A,0: NEXT A: POKE 580,48: POKE 581,12: POKE 582,243: POKE 583,60: POKE 584,207: POKE 585,243: POKE 586,25
5
97 FOR B=587 TO 591: POKE B,0: NEXT B
100 REM SET UP SCREEN
105 POKE X,64: POKE Y,64: FOR S=0 TO 32: POKE S,67: NEXT S: FOR T=34 TO 349: POKE T,67: NEXT T: FOR U=351 TO 383: POKE U,67: NEXT U
108 REM START 'X' MOVEMENTS
110 IF Y=X THEN 330
115 X$= KEY$ (1)
120 IF X$="N" THEN X=X-32: POKE X,64: POKE X+32,67: CALL 17006: GOTO 220
125 IF X$="S" THEN X=X+32: POKE X,64: POKE X-32,67: CALL 17006: GOTO 220
130 IF X$="E" THEN X=X+1: POKE X,64: POKE X-1,67: CALL 17006: GOTO 220
135 IF X$="W" THEN X=X-1: POKE X,64: POKE X+1,67: CALL 17006: GOTO 220
140 IF X$="5" THEN GOTO 170
145 IF X$="8" THEN E= INT ( RND (0)*10+1)*32: GOTO 175
150 IF X$="2" THEN E= INT ( RND (0)*10+1)*32: GOTO 185
155 IF X$="4" THEN E= INT ( RND (0)*20)+3: GOTO 195
160 IF X$="6" THEN E= INT ( RND (0)*20)+3: GOTO 205
165 IF X$="7" THEN 40
166 GOTO 220
170 POKE X,67:X= INT ( RND (0)*383+1): CALL 17006: CALL 17006: CALL 17006: POKE X,64: GOTO 220
175 X=X-64:E=X-E: FOR F=X TO E STEP -32: IF F=Y THEN 360
180 POKE F,66: POKE F+32,67: NEXT F: POKE F+32,67: CALL 17026:X=X+64: GOTO 220
185 X=X+64:E=X+E: FOR F=X TO E STEP 32: IF F=Y THEN 360
190 POKE F,66: POKE F-32,67: NEXT F: POKE F-32,67: CALL 17026:X=X-64: GOTO 220
195 X=X-2:E=X-E: FOR F=X TO E STEP -1: IF F=Y THEN 360
200 POKE F,65: POKE F+1,67: NEXT F: POKE F+1,67: CALL 17026:X=X+2: GOTO 220
205 X=X+2:E=X+E: FOR F=X TO E: IF F=Y THEN 360
210 POKE F,65: POKE F-1,67: NEXT F: POKE F-1,67: CALL 17026:X=X-2: GOTO 220
215 REM START 'Y' MOVEMENTS
220 IF X=Y THEN 330
225 Y$= KEY$ (2)
230 IF Y$="N" THEN Y=Y-32: POKE Y,64: POKE Y+32,67: CALL 17006: GOTO 110
235 IF Y$="S" THEN Y=Y+32: POKE Y,64: POKE Y-32,67: CALL 17006: GOTO 110
240 IF Y$="E" THEN Y=Y+1: POKE Y,64: POKE Y-1,67: CALL 17006: GOTO 110
245 IF Y$="W" THEN Y=Y-1: POKE Y,64: POKE Y+1,67: CALL 17006: GOTO 110
250 IF Y$="5" THEN 280
255 IF Y$="8" THEN G= INT ( RND (0)*8+1)*32: GOTO 290
260 IF Y$="2" THEN G= INT ( RND (0)*8+1)*32: GOTO 300

```

