

# AARDVARK

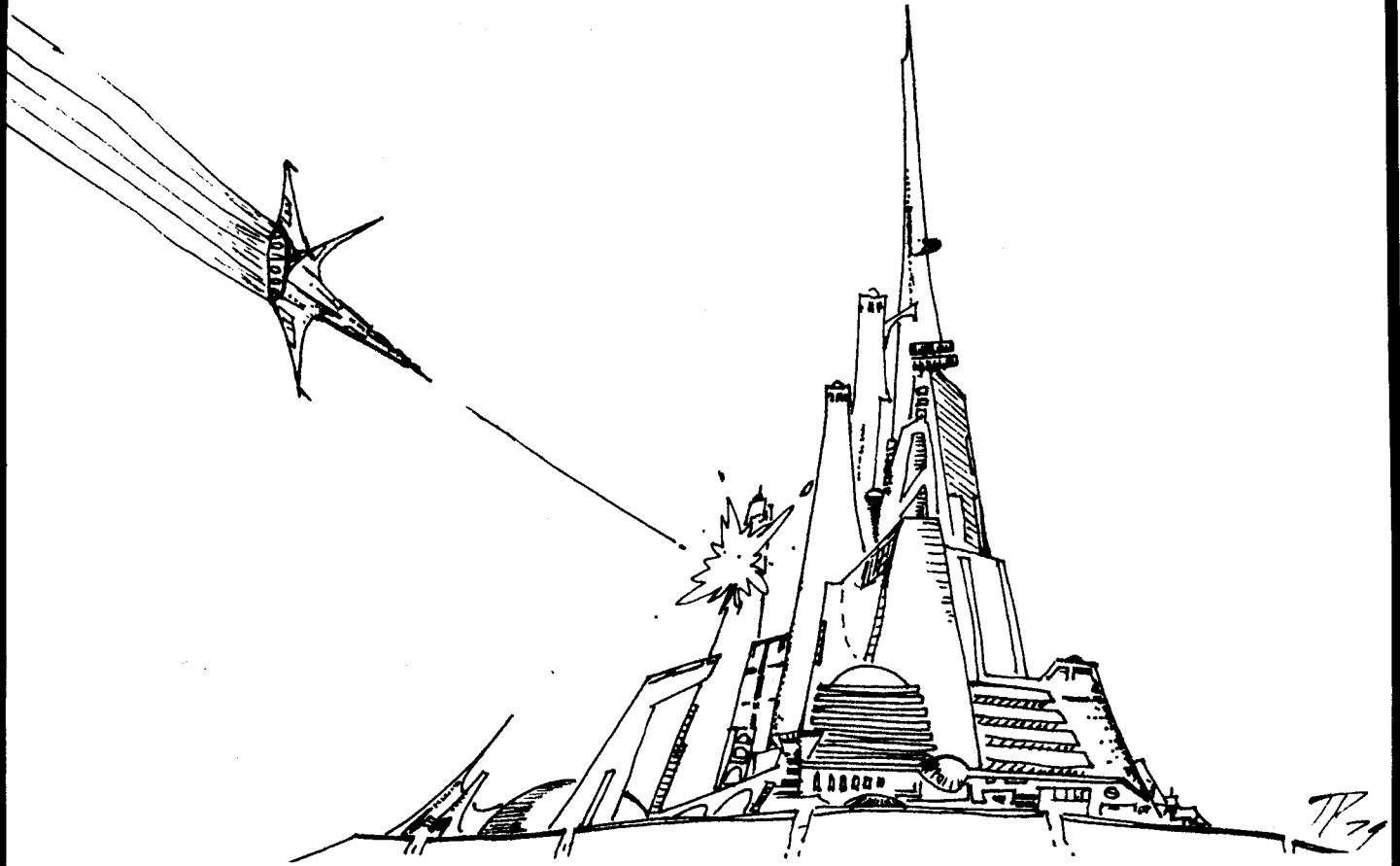
## TECHNICAL SERVICES

1690 Bolton, Walled Lake, MI 48088

Telephone: (313) 624-6316

NOVEMBER 1979

\$1.00



### PROGRAMMER'S NOTES

These programs have all been written with the idea that the user should be able to change and customize them, but should not be required to do so. Therefore, they all run well as written, but all come with complete documentation so that you can easily change them. You will get a listing with each program and wherever unusual constructs have been used, you will get an explanation of how they work. When you tire of the original program, you can add a target, change the scoring, change the display, speed it up, make it harder or easier, or even use it as a subroutine in a new program of your own.

