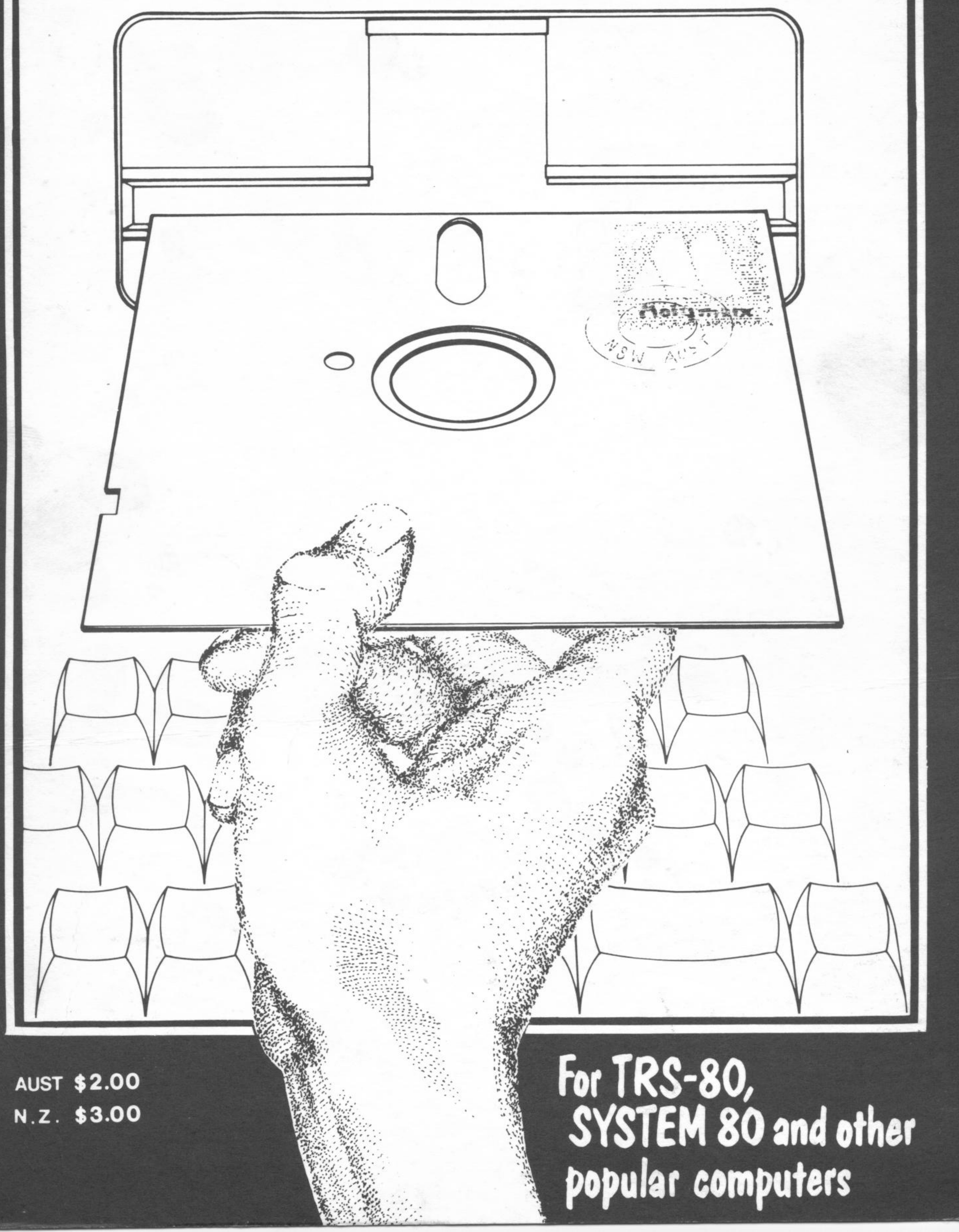
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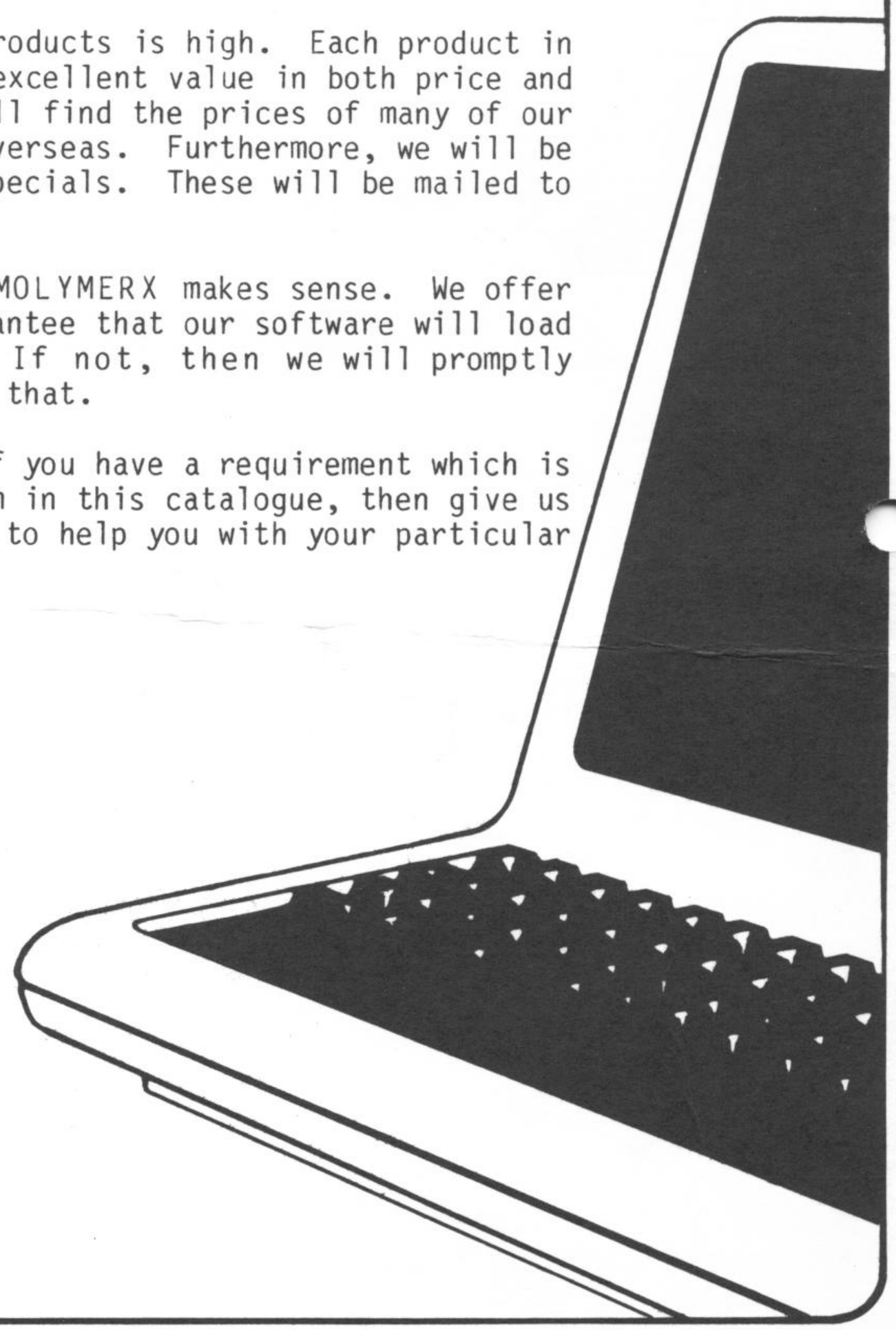
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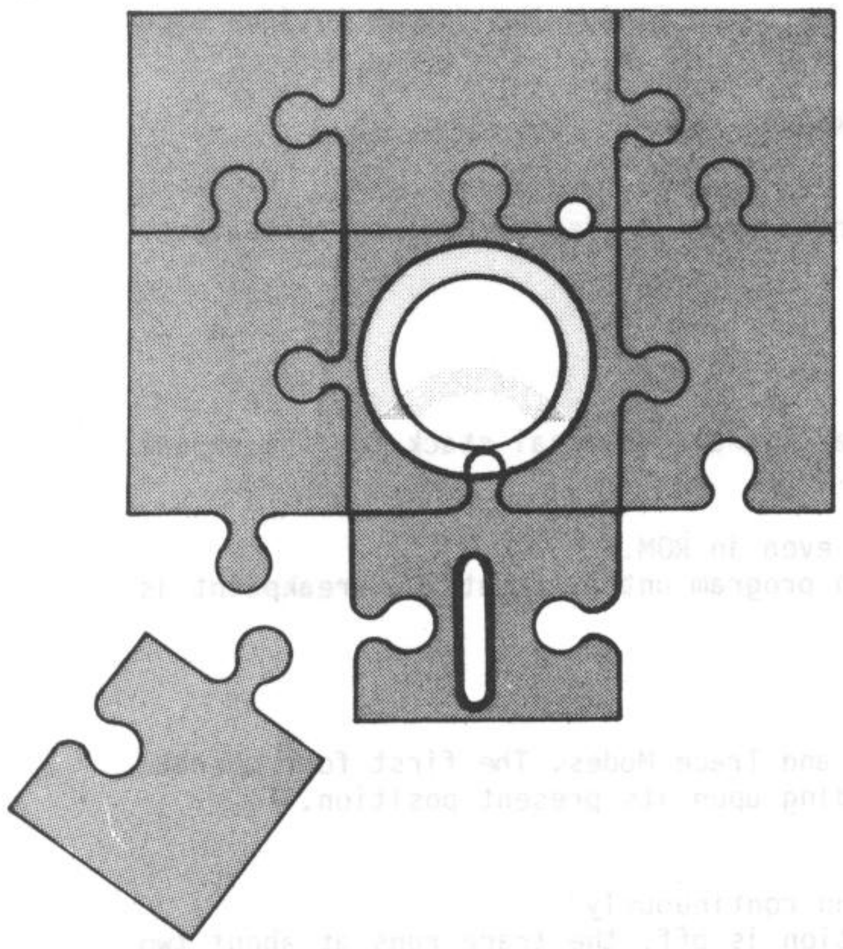
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Graphics and Layout
Stephanie Fahey

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PROGRAMMING UTILITIES



OBJECT CODE RELOCATOR

This program is a TRS-80 Object Code Relocater designed to move programs written in machine code from one area in memory to another. All recognisable branch addresses within the program are also changed to fit the new location. It is extremely useful when a machine code program which you have bought or written, conflicts with another program to which you frequently make reference, as either program can simply to relocated to a more convenient point in memory. This program is included in MONITOR 3, discussed further on in this catalogue.

