





that the data referred to is in Arrays set up by DIM statements) The computer variable values are upset & provide some weird values when programs are executed. Is there any way around this? I've been doing it the hard way- make a note of the variables & their data contents before making any changes- then make the change type RUN to clear & then put back the correct data one by one using the immediate mode- ie: B(4)=28.70 B(5)=199.30

First off a little explanation about the ARRAYS (DIM). The IM-1 in normal operations starts the ARRAYS (DIM) immediately following the normal program code, so if any changes are made in the program this changes the starting point for the ARRAY (DIM). If a RUN is used after changes this resets all pointers and clears all variables storage areas. If a GOTO is used the pointers set earlier will now be invalid and possible the area that did contain variable data now contains program information.

There are only 3 things that can be done to prevent this.

1. Store data on disc.
2. Store data on tape using the program published in an earlier issue. Care has to be taken that the data is read back into the same ARRAYS(DIM) as they were written from.
3. Set aside a portion of memory for ARRAY storage that will not be used by the program. This can be done using the lower part of memory used for HI-RES or by setting aside some of the high part of memory aside.

Here are 2 lines of code that can be used to set up the #3.

```
100 POKE 41009,208;POKE 41010,0: DIM A$(20,30), B$(5,10)
105 POKE 41009,PEEK(41984): POKE 41010,PEEK(41985)
```

Line #100 will first reset DIM pointer to D000 and then Dimensions the Arrays. Line #105 will reset the DIM pointers to the end of the program in memory. As long as you don't use a RUN the data in the ARRAYS should not be cleared. Here are a list of things that you need to watch out for.

1. Program size does not overlap into the area you set aside for the ARRAY.
2. That you set aside enough memory to be used in your variables.
3. Don't use a RUN.
4. Use a GOTO command to restart the program, do not reExecute DIM's.

I am sure that I have probably left something out so if some of you Super programmers out there find it let me know.

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**For DISC users out there.**

I have published this before but I beleive that it needs to be put out again. If you are not using your DISC drive either turn off the unit or use the POKE 26112,0 to turn off the motor. These motors seem to overheat if left on too long.

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From Larry Rowley

I have a IM-1 computer and wold like to have a printer. I have recently purchased the interface(SI-232) for the expansion block. In Popular Computing I have seen an ad for a new printer by Leading Edge, the ad says it will work on a parallel and serial interfaces, and with most popular computers. Will a special inter- face cable be needed or is it a standard cable produced? Almost any printer which has a RS-232 Interface will work and the cable to connect most of them is not too hard to make. So far we have hooked up at least four different types Epson, Star, Radio Shack and Okidata with no problems. On some of them a standard cable will work.

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Some General Questions-----

1. Is it possible to connect a monitor to the IM-1?

Right now I don't have a set of plans to do this but if somebody out there has any please let us know and we will pass it along.

2. How can I increase keyboard debounce to stop double keyins?

Without replacing the keys the only thing I know of that will help is to spray the keys with a good CONTACT/TUNER Cleaner. Radio Shack sells some.

3. On fig 3-1 Memory Map what is the ROM expansion used for?

This was intended for future expansion by APF but it never came about. With hardware changes this could be used for some special ROM programs.

4. Is it possible to use the memory locations from E000 to FFEF (57344 to 65519) for extra RAM?

Yes, with hardware changes. There were some kits available from some of the members last year to do this but we have not heard from any of them this year offering them. If they will contact us we will pass it along.

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""""""HERE'S ANOTHER LETTER FROM RICK THUES""""""

Enclosed find *animaI* on cassette tape. Also, find a hard listing of same.

*AnimaI* can be used with 8K RAM. Simply change the dimension of AN\$ from dimm AN\$(200,50) to dim AN\$d(100,50) on line 100. I did not include a list feature, but this can be done easily by searching through AN\$ and printing all strings which begin with "\A". If the user hs a disc drive the program can be modified to store the variable N as a string in AN\$(0,1) then save AN\$ to disc. AN\$ can then be read as data and the program will remember what it has learned.

Of course, the more you add to the program the smaller the diminsion of AN\$ must be.

Animal can be modified to deal with other catagories by changing the data statement and various dialogue references from animals to any other class of object. The program can distinguish between types of rocks, emotions, biological classes etc. IMAGINE THAT!