```

265 IF Y$="4" THEN G= INT ( RND (0)*20)+3: GOTO 310
270 IF Y$="6" THEN G= INT ( RND (0)*20)+3: GOTO 320
275 IF Y$="?" THEN 40
277 GOTO 110
280 POKE Y,67:Y= INT ( RND (0)*383+1): CALL 17006: CALL 17006: CALL 17006: POKE Y,64: GOTO 110
290 Y=Y-64:G=Y-G: FOR H=Y TO 6 STEP -32: IF H=X THEN 390
295 POKE H,66: POKE H+32,67: NEXT H: POKE H+32,67: CALL 17026:Y=Y+64: GOTO 110
300 Y=Y+64:G=Y+G: FOR H=Y TO 6 STEP 32: IF H=X THEN 390
305 POKE H,66: POKE H-32,67: NEXT H: POKE H-32,67: CALL 17026:Y=Y-64: GOTO 110
310 Y=Y-2:G=Y-G: FOR H=Y TO 6 STEP -1: IF H=X THEN 390
315 POKE H,65: POKE H+1,67: NEXT H: POKE H+1,67: CALL 17026:Y=Y+2: GOTO 110
320 Y=Y+2:G=Y+G: FOR H=Y TO 6: IF H=X THEN 390
325 POKE H,65: POKE H-1,67: NEXT H: POKE H-1,67: CALL 17026:Y=Y-2: GOTO 110
330 POKE X,67: POKE X,68: MUSIC "-100000-600000": FOR T=1 TO 200: NEXT T: POKE X,67
340 POKE 8193,52: POKE 8194,30: CALL 17046
350 PRINT "YOU HAVE COLLIDED.... YOU ARE BOTH DESTROYED!!!!": STOP
360 POKE Y,68: POKE Y+1,67: POKE Y-1,67: POKE Y+32,67: POKE Y-32,67: MUSIC "-10000-70000": FOR T=1 TO 300: NEXT T: POKE Y,67
370 POKE 8193,52: POKE 8194,30: CALL 17046
380 PRINT "GOOD JOB ";R$;" YOU HAVE DESTROYED ";L$;"!!": STOP
390 POKE X,68: POKE X+1,67: POKE X-1,67: POKE X+32,67: POKE X-32,67: MUSIC "-10000-70000": FOR T=1 TO 300: NEXT T: POKE X,67
400 POKE 8193,52: POKE 8194,30: CALL 17046
410 PRINT "VERY GOOD ";L$;" YOU HAVE KILLED ";R$;"!!": STOP
9000 REM UP=MOVE MAN UP, DOWN=MOVE MAN DOWN, RIGHT=MOVE MAN RIGHT, LEFT=MOVE MAN LEFT
9010 REM 2=TO FIRE DOWN, 4=TO FIRE LEFT, 6=TO FIRE RIGHT, 8=TO FIRE UP, 5=HYPER SPACE, CL=RESET GAME
9999 END

```

N

5 REM APF TAPE CATALOG — Submitted By Gary Beihold

```

10 DIM A$(1),B$(31): POKE 24578,54
15 CALL 17046: GOSUB 90
20 FOR I=1 TO 9: READ B$
25 IF B$="EOF" THEN 50
30 PRINT B$: NEXT I
35 PRINT : PRINT "PRESS RETURN TO CONTINUE"
40 A$= KEY$ (0): IF A$="" THEN 40
45 GOTO 15
50 PRINT : PRINT "THE END - WANT A PRINTOUT?"
55 A$= KEY$ (0): IF A$="" THEN 55
60 IF A$<>"Y" THEN STOP
65 PRINT =1: RESTORE
70 GOSUB 90: PRINT
75 READ B$
80 IF B$="EOF" THEN PRINT =0: STOP
85 PRINT B$: GOTO 75
90 PRINT " A P F PROGRAM TAPE CATALOG "
95 PRINT "-----"
100 PRINT " NAME TYPE POSITION": RETURN
1000 DATA PROGRAM-FILES...CATALOG.000-009
1010 DATA ARTIST&EASEL....GRAPHIC.....
1015 DATA ..(ICLOAD-RUN-GOTO100)..010-019
1020 DATA STAR-TREK.....GAME...020-029
1030 DATA MOON-LANDER.....GAME...030-039
1040 DATA EDITOR.....PGM-AID.040-049
1050 DATA BACK-UP.....PGM-AID.050-059
1060 DATA SPACE-DESTROYERS.GAME...060-069
1070 DATA TYPING-TUTOR.....EDUC...070-079
1080 DATA MAILING-LIST.....BUSS...080-089
1090 DATA BILLBOARDS.....MISC...090-099
1100 DATA PAC-MAN.....GAME...100-109
2000 REM ENTER NEW PROGRAMS RIGHT BEFORE THIS REMARK - ENTER31 CHARACTERS & DO NOT USE ANY BLANKS
2010 DATA EOF
2020 END

```

```

1000 INPUT "NUMBER ",NM
9000 REM SQUARE ROOT PROGRAM SUBMITTED BY DUANE DRAVING
9010 IF NM=0 THEN SQ=0: GOTO 9100
9020 LP=1: SX=NM
9030 SY= SX/10
9040 LP=LP+2: SX=SY
9050 IF SY>1 THEN 9030
9060 S1=NM/2
9070 FOR PL=1 TO LP
9080 SQ=(S1+NM/S1)/2
9090 S1=SQ: NEXT PL
9100 PRINT SQ

```