Memory Requirement 16k — 11-1227
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

BASE CONVERTOR

Binary - Hex - Octal - Decimal conversion. Sooner or later when using your computer it becomes necessary to convert between these bases, and that is precisely what this program does for you. Simply enter the number you wish to convert and its base, plus the base to which you wish to convert and there is the answer!

Memory Requirement 16k — 11-1204
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

INSTANT ASSEMBLER

This can be supplied on either tape or disk. With this utility you can assemble directly to memory and immediately debug your program with the built-in single step debugger. There is the facility to quickly switch from assembler to debugger and back again without losing the source code. This feature alone makes this utility and excellent learning tool for assembly language programming. INSTANT ASSEMBLER is unique among tape based assemblers in that it produces relocatable code modules that can be linked with the separate linking loader which is supplied in two versions for loading programs into either high or low ram. This allows you to build long program with small modules. INSTANT ASSEMBLER also features immediate detection of errors as the source code is entered, a compact code source format that uses one third as much memory as standard source, and many operational features including single stroke entry of DEFB and DEFW, pinpoint control of listings, alphabetical listing or symbol table, separate commands for listing error lines or the symbol table, block move function, and verification of source tapes. The debugging facility provides single stepping with full register displays, decimal to hex conversion. The single stepper will step one instruction at a time or at a fast rate to any defined address. Instant Assembler occupies less than 8400 bytes of memory. In a 16k machine this leaves sufficient memory to write assembly language programs of around 2000 bytes. This and its modules linking feature make INSTANT ASSEMBLER ideal for users with only 16k of machines. The disk version of this program contains the same feature as the tape version with the addition of disk storage for source and object code and a stand-alone version of Micromind, the debugger program.

Memory Requirement 16/32k — Tape **44-1255**
TRS-80 Tape/Disk Model 1 & 3 — Disk **44-1266**
SYSTEM 80 Tape/Disk Mark I & II

COLOR COMPUTER DISASSEMBLER

This program allows you to gain a knowledge of the Color Computer ROM to aid you in machine language programming. In operation it will disassemble any portion of the Color Computer's memory. A Basic program is supplied to assist the user in understanding how memory is organised and disassembled

Memory Requirement 16k — **42-1234**
TRS-80 Tape Color Extended Basic

GENCOP — SYSTEM TAPE COPYING ON THE SYSTEM 80

One of the drawbacks of the System 80 Mark I is that it is not possible to load System tapes from an external cassette. Gencop overcomes this problem. First of all a machine language tape can be loaded from either the resident recorder or an external recorder plugged into the jack at the back of the computer. In addition, single or multiple copies of machine language programs in the machine can be duplicated using either cassette port. The prime purpose of this program is to given the user access to the exterior port of the System 80 for System tapes. This is not only useful when making backup copies, but can also be an important advantage when difficulty is experienced in loading machine language programs from the resident cassette. It should be stressed that this utility does not add any ability to the machine in the area of tapes which have anti-copying device built in, or to tapes which have automatic load or run features.

Memory Requirement 16k — **11-1216**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

TRACKER — A TRACE PROGRAM FOR MACHINE LANGUAGE PROGRAMMERS

TRACKER is a dynamic simulator trace which finds its most common application in the debugging of machine language programs. It carries out the following functions:

1. Load programs successively from Disk and trace them
2. Simulate the runs of machine code program seeing, at each step, the effect on the registers
3. Send trace output to the printer.
4. Trace the main structure of the program only by confining the output to jump type instructions
5. Single step through programs.
6. Run programs untraced, subject to return at a breakpoint.
7. Examine and alter memory.

The program operates in three modes, Command Mode, Trace Mode, and Display Mode. The features available in Command Mode are as follows:

1. Load the program from disk
2. Set the contents of the registers.
3. Pop the stack.
4. Push the stack. Tracker, incidently, maintains a separate internal stack for the object code.
5. Change to display mode.
6. Set breakpoints. These may be anywhere in memory, even in ROM.
7. Set breakpoints and the program counter, then run program untraced until a breakpoint is encountered.
8. Enter trace mode and run.
9. Enter trace mode, single step and pause.

The following functions are available in both Command and Trace Modes. The first four operate as toggles, i.e. they turn the facility on or off, depending upon its present position.

1. Turn the printer on or off.
2. Pause automatically after every fifteen lines or run continuously.
3. Run the trace at fast speed. When this function is off, the trace runs at about two lines per second otherwise as fast as the display can scroll.
4. Limit the display or printout to jump instructions.
5. Display a line showing the state of the programs counter registers, the instruction it point to, and the contents of the other registers before the instruction if obeyed.
6. Display the contents of alternative registers.

The following commands are available in Trace mode:

1. Pause.
2. Resume tracing.
3. Single step and pause.
4. Go to Command mode.

In the display mode, a display is shown of 256 bytes of memory starting at a chosen address. Hexadecimal, and ASCII are displayed. Lower case is converted to upper case. Graphics and control characters are replaced by full stops. The commands available are as follows:

1. Advance one page.
2. Retreat one page.
3. Move to a specified new page.
4. Return to Command mode.
5. Change memory starting at a specified byte.
6. Replace a current byte.
7. Move to next byte without change.
8. Move to next line.
9. End changes.

This program constitutes an extremely useful and advanced tool for the machine language programmer as can be seen from the commands above.

Memory Requirement 32k
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

11-1240

M-ZAL™

Release Two Is Here!

MZAL — THE COMPLETE DEVELOPMENT SYSTEM FOR YOUR Z-80

MZAL stands for Modular Z-80 Assembly Language and is a complete development system for assembly language programmers. The development package consists of three programs: TXEDIT a full screen general purpose text editor, ASMBLER a menu driven Z-80 assembler, and LINKER - the object code linker. If you are contemplating the purchase of an Editor Assembler, then MZAL should feature strongly on your option list. For the programmer who regularly works with assembler, then MZAL has a number of powerful features. For one, the size of your programs are only limited by a 30,000 byte symbol table or your available disk storage. Secondly, TXEDIT the MZAL full screen editor goes a longer way towards diminishing the painstaking work of assembling each module. Within TXEDIT there are some 32 commands and four operating modes: some of the features are as follows:

- Character change, insert and delete
- Delete, copy, or move lines or blocks of lines
- Search for a specified string
- Global change
- Renumber
- Search for a specified line number
- List the text or a portion of the text to the line printer
- Create, examine, modify, split, and merge disk files containing text.
- Convert text to and from the EDTASM source tape format

The assembly of programs remains the function of ASMBLR, the MZAL multi-pass Z-80 assembler. The functions within ASMBLR are as follows:

- Object to disk/tape
- Pause on error
- List to printer/video
- List symbol table; and
- Generate an /RLD file

In this mode you have the ability to link source files - thus overcoming any memory limitation - or use MZAL's macro language for conditional assembly. This feature permits you to assemble blocks of your program depending on specific conditions. As an extension of this feature, MZAL permits you to build a library of commands for later inclusion in a program. This may at first seem daunting, however the manual provides numerous programming examples. An added feature of ASMBLR is that symbolic labels up to eight characters long are supported an alphabetical symbol table and cross reference listing can be requested at will. The last step is the use of the LINKER program. This takes your CMD machine-language modules and links them together into a single program. MZAL's linker provides 12 separate functions:

- BUILD - Creates a composite CMD file from the modules currently loaded
- END - Returns to DOS
- EXEC - Executes the linker commands from a control file
- INIT - Initialises the linker
- LOADA - Loads a file without relocating it
- LOADR - Loads a file and relocates it
- MAP - Displays all the modules currently loaded
- ORG - Defines the origin for next module to be loaded
- SET - Allows manual adjustment of levels in a loaded module
- TAPE - Creates a composite tape file
- TRAN - Defines the main execution address of your module; and
- XREF - Creates a cross-reference table of symbols.

For the assembler programmer who is already using another development system, MZAL provides a utility to overcome this problem. LEXCONV allows MZAL users to read disk files created by other assemblers. It converts any of four file formats (MZAL, Apparat EDTASM, Macro-80 or unnumbered ASCII) to any other of the four. LEXCONV is menu-driven and particularly easy to use. In our opinion, MZAL is an extremely powerful program development tool. It requires sophistication to use, and as such is not recommended to people who are only beginning to program in assembler. We recommend you purchase our INSTANT ASSEMBLER as the alternative. The system is sold on disk for TRS-80 Model 1 & 3, and SYSTEM 80 users. Included are complete operating instructions, examples, demonstration files, documentation on internal file formats, and a copy of Zilog's 75 page reference work, "The Z-80 Technical Manual".