All of the program in this catalog, except CHESS and AUTO LOADER are in BASIC. Over 30 of them run in 4K.

All of the programs are original. You won't find them in books of games or old issues of BYTE. A few of them replay old themes from machine code days, but those have been rewritten from scratch to run well in BASIC and on OSI computers.



## PUT A LITTLE LIFE IN YOUR SYSTEM

There are a lot of LIFE games around, but most of them require at least 8K of RAM and most of them scroll the screen to show the next generation. This one will run in 4K and POKE's the new generation up so that you can see the change.

```
100DIMA(705):FORX=1TO8:READM(X):NEXT:C=53504      C=Starting point of display
110DATA63,64,65,1,-1,-63,-64,-65
REMFORC1 & SUPERBOARD DATA31,32,33,1,-1,-31,-32,-33
310INPUTA$:IFA$ <>"D"THEN310                      INPUT *'s
400FORX=1TO704:IFPEEK(X+C)=42THENGOSUB2000        Find the *'s
410NEXT:FORX=1TO704:IFA(X)=3THENPOKEC+X,42       POKE up new *'s
420IFA(X) < 2ORA(X) > 3THENPOKE(X+C),32          Blank the dead spots
430A(X)=0:NEXT:GOTO400                             Reset the array. Start next scan.
2000FORY=1TO4:IFX<639THENA(X+M(Y))=A(X+M(Y))+1  Add neighbor count to squares-if
2010NEXT:FORY=5TO8:IFX>65THENA(X+M(Y))=        it doesn't take you out of array.
A(X+M(Y))+1
2050NEXT:RETURN
```

To use this program, input any pattern of \*'s. To have a blank line, input any character as the program will ignore anything but a \*. The array covers only the top half of the screen on a C2 and must be centered there with inputs. It covers the entire visible screen on a C1 so the pattern can be placed anywhere on those systems. Enter "D" when you are ready to start.

### A LITTLE MORE LIFE?

If you have 8K and want to fill the entire screen on a C2, you can do so and add a few frill in the process. You will need lines 110,420,430,2000,2010, and 2050 from the 4K program. Add-

```
100DIMA(1408):FORX=1TO8:READM(X):NEXT:C=53504    Set bigger array and set X as counter
:X=1                                              DIMA$ if you want to enter more than
300INPUTA$(X):IFA$(X) <>"D"THENX=X+1:GOTO300     10 lines of pattern
310FORY=1TO15:?:NEXT:FORY=1TOX-1:?:A$(Y):NEXT   Print pattern on screen
320FORY=1TO15-(X/2):?:NEXT                       Center the pattern
340FORX=1TO192:POKEX+C+1407,161:POKEC-X,161     Draw the border
:NEXT
350FORX=65TO1407:IFPEEK(C+X)=42THENL=X:GOTO     Lines 350-380 find the edge of the
370                                              array. Searching just that area
360NEXT:IFL<1THENL=1                             speeds up the program.
370FORX=1442TO1STEP-1:IFPEEK(C+X)=42THENU=X
GOTO390
380NEXT:IFU>1407THENU=1407
390X=INT(G/10):POKE55005,X+48:POKE55006,G-      POKE up Generation count
(10*X)+48:G=G+1
400FORX=LTOU:IFPEEK(C+X)=42THENGOSUB2000
410NEXT:FORX=LTOU:IFA(X)=3THENPOKEX+C,42
2020IFX>U-65THENU=X+65:IFU>1408THENU=1408      Update size of display
2030IFX<L+65THENL=X-65:IFL<1THENL=1
In line 2000, Change 639 to 1343
```

This program could be changed to fit the 600 board (C1 and Superboard) by changing the value 1408 to 1000 everywhere it appears, changing 639 in line 2000 to 935, and POKEing G into 54157 and 54158. However, the 4K version runs well on the C1 so that I doubt that it would be worth the effort to type in the longer version.

### CHESS FOR OSI

This one offers a full graphics display (We even have a version for systems without graphics chips) and three levels of play. As set up, it requires a video system and it is one of the few programs we sell that is not in BASIC, so specify your system carefully when ordering.

CHESS \$19.95      **\*\*NOTE\*\*** As CHESS did not originate here, we are unable to offer it as part of any package or library.

EUREKA!!!!!!      WE GOT IT!!!!!!      THE ULTIMATE - BATTLEGAME!!!