```

1 REM 1040 A & B TAX PROGRAM SUBMITTED BY KEITH PHILLIPS
5 POKE 24578,54
6 CALL 17046
10 PRINT "1040,1982"
20 PRINT "WAGES;LINE 7"
30 INPUT A
40 PRINT "INTEREST;LINE 8"
50 INPUT B
60 PRINT "CAP. GAINS&LOSS;LINE 14"
70 INPUT C
80 D=A+B+C
90 PRINT "TOT. INCOME;LINE 22",D
100 PRINT "ADJ. GROSS;LINE 32,33",D
102 PRINT "TYPE 60 TO 250 IF YOU ARE ITEMIZING DEDUCTIONS","110 IF NOT": STOP
110 PRINT "ITEMIZED DED. LINE 34",E
120 PRINT "IF YOU DO NOT ITEMIZE THEN ENTER A FOURTH OF YOUR CHAR.CONTRIBUTIONS UP TO $25"
130 F=D-E
140 PRINT "LINE 35",F
145 PRINT "NUMBER OF EXEMPTS * 1000"
150 PRINT "LINE 37,3 EXEMPTS",F-3000
160 PRINT "COMPUTE TAX"
170 PRINT "TOT. FED. TAX WTHLD"
180 INPUT G
190 PRINT "TAX FROM TABLE"
200 INPUT H
210 I=H-G
220 PRINT "+=AMNT DUE,--REFUND",I
225 PRINT "SUMMARY TYPE 60 TO 500"
230 STOP
250 PRINT "SCHED A&B"
260 PRINT "MEDICINE&DRUGS"
270 INPUT J
280 K=D/100
290 PRINT "SCHED A LINE 2",K
300 L=J-K
305 IF L<0 THEN L=0
310 PRINT "LINE 3",L
320 PRINT "TOT INS PREM"
330 INPUT M
340 PRINT "OTHER MED & DENTAL"
350 INPUT N
360 O=M+N
370 P=D*.03

```

```

380 Q=0-P
385 IF Q<0 THEN Q=0
387 IF Q>150 THEN PRINT "LINE 10",Q
390 PRINT "LINE 0=",Q
400 PRINT "STATE&LOCAL TAXES"
410 INPUT R
420 PRINT "REAL ESTATE TAX"
430 INPUT S
440 PRINT "GEN. SALES TAX"
442 INPUT Z
445 PRINT "AUTO REG.FEE PERS.PROP.ETC."
450 INPUT T
460 U=R+S+T+Z
465 PRINT "LINE 15",U
470 PRINT "INTEREST EXPENSE"
480 INPUT V
490 PRINT "CHARITY"
500 INPUT W

```

```

510 PRINT "CAS.THEFT&MISC. DED."
520 INPUT X
530 Y=X+U+V+Q+W
540 PRINT "LINE 20=",Y
550 E=Y-3400
560 PRINT "TOT. DED. LINE 30",E
575 GOTO 110
580 PRINT "ADJ GROSS",D
585 PRINT "MED. DED.",Q
590 PRINT "TAXES",U
600 PRINT "INTEREST EXPENSE",V
610 PRINT "CHARITY",W
620 PRINT "CAS.MISC.",X
630 PRINT "TOT. ITEM. DED.",Y
640 PRINT "Y-3400,LINE 30",Y-3400

```

THIS IS THE END

 CALL BOX CALL BOX CALL BOX

TO START WITH HERE ARE SOME MACHINE LANGUAGE ROUTINES AND INFO
 SUBMITTED BY JOSEPH MIRABITO
 THE FOLLOWING 2 ROUTINES ARE IN THE ROM OF THE MP1000.
 17035 \$42BB = THIS ROUTINE TOGGLES THE OSCILLATOR
 17004 \$426C = THIS ROUTINE GENERATES A PHASOR SOUND
 THE FOLLOWING PROGRAMS ILLUSTRATE THE USE OF THESE ROUTINES.
 THE FIRST PROGRAM GENERATES TONES BASED ON THE HEX VALUES IN
 LOCATIONS \$01F0 AND \$01F1. THE FIRST LOCATION DETERMINES THE
 PITCH, THE HIGHER THE VALUE THE FEWER THE OSCILLATIONS, AND THE
 LOWER THE PITCH OF THE SOUND. THE SECOND VALUE, \$01F1 DETERMINES
 THE DURATION OF THE TONE.

ADDRESS	ML	ASSEMBLY
\$A410	B601F0	AGAIN LDAA PTCH
\$A413	4A	WAIT DECA ;SET PITCH
\$A414	26FD	BNE WAIT
\$A416	BD42BB	JSR TOGGLE
\$A419	7A01F1	DEC DRTN
\$A41C	26F2	BNE AGAIN ;NOT LONG ENOUGH, AGAIN
\$A41E	39	RTS ;RETURN TO BASIC

THIS NEXT ROUTINE GENERATES A PHASOR SOUND WHEN ANY KEY OF THE
 RIGHT CONTROLLER IS PUSHED. SINCE THE DEBOUNCE IS NOT AS FINE ON
 THE JOYSTICKS, A CONSTANT PHASOR SOUND IS PRODUCED WITH A JOY-
 STICK MOVEMENT. THIS ROUTINE MUST BE EXITED BY A RESET AS IT IS
 WRITTEN.

ADDRESS	ML	ASSEMBLY
\$A410	BD426C	JSR SOUND
\$A413	BD41D9	INPUT JSR RGHT
\$A416	25F8	BCC PHASOR ;KEY CLOSURE MAKE SOUND
\$A418	24F9	BCC INPUT ;NO KEY, CHECK AGAIN

THANKS FOR THE INFORMATION JOSEPH.....

BOTH OF THE MACHINE LANGUAGE ROUTINES NEED A BASIC PROGRAM TO
 MAKE IT EASIER TO RUN. KEY IN THE PROGRAM LIKE I LIST IT THEN
 GO INTO MACHINE MONITOR AND PUT IN THE MACHINE LANGUAGE PORTION.