Will you publish some disc routines? Espescially, how to turn the drive motor on and off with software. Ithink Jim Clatfelter and Glenn Jones use a machine routine in copy writer for this purpose. Also, I am having trouble chaining programs on the disc. If I use a program like the example on page 7 of the FI-100 documentation program data becomes jumbled. For example, I can run "PROGRAM" from the disc, then type RUN and PROGRAM will run fine. If, however, RUN"PROGRAM" is part of a menu program on the same disc then "PROGRAM"'s listing becomes filled with garbage.

That's all for today. I hope the members enjoy ANIMAL

Easy answer first: As stated earlier to turn off motor use the POKE 26112,0 and to turn on the motor use POKE26112,4.

Next answer:: To chain programs like you want you will have to put the following line of code as the first line of the program being loaded in.

```
1 POKE 41009, PEEK(41984): POKE41010, PEEK(41985)
```

This will reset the DIM pointers. Hope this cures ALL.

\*\*\*\*\*  
From Harry Brown

Is it possible to use a pixel pen on the IM-1?

It is possible but it would require a program and some hardware modifications first. There are several different types of these pen's around and some would be pretty simple to adapt to the unit.

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From Russ Needham

I am having difficulty with my MPA-10. I believe the problem is in the AC power supply (model T-215a). It doesn't make the normal "humming" sound when it's plugged in and the power light on the MPA-10 doesn't light up when the computer is turned on.

It sounds like you might have a bad power supply like you suspect and it could be as simple as a broken wire in the plug that plugs into the MPA-10. If you have a multimeter you can check it or have somebody else check it. Otherwise we do repair the machines here at what we think is a reasonable charge.

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Help from the far north and good **LOUIS BOLDUC**

Louis sends in some help for Albert Kremer's disc problem.

For all of the folks with READ ERROR problems, here's how to troubleshoot your disk.

1. Go in the MONITOR mode (call 28672).
2. Keyin M @100 and enter the following:  
BD 6B 0F 86 20 C6 01 BD 6A 9A 7E 70 00
3. Type G @100 a few times, if you hear the stepping motor in the drive going up and down smoothly, then the head is probably dirty and it's just a matter of cleaning it to fix the READ ERROR problem unless you have a bad SECTOR on your diskette, in which case there is no way to recover. (Great news at this point, if the problem is a bad sector on the DISC then you can probably use the new DISC programs For Sale in this issue to correct it)
4. If you hear the stepping motor doing strange things, like really going crazy or if it doesn't move at all, then here's what to do. (This should only be done by a qualified person).....  
Open your disk and locate IC number 4E (7542N, it's a dual peripheral driver NAND). Replace it with a new one or find somebody to replace it for you if you're not used to doing IC soldering.

All of the above steps only apply to drives built by APF and if the above steps do not fix the problem it is recommended that you take the drive to a qualified repair center.

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From one of the new members **CINDY BREWER**

1. Is there a command to erase a tape after you have SAVED programs on it?

The only way to erase a tape is to use a bulk tape eraser or to run it through a normal tape recorder in record mode with out the microphone hooked up.

2. The programs that are printed in the Newsletter, do I use them with the Basic Cartridge only?

Yes, these have to be keyed in, loaded and Run with the cartridge in.

3. Do we order games from you or the people that advertize them?

Please order directly from the advertizers....