### TEN TANK BLITZ

This ia a video based board type game for people who like games like Risk and Blitzkrieg, but who want real time action and who do not want to have to move a hundred or so pieces every turn. In this game, each side maneuvers and fights five tanks across a battlefield that changes every game. There are eight types of battlefields built in and the program is designed to easily accept changes in kill and win conditions. It runs in real time, offers fairly complex strategy and runs in 4K with 14 bytes left over.

TEN TANK BLITZ \$9.95

### STARFIGHTER

This is one of our best games and it will run on any video based OSI system. It is a real time space war game. You pilot a cruiser on a mission where you will face up to ten alien vessels. You have a variety of weapons with different characteristics.

STARFIGHTER features a full visual display of the alien (even if you have an alphabetic only system) and working instrumentation. Your speed, range, weapons status and damage status are displayed continuously. As with all of our games, it is written in BASIC so that you can make changes to fit your own tastes. When you get so that you can beat the basic game, a one line change will increase the difficulty level.

Due to the complexity of the display, it comes in three different versions.

STARFIGHTER 540      (C2-4P and other 540 video board systems)  
STARFIGHTER 600      (C1 and Superboard)  
STARFIGHTER Alphabetic (540 only)      \$5.95

### SEAWOLFE

Move over Arcades - Here we come!! This SEAWOLFE game will run on any polled keyboard OSI and features multiple torpedoes, floating mines, exploding ships and lots of fun. It does require a graphics chip.

SEAWOLFE      \$5.95

### TANK FOR TWO

One darn-good tank battle game. It is played on a complex field of fixed and randomly chosen barriers and islands, with tanks that are equipped with three launch racks and steerable missiles. It allows you to hit almost any spot on the board from any other spot - if you're good. This is definitely a non-trivial tank game. It comes in separate versions for keyboard and joystick.

TANK FOR TWO (keyboard)  
TANK J (joystick)

\$5.95 each

### FIGHTER PILOT

You've seen this one in the arcades, too. Enemy fighters appear in your cross hairs and try not to get shot. This one has ten levels of difficulty and an automatic fire option. It comes set up for either keyboard or Joystick.

FIGHTER PILOT \$5.95

### KILLERBOT

This is a classic from the old machine code days. You have to cross a courtyard full of killer robots and charged guard posts. If you can get the robots to run into each other or a charged post, they self-destruct. This version offers 20 levels of difficulty, uses keyboard or Joystick, and offers a lot of real time excitement.

KILLERBOT \$5.95

### BARRIERBALL

An excellent rendition of a game that used to be available only in arcades. Another fast real time game. Players attempt to trap each other with build-as-you-go barriers. It has good graphics, several skill levels, and plays with either keyboard controls or joysticks.

BARRIERBALL \$5.95

### \*\*\*\*\*JOYSTICK PLANS\*\*\*\*\*JOYSTICK PLANS\*\*\*\*\*JOYSTICK PLANS\*\*\*\*\*

You can buy joysticks locally (just about anywhere in the U.S.) and install them in about an hour on any polled keyboard OSI system. The total cost is about \$10.30 per joystick if you buy them. We'll also include a sheet on how to do the whole conversion, including homemade joysticks for about \$2.00 a joystick on either C1 or C2.

JOYSTICK PLANS

\$3.00

BACKGAMMON (8K)

This is both a good game to play and a good program to play with. As it comes, it plays a pretty fair game of BACKGAMMON. It also comes fully documented so that you can modify the program to fit your ideas about how it should play. It features a full graphics display. Requires 8K

NEW!

BACKGAMMON (8K)

\$12.95

BATTLEFLEET

This one is Battleship all grown up for adults. It's you against the computer as you try to destroy a varied and complex fleet hidden in a large grid area. We took the luck out and came up with an adult game of topographical thinking. It's a fun mind twister. Had excellent graphics and several levels of difficulty. If you enjoyed Battleship as a kid and really like to think, this one is for you.

BATTLEFLEET

\$5.95

SLASHBALL

This fast, real time video game requires both fast reflexes and quick thinking. You have to make quick decisions, but random moves are penalized. Perhaps we should call it the thinking man's arcade game. Play it alone or with a friend, and at several levels of difficulty.

SLASHBALL

\$5.95

BREAKTHRU

A fast pinball-like game with quick action and a lot of scoring possibilities. It combines the best of PONG and PINBALL. It comes with two different skill levels programmed in (you can add more), and a option for adding bumpers wherever you want them. It requires a graphics chip as written, but can easily be modified to run on an alphabetic system. It comes ready to play with either keyboard controls or joystick.