```

1 REM *****
2 REM THIS IS FOR THE FIRST ROUTINE
10 INPUT"TONE PITCH(1 TO 255)",P
20 INPUT"DURATION (1 TO 255)",D
30 POKE 496,P:POKE 497,D
40 CALL 42000
50 GOTO 10
  
```

```

1 REM *****
2 REM FOR SECOND ROUTINE
10 CALL 42000
  
```

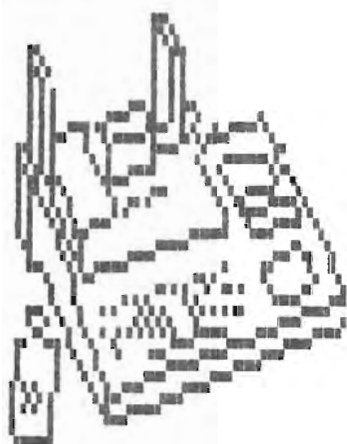
THESE TWO ROUTINES WILL GIVE THE PEOPLE THAT WANT TO LEARN HOW
 TO KEY IN MACHINE LANGUAGE ROUTINES SOME GOOD PRACTICE. LUCK

HEY FOLKS HERE IS A LIST OF
 PROGRAMS THAT WE HAVE AVAILABLE
 ON TAPE. WHEN ORDERING PLEASE
 SPECIFY THE 2 THAT YOU WANT
 ON YOUR TAPE FOR THE \$5.00.

THANKS EDITOR

TAPE #1
 CE3K---FUN PROGRAM
 HI RES2---HI RES HELPER PROGRAM
 HI RES3---HI RES HELPER PROGRAM
 HEX-DEC---HEX-DEC OR DEC-HEX
 MUSIC---FUN PROGRAM
 TAPE #2
 METRIC---METRIC & STAND. CONV.
 SPEIL---GAME PROGRAM IN GERMAN
 HI RES1---HI RES HELPER PROGRAM
 DATATAP---USE CASSETTE FOR DATA
 MEAN---FIGURE THE MEAN OF ##'S
 TAPE #3
 BLACKJK---BLACKJACK GAME
 CAPITOL---STATE CAPITOL ANSWERS
 FROGGER---SIMPLE BUT GOOD GAME
 LETNACH---SIMPLE LETTER MACHINE
 TV LOGO---DISPLAYS PICTURE
 TAPE #4
 MAGICSQ---GAME
 BATTLE#---GAME
 SPIRAL2---VISUAL DISPLAY
 TAXPROG---SIMPLE TAX PROGRAM
 AUDIORC---AUDIO RECORDING PROG.
 TAPE #5
 IN CALL---MENU & MULTI PROG. EX.
 TONETST---MAKES LOTS OF NOISE
 LETTPRO---ANOTHER LETTER PROGRAM
 BANKREC---SIMPLE BANK BAL PROG
 ROULETT---ANOTHER GAME
 TAPE #6
 GAL/LIT---CONVERTS GALS AND LITS
 RECIPES---RECIPE RECORD PROGRAM
 MATH ---MATH PROGRAM
 BIRTHDA---PLAYS & DISPLAY B DAY
 ENGLISH---SIMPLE ENGLISH LESSON
 TAPE #7
 SNAKE ---ANOTHER GAME
 ALPHAS ---HI RES ALPHA CHARACTER
 MENTEST---MEMORY TEST PROGRAM
 STROBE ---LOTS OF FLASH & POP
 TAPE #8
 1040A&B---TAX PROGRAM
 FORECAST---FUN PROGRAM
 SCREEN ---SCREEN IMAGE PROGRAM
 MATCHES---15 MATCHES,,,FUN
 SQ ROOT---BASIC SQ ROOT
 TAPE #9
 SPACEDL---SPACE DUEL GOOD
 HI RES4---HI RES HELPER PROGRAM
 TAPECAT---TAPE CATALOG PROGRAM

LONELY COMPUTERS



CLAY MANNING, 292 WOODBINE
ASTORIA, OR 97103

DWIGHT MEASEL, 1450 LAMORE DR
SAN JOSE, CALI 95130
HIGHWAY OPERARION ENG FOR STATE
OF CALI. PROGRAMMING & INTERFACI
6800 SINCE 1976. I HAVE EXTENSIVE
LIBRARY OF PROGRAMMING TRICKS &
ROUTINES. WILL GLADLY ASSIST
WITH ANY PROBS. I HAVE IM-1/BB-1
& ROK.

TERRY LEWIS, 27 BRYAN AVE
INVER GROVE HGTS, MINN 55075
I AM AN AMATEUR RADIO OPERATOR
(WB0YMP). INTERESTED IN BUILDING
HARDWARE AND ML PROGRAMMING.

KRIS KERN, 418 BATES DR.
BAY VILLAGE, OHIO 44140
INVOLVED IN RUNNING SPORTS, ENJOY
ALL KINDS OF SPORTS. IN COMPUTER
MATH COURSE AT HS USING OSBORNE
COMPUTERS. LIKE TO PROG AND
REWRITE PROGRAMS.

K C PASSAILAIGUE, 76 BRIMWOOD BL
AGINCOURT, ONTARIO, CANADA, M1V 1C1

ANDREW B MAUL, 2538 EVERGLADE DR
LAKE HAVASU CITY, ARIZONA 86403

DON SCHMIDT, 19 SCHOOL HOUSE RD
NEPTUNE, N.J. 07753
APPLICATION PMR/ANALYST BEL LAB
GEORGE F ROTTER, 1015 ARLINGTON
LA GRANGE, ILL. 60525
ONLY WANTS CONTACT FROM THE CHI-
CAGO AREA.

RONNIE HAMILTON, RTE 1 BOX 395
ABERDEEN, MISS 39730
I WORK FOR XEROX CORP AS A SERV
TECH. I AM INTO PROGRAMMING COM-
PUTERS. PLAN TO GO TO NIGHT SCH
FOR COMPUTER SCIENCE.

JOHN RACCIO, 26 VALLEY VIEW DR
WALLINGFORD, CT 06492
VP/GM CRONIN ELECTRONICS. WE ARE