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

Model 1 **46-1244**
Model 3 **46-1245**

ENHANCED BASIC — A POWERFUL ADDITION TO LEVEL II

Enhanced Basic is an excellent addition for user operating Microsoft Level II in either the TRS-80 or SYSTEM 80 machines. As the name implies, it constitutes an enhancement of the interpreter giving the user a number of new commands. Probably its most important feature however, is its ability to form a bridge between Basic and machine language. A number of people learn Basic and then wish to turn their attention to machine language or assembly language programs. This can be a difficult transition. Enhanced Basic, with its ability to change memory location, include machine code subroutines without leaving Basic and its Monitor commands, constitute a very valuable tool for such a transition. Furthermore, it sits at the bottom of memory and only occupies 2500 bytes or so of RAM. Even in a 16k machine, this leaves ample room. It adds the following capabilities to Level II.

EDIT ON ENTRY: This feature permits entry to and return from Level I edit mode whilst entering a line.

RECALL BUFFERS: There are two uses of this feature. Firstly you can recall the last entry made after hitting enter. The second is to store any statement or string you wish away in a special buffer and then recall it at will. It remains in the buffer and may be recalled as often as you wish.

CASSETTE MOTOR CONTROL: A command to switch the cassette motor on or off.

MEMORY SIZE CHANGE: An annoying feature about the Level II environment is that you are only given one chance to set the memory reservation, notably when you power up. This command permits you to change your memory reservation without having to first download the program.

CLOSE AND OPEN: Allows you to "shut off" a Basic program, carry out further inputs from the keyboard or tape and then remove the block sothat the two programs are joined. The line numbers of the two programs must not conflict and the second programs' lines must be numbered higher than the first. In other words, no merge is performed.

SINGLE STEP AND BREAKPOINT: This command enables you to single step through any Basic program, either in execution of list. The breakpoint command allows you to insert breakpoints in your program. This procedure is similar to the STOP and CONT commands available in Level II, with one all important difference. If you use STOP you have to edit the program to get rid of it and when you edit, all the variables are cleared and lost, essentially you have to rerun the program. With ENHANCED BASIC the variables are not lost, this avoids the necessity to either RUN or EDIT.

USR CALLS: Unlimited USR calls are supported. A new command allows the transfer address to be specified with the call so that it is no longer necessary to Poke them n separately, as it is with Level II.

INSTRING FUNCTION: The command INSTR is added to Level II. This command permits the search of one string to see if it contains another. Thus searching a string "Smith" for another string "mith" will return an affirmative answer.

DEFINE FUNCTION: The DEF FN statement is supported allowing you to crete you own implicit function. Once defined it is only necessary to to call the function by name and it will be automatically performed. Both string and numeric functions may be defined.

MACHINE LANGUAGE ROUTINES IN BASIC: This important enhancement allows you to include machine language routines in Basic programs so that they may be called at will without leaving Basic.

MONITOR COMMANDS: For monitor commands are included in ENHANCED BASIC to allow you to examine, edit and search ROM or RAM (though obviously ROM cannot be edited) and to make a machine code tape for later reloading under the System command.

CASSETTE LOADING IMPROVEMENT: This command replaces the CLOAD of Level II and seems to have virtually eliminated the problem which has bugged TRS-80 owners since its inception, namely the difficulties experienced with loading tapes other than those made on the machine in question. When using this command, the volume setting of the recorder is made far less critical.

DISK FEATURE: ENHANCED BASIC is compatible with Disk Basic, more importantly when it is call from disk it exists to Level II, not Disk Basic. Effectively ENHANCED BASIC can load and save files from a Level II environment. As far as we know it is the only program that enables this to be done.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-1211**
Disk **11-1267**

STEP 80 — SINGLE STEP THROUGH RAM OR ROM

If you write machine language programs then you will be familiar with the speed of the Z-80 processor in either your TRS-80 or SYSTEM 80. It can execute thousands of instructions in less than a second. While this speed is one of the big advantages of machine language programming, it can also cause problems. One small error in programming happens so quickly that it can be very difficult to find. STEP 80 is a type of program called an emulator. It "emulates" the operation of the Z-80 processor in your TRS-80 and allows you to step through any machine language program one instruction at a time. Going at this slow rate you can see the address, hexadecimal value, Zilog mnemonic, register contents, and step count for each instruction. This ability is extremely useful not only in debugging your own programs, but also examining how other people's programs work. Step 80 leaves the top 14 lines of the video screen unaltered so that the program you are stepping through can perform its display functions unobstructed. It will also follow program flow right into the ROMS, and is an invaluable aid in learning how the ROM routines function. Commands include Step (trace), Step to a branch, run in step mode at variable step rate, disassemble, display or alter memory or CPU registers, ASCII dump, display flags, jump to a memory location, execute a call, set breakpoints in RAM or ROM, write SYSTEM tapes, and relocate itself to any page in RAM. The display may also be routed to your line printer for hard copy, and custom print drivers are automatically supported. STEP 80 is written in very efficient code and was intentionally kept compact (a little over 4k) to prevent memory conflict and allow more work space.

Memory Requirement 16k **44-1248**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

MACHINE CODE TO BASIC — AN EASY WAY TO M/C SUBROUTINES IN BASIC

It often occurs that a machine code subroutine is more easily kept in data lines in the Basic program so that the host program can simply poke it into memory. It is not necessary to load a Basic program and a System tape. This program enables the user to place machine code into data statements automatically. The machine code can be placed in high memory in any way including loading a System tape. This program is then run. It reads the machine code and places it into data statements in the Basic program. The command LSET is then typed and deletes the main part of the program and then renumbers the data lines starting at 1. A further command is typed, MERGE, which blocks off the data lines and enables the user to either CLOAD or enter from the keyboard any Basic program. When this has been done, the command RSET is entered, which automatically combines the program and data together. The resulting program, therefore, contains the data representing the machine code. This is a particularly straightforward and easy program to use. It saves a great deal of time and energy over the more normal approach of converting machine code to decimal and entering it in data lines. The program, at this time, is only suitable for 16k Level II machines.

Memory Requirement 16k **11-1221**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

EDJUST — EDITOR ASSEMBLER TEXT ADJUSTER

EDJUST is an extremely useful program. It continues the ancestry of the Tandy Editor Assembler in that it is an appendage of EDTASM which itself was an appendage of the Tandy cassette based Editor Assembler. The original Editor Assembler was patched by Apparat, renamed EDTASM, and included free in NEWDOS and NEWDOS 80 . It remains necessary for a purchaser of EDJUST to own EDTASM. EDJUST adds certain useful facilities to EDTASM and in particular it enables the maintenance of an assembly language routine library and a return to EDTASM after an unwanted reset without losing the contents of the text buffer. In addition to these facilities there are four new commands as follows:

CHANGE CURRENT LINE:

This command searches the current line for the last string with the F command. If found, it replaces it with a stipulated string.

MOVE LINES:
This command renumbers lines and moves them to a place in the text appropriate to their new line numbers.

SEARCH FILE FOR LINES:
A stipulated file specification, which is assumed to be an assembly language file, is searched for lines with line numbers lying between two stipulated limits. If found, they are renumbered using an increment, then inserted into the text buffer in the place appropriate to their new numbers.

JOIN LINES TO FILE:
Lines have numbers between two stipulated line numbers are copied from the text buffer and added to the end of a stipulated filespec, which is assumed to be an assembly language file. They are renumbered using the latest value of increment to continue the existing numbering of the file. This command, together with the preceding, enables the use of an assembly language library. Routines once entered into a program may be saved in a library with this command and used in other programs by means of the previous one.

Memory Requirement 32k **11-1210**
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

PROZAP — A THIRD GENERATION ZAP

A zap is a program which enables disk users to get into their disk and carry out various investigations and modifications to the actual disk itself. In other words the users is operating on the medium rather than in memory . PROZAP is a machine language program which loads automatically from DOS by simply entering in the program name. It has a large library of commands which are listed below, but probably its uniqueness centres upon its ability to copy a whole track into memory for investigation. The contents can then be displayed in either ASCII or Hexadecimal. An appealing feature of PROZAP is a linked cursor so that if one positions the cursor over a Hex number the other cursor is automatically displayed over the ASCII equivalent. Our readers who are using LDOS will be pleased with the fact that there is compatibility with PROZAP, furthermore, there is also compatibility with the TRS-80 Model 3 as PROZAP has the ability to register double density disk formats. A vital feature of PROZAP is that the configuration of the disk is stored in a six byte table containing data on the density, grandules per track, sectors per granule, low sector number, high sector number, and sectors per track. All these can be changed. The program is supplied on disk and may be used with a single drive 32k machine. There are two levels of command: the Command Level and the Display Level. The library of functions is as follows:

COMMAND LEVEL

1. Display any sector
2. Automatically load the Directory track
3. Enter a DOS command, execute and return
4. Recall the Buffer
5. Display the disk statistics of a file
6. Go direct and display a file by sector
7. Copy a disk
8. Go to Debug and return to PROZAP
9. Disable the disk system usage
10. Encipher a Password
11. Read any track into memory so that the contents of it may be examined, including the sector layout and other data.
12. Track ID. Overcomes the difficulty of nonstandard track numbering.
13. IBM or non IBM formats may be selected.

DISPLAY LEVEL

1. Hexadecimal or ASCII modify mode
2. Page to previous or next sector
3. Jump to a specified byte
4. Display same track and sector, different drive
5. Output a sector
6. Zero all or part of a sector
7. As above but with any non zero byte
8. Search for a byte or search for a word
9. Display a Hash Code and its correct position
10. Go direct into a file display mode
11. Print a sector on the line printer
12. Page a new track or sector.
13. Save a sector to memory
14. Load buffer from memory
15. Match the current sector with another.