BREAKTHRU

\$5.95

BOMBER

I just rewrote this, and it came out great! It includes dogfights with oncoming aircraft and bombing of moving targets that come in ever changing patterns. There is also a simpler version for alphabetic only systems.

BOMBER G (Graphics)  
BOMBER A (Alphabetic)

\$5.95

## HANDY LOCATIONS

### PAGE 0 USAGE

0000 JMP to warm start in BASIC (4C/74/A2)  
00FB cassette/keyboard flag for monitor'  
00FC data temporary hold for monitor  
00FE-00FF address temporary hold for monitor

### PAGE 1

0100-0141 stack  
0130 NMI vector - NMI interrupt causes a jump to this point  
01C0 IRQ vector

### PAGE 2

0200 cursor position'  
0203 load flag  
0205 save flag'  
0206 CRT simulator baud rate - varies from 0 fast to FF slow  
0212 Control-C flag'  
0218 input vector FFBA  
021A output vector FF69  
021C Control C check vector FF9B  
021E load vector FF8B  
0220 save vector FF96  
0222-02FA unused

### PAGE 3 and up to end of RAM is BASIC workspace

A000-BFFF BASIC in ROM  
D000-D3FF Video refresh memory  
DF00 polled keyboard  
F000-F001 Cassette port 6850  
F800-FFFF Monitor EPROM  
FC00 Floppy bootstrap  
FD00 Keyboard input routine  
FE00 Monitor  
FF00 BASIC I/O suport

### USEFUL SUBROUTINE ENTRY POINTS

A274 warm start for BASIC  
BD11 cold start for BASIC  
BF2D CRT simulator - prints char in A register to screen offset  
by cursor (200 HEX)  
FD00 input char from keyboard, result in A  
FCB1 output 1 byte from A to cassette  
FE00 entry to monitor, clears screen, resets ACIA  
FE0C entry to monitor, bypasses stack initialization'  
FE43 entry to address mode of monitor  
FE80 input ASCII char from cassette, result in A, 7 bit cleared  
FE93 convert ASCII hex to binary, result in A, -80 if bad  
FF69 BASIC output to cassette routine, outputs one char to  
cassette, displays on screen, outputs 10 nuls if carriage  
return character

### CONCENTRATION

This one will run on any video based system - but it is the most fun with a graphics chip. The computer will hide symbols behind doors in a 6x6 grid. Match them up and you get a point and another turn. Watch out for little kids. Some of them have great short term memories and often beat embarrassed adults. Great for the entire family.

CONCENTRATION \$4.95

### PICTURE PLANNER & SUPER DOODLER (8K)

This one lets you draw pictures and save them on tape. The displays can then be used in other programs as they are saved as DATA statements. It has a choice of transparent, erasing, or drawing cursor, draws with any symbol, and displays the memory location of each screen location you use. Available now for the C2 (540 video boards) and hopefully (no promises) will be available Nov. 1 for the C1.

**NEW!**

SUPER DOODLER (8K) \$5.95

### AWARI

This one is tougher than it looks. Its an old African game with simple rules and a tough strategy. You can learn to play in a few minutes and then spend weeks learning to play well.

**NEW!**

AWARI \$5.95

### ROBOTANK

You'd think that the last thing that the world needed was another tank game. However, this one pits your tanks against a fleet of radar equipped, computer driven tanks. It also has a two person version included so that you can play against your friends. It uses Joystick or keyboard controls, includes the neatest graphics I have ever seen in a tank game.

**NEW!**

ROBOTANK \$5.95

### LUNAR LANDER

I know you have a Lunar Lander that you copied out of a magazine, but does yours work in real time and have a graphics display? This one does!! If you really want to play lunar lander, this is the one!

**NEW!**

LUNAR LANDER \$4.95

### MASTERMIND and GLEEP

This is a two-for-one package. "Find the Gleep" for the kids and our own version of MASTERMIND for Daddy.

MASTERMIND/GLEEP

\$4.95

### MATH PRACTICE

This program automatically adjusts to the age level of the child. Provides practice in the basic skills of addition, subtraction, multiplication, and division. For younger children, the division section features a remainder; for older ones, the problems read out in decimals.

MATH

\$4.95

### TANKKANNA

This one looks easy, but it isn't. You race a tank around a twisting course. It takes coordination and timing to keep from crashing into walls. Keyboard or joystick, 10 levels of difficulty.