AN IND ELECT COMPONENT DIST. THE
APF IS USED AS A HOBBY & A TEACH
TOOL FOR MY 4 SONS.

FRED VAN DEVEREN, 1048 ALPINE AVE
N.W., GRAND RAPIDS, MICH 49504

FRED WAGNER, 1425 E CHOCTAW DR
LONDON, OHIO 43140
I WOULD LIKE TO GET IN TOUCH W/
OTHERS IN CENT OHIO.

JEFFREY LITLED, RTE 4 BOX 64A
BARABOO, WISC 53913
WE LIVE ON A SMALL FARM IN SOUTH
CENT WISC. I'M INTERESTED IN
WRITING A PROGRAM FOR GENELOGICA
WORK, TO STORE & TO RETREIVE
INFOR ON RELATIVES I AM LEARN-
ING ABOUT AS I SEARCH FOR MY
ROOTS.

MICHAEL WAGNER, 225 SUNSET DR
ATHENS, GEORGIA 30606
INTERESTED IN VIRTUALLY ALL
SOFTWARE & HARDWARE MODS.

D E BROWN, 6625 E LOUISIANA
DENVER, COLO 80224

JOHN R GUNBY, RT 1 BOX 302
LINCOLTON, GEORGIA 30817
I WORK AS A SEWING MACHINE REPA-
IRMAN WITH RIEGEL TEXT. I ENJOY
THE IM-1.

GREG CHING, 549 VASUEN, STANFORD
CA 94305
I'M A SENIOR IN PHILOSOPHY AND
SOFTWARE ENG. ALTHOUGH I PREFER
TO PLAY WITH BIG MACH (DEC-20)
I EXPECT TO TINKER WITH MY NEW
IM-1.

DON HILTS, 26 N RIVERSIDE DR
WATERVILLE, MAINE 04901

BILL DE CUN, COLUMBIA PLAZA
UNIV GARDENS, R.P. PUERTO RICO
00927

RALPH KNAPP, RD 1 HIGHLAND PK DR
COOPERSTOWN, PA 16317
I HAVE THE IM-1 WITH 16K AND
OKIDATA 82A PRINTER. I AM A SYS
PROGRAMMER AT QUAKER ST OIL.

ERWIN G DERWINSKI, 1918 E EUCLID
MILWAUKEE, WISC 53207
I AM A SENIOR CIT, RETIRED FROM
MODEL MAKING AT EATON CORP. I
ENJOY PROGRAMS & HOBBY ELECT.

KENNETH JACKSON, 2248 GODWIN SE
GRAND RAPIDS, MICH 49507
I AM A ELECTRONICS TECH FOR XERO
RACQUETBALL.

ANDRE BERGERON, PO BOX 93
CFS MONT APICA, QUEBEC, CANADA
G0A 2P0
I AM A TECH IN ELECTRO GEN SYS.
I WORK IN ELECT IN MY SPARE TIME
AS A HOBBY.

DANIEL P TAYLOR, RR 7 BOX 20
SHELBYVILLE, IND 46176
I AM A MECH ENG MAJOR WITH A
MINOR IN COMPUTER SCI.

STEPHEN STRUNK, 12944 B4 NETTLES
NEWPORT NEWS, VIR 23606
I HAVE A MS DEGREE IN PSYCTOLOG
I AM INTERESTED IN EDUCATIONAL
PROGRAMS, GAMES, AS WELL AS WORD
PRGC.

BERNARD J SAMANSKY, PO BOX 334
WINBURNE, PA 16879
AUTO MECH. ASSC. DEGREE IN ELECT
ENG TECH. FROM PENN ST. AVID
HUNTER & FISHERMAN.

MARK SCHRIENER, 751 E LINCOLN
MILWAUKEE, WIS 53207
I LIKE TO PLAY FOOTBALL & BASE.
IN SCHOOL I LIKE COMPUTER SCI

JAMES KISSOCK, RT 5 ZION RD
JEFFERSON CITY, MO 65101
I AM A SYS PROG FOR WESTINGHOUSE
ELECT. WE HAVE AN IBM 4341.
I PRIMARILY WORK IN TELE COMM.
I AM A CHRISTIAN & WANT TO SET
UP SOME APPL. ON THE APF WHICH
WILL BE USEFUL TO MY CHURCH.

HEY FOLKS IT
WOULD BE A GOOD
IDEA TO SAY IF
YOUR PROGRAM IS
IN BASIC OR ML

WANTADS

FOR SALE: 31K IM1 ADDITIONAL 8K
INTERNAL PLUS RESET MODIFIED TO
INTERRUPT BUT NOT CLEAR MEMORY.
PROG-GAME: TECHNICAL MANUAL, BASIC
TUTOR, CHECKBOOK/BUD. MANAGER,
SPACE DESTROYERS, ARTIST-EASEL,
BILLBOARD, 20 DATA CASSETTES,
5 GAME CARTRIDGES. LIKE NEW-USED
ONLY 30 HOURS. NEW PRICE 525.00
MAY SELL BEST OFFER. WESLEY DUKE
ROUTE 1 BOX 180-B FAIRFAX, AL.
36054 AFTER 5PM EST 205-576-3219

EDUCATIONAL PROGRAM- BY D.TAYLOR
"ELECTRONIC CHART OF ELEMENTS"
AN 8K PROGRAM WHICH DISPLAYS THE
CHEMISTRY SYMBOLS OF THE FIRST
54 ELEMENTS ALONG W/ ITS NAME
ATOMIC #, & ATOMIC WT.
REG.TAPE...\$6.95 OR ON COMPUTER
TAPE...\$11.95 SEND CHECK OR MO
TO DAN TAYLOR, SSD #210,650