Memory Requirement 32k **11-1232**
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

SYSDUMP — STORE BASIC PROGRAMS IN SYSTEM FORMAT PLUS VARIABLES

This is a very useful utility which will save a Basic program to tape in a form which can be accessed by the SYSTEM command. But it goes far beyond that, for it will also save the database being used by the BASIC program, that is to say all current values of variables, array and strings together with the contents of the stack. It will also save to tape (optional) the contents of the display at the time of the save. Finally, it saves any resident machine code programs. A keyboard debounce program is automatically included. An important feature is that at the end of the dump to cassette, the computer is returned to the same state that it was in prior to the start of the dump and if the Basic program was running at that time, it will continue from the point at which it was suspended. When the tape is subsequently reloaded using the System command, the computer is again restored to the state at which it was in immediately prior to the dump of the Basic program, with its database intact will continue from the point at which it was originally suspended. If the display contents are included in the dump, the display is completely restored to its original state and even the cursor is reset to its former position. If the display contents are not included in the dump, then after the reload the screen is cleared and the cursor is positioned at the top left-hand corner. The usefulness of this utility is evident from the foregoing description, but one factor which may not be evident is that all System tapes are loaded with a checksum facility which, of course, makes sure the the load was successful. Basic programs do not programs do not normally carry out this checksum. It is hard to give a list of the applications of this program as they are so wide, but in general terms the user has the option to step the running of a program and save everything to tape so that he may return at a later time and be able to pickup exactly where he left off. The obvious application is the storing of lengthy games (adventurers take note!) or application programs. There is now no excuse for working into the small hours of the morning. Further applications that come to mind are the debugging of Basic programs. With SYSDUMP it is possible to stop at any given point and save the variables intact. SYSDUMP is loaded as a System program and resides at the top of memory. It only occupies about 500 bytes, and once loaded can be called whenever required.

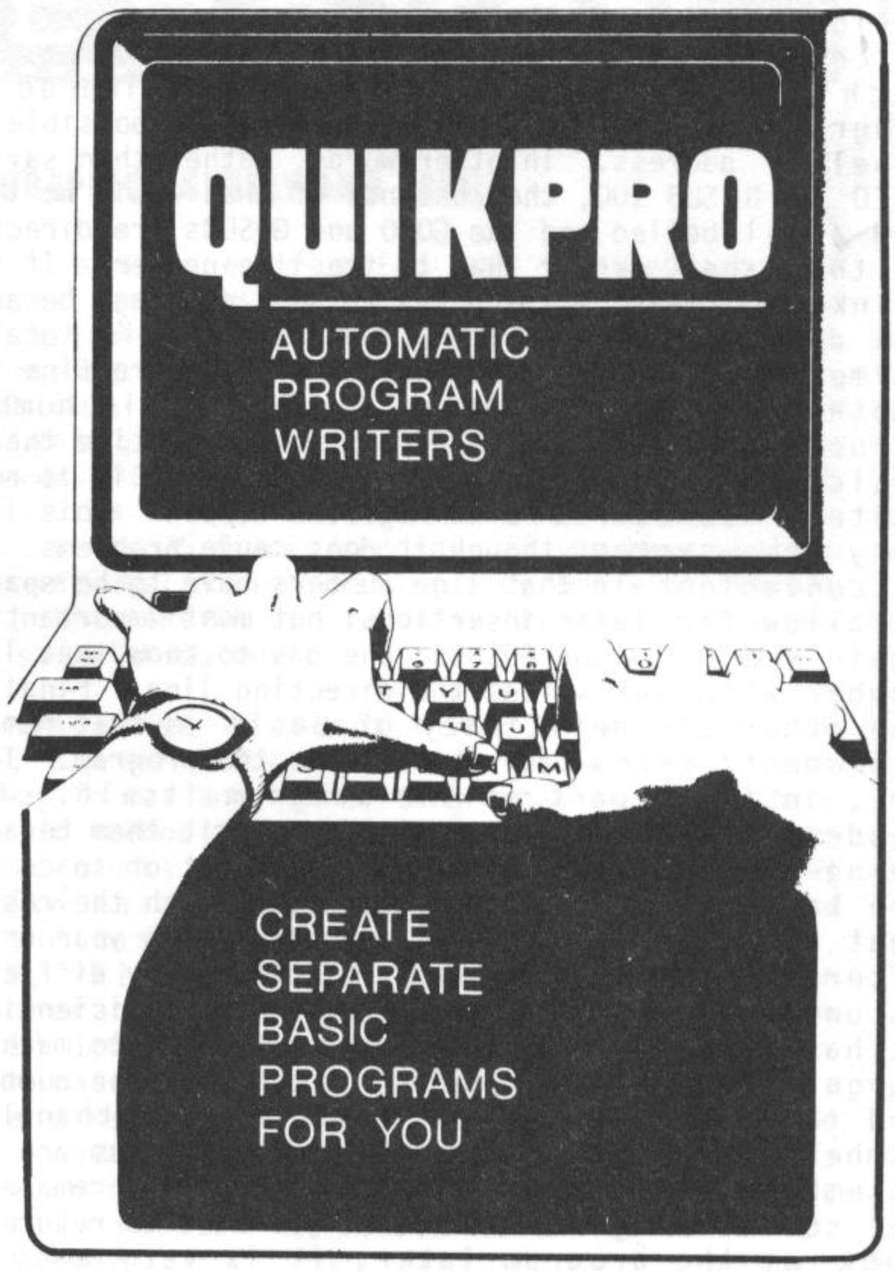
Memory Requirement 16k **11-1241**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

CLONE — DUPLICATE SYSTEM TAPES

When the TRS-80 was designed there was no provision made for the duplication of machine language programs. Essentially, if you wished to make a Backup of your valuable SYSTEM tapes, then you were out of luck. CLONE rectifies this problem. With this program you have the ability to make duplicate copies of almost any type of tape used on the TRS-80, including Basic, SYSTEM, data lists, assembler source, or "custom loaders". CLONE will display the file name, load address, entry point, and every byte of data in ASCII format on the video screen during the copy process. The Model 3 version also allows you to change tape speed so tape may be loaded in at 500 baud and written out at 1500 baud. CLONE is sold on the understanding that it is not to be used for "pirating" software.

Memory Requirement 16k **44-1262**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

QUIKPRO — GENERATE PROGRAMS IN BASIC



QUIKPRO is a program generator which we distribute under licence from ICR/FUTURESOFT in the United States. Used correctly, it will produce custom Basic programs simply and efficiently.

One of the reasons that we stock the QUIKPRO software is that for a lot of people writing bug-free programs is at best a traumatic experience. Often the results seem to be the inverse of the time and energy spent designing and writing the application. QUIKPRO software eliminates this drudgery. The program is completely menu driven, verification features assure accurate entry of data into your program, all files are written in ASCII for easy portability. QUIKPRO will even create the operating manual for your program.

We sell two versions of this program, namely QUIKPRO and QUIKPRO+PLUS. QUIKPRO is designed to produce data entry and file maintenance programs. Data can be alpha and or numeric, with the choice of restricting fields to accept only numeric information. Record selection is performed on a key field. Programs created from QUIKPRO can be listed, modified or used as separate modules either within or to access other programs.

QUIKPRO+PLUS permits you to perform up to 50 separate computations on numerical fields. Furthermore, you can report out calculations in various arrangements, using any of the ordinary math functions between any sets of numbers in the record. The added feature of QUIKPRO+PLUS is that you can use it to generate reports on your lineprinter. Reports can be generated with any column name you choose, with any calculation you might want, from any selection of the records in the total file. Understandably, it is very easy to create a number of different reports for the same file.

An important feature of both programs is that they permit "Indexing". Indexing allows you to access existing files and records which you have created using some other filing program. If you are using any of the MOLYMERX Data Management programs to store your records, then it is very simple to create a separate program using either QUIKPRO or QUIKPRO+PLUS to access the file data and manipulate it accordingly.

A question we are often asked by customers is whether they should purchase QUIKPRO or QUIKPRO+PLUS. The answer is really quite easy. If you want to print out reports from your computer you will require the PLUS version. If you want to perform various computations on the data in your records, you will also require the PLUS version. If you do not require either of these features, merely the power and versatility of being able to create Basic programs for file maintenance and data entry, they you will need QUIKPRO. The point we would like to stress is that you are not locked-in with QUIKPRO, for you can always upgrade to the PLUS version at a later date. You only pay the difference between the two versions at the time you wish to upgrade.

With little difficult, it is possible to think of thousands of applications for QUIKPRO. Obviously, we are unable to guarantee that using either of the QUIKPRO programs you will solve your programming needs. However, used properly it is likely to save you hundreds of dollars on bespoke software or from buying "packaged software" than is not tailored to your needs. We recommend that QUIKPRO be used in conjunction with the ACCEL range of compilers to improve the performance of your Basic programs.

QUIKPRO and QUIKPRO+PLUS are only available on disk.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

Quikpro (Model 1)	**47-1243**
Quikpro (Model 3)	**47-1244**
Quikpro+Plus (Model 1)	**47-1273**
Quikpro+Plus (Model 3)	**47-1274**

SBT — STRUCTURED BASIC TRANSLATOR

Basic, excellent as it is, has one or two failings which we feel are corrected by this program. In machine language programming and indeed in programmable pocket calculators, it is possible to label an address. In other words, rather than saying GOTO or GOSUB 100, the contents of what would be line 100 are labelled and the GOTO and GOSUBs are directed to the label rather than to the line number. If you think about this, it is a really big advantage because one doesn't have to know, in fact it is totally unimportant, where the contents of the subroutine is. Another drawback of Basic is that it is number structured. As we all know, it is imperative that a Basic line be preceded by a number. If it is not, quite a few terrible things can happen. This is a very free system, though it does cause problems. It is convenient in that line numbers have to be spaced to allow for later insertions, but most importantly, again with GOTOs and GOSUBs, one has to know that line number when one writes the directing line. Finally, the other big deficiency of Basic is that remark statements (REM) take up space in the program. They are, in fact, part of the program itself. The tendency, therefore is either to omit them because being ASCII letters they take up a lot of space or, one keeps them as short as possible, with the result that when you go back to a program in a year or so after you have written it, it is often very difficult to understand. SBT gets rid of these deficiencies. It has some similarities in structure to machine language programming. You do not use any line numbers and the branches are to labels rather than line numbers. Furthermore, comments in the program are not assembled into the resulting program, but do remain in the source program. Hence, if you have to return to look at the program later, it is very easy to understand what you originally wrote. After the program has been composed in the editor, it is assembled or translated by SBT itself and the result is a normal Basic program with all the line numbers inserted and all of the branches correctly references by a line number. Broadly speaking, it is possible to say that one has the ease of writing a program in an editor with subsequent assembly, and yet finishes up with an ordinary Basic program. SBT is disk orientated in that the programs are written to disk and it is supplied on disk.