TANKKANNA 540

\$4.95

TANKKANNA 600 (C1 and SUPERBOARD)

### GOBBLER

This package contains three programs, all based on a common "eater" construct. The little fellow moves more or less at random, but can only go into areas he hasn't seen before. We gave him a little memory to help him out of the blind spots and came up with the darnedest intelligent looking construct.

GOBBLER

\$4.95

### BIORHYTHM

Accurately lists out the three basic biorhythms for any given timespan. Automatically calculates leap years. Simply input birthdate and dates to be charted.

BIORHYTHM

\$3.95

### BOWLING

This is a game for 1 to 8 players. It's not standard bowling, (there are 15 pins and 5 balls per frame), but it is fun and even young kids can play it because there is only one control. An enjoyable one to share with the family.

BOWLING

\$3.95

### MASTERMIND II

A mind twisting version of MASTERMIND that offers enhanced graphics, six levels of difficulty and play that is virtually (numbers instead of colors) identical to the original game. Warning: this one can be habit forming.

MASTERMIND II

\$4.95



## UTILITIES

### LINE RENUMBERER

This valuable little program lets you program like a professional - or at least makes your listing look that way. It renumbers BASIC programs so that all the line numbers are in even multiples of ten. (no more 20, 26, 28, 34, 99, etc.) It even renumbers the GOTO, THEN, and GOSUB statements.

LINE RENUBEREER     \$4.95

### VARIABLE TABLE MAKER

This program tells you which variables you have yoused and which lines each appears in. Handy tool for debugging long programs. Can be co-resident with RENUMBERER.

VARIABLE TABLE MAKER     \$4.95

### SEARCH

Similar to the VARIABLE TABLE MAKER, but is shorter, requires less memory, and is a little handier. It will search a BASIC program for a single variable name, statement or line number. (i.e., you can search for "GOSUB1400") and will list out the line numbers it appears in. A very handy utility.

SEARCH     \$4.95

### SUPER UTILITY PACK

Four utilities in one package. (LINE RENUMBERER, VARIABLE TABLE MAKER, SEARCH, and BRANCH FINDER). All co-resident. Programs to help you write and document programs.

SUPER UTILITY PACK     \$12.95

### AUTO LOADER

This is a machine code tape that allows you to generate self loading machine code tapes. A corrected and improved version of OSI's Autoload system, this one allows you to load a main program and then automatically add a page one segment (for tables and similar stuff). For BASIC in ROM systems only. Specify system.

AUTO LOADER     \$4.95

### DISSASSEMBLER

This is a 6K BASIC program that disassembles machine code. **NEW!**  
It is invaluable for looking at the ROMs in your system.

DISSASSEMBLER (6K)     \$5.95

GRAPHICS INSTRUCTIONS Thirteen pages on how to add Klingon-killing type graphics to your programs. Detailed instructions on how to poke ships, torpedoes, or scores onto yours screen, move them around, and detect when you hit something.

\$3.00

HOW TO READ A LINE OF MICROSOFT Ever wonder what those funny numbers in the program storage memory meant? This explains how MICROSOFT stores the program. Allows you to play with neat programming ideas like a RENUMBERER.

\$1.00

600 BAUD CASSETTE/PRINTER INTERFACE CONVERSION FOR THE C1-P  
3 sheets \$1.50

JOYSTICK INSTRUCTIONS (see description on page 5) \$3.00

RS-232 CONVERSION FOR C1 AND SUPERBOARD

Detailed instructions and diagrams for implementing the RS-232 on the 600 board. 5 pages.

\$3.00

OSI ROM BASIC DATA SHEET This is a 20 page descripton of ROM BASIC. It includes decoding of the jump tables, descriptions of a variable storage, locations of the major subroutines (such as LIST, PRINT, READ, and so on), flow charts of the warm start, execution and decoding of BASIC routines. It is still a little disorganized, but it will cost more next month when we get in in prettier form.

\$9.95

HOW TO WRITE PROFESSIONAL PROGRAMS that will run on both C1 and C2 systems. This data sheet has no price, as it is available free, but only to those serious programmers who have submitted a program for publication.

DISSASSEMBLED ROM LISTING We don't want to oversell this one. It is not - repeat, NOT - a commented or explained listing of the ROMS. It consists of the dissassembler output of all of the ROMS in a ROM BASIC OSI. It's simply a little cheaper and handier to get a copy of ours rather than use all that printer paper. Its 50 pages now, but we'll try to cut it down by the time this catalog is published.