UNION DRIVE, INDIANAPOLIS, IN 46202

GET TO KNOW YOUR IM-1 BETTER.
5 INSTRUCTIONAL PROGRAMS PLUS A
CARD GAME FOR LEISURE TIME.
POWER SUPPLY TUTOR, DIGITAL TUTOR
BINARY & HEX TUTOR & TRANSISTOR
TUTOR. INTERACTIVE & HI-RES
ANIMATION. ALL 6 FOR \$14.95
W.W. PINNER 7304 LORENZO LN
LOUISVILLE, KY. 40228

!!!!THESE PROGRAMS WOULD BE
GOOD FOR GETTING A BASIC KNOW-
LEDGE OF DIGITAL ELECTRONICS....
!!!!!!!!!!!!!!!!!!!!EDITOR!!!!!!

WANT TO BUY FOR CASH, PERIPHERALS
TAPES, DISCS OR OTHER APF 1
MATERIAL. CALL EVES.

212-434-0781 OR BOX 292, MIDWOOD
STATION, BROOKLYN, NEW YORK 1123

#DUNGEON TREASURE# GET THE
TREASURE WITHOUT HITTING A WALL
#MYSTERY MANSION# GO THROUGH THE
MANSION AND GET OUT ALIVE
\$6.95 EACH SEND MONEY ORDER TO
JAMES MILLER SOUTH DR BOX 49
CLAVELACK, NEW YORK

NUMBER FREQUENCY ANALYSIS-----
ENTER ANY LIST OF NUMBERS OF 4
DIGITS OR LESS AND YOUR COMPUTER
KEEPS A RUNNING RECORD OF WHICH
DIGITS FELL WHERE AND HOW MANY
TIMES. SAVES TO TAPE, RECALLS
FROM TAPE. GREAT FOR LOTTERIES,
ANY LIST OF NUMBERS. SEND \$8.00
TO CRATAR INSTRUMENTS, PO BOX
38, WOODBURY HEIGHTS, N.J. 08097

16K LETTER WRITER \$15.00 :MAX
OF 79 CHAR/LINE, U&L CASE PRINT
EASY EDIT-ADD, DEL, CHAN CHAR,
OR LINES. SAV & RET LETTERS
ON TAPE. PROG. SPACE 59 LINES.
SEND CHECK: MILT PERRY, 2000
ST REGIS DR #5C LOMBARD, IL
60148

BASIC TRACE. LINE NUMBERS ARE
DISPLAYED AS A BASIC PROGRAM
EXECUTES, ALLOWING YOU TO
FOLLOW THE LOGIC FLOW. THE
STEP OPTION ALLOWS YOU TO
MANUALLY STEP THRU A PROGRAM
ONE LINE AT A TIME. A GREAT
DEBUGGING TOOL!! COST: \$15
CARL A. ECHOLS

112 CREEKSIDE LANE
NOBLESVILLE, IN 46060
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
THIS PROGRAM IS EASY TO USE AND
UNDERSTAND AND COULD BE A GOOD
AID IN DEBUGGING PROGRAMS

!!!!!!!!!!!!!!!!!!!!!!!!!!!!

PAINT FIGHT-A GAME OF LUCK AND
STRATEGY THAT PUTS YOU AND AN
OPPONENT IN A RACE TO BE THE
FIRST TO DISCOVER AND PAINT
EACH OTHERS LOCATION.

CASSETTE \$5.95 SEND CHECK OR MO.
TO JOE JONES, RT 4 BOX 84A
COFFEYVILLE, KANSAS 67337

CONCENTRATION, HEAD-HUNTER AND
MINOTAUR 9.95; STAR TREX 12.95;
OR ALL FOUR GAMES FOR 19.95;
LINE PROCESSING SYS. 9.95+2.00
PER EXTRA VERSION (SPECIFY 8K OR
16K & 32 OR 64 CHAR. PER LINE)
S.R.JONES 419 S 105 E PL.

TULSA, OKLAHOMA 74128
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
THE LINE PROCESSOR IS THE ONE WE
ARE USING NOW TO DO THE CLUB
NEWSLETTER. ALSO THE GAMES ARE
IN BASIC BUT THEY DO PLAY WELL,
BE READY TO STAY AWHILE TO BEAT
STAR TREX.....THE EDITOR

HUEY SUPERCALC 2.5 KBYTE MACHINE
LANG LOCATED AT \$8000. ALL CASS-
ETTE ORDERS INCL. HOW TO MOVE TO
OTHER MEMORY LOC, 5 PROGRAMM-
ABLE CONSTANTS & 3 SUBROUTINES,
AND MUCH MORE. CAN BE CUSTOMIZED
TO 1000'S OF 40 FUNCTION PROGS.
19 PG. MANUAL AVAILABLE FOR FULL
DETAILS OF HUEY. JAN PRICES 6000
UNTIL APRIL 30. PRICES AFTER MAY
1ST CASSETTE/1 PG MANUAL \$10,
CASSETTE/ 19 PG MANUAL \$20. NEW
ROMMON RECOMMENDED FOR INTERRUPT
BRK. WORKS WITH ALL APF MODS.
PERFORMS UP TO 99 COMPLEX MATH
FUNCTIONS WITH JUST 1 KEY. SEND
CHECKS (NO TRADES) TO KEITH
PHILLIPS, 3465 HILLSBOROUGH WAY,
SAN JOSE, CAL. 95121

!!!!!!!!!!!!!!!!!!!!!!!!!!!!
THIS PROGRAM WOULD BE HANDY FOR