Memory Requirement 32k — 40-1252
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

RENUMBER BASIC

An extremely useful program by which all Basic program may have their lines renumbered. Branches in the lines such as GOTO, GOSUB etc. are automatically renumbered. Two additional commands are "M" and "R". The command "M" inserts a block at the end of the Basic in memory, effectively further programs can then be entered from the keyboard, tape or disk. When the user has completed this further program the "R" instruction is then entered and the second program is automatically appended to the first. This process may be continued as many times as required. The renumbering may start with any line number (within the machines capabilities) and may be incremented by any value. This program is written in machine language and is supplied on tape. Please specify whether you have a 16k, 32k, or 48k machine.

Memory Requirement 16k — 11-1233
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

SYSTEM SAVERS— FOR SAVING SYSTEM FORMAT PROGRAMS

This package contains two programs, TDISK and FLEXL. They are both concerned with saving system format programs. The first saves them to disk and the second to tape. FLEXL is very similar to the program CLONE which is listed elsewhere in this section. It is, therefore, to a large extent a duplication. However, TDISK is such an excellent program that it makes this package well worth buying, particularly for customers using disks. One of the big problems in saving system format programs to disk is that a number of them overlay the DOS operating area in memory. In order to be used, they must be offset from this area. A number of programs carry out this chore with varying degrees of success, LMOFFSET, for instance, which is supplied with NEWDOS+ will offset the program, but does not carry out any relocation. Hence, although it is of assistance in getting the program onto disk, it does not help when it comes to actually using the software, unless one is prepared to do so in a Level II environment. TDISK is the only program that we have come across which infallibly moves a conflicting system program to another area and enables execution from that area. The Adventure tapes, for instance, have always been difficult to move, but TDISK seems to put them on disk and permit their being called from disk without difficulty. The same remarks apply to Tandy's Editor/Assembler and other programs including SARGON 1.

Memory Requirement 16k — 40-1251
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

SPEEDY — CASSETTE SPEED UP ROUTINES

Ever since the release of the TRS-80 Model III, Model I users have cast a longing eye at the 1500 baud rate of the newer machine. This program was written to overcome this source of frustration. Before our System 80 readers jump on the bandwagon in obvious excitement, it needs to be said that the designers of this machine minimised the tolerances of the cassette input and output circuits. The reason, and no doubt many of our readers are aware, was to improve the loading efficiency of the machine. The result is that SPEEDY tends to work better on the TRS-80, indeed our experience is that the System 80 rarely exceeds 750 baud. In that the software author is relying on tolerances, rather than a strict design criteria, it follows that SPEEDY tied to a specific baud rate will work on one machine, but may not work on another. The author has given the user the opportunity to choose between six baud rates in addition to the original 500 baud.
They are 750, 1000, 1250, 2000. The user, may, therefore, try all these speeds and find the one that is best suited to his particular machine. As a guide, we have found that most TRS-80 Model I's extend to 1250 baud. Probably 60-70% will go to 1500 baud. A small percentage to 1750, and a very few to 2000. In use, there are three parts to the program. The first permits the loading, saving and verifying of Basic programs at the baud rates mentioned. The second is exactly the same, but set one baud rate, namely 1500 baud. The third part is a very handy idea which will put a loader on to your Basic program that sets the baud rate of the machine to the one selected when the program is saved. It is an ordinary machine language program, so one simply types SYSTEM and LOADER. When the Loader is in memory, the user returns to Basic whereupon he loads his Basic program at the increased baud rate.

Memory Requirement 16k — 11-1237
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

BASIC INSERT — SOPHISTICATED STRING MANIPULATION

A basic definition of this program is easy to give. It will take the contents of a string variable and insert it into a stipulated line of a Basic program. Its uses, however, are many and varied. This magic,incidently, is carried out by a machine language program which is accessed by a subroutine with the USR statement whenever needed. Let's look at some of the applications. Assuming that you have a string variable equal to X=10:Y=20 the program will, on command, tokenise the string and insert it into a dummy line in your existing Basic program. The newly inserted line can then be branched to and the contents of that line (as it is now tokenised) will be treated by the interpreter as if it were part of the original program. This is a powerful tool. Consider, for instance, a series of calculations stored on disk or tape in ASCII format. This may be read into your own Basic program and then inserted into the actual program and executed. It should be emphasised that although the program could be used for string packing for graphics machine language manipulation, it is not a string packing routine as such, (for this purpose we recommend you purchase CRAYON) for the string is actually tokenised and inserted into a dummy line, whereafter it forms an integral part of the routine. To recapitulate, the three principal applications for this routine are:

1. To store machine language code in a line of your program, thus alleviating the necessity of carrying out a System load of a separate machine language module.

2. To store graphic code in a string to give fast graphic output to the screen.

3. By far the most useful function, to take calculations from storage and automatically place them into dummy lines in an existing program.

Memory Requirement 32k — 11-1203
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

Molymerx

CRAYON

SCREEN GRAPHICS SIMPLY AND EASILY

CRAYON is a unique graphics and text editor that allows you free or formatted entry of graphics and text in a screen orientated format. Interfaced with either an Epson MX80 or MX100 CRAYON has numerous applications. We have seen it used very successfully for designing and printing office-forms, logos, and letterheads. The other exciting application of CRAYON is that it can be used to create and run cartoons from Basic at up to 35 frames/second. If you have written or are contemplating writing programs with graphic content, then CRAYON is virtually certain to save you hours of painstaking work.

CRAYON has three distinct modes of operation: the Graphic, Letter and Command modes. The Graphic mode allows you to mix any number of graphic shapes. There are some 16 mnemonic commands permitting you to create patterns, blocks, borders, or horizontal and vertical lines with ease. Any of these shapes can be moved around the display, you may DELETE, MOVE, COPY, EXCHANGE, PRINT, FULL, or INVERT the graphics. When mixing characters and graphics the text can be both justified left or right and converted either to upper or lower case. If required text can be stored in a buffer and recalled at will. The last command in the graphics mode is PULL. This command is especially useful when creating individual frames for a cartoon, effectively you can manipulate the entire screen up, down or sideways.

The Letter mode permits you to use all upper and lower case characters. In this mode CRAYON becomes a text editor, useful for writing letters, placards, menus, and other short documents. In this mode entry of text is free format, controlled by a floating cursor. Lines can be made to start and end at any place in this mode. You may type in text material within the boundaries of any graphics that you have created on the screen. You can even right justify the text on the screen without disturbing the graphics.

The Command mode allows you access to the disk, cassette, printer and text buffer. DOS commands include WRITE, LOAD, DIRECT SCREEN LOAD, COPY and verify. The commands for accessing the text buffer include ERASE, VIEW, INSERT, NUMBER and RESET. Using these commands you can view any screen together as a cartoon sequence. Your cartoons can be made to restart at a specified frame then repeat the sequence.

The commands that control the printer include a HEX-DUMP of the screen, 132 character per line printing, SCREENPRINTER and OUTPUT of any code sequence to a parallel printer. In the OUTPUT mode any ASCII value between 0 and 255 can be sent to your printer permitting you to reconfigure the character font at will while remaining in the program.

To help you realise the tremendous flexibility of CRAYON we have included a 40 page manual with the program. Also included is a demonstration file to show you how to interface CRAYON files to your Basic programmes.

Memory Requirement 16/32k — Tape 45-1263
TRS-80 Tape/Disk Model 1 & 3 — Disk 45-1270
SYSTEM 80 Tape/Disk Mark I & II

RAM SPOOLER — SAVE TIME WITH SLOW PRINTERS

A spooler is a program that "spools up" characters at a very fast rate and then sends them out more slowly as they are required. This process is invisible to the user. What it means is that the LLIST or LPRINT command will no longer wait for the printer to finish. The SPOOLER will take in the print data very rapidly and return control to the operator. It will then send characters to the printer as required, while you continue with the program. The uniqueness of this spooler is that rather than employ a disk drive to hold the characters, a protected (and expandable) 4k buffer area in RAM is included in the print formatter. The formatting functions include user-definable line and page lengths, and use intelligent line termination. This means that the line feeds will usually only be inserted between words or after punctuation. Other functions that may be selected by the operator include: clear the buffer, enable form feed, add a line feed to each carriage return, baud rate selection (for serial printers), pause, indent, select paper width, single sheet pause, and screen dump. In addition, the output may be directed to either the parallel port, or the video screen. SPOOLER is ideal if you are using a Selectric, Praxis 30/35, or some other slow printer that has been modified for computer use.

Memory Requirement 16k **44-1250**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

VISION LOAD — VLOAD YOUR PROGRAM TAPES

This program allows you to see your Basic programs as they load in from cassette. As the data feeds into your computer memory it is also displayed on the screen. After the load the program can be executed in the normal way so that you can actually see whether or not you have a good load. If the recorder volume is too high the display will increasingly be made up of graphic characters. If the volume is too low there will be no display. The distinction between the two extremes is very pronounced. The major benefit of this program is that it can be used as an early warning device to distinguish a bad load. The program is in machine code and occupies only two or three hundred bytes at the top of memory. It may be used as many times as you wish once it is loaded. Another advantage is that each screen represents 100 bytes. By simply counting the screens it is very easy to determine the length of the program. VLOAD is supplied in the three memory size versions on the one cassette, in this manner it is not necessary to relocate the program should you upgrade the memory size of your computer.