\$8.95

\*\*\*\*\*SPECIAL DEALS\*\*\*\*\*

JOYSTICK PACKAGE

This one contains KILLERBOT, TANK J, BARRIERBALL, FIGHTER PILOT, and the plans for the joystick conversion. Normal cost - \$26.80

PACKAGE PRICE - \$19.95

BATTLEPAK

For the battlebuff, this package contains STARFIGHTER, BATTLEFLEET, SEAWOLFE, and BOMBER. Normal cost \$21.80

PACKAGE PRICE - \$15.95

THINKER'SPAK

For mental exercise. Contains BATTLEFLEET (our toughest mind twister), MASTERMIND/GLEEP and CONCENTRATION. Normal cost \$14.95

PACKAGE PRICE - \$11.95

THE BUDGET LIBRARY

STARFIGHTER  
SEAWOLFE  
TANK FOR TWO  
FIGHTER PILOT  
BREAKTHRU  
BATTLEFLEET  
CONCENTRATION

SLASHBALL  
KILLERBOT  
BIORHYTHM  
MATH  
BOMBER  
BARRIERBALL  
GOBBLER

MASTERMIND  
GLEEP  
TANKKANNA  
BOWLING  
LINE RENUMBERER  
THE JOYSTICK PLANS

All comes on one tape. I must point out that this is a tape to tape copy and may have a few errors. The last batch I checked out averaged two per tape - not many, but they were annoying. If you will do a lot of back and forth winding, save me money on tape and time on copying, I'll give you a real deal!!! \*\*\*NOTE\*\*\* the BUDGET LIBRARY has the same documentation as the regular library.

PACKAGE PRICE \$49.95 (or about \$2.62 per program - less if you consider that Gobbler contains three versions and that FIGHTER PILOT, BREAKTHRU, KILLERBOT, BARRIERBALL and TANKKANNA also contain Joystick versions. You couldn't buy magazine and type in general purpose programs for that price.)

THE LIBRARY

Contains everything in the BUDGET LIBRARY plus the SUPER UTILITY PACK (three programs in place of the RENUMBERER) and TEN TANK BLITZ. All (except two for one deals) come on separate tapes. Regular prices total \$111.05

PACKAGE PRICE \$74.95

\*\*\*\*\*GOOD NEWS If you have already purchased one of the programs' in a package from our ads, we will discount your package \$3.00 for each program you have already ordered.

BAD NEWS\*\*\*\*\*No discounts on Library Deals. One enterprising fellow ordered a \$49.95 Library, added a \$1.00 catalog and asked for a 10% discount. No can do!!!

### PRINT AT STATEMENT

OSI has a great BASIC but the lack of a PRINT AT command makes it difficult to print scores and names and similar items where you want them on the screen. You usually end up with a long series of POKE statements and you have to divide the score up into individual digits to do even that. There is a simple solution. Add this subroutine to your program-

```
5000FOR Y=1 TO LEN(D$):POKE D+Y,ASC(MID$(D$,Y,1)):NEXT Y:RETURN
```

To POKE up any name, word, or even sentence on the screen simply set the name equal to D\$ and make D=equal the starting address on the screen. i.e.

```
3000D$="WINNER IS":D=54040:GOSUB 5000
```

Scores should be done just a little differently. You start at the second digit because the BASIC thinks the sign is the first digit in the string and can set you over one space from where you planned. You may also want to blank the digit after the string to allow for the possibility that the score may decrease (say from three to two digits). To use it you set the score equal to D\$ and the final product looks like this-

```
3000D$=STR$(SCORE):D=54040:GOSUB 5000
```

```
5000FOR Y=2 TO LEN(D$):POKE D+Y,ASC(MID$(D$,Y,1)):NEXT Y
```

```
5010POKEY,32:RETURN
```

### SOME POKES YOU SHOULD KNOW

To aid in reading you may want to set the line length down to 32 on a C2 or to 23 on a C1. Unfortunately, if you set them down when you start up the system you will be unable to make tapes. Fortunately, the line length is stored in location 15. You can reset line length by executing 100POKE 15,32 (or any other number down to as little as one) and then reset with 200POKE 15,72 to record the program.

If you find it annoying to reserve space for user programs when you fire up the system (I always forget to do it when I am using the rapid screen clear) you can set the memory space by POKEing the high order digit (in HEX) into location 134 and the low order digit into 133. For instance, the line 100POKE 134,14 will reserve space for the screen clear without resetting the system.