THOSE PROGRAMMERS NEEDING HIGHER
MATH ABILITIES NOW. AS FAR AS MY
LIMITED MATH ABILITY CAN CHECK
IT IS OK.....EDITOR

HEY FOLKS CHECK OUT THE GAMES IN
THE FULL PAGE ADS. THE PAC MAN
AND FROGGY ARE BOTH VERY GOOD
GAMES WITH SOME REAL GOOD HI RES
GRAPHICS. YOU SHOULD ENJOY BOTH!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
THE MISSION IMPROBABLE IS A VERY
EXCITING GAME. IT IS IN LOW RES
BUT IT IS DONE VERY WELL AND IS
HARD TO BEAT!!!!!!!!!!!!!!EDITOR!!

NEW!

- # OPERATION 'ALPHA'

Move throughout an enemy island outpost avoiding machine guns and a roving guard. Take orders from headquarters. Wipe out enemy guards, V.I.Ps and police. Tunnel underground. Plant bombs. Search for an Enemy Commandant in a dark cellar using sonar and laser powered flashlight. Photograph secret documents locked in a vault. Make your way through a dangerous mine field to the other side of the island and rendezvous with an escape submarine or lower the missile battery and escape through the harbor. Even elect to be "buried at sea" (for those who don't make it!) This adventure packed program is thought provoking, challenging, and fun for the entire family! You'll enjoy the "far from Broadway" theatrical opening with its cast of characters, curtain call, and musical introduction. All this, along with the action and intrigue of each selected mission makes "Operation Alpha" a good variety program at a very reasonable price. 16K program includes pre-programmed tape with sound track recorded in synthesized sound and a 21-page detailed instruction booklet. EASILY A \$30 VALUE....ONLY \$14.95 ppd.

NEW!

- 3 Different Graphic Screens of Various Color
- 4 Time Decrement Missions
- Bonus Scoring for Mission Difficulty
- Top Scoring for Competition

OPERATION 'BRAVO'

A deadly virus has hit an enemy island. Your mission is to wipe out the enemy camp of infected guards before their government carries out their fiendish plan! Tunnel underground. Zap the guards. Plant a bomb. Escape through a minefield or harbor. Lower missile battery and make it to the waiting submarine before time runs out! Note: Operation "Bravo" is an excerpt from Operation "Alpha" and utilizes the "Sabotage" mission in a modified 8K version. The program is similar, but the main complex layout is different, as well as the scoring technique used. 8K program with color, sound, and graphics, ONLY \$10.95 (includes 8-page instruction booklet) ppd.

WE'RE A NEW COMPANY...JUST FOR YOU!!

We're new....our programs are new....We're a family-owned and operated business whose goal is to provide good programs and unique devices for the "APF Imagination Machine" at low prices. We are presently working with other companies in search of compatible devices that will hopefully be of interest to IM-1 owners. Items such as: text/speech synthesizers, controllers, printer buffers, etc. The availability and price of these items, as well as our company existence, will depend solely upon the support and interest of all IM-1 owners. By providing different products than those currently offered through the new-improved-super "IM-1 in a Million Club" we hope that all IM-1 owners will eventually enjoy a large variety of items to choose from. We will also be working hard to bring you useful and entertaining programs, so.....we are "opening shop" with...."Mission: Improbable."