Memory Requirement 16k **11-1256**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

Molymerx

PARAFORM — DISPLAY THOSE PARAMETERS

This is a program for disk owners and is compatible with LDOS, TRSDOS, and NEWDOS+. Disk operating systems have evolved over the last two years or so, and the number of parameters used by individual commands has risen almost pro-rata to the complexity of the functions carried out by the commands themselves. It is often difficult, therefore, to remember all of the parameters available with specific commands. This utility is designed to be resident in the system at all times and to display the parameters available for any given command and to provide an easy method of entering command parameters. The program takes about 700 bytes of memory and is loaded of course from DOS. High Memory is adjusted to protect PARAFORM, and so long as the utility is to be left in memory during the particular powerup, its loading can be configured in LDOS so that it is installed automatically. It could also be made the subject of an AUTO command in TRSDOS and NEWDOS+. PARAFORM may be removed at any time with a simple command and the memory used by PARAFORM will be released, provided that PARAFORM was the last program loaded into High Memory. This, therefore, presupposes that PARAFORM will be loaded from Basic, which in any event would probably be rather poor procedure.

After PARAFORM has been loaded it is used simply by typing the appropriate command, that is to say, the command about which you wish to know the parameters, followed by a question mark. The parameters available with that command will then be displayed ten at a time on the screen, together with the value held by the program as the default entry. The operator may then enter a parameter such as YES, NO, ON or OFF, and so on. This will then be exchanged by the default values and used by the program.

Memory Requirement 32k **11-1229**
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

TSAVE — A MEMORY DUMPING PROGRAM

We already carry a number of programs which will carry out the task of dumping sections of memory to tape. TSAVE, from Southern Software, however, was written specifically for use with the ACCEL range of Basic compilers. The operation of TSAVE is that the user enters in as many ranges of memory as he wishes and then a start address. Entries may be made in either decimal or hexadecimal and indirect addressing is permitted. Once the ranges and the start have been specified the program enters a simple "command" mode which permits the entry of three commands, either R for Record, C for Check or Q for Quit. A useful feature is that the letters can be entered as many times as you wish which will result in multiple records or checks of the same section or sections of memory. It can be seen, therefore, that any number of ranges of addresses can be saved on to the same tape and any number of of copies of those ranges can be made.

Memory Requirement 16k **12-1257**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II



ACCEL & ACCEL 3

COMPILERS FOR TRS-BASIC

We have always been of the opinion that there is scope in the market for a Basic Compiler at an easily accessible price. For this reason we stock the ACCEL series of compilers from Southern Software. They sell at a fraction of the price of the Microsoft Compiler, furthermore no royalties are payable if the compiled program is resold.

ACCEL and ACCEL3 will compile a correct Basic source program into an object program which is compatible with the original, except that it runs faster. Performance improvements which can be achieved vary from spectacular (20 to 30 times) to modest (a few percent). ACCEL3 handles the full Disk Basic language, whereas ACCEL is limited to Level II, i.e. the Basic supported in Models I and III or SYSTEM 80 by ROM alone. ACCEL3 will also run under Level II and will give performance improvements that ACCEL will not, notably in string-handling, in Single and Double Arithmetic, and in manipulating of arrays. You'll need 16k of memory (or more) to run ACCEL satisfactorily, and 32k of memory to run ACCEL3 with Disk Basic. If you want to use ACCEL3 on Level II (non disk) then 16k is viable. All will produce saleable object programs that run in 16k

Both compilers will give outstanding performance improvements on programs of logic, such as games, screen graphics, searching algorithms, etc. while ACCEL3 will give valuable gains, 6 to 7 times, for string handling programs and huge speed-ups for real-time programs (like music synthesis) which use INP and OUT. Start-to-finish speed-ups will be much less for programs that are largely limited by I/O (disk, printer, tape, or keyboard). However, ACCEL3 is strongly recommended for business software to overcome local performance problems, such as poor keyboard response, keying overrun, table look-up delays, input validation, etc.

For ACCEL and ACCEL3 you get a compiler that can be relocated anywhere in your memory, whatever its size. For ACCEL3 this version is independent of the DOS under which your operate, and will work on all DOS's. However, the space occupied in memory by the compiler is not available to your Basic program, and you loose 2816 bytes for ACCEL and 5888 bytes for ACCEL3.

THE MECHANICS OF COMPILATION

Because the ACCELs are designed to be compatible with TRS-80 Basic, you get the avantages of both interpretation and compilation. Programs are built, modified an debugged in the normal way, using the Basic editor/interpreter built into you TRS-80 or SYSTEM 80. When correct, the program is compiled to get improved execution speed. The source form of the program (in Basic) can be saved in the normal way, using CSAVE and CLOAD, or SAVE and LOAD. The compiled program no longer has the format of a normal source program, and it cannot be edited or modified in any way (except by recompiliation). Under ACCEL3 you can use SAVE, LOAD, and RUN on the compiled program. Under ACCEL3 you can use CSAVE, CLOAD, and CLOAD? as well. With ACCEL this is not so, and to save a compiled program on tape you will need to purchase the utility TSAVE which is listed on the accompanying page. This produces tapes that can be reloaded with the System command.

CAPABILITIES OF THE COMPILERS.

The foremost objective is to achieve compatible execution of correct Basic programs, no matter what features of the language are used. Compilation results in a program which is a mixture of Basic statements and directly-executing Z80 machine instructions. The run-time routines in ACCEL and ACCEL3 give control to the interpreter when an unoptimised statement or expression is encountered, and they also ensure that the variable values accessed by the interpreter and the compiled code are consistent. So no matter what options you use on PRINT and INPUT, or GET and PUT, or even if you use the more obscure functions, you program will still run. For an unoptimised statement (like PUT), then all expressions contained in that statement are also unoptimised. For ACCEL, if an optimisable statement (like LET) contain any operation that the compiler cannot convert to machine-code, then the whole statement (not line) is left in interpretive form. With ACCEL3 only the unoptimisable reference is interpreted. The containing expression can still be optimised. However, if you are considering the sale of your compiled progam you should allocate some time to tuning of the program to the capabilities of the compiler, which are of course directly related to the capabilities of the Z80 CPU chip. Any item not include in the following list, e.g. SIN(X) or LPRINT, will be interpreted, and may therefore slow the program down, but it will not affect correct execution. Translation to machine code is summarised as follows:

ACCEL–	LEVEL OF OPTIMISATION	
FUNCTION	ACCEL	ACCEL3
GOTO,GOSUB,RETURN,RESTORE,IF,THEN, ELSE, CLEAR ON	Always	Always
LET(assignment),POKE,SET, RESET, POINT,PEEK,VARPTR	Integers only	All data types
+ - AND OR NOT = (and all comparison operators)	Integers only	All data types
Constants, e.g. 123, 12.3, "ABC"	Integers only	All data types
FOR NEXT	Integers only	All data types
PRINT	No	Partial optimisation
* / (multiple and divide)	No	All data types
LEN, MID$, LEFT$, RIGHT$, CHR$, ASC, CVI, MKI$, CVS, MKS$, CVD, MKD$	No	All data types
INP, OUT	No	All data types and bounds.
Array reference		

Memory Requirement 16k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Accel Tape	12-1201
Accel3 Tape	12-1202
Accel3 Disk	12-1265

EDIT — A FULL SCREEN BASIC EDITOR

Basic programs can be edited in one of two ways. The interpreter itself contains a full editor, but it is not a screen editor. In other words it is orientated to commands rather than, for instance, moving the cursor around the screen. Some people prefer this approach, but some people prefer the approach of a screen editor. Probably the fairest thing to say is that a screen editor enables the user to attain far more screen visibility as he is editing. Many people claim that this type of editor realises fewer errors. Instead of editing just one program line, the user can see and modify 15 at a time. Automatic repeating cursor control keys are included, so it is simple to navigate to any character than must be changed. Once there, modifications, deletions or insertions are carried out simply and visibly. The cursor keys also give you controlled scrolling up and down through the program so that the display can be a window-block of 15 lines. The principle features are:

1. Cursor controlled scrolling for maximum program visibility
2. All keys automatically repeat.
3. Program change by overtyping, deletion, or direct insertion.
4. Insert new lines or copy, move, replicate or delete existing lines.
5. Copy, move, replicate or delete blocks of lines.
6. Search programs for strings of characters.
7. Replace some or all occurrence of one string by another with a minimum of keystrokes.

Memory Requirement 16k — 12-1209
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

80C COMPILER — AN AFFORDABLE COMPILER FOR THE COLOR COMPUTER

We have already explained the advantages of a compiler. This program is compatible with the TRS-80 Color Computer with 16k Extended Color Basic. It should be stressed that this program is only a partial compiler, supporting a subset of Basic - about 20 commands including FOR, NEXT, END, GOSUB, GOTO, IF THEN, RETURN, END, PRINT, STOP, USR (X), PEEK, POKE, *,/,+,-, variable names A-Z and integer numbers from 0-64k. This compiler is written in Basic and requires a minimum of 8k memory to function. It generates native 6502 or 6809 code. It comes with a 20 page reference manual and can be modified or augmented by the user.

Memory Requirement 16k — Tape 41-1212
TRS-80 Color with Extended Basic

RAM TEST — SAVE ON SERVICING COSTS

If your computer starts behaving strangely, having it serviced can be very difficult and expensive. While there are many things that can go wrong in a computer, one common problem that can be easily serviced is bad memory chips. This machine language program is a very thorough test for several types of memory errors and will indicate which chip, if any is faulty. A complete test of each individual bit in a 48k machine takes just 14 seconds, though the program is usually run many times over for a thorough test. This program also includes a special mode to determine if power line glitches are causing memory errors in your equipment.