You can even make self starting BASIC programs if you are willing to do a few additional moments work when you make the tape. The flag for LOAD is in location 515. A 1 POKEd into that location turns off the load mode. Therefore, to make a self start tape-as soon as the program finishes reading out to the tape and while the system is still in SAVE mode, type in POKE 515,1:RUN

That command will record on the tape and start the program automatically when it finishes loading.

SAVE can be turned off in a similar manner by POKEing a 0 into location 517

### EASY KEY DETECTION

If you are doing a one player game, you can detect the control keys without either POKEing the keyboard or turning off the CONTROL C scan. The values for the shifts, rept, control, and esc keys are recorded continuously in location 57100. i.e. If you push the right shift, a 3 always appears in 57100. To see how it works try this program

```
10PRINT PEEK(57100):GOTO 10
```

Then push the control keys one at a time. It is simple, fast, and allows you to keep the CONTROL C function to break the program..

SCHNIEDERSTUFF (NAMED FOR THE AUTHOR)

TEENAGE DRIVER

In this tasteless game, you drive around a parking lot attempting to hit as many pedestrians as possible. It's good for working off frustrations after the long drive home.

\$4.95

BATTLEGROUND

In this new game, you drive a tank trying to blow up two enemy bunkers. The problem is to get by the mines, barriers, houses, and trees without losing your entire tank force.

\$4.95

POKER ROUTINE MAKER

This one could use a better name. This program, written in BASIC, helps in writing USR routines by translating an already written machine code program into taped series of DATA statements numbered at your choice of locations. It also generates the statements to poke the data into the proper location and poke the starting vectors into locations 11, & 12.

\$3.95

BLACKJACK (8K)

There are a lot of BLACKJACK games around and you can get one almost free if you are willing to type one out of an old magazine. We, therefore, did not offer one until we could come up with a game worth paying money for. This one shuffles 52 cards so that you can't get 5 Jacks in a row, and plays the real and current Vegas rules. The card display is nice and the game is accurate enough to test betting systems. Requires 8K.

NEW!

BLACKJACK (8K)

\$6.95

SCHNEIDERPAK

All three of Schnieder's game programs (BATTLEGROUND, TEENAGE DRIVER and BLACKJACK) in one package.

SCHNEIDERPAK

\$13.95

SUPER-SCHNEIDERPAK

All three of Schnieder's game programs, plus his POKER ROUTINE MAKER. Four tapes in all.

SUPER-SCHNEIDERPAK

\$16.95

As this page indicates, we do accept programs from outside sources. They must be original, on tape, and well enough documented that I can tell how to use them. Unlike some software houses, we don't promise unseen millions, but the commissions on a game could pay for a new printer - and utilities do even better. Also, we normally evaluate a program within two weeks and get it into production in 6-8 weeks.

## SEMI-FAST SCREEN CLEAR (WITHOUT THE USER FUNCTION)

I hate to be bothered with the USR screen clear - I can't remember it off hand and hate to look it up. Besides, it takes too much memory. This one is fast, clears the whole screen in 2.16 seconds, and is easy to use.

100 FORX=1T029:?:NEXT (use for both systems)

(C2)  
110 FORX=55168T055295:POKE  
X,32:NEXT

(C1)  
110 FORX=54147T054275 (54307  
on some monitors)POKEX,32:NEXT

## PRINTER POKES

There are two handy locations you should know if you are trying to use a fast cassette interface or a printer with a slow carriage return. In either case, it is sometimes handy to put out more nulls than the ten that BASIC allows. The null number is stored in 13. By POKEing the number of nulls you want into 13, you can get up to 255 nulls.

Location 518 is the baud rate simulator. It's end effect is to put an interval between printed characters. It can help if your printer has handshake problems or if you just want to slow down the print for emphasis. POKEing a number into 518 gives you the interval.

## A PARTICULARLY HANDY SUBROUTINE

BF2D is a real time saver if you are writing machine code. It is a subroutine that prints a character from the accumulator to the screen offset by the value stored in 200 (hex). It also increments the cursor and can process a carriage return so a lot of your work is done for you.

(from: James Cameron  
Providence, R.I.)

## MORE USEFUL SUBROUTINE ENTRY POINTS (CON'T)

FF00	Reset entry point
FF8B	Load flag routine
FF96	Save flag routine
FF9B	Control-C routine
FFBA	BASIC input routine

## BUG TIME

If your word processors and other stuff using subscripted strings hang up in the machine, it may be due to a bug in BASIC. The garbage collection routine that stores subscripted strings has a bug. After it handles about 19 strings and it gets lost.