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unds like you might have a bad power supply like you suspect

```

10 REM ***ANIMAL
20 REM ***DEVELOPED BY ARTHUR LUEHRMANN
30 REM ***SHORTENED AND MODIFIED BY
35 REM ***NATHAN TEICHHOLTZ (DEC) AND
37 REM ***STEVE NORTH (CREATIVE COMPUTING)
40 REM ***MODIFIED FOR APF USERS BY RICK THUES
50 POKE 24578,38
60 CALL 17046: REM ***CLR SCREEN
90 REM ***DIMENSION ALL STRINGS
100 DIM AN$(200,50),I$(1,3),A$(2),B$(1),C$(1),N$(10),Q$(30),S$(49)
110 INPUT "DO YOU WANT INSTRUCTIONS (Y/N)",A$: IF A$="Y" THEN GOSUB 9100
190 REM ***READ INITIAL DATA
200 FOR I=0 TO 3: READ AN$(I,1): NEXT I
250 N=ASC(AN$(0,1))-48
500 REM ***MAIN CONTROL SECTION
540 PRINT "ARE YOU THINKING OF AN ANIMAL ": INPUT "(Y/N/SAV(CSAVE))",A$
560 IF A$(0)="L" THEN 5000
565 IF A$="SAV" THEN PRINT : PRINT "ICLOAD & RUN TO RELOAD & GOTO10 TO START":
CSAVE : END
570 IF A$(0)<>"Y" THEN 500
580 K=1
600 GOSUB 3000
1000 REM ***QUESTION PROCESSING SECTION
1020 B$=AN$(K,1)
1040 IF B$="\0" THEN 600
1100 PRINT "IS IT A ";
1110 GOSUB 4000
1120 INPUT A$
1140 IF A$(0)="Y" THEN PRINT "WHY NOT TRY ANOTHER ANIMAL?": GOTO 500
1150 N$=S$(39)
1160 INPUT "THE ANIMAL YOU WERE THINKING OF WAS A ",N$
1180 PRINT "PLEASE TYPE A QUESTION THAT WOULD DISTINGUISH A"
1200 PRINT N$;" FROM A ";: GOSUB 4000
1210 PRINT
1220 PRINT "NO MORE THAN 30 CHARACTERS"
1230 Q$=S$(20)
1240 INPUT Q$
1260 PRINT "FOR A ";N$;" THE ANSWER WOULD BE";
1280 INPUT C$
1300 IF C$(0)<>"Y" IF C$(0)<>"N" THEN 1260
1320 IF C$(0)="Y" THEN B$="N"
1340 IF C$(0)="N" THEN B$="Y"
1350 REM ***STORE LAST QUESTION
1360 N1=N
1380 N=N+2
1390 AN$(N1,1)=S$
1400 AN$(N1,1)=AN$(K,1)
1405 REM ***STORE NEW ANIMAL
1410 AN$(N1+1,1)=S$
1420 AN$(N1+1,1)="A":AN$(N1+1,3)=N$
1430 REM ***CONVERT INTEGER REFERENCES TO STRINGS (STR$ FUNCTION)
1440 A=0:B=0:C=0
1460 FOR I=0 TO 1
1500 A=INT((N1+I)/100)
1520 I$(I,1)=CHR$(A+48)