Memory Requirement 16k — 44-1253
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

IMPAKT

— THE COMPLETE PROGRAMMERS AID

The "impact" of this program is that it represents an extensive "tool kit" containing every foreseeable feature that a Basic programmer could require. We hasten to add that it is not the definitive solution to every programmers needs, such a program does not exist. As is listed below, it is a compilation of some 21 separate utilities, each written by Nigel Dibben, and sold as a complete suite.

COMPRESSION:

REMOVE REMARKS
Remove all statements in a Basic program starting with REM
Remove all statements starting with an apostrophe.
Remove all statements starting with a REM number

REMOVE SURPLUS CHARACTERS
Remove all blanks, tabs and line feed the program statements, not those in any strings or data statements
Remove all redundant colons
Remove all blanks in data statements
Remove all redundant GOTO's after THEN
Remove all LET statements
Remove all quotation marks at the end of lines, except in certain circumstances
Remove all characters after the second in a variable name - thus WAGES becomes WA

PACK THE PROGRAM
Any of the following functions may be carried out:

- Pack the lines together so that each line in its expanded forms will occupy no more than 240 characters. Lines will only be packed if they remain syntactically correct. The effect of this is to join what were single lines into multi-statement lines.
- Pack lines into a dense format with no more than 240 bytes per line, but when expanded the line may well be longer than 240 characters. This remains a completely uneditable line.
- Specify the number of bytes to be packed.
- Unpack the text.

DEBUG:

TRACE
The following functions may be carried out.

- Activate a Trace function with continuous display of the last 8 lines operated upon at the top of the screen. This does not use the normal TRON feature of the Tandy Basic whereby the screen is effectively erased by the line numbers being displayed. The numbers are shown at the top of the screen.
- Remove the trace function
- Activate the Trace with a line by line automatic pause
- Activate the Trace with a step by step pause
- Leave the Trace active, but suspend the display. The line number record will be kept up to date and can be inspected.
- Disable he Impakt Trace function, but enable the Tandy TRON.

A number of pause options are available during the Trace so that during the pause, the user may pause and:

- Display the current line
- Display the current step
- Switch on or off the option to have the current step displayed at all times
- Enter Edit mode automatically in the current line
- Abort the program
- Clear the screen
- Enter a breakpoint sequence
- Breakpoints may be inserts in the program so that when the Trace reach them, it stops and all variables etc. are then available for inspection.

FIND AND COUNT

- Locate the occurrence of a parameter specified by the user. The numbers of the lines containing the occurrence are displayed with the figure in brackets showing the number of occurrences in the line if greater than one.

IMPAKT

FIND AND WAIT
- Similar to the above but a pause is executed when the occurence is found. A number of special commands are available including the ability to abandon the search, reset from the first line, delete line display, automatically enter the Edit mode for the line displayed and continue to search.

FIND AND REPLACE
- Again, similar to the above, but when the occurrence is found, it is automatically replaced by a user defined expression.

JOIN LINES
- With this feature any line may be appended to another line with the automatic insertion of a colon.

LINK CHECKING
Any or all of the following features may be carried out.
- Mark all reference lines with a special form of the REM statement.
- Remove all marks inserted under above
- Check all lines for referencing and display any error
- As above, but append two asterisks for easy search

COPY LINES
- Copy one line to another. If the line being copied into exists, it will be overwritten. The line copied is not changed. With this feature any existing line may be duplicated in another part of the program.

APPEND TEXT
- With this feature the programmer may close off the current program and enter from the keyboard or from tape or disk a new program. Thereafter the "block" may be removed so that the programs become one.

DECODE LINES
- This is a useful feature which has come about by the continued use by programmers of the technique of entering graphics and machine language into packed strings. The feature will decode the strings into hexadecimal code and add them as new lines at the end of the program. A number of variations are available to this routine all of which are aimed at making the manipulation of packed strings more easy.

GENERAL PURPOSE:

DISK PROGRAM SAVE/LOAD
- This function is provided to enable the quick saving of backup copies of programs during editing and debugging. It is only necessary to type in a three letter command for the program to be saved under the file name TEMPROG/BAS. This feature is only available under Level II Basic.

EXIT FROM COMPAK
- Two exits are permitted. The first will restore all vectors and pointers intercepted by Compak to their proper states and then execute a return from Basic. The second exit is to DOS with or without a DOS command being appended. This feature is not available for Level II.

RENUMBER PROGRAM LINES
- Essentially a normal renumbering program, with one or two extra features.

STATUS REPORT
- Display in decimal the space allocated to the following:
Program, Array names and values, String variables, Free space and Basic stack, Variable names and values, Total of all.

RESCUE
- This feature will attempt to rescue a Basic program through an inadvertent reboot, or the inadvertent use of NEW etc.

CONTROL KEY FUNCTIONS
Control keys are used throughout the program for various functions. The control keys are used to provide the following functions:
- Convert from upper to lower case.
- When set all display characters in the range ASCII 32 to ASCII 127 plus line feed and carriage return are copied to the printer. Screen display is not affected.
- This function duplicates the control Z feature which is required in a number of programs particular in NEWDOS Basic.
- A convenience function returning ASCII values 91-95, which are the cursor keys and used in search options.

IMPAKT is avaiable for Level II or Disk Basic and is compatible with current SYSTEM 80's

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-1218**
Disk **11-1258**

KEYBOARD MASK — MASK OUT THOSE UNWANTED INPUTS

Keyboard Mask is a subroutine accessed via the Basic USR function. It is, of course, written in machine code and is loaded with the SYSTEM command. The purpose of Keyboard Mask is to provide the programmer with an easy way of making sure that only the required data types are accepted as keyboard inputs. For example, many programs require only numeric input, but the Basic programmer has to code wasteful routines to check that only numeric inputs have been made. The same comments apply to alpha input. The subroutine, therefore, is not only easy to use, but saves a great deal of Basic coding. A mode is also included so that certain control functions can be tested. The Mask is constructed by way of passing a parameter to the subroutine which, in accordance with the normal Basic practice, included in parenthesis after the USR statement, thus USR(n). The value of n, therefore, decides the characters which will be accepted in the normal mode. Numeric, Decimal, Hexadecimal, Alpha (upper case) Alpha (lower case). In extended mode, which it should be emphasised can be mixed with normal mode for greater versatility, the following codes are tested for: left arrow, right arrow, up arrow, down arrow, enter, clear and break. Keyboard mask is supplied on cassette and is compatible with Disk Basic.

Memory Requirement 16k **11-1220**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

LABELLER — USE LABELS IN BASIC

Basic, excellent as it is, has the major drawback of being line orientated. In other words, the only way that one can reference a statement is to use the relevant line number. In a 2000 line program this can become inconvenient. A lot of people avoid this problem by habitually using the same line number for their subroutines, however this technique fails to address the content of the subroutine. This utility rectifies the problem. Using this utility you can label your subroutines, or simply edit these labels into your existing programs. In other words, instead of the statement GOSUB 2000, you can simply type GOSUB TEST. The added advantage is that the subroutine line does not have to be allocated when the program is composed, this if the programmer so chooses, can be written some time afterwards. Certain criteria have to be met when choosing your keywords. The label reference must consist of 1-6 letters or digits, of which the first must be a letter. The label must not contain a Basic keyword. A useful feature is that line numbers and label references can be freely mixed. Thus, ON X GOTO TOM, DICK, 2000, HARRY is valid. After the program has been written as described above, it is saved to disk and delabelled through the use of another utility supplied. This goes through the target program removes the labels and substitutes line numbers. There are three additional functions. One will remove all spaces from the program, excepted those in remarks and quoted strings. The second will remove all REM statements, and the third suppresses the output file so that a test run may be made to find any errors before the output file is written.

Memory Requirement 32k **11-1230**
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

MONITORS 3 & 4

Monitors 3 & 4 by Hubert S. Howe are probably the best available for TRS-80 and SYSTEM 80 computers. They are wide ranging in features and come with a well written manual of approximately 32 pages. Although the two Monitors are, to some extent, interchangeable, the intent is that Monitor 3 should be primarily for tape users and Monitor 4 for disk users. It would be inadvisable for a tape user to purchase Monitor 4 because a number of the functions would not be usable. Tape users who have purchased Monitor 3 may upgrade to Monitor 4 for the difference in price only. Both Monitors are compatible with the TRS-80 Model 3. Monitor 3 is supplied on a 500 baud tape regardless of the model upon which it is to be used. Although Monitors are intended primarily to assist machine language programming, they contain a number of commands which are of considerable help to all computer users. Generally speaking, a monitor interacts with the computer at memory address level. When a Basic program, or anything else for that matter is loaded into the computer it is stored in different memory locations. With the exception of the Basic Peek and Poke commands, the Basic programmer does not have access to the actual memory addresses. A monitor gives him this access, which frequently can be very advantageous. Furthermore the ability to actually look into memory and see what is going on, should be of interest to all serious computer users. The commands available in the Monitors are as follows. Those marked with an * are available only in MONITOR 4.