## FREE UTILITY

One of the first things that most programs need is to have a number of lines combined or eliminated to save space. Working with a strange program you got from someone else or wrote long ago yourself, there is a real problem making sure that the line is not addressed by a THEN or GOTO or GOSUB statement. This simple little utility will scan a program and print a list of all branched line numbers. We have a somewhat fancier version in the SUPER UTILITY, but this will work.

63950 A=769;X=PEEK(127)+PEEK(128)*256-180	X=ending address of text
63955 A=A+1;B=PEEK(A);IF B<>136ANDB<>140	REM 136,140,&160 are tokens
ANDB<>160ANDA<XTHEN63955	for GOTO,GOSUB & THEN
63960 IFA=>XTHENSTOP	Look for end
63965 A=A+1;B=PEEK(A);IFB=32THEN63965	Look for blank after GOTO'
63970 IFB<47ORB>57THEN?A\$"!";A\$="";GOTO	Print number
63985	
63975 A\$=A\$+CHR\$(B);GOTO63955	ADD a digit to number found
63985 IFB=44 THEN63965	Look for ", " - meaning
63990 GOTO63955	ONGOTO

## INPUT WITHOUT SCROLLS

Everyone has times he wants to input something without scrolling the screen. We usually use PEEKs of the keyboard - and still have to do so to run in real time. However, if you are doing a stop and wait for input, use this routine: 1000 POKE11,0;POKE12,253;X=USR(X);P\$=CHR\$(PEEK(531)). That will input one letter. If you want a number then P=PEEK(531). If you want a word or sentence, add up the PEEKs with A\$=A\$+P\$. By using the print at statement elsewhere in this catalog, you can print the input to anywhere on the screen and seem to input at any location.

## PRINTS WITHOUT SCROLLS

This one is easy! I have found it handy in real time games to use prints for readouts, as they work faster than POKE routines. Unfortunately, they tend to louse up the graphics by scrolling the screen. Printing a line across the bottom is easy using the CHR\$(13) function. Try this:

```
10 FOR X=1TO20?:NEXT
20 R=5000:S=1
30 R=R-S:S=S+5;FORX=1TO150:NEXT
40 ?CHR$(13)"RANGE" R" SPEED "S;:IFR<0THEN60
50 GOTO30
60 PRINTCHR$(13)"          LANDED";
70 FORX=1TO1300:NEXT:GOTO20
```

That will leave your graphics alone and print a line of text (or characters if you use the CHR\$ function to build graphics) across the bottom of the screen and not scroll the screen. Two quick reminders -- the first time you forget the CHR\$(13) at the beginning or the ";" at the end, the screen will scroll. And remember to add enough blanks to blank the previous line if the new line is shorter.

### HOW THEY COME

Except for the BUDGET LIBRARY, each program is made on an OSI system set for 300 Baud  $\pm$  .02%. We use Panasonic recorders on which we have verified standard speed and head alignment. Each program is copied twice on different recorders - just to make real sure it will load. Programs ordered individually come one to a cassette, except for two for the price of one packages which come two to a cassette.

The Master for the BUDGET LIBRARY is made on this equipment and then copied professionally.

Anyone who has a cassette interface set reasonably close to 300 Baud and a tape recorder with a tone control will be able to load these programs. We guarantee it.!

### FAME AND FORTUNE

How about a little fame and fortune? This offer will get you as little as any. Send us a new Poke or Subroutine in ROM location for OSI equipment and we will send you a free program of your choice or discount a package the value of one program and put your name in our next catalog. Unfortunately CHESS is not included in the offer.

### STUFF AND SUCH

We try to deliver the very best product we possibly can - but we're only human and sometimes mistakes occur.

For example, we found out last week that we had inadvertently left a line of instructions out of the AUTO LOADER documentation. Without this line the program was impossible to run. We had shipped it out that way for almost two months before anyone wrote to complain about it. Once we realized the mistake we were able to send corrected documentation to everyone who had purchased the program.

But we're puzzled... Maybe people expect "shlock" software, but we don't want to sell it. If you have trouble with one of our products, let us know - and let us know exactly what its doing - in the case of tapes, its preferable to send it back so we can take a look at it on our systems. We'll do our best to fix it, but first we have to know about it.

(Positive feedback is also accepted!!)

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