```

```

1550 B= INT ((N1+I)-(A*100))/10)
1570 I$(I,2)= CHR$( B+48)
1600 C= INT (N1+I-(A*100+B*10))
1620 I$(I,3)= CHR$( C+48)
1650 NEXT I
1660 REM ***STORE NEW QUESTION
1662 REM ***CONCATENATE AN$(K,1)
1670 AN$(K,1)=S$
1700 AN$(K,1)="\" : AN$(K,3)=Q$
1710 GOSUB 4300
1715 AN$(K, LEN (AN$(K,1))+1)=C$(0)
1720 X=1
1740 GOSUB 4200
1760 GOSUB 4300
1775 AN$(K, LEN (AN$(K,1))+1)=B$(0)
1800 X=0: GOSUB 4200
1850 GOSUB 4300
1900 GOTO 500
3000 REM ***SUBROUTINE TO PRINT QUESTIONS
3020 GDSUB 4000
3080 INPUT A$
3100 IF A$(0)<>"Y" IF A$(0)<>"N" THEN 3040
3120 C$="\":C$(1)=A$(0)
3130 REM ***LOCATE YES/NO REFERENCE NUMBER
3140 FOR X=3 TO LEN (AN$(K,1))-1
3160 B$=AN$(K,X)
3180 IF B$=C$ THEN 3700
3190 NEXT X
3195 PRINT 3195: STOP
3700 REM ***CONVERT STRING REFERENCE TO INTEGER (VAL$ FUNCTION).
3720 A$=AN$(K,X+2)
3730 A=( ASC (A$(0))-48)*100
3735 B=( ASC (A$(1))-48)*10
3740 C= ASC (A$(2))-48
3745 K=A+B+C
3800 RETURN
3990 REM ***PRINT AN$(K,1) SUBROUTINE
4000 FOR I=3 TO LEN (AN$(K,1))
4020 B$=AN$(K,I)
4040 IF B$(0)<>"\" THEN PRINT B$(0);: NEXT I
4060 RETURN
4190 REM ***ROUTINES TO STORE YES/NO REFERENCES
4200 AN$(K, LEN (AN$(K,1))+1)=I$(X,1): RETURN
4300 AN$(K, LEN (AN$(K,1))+1)="\" : RETURN
4990 REM ***FUTURE LIST OF ANIMALS
5000 PRINT "NO LIST YET": GOTO 500
7990 REM ***BREAK THEN GOTO 8000 PRINTS AN$
8000 INPUT "HOW MANY ELEMENTS OF AN$",X
8010 FOR I=0 TO X: PRINT AN$(I,1): NEXT
8020 STOP
9000 DATA 4, \"DOES IT SWIM\" \Y002 \N003, \AFISH, \ABIRD
9100 PRINT "HERE IS A GAME WHICH WILL GROW WITH YOU AND BE A LOT OF FUN TO PLAY. ALWAYS MAKE YOUR QUESTIONS"
9110 PRINT "Y OR N TYPE QUESTIONS. ALSO BE SURE AND SAV(CSAVE) AT THE END OF PLAY TO KEEP THE ANIMALS."
9120 PRINT : PRINT : RETURN

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HERE ARE THE RESULTS SO FAR OF THE  
MEMBERSHIP SURVEY

(Only four answers so far. Keep them cards and letters coming.)

Q. 1 How important is your machine?...average answer is "8".

Q. 2 More ads?...yes "2", no "2". A footnote from one member:

"I believe ads should be held at 15 to 85% ratio of bulletin."

EDITORS RESPONSE The ads you find in the newsletter are added to it after printing, and are not actually part of it. We promised a minimum of 10 pages a month and have so far not gone under that amount. The full page ads are separate.

Q. 3 Preferable programs?...home "4", business "2", games "0".

EDITORS RESPONSE: I don't know if members just don't want them, or if we supply too many in the program section. Let's hear from you. Question # 5 is omitted to save space for comments.

Q. 6 Want any changes in the newsletter?...ENERYBODY HAD SOMETHING TO SAY ON THAT ONE

"Leave a larger margin on the left side of the sheet so it could be punched out and put into a folder for future reference."

"Better documentation of APF & printed programs. More news about APF. Newsletter should be copyedited."

"The format is OK. How about some business programs, ledger was a good program. How about an inventory program along the same lines.---Here is a good tip;" (Editor here; a good tip followed but it needs to be checked out here personally to avoid any possibility of damage to machines. We test just about everything!)

"None--- I think it serves my purposes just fine but it's difficult to please everyone. Besides keeping track of all home management info & data on our retirement investment--I spend an hour or so each day trying to learn ml the hard way--Trial and Error."

EDITORS RESPONSES:...We already do have as much margin as possible without sacrificing valuable space and information. The club programs hve to be printed in this large print to be readable, the small print got us quite a few complaints. We are doing our best.

We cram in as much as we can. The newsletter is done on a rush basis, to get it out on time (or almost), so we copyedit just before it goes to the printers. He takes 2 days.

Business programs have neglected a little. You can expect to see more in the next coming months.

Q. 7 Left the same?...Friendly attitude. "lonely members".

Q. 8 Use (im-1) for....home "4", bus "1", games "1". (you may check more than one answer if you need to folks)

COMMENTSCOMMENTSCOMMENTS

"Simpler programs are best (like the one submitted) (Editor again; A small program was enclosed with the survey, but we need to check with the individual to make sure we can publish it.

"Number 1 is a loaded question. As a hobby and learning tool it is all important. As a business machine it is limited by lack of programs and capacity, so let's say a 7.5. (Referring to the IM-1

REMEMBER, YOU DON'T NEED TO SIGN YOUR SURVEY FORM IN ORDER TO GIVE YOUR OPIONION.



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 APF 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 APF. These INITIALized disks are still compatible with APF'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.

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SPOTLIGHT on SOFTWARE : A closer look at HEXMART's SUPER BASNUM

SUPER BASNUM is a line renumbering program which incorporates the features found in numerous larger computer systems. Below is a review of those features:

#1. TOTAL USER FLEXIBILITY

You specify the conditions... Renumber the whole program with any beginning line number and increment or renumber a portion of the program starting at any line number.

#2. REFERENCED LINE POINTERS AUTOMATICALLY UPDATED

"BASNUM" has been designed to accomodate all of APF BASIC's referenced line "calls". (ON) GOTO, (ON) GOSUB, IF-THEN, and PRINT USING (when referenced to line #). All line number references will be changed.

#3. OCCUPIES NO USER RAM

Since "BASNUM" exists in an area of memory not normally used by BASIC, most any program that will load into memory can be renumbered. Works in 8 or 16K IM-1's and 27K IM-2's.

#4. REM STATEMENTS IGNORED

All code following a REM statement is ignored. As a result, Assembly (machine) language subroutines written under a REM are unaffected by "BASNUM".

#5. UNIQUE ERROR CHECKING

"BASNUM" has been given four (4) error handling routines. If it finds any of these errors, it will abort renumbering and display an error message. These unique checks guard against user and program generated problems.

#6. USER FRIENDLY

"BASNUM" is menu driven. Combined with easy to understand "prompts", error checking, and mistake recovery, even the first-time user should have no trouble.

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All programs are supplied on quality cassette tape and are transferable to diskette. All will load and run in an 8K computer. Documentation outlines conversion to 16K. 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.

ORDER FORM:

Send NAME, ADDRESS, and MONEYORDER to:

_____	SUPER BASNUM	\$14.95 ea.
_____	SUPER SORT	\$14.95 ea.
_____	TAPE ASSEMBLER	\$14.95 ea.
_____	DISK DIR	\$12.95 ea.
_____	DISK MOD / INIT40	\$12.95 ea.

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

Hexmart is a newly formed software vendor dedicated to providing the APF computer owner with a new and unique collection of programming. We feel the APF computer is a well built and powerful system which lacks only the software to unlock its true potential. After a review of this initial collection, we believe you will agree that this is the beginning of what we feel is a powerful group of UTILITY software. HEXMART is not a game company, we prefer to think of ourselves as a company which provides the "tools" to assist you, the user, with your program 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 APF 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 APF'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 APF, 3) 6800 Assembly Language work sheets, and 4) a brief introduction to Assembly Language programming. Learn to make the APF 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.



# Get ANY brand new APF PROGRAM of your choice FREE!!!

Buy anyone of my games and you get a new APF program of your choice; still in the wrappers and gaurenteed new; FREE!!!!!!!!!! I have all games on the list below but please list 1 alternate game in case your first choice is sold out fast. To get your free program just order any one of my games; PAK-MAN, FROGGY ON THE FREEWAY, ESCAPE, MS. PAK-MAN and coming soon 16K Escape II & 16K Super Froggy. These are excellent quality hi-res arcade games loved by hundreds of APF owners.

## HERE ARE SOME COMMENTS FROM HAPPY CLUB MEMBERS:

- "Thank you for your games. Has been great fun for my kids"  
G. Kortman Grotn, CT.
- "Please do more games (excellent)"  
P. Burrows Jerseyville, IL
- "Kids love it, excellent, what else do you have?"  
J. Raccio Wallingford, IL
- "...best game since Space Destroyers ...excellent game"  
G. Beihold Hoagland, IN
- "My family and I enjoy your Pak-Man & Froggy very much, let us know if you write more games"  
L. Shouse Halfway, MO
- "Good games, hard to beat,..."  
J. Orescovich St. Louis, MO
- "Very fun & fast action game. Difficult, keep up the good work!"  
L. Rowley Temple Hills, MI

I WOULD LIKE TO THANK THE HUNDREDS WHO WROTE AND GAVE ME THEIR SUPPORT!

## APF Programs Available:

<u>Electronic Files</u>	<u>Math Tutor</u>	<u>Hangman</u>
<u>Bar Charts</u>	<u>The Word Factory</u>	<u>Shooting Gallary</u>
<u>Typing Tutor</u>	<u>Spelling Duel</u>	<u>Casino</u>
<u>Check Book Manager</u>	<u>Jumbled up Things</u>	<u>Black Jack</u>
<u>Budget Manager</u>	<u>Perception</u>	<u>Baseball</u>
<u>Personel Business Machine</u>	<u>Music Composter</u>	<u>Boxing</u>
<u>Billboard</u>	<u>Space Destroyers</u>	<u>Backgammon</u>
<u>Space Size and Surface Guide</u>		<u>Catena</u>

ALL APF PROGRAMS ORDERED WITHOUT 1 OF MINE \$4.00 plus shipping

## MY NEWEST GAME

If you liked Pak-Man, you'll love MS. PAK-MAN. I didn't just put lipstick and a red ribbon on Pak-Man; I added 9 completely different screens. That's Right! Eat all the dots and you go to the next challenging maze. But there's more! Make it thru the first 10 screens and you start over with only 2 power pills per screen! Make it thru those 10 and start over with NO power pills! Make it to screen 30 and you'll get a valuable message!! A REAL CHALLENGE!!!! \$7.50 plus shipping