GEO*GRAPHIX LIMITED
P.O. Box 54 • Arrowsmith, Illinois 61811
Please send:
☐ OPERATION ALPHA \$14
☐ OPERATION BRAVO \$10
☐ BOTH PROGRAMS \$21
To:

Don't miss these good, entertaining programs!
ORDER TODAY!



GEO • GRAFIX LIMITED
P.O. Box 54 • Arrowsmith, Illinois 61722

GEO * GRAFIX LIMITED

P.O. Box 54 • Arrowsmith, Illinois 61722

Please send:

- | | | |
|--------------------------|-----------------|---------|
| ☐ | OPERATION ALPHA | \$14.95 |
| ☐ | OPERATION BRAVO | \$10.95 |
| ☐ | BOTH PROGRAMS | \$21.95 |

To:

NAME

ADDRESS _____

CITY

STATE

ZIP

Personal check/M.O. OK

Overseas add \$2.00 sh/hdlg.

Mission Improbable

OPERATION
'ALPHA'

**NEW
NEW
NEW
NEW
NEW**

OPERATION
'BRAVO'



GEO-GRAFIX LTD.

-FROGGY ON THE FREEWAY-



If you like highspeed thrills and excitement, you'll love FROGGY ON THE FREEWAY!! A colorful, HI-RES, quick action game is finally here. You control a little frog across a 10 lane freeway to his home. Each time you get 1 frog home the traffic gets faster. Get 4 home and you advance to the GOLD frog level, this ones really tough! And if your real good you'll make it to the 3rd level, (RED FROG). This levels a killer. Frog may eat snakes and flies for bonus points. It's mile a minute action will provide hours of challenging fun.

On Cassette for only: \$10.95
plus shipping & handling



... PAK-MAN is here!!!

Your waiting is over, just like the arcade version you control the little guy around the maze trying to eat all the dots. While at the same time 4 very quick ghosts are trying to eat you. Complete with power pills. Each screen gets faster and faster. 95% machine language gives you quick action, HI-RES graphics, and new sounds. Will provide hours of challenging fun.

On Cassette for only: \$10.95
plus shipping and handling



ATARI®

Add a fresh new perspective to your games with the Atari joystick. For a low price you get easy to follow instructions on how to do this project yourself (with illustrations).

ONLY \$3.50



TO ORDER:

Send cashiers check/money order
to ERIC BECKETT
7129 N. 86th St.
Milw. WI 53224

SHIPPING INFO:

Add \$1.50 for 1 game
\$2.00 for 2 games

HEY! WE HAVE A PRINTER AVAILABLE NOW. WE DID NOT GET THE INFO SOON ENOUGH FOR THIS LETTER SO IF YOU ARE INTERESTED PLEASE WRITE TO US.

ALL HARDWARE AND GAME CARTRIDGES ARE IN LIMITED QUANTITIES SO FIRST COME FIRST SERVE. PLEASE ALLOW 4 TO 6 WEEKS DELIVERY. ALL ORDERS ARE EITHER PREPAID OR COD. PLEASE SEND ORDERS TO:::

M B ENTERPRISES, P.O.BOX 1411, SPRINGDALE, ARK 72764...

NEW MEMBER APPLICATION OR ORDER FORM.

NAME-----

ADDRESS-----

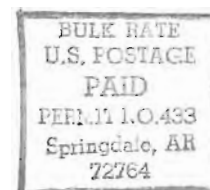
CITY-----

STATE & ZIP-----

ALL NEW MEMBERS GET \$5.00 CREDIT TOWARD ANY PURCHASE. MEMBERSHIP FEE IS \$15.00 AND ALL PREVIOUS LETTERS FOR 1983 WILL BE SENT.

IM-1 IN A MILLION

PO BOX 1411
SPRINGDALE
ARK 72764



IF YOU HAVE SOLD YOUR IM-1 PLEASE
FORWARD THIS NEWSLETTER TO THE
NEW OWNER.