ASCII dump of memory block
Return to Basic or TRSDOS
Create Object Program File on disk*
Disassemble memory block
Edit memory
Find a specified byte
Hex dump of memory block
Input disk sectors*
Jump to a specified address
Load a System program
Move a memory block
Kill a disk file*
Output disk sectors
Punch out a machine language tape
Read a disk file to memory*
Write a disk file*
Relocate a program from one section of memory to another
Manufacture a symbolic tape (3)
or disk file (4)
Type ASCII characters direct into memory
Verify a memory block
Execute Hexadecimal arithmetic
Zero a memory block
Set baud for RS232C interface*
Send to RS232C interface*
Enter RS232 terminal mode*
Receive RS232 terminal mode
Unload the program below 5200*
Find a word

Although ROM may not, of course, be modified by these programs, it may be investigated, displayed or be made the object of a Jump Command.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape 3 **11-1225**
Tape 4 **11-1226**
Disk 4 **11-1260**

PACK/UNPACK
— HIGH DENSITY STORAGE ON REGULAR DISKETTES

Before you sink into the depth of despair with regard to the price of a doubler or double density drives, closely consider this program as an alternative. PACK/UNPACK is the software approach to high density. A regular diskette on the TRS-80 will store 89,600 bytes. With PACK/UNPACK it will store 117,740 bytes - about 30% increase! Surprisingly it does this relatively simply. Of the 256 possible combinations for an ASCII character only 64 are used for lower case letters, numerals and special characters. The remainder are for lower case, graphics and tab codes - some are not used at all. These 64 characters can be stored in only 6 bits but in Disk Basic they are manipulated in 8 bit bytes. These extra bits are used in this program to increase the data storage. In other words, for each regular 3 bytes, PACK/UNPACK will store 4. The major advantage of this program is that it performs its own input/output operations so effectively that all the user has to do is to give it the data. The program is in machine code and will usually be added to a Basic program as a subroutine, called by a Basic USR statement. To illustrate its use, a sample Basic program, using the subroutine is included in with the PACK/UNPACK instructions.

Memory Requirement 32k
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

11-1228

SOUND — A MACHINE LANGUAGE SUBROUTINE

This is a very simple, but nonetheless, useful and interesting program which is loaded into the top of memory and then called from any Basic program. The use of this subroutine enables a programmer to create essentially any sound to give more dramatic effect to his Basic program. Six parameters may be set as follows:

1. To determine the intial frequency of the sound i.e. its pitch
2. To set the duration of the tone in time
3. To set the number of time that the tone is to be repeated
4. To set the first change of tone
5. To set the second change of tone
6. To set the third change of tone

In order to enable the purchaser to get an idea of how the subroutine should be used a short Basic program is included on the tape by which the user can choose the various parameters mentioned above and listen to the resulting sound. Obviously a sound box has to be connected to the larger grey plug going to the cassette in order to hear the sound. These mini-amplifiers can be readily purchased at your local electronics store.

Memory Requirement 16k
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

11-1236

Molymerx

DISK INDEX — INDEX YOUR PROGRAM LIBRARY

As your program library grows, keeping track of each program becomes more difficult. DISK INDEX was written to alleviate this difficulty. INDEX will build a list of all the programs in your collection, alphabetize them, and allow you to either print the index on paper or find the location of any program quickly and easily. The program names and free granules left on each disk are read automatically by the program (they do not need to be typed in). Once an index of program names has been created, it may be alphabetized and searched for any disk, program, or extension. Disks or programs may be added or deleted, and the whole index or any part of it may be sent to the line printer. The index itself may also be stored on disk for future access and update. DISK INDEX is written entirely in machine language for maximum speed and flexibility. It will run on a Model 1 or Model 3 and catalogue disks for either machine (Model 1 owners must have a double density modification to catalogue double density or Model III disks). It will automatically identify any format and any operating system now in use on either the TRS-80 Model 1 & 3 and SYSTEM 80 Mark I & II, except CP/M. A 48k machine can hold in memory an index of over 2500 programs and you may create as many separate indexes as you need. The minimum requirement is one drive and 32k.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

44-1247

RESQ 2 — RESTORE DAMAGED TAPES

This unique and original program will give you the ability to restore or "rescue" programs that have been damaged or can no longer be loaded into you computer. Cassette recordings are subject to several types of damage. Thin spots in the oxide, dirt, voltage fluctuations while recording, or stray magnetic fields can all contribute to lost or added bits of data. RESQ 2 was written to provide a method of restoring tapes than can no longer be loaded for these reasons. It can restore Basic, System, and Assembler tapes. RESQ 2 compares two copies of the damaged tape to attempt a restoration, though restoration can sometimes be achieved with only one copy. After the damaged tape is corrected in memory, a new tape may be recorded and verified. The success rate of RESQ 2 will depend on the severity and quantity of errors. RESQ 2 comes with a comprehensive user manual and examples of two types of "crashed" programs to practice on. This program is supplied on cassette and may be transferred to disk if desired.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

44-1249

IMON — AN ADVANCED MONITOR

You are probably curious why we stock IMON together with MONITORS 3 & 4. The explanation is that the preceding Monitors are designed to be used in conjunction with Basic programmes, or a least with the capability of loading both the Monitor and a fair sized Basic program into memory at the same time. IMON is aimed more at the machine language programmer who only needs 3 or 4k usable memory (in a 16k machine) in addition to the Monitor but who requires additional commands, particularly applicable to machine language programming. In the following list of IMON commands therefore, the emphasis is given to those commands which are present in IMON but not in Monitors 3 & 4

1. ASCII display of memory. What we find an attractive feature is that a line feed is used as a terminator for the display line thus making the display more readable.
2. Set Breakpoint. This feature is not supported in the other Monitors. Up to three are supported. The effect is that when the breakpoint is encountered, execution of the machine language program being executed is stopped and the registers are displayed, as is also the address at which the halt was made. This is probably the most important feature if IMON is being used for debugging. Although one can always use as many breakpoints as are available, the support of three in this program is generous. TBUG for instance, only supports one.
3. Write ASCII direct into memory. Characters from the keyboard are edited direct into memory.
4. Disassembler. A straightforward disassembler to Z-80 mnemonics.
5. Edit memory.
6. Filler. Changes any stipulated memory block to a given value.
7. Go with registers to last breakpoint and continue. Used in conjunction with the breakpoint feature described above.
8. Printer set up. This command enables the printer for output from the Monitor. An important feature is that both parallel and serial printers are supported. A serial printer must be connected through the Tandy RS232C board and it is assumed that correct switch positions are set up on that board. Thus the Monitor interfaces a software serial driver routine with the hardware selected functions.
9. Input utility. Inputs from cassette. One of the features of IMON is than an automatic or direct start routine may be recorded on tapes made by the Monitor (see below). The input utility therefore asks whether or not the tape to be inputted was made by the Monitor and, if so, whether the automatic start should be overridden.
10. Jump. Jumps to a specified address and executes.
11. Load data from tape to a buffer. Another useful utility. Input from the tape is loaded to a specified buffer area in memory rather than to its normal location. All data is loaded after the sync byte, including block identifiers and checksums.
12. HEX display of memory.
13. Output utility. Makes a tape of any required program in memory. The important feature is that an automatic execution trailer may be (optional) recorded onto the tape, the effect is that when the program is reloaded under the basic System command, it will execute automatically without the second asterisk appearing.
14. Print speed. Valuable only with "non-Tandy" printers.
15. Printer set up disabled.
16. Register display. Of great value is the ability to display the contents of the registers. The stack point is included.
17. Search routine. Search a specified block of memory for a specified byte or bytes.
18. Port control. Another new and useful feature. This routine continuously scans and displays the contents of all the 256 ports at the same time, on either the screen or printer. Furthermore any byte may be sent to a port.
19. Verify. This routine verifies a block of memory with a tape. The tape must have been created by IMON.
20. Write tape from a specified buffer.
21. Mover. Moves a block of code from one location to another. It is important to note that this function does not relocate in the sense of changing any addresses of operands. It simply takes a block of code an puts it in a different location.
22. Edit absolute branches. A final useful function not found in many other monitors. It carries out a disassembly but when it reaches an absolute branch, the program halts to give the user the opportunity to alter the branch address, whereafter the disassembly continues.

This is a good monitor with only a couple of small criticisms too trivial to mention. If you need a monitor then the choice between this one and the others will be easy. If you are interested in machine language almost exclusively, then buy this one. If you need to interact with Basic as well buy one of the others.

Memory Requirement 16k
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

11-1217

SYSTEM DIAGNOSTIC — TEST BED YOUR COMPUTER

This is a major program from Hubert S. Howe, author of MONITORS 3 & 4 which are listed elsewhere in this catalogue, as well as several noted books on machine language programming. SYSTEM DIAGNOSTIC is what could be termed a complete test for your TRS-80 or SYSTEM 80. An important feature of this program is that it can run in a continuous test mode. This is particularly useful in detecting intermittent faults. The individual tests carried out by SYSTEM DIAGNOSTIC are as follows:

ROM: Does a normal ROM check, that is to say it goes through the entire ROM and carries out a checksum.

RAM: There are three RAM tests in the Model 3 version and four in the Model 1. These tests covers every address and data value. There is a unique "glitch" test for the Model 1, used to simulate the effect of electrical spikes, which may or may not be effecting the performance of your computer.

VIDEO DISPLAY: This is a complete character generator test which prints all available characters on your video display. Model 3 owners have the ability to display the Japanese Kana set. The video ram test checks every character in each position on the video display, thirdly a video signal test enables you to check the alignment of your CRT and any transient voltage problems.

KEYBOARD: Every key contact is tested.

LINEPRINTER: This is very similar to the video test. It prints a line of 64 characters of each of the 95 legitimate ASCII characters in the character set of most line printers.

CASSETTE RECORDER: This test reads, writes, and verifies data. An obvious by-product of this test is to discover the operating range of your cassette recorder.

DISK DRIVE: Eight pages of the 28 page manual are dedicated to this part of the Diagnosis. This section provides an in-depth explanation of how the disk drives and their controller operate. Model 3 owners should be particular interested as there is very little information available on the disk operation of the Model 3. There is a choice of seven tests: Drive select and disk controller functions, track seek and verify read, formatting, read/write/verify all sectors, read/write verify without erasing, disk drive timer (a tachometer is graphically displayed on the screen) disk head cleaner.

RS-232-C TEST: Connector test, transmit data test, framing test, data loop test, baud rate generator test.

We would like to emphasise that each of these tests can be run independently, or if the user so decides, they can be run on a continuous basis, with each diagnostic report being routed to the line printer. Please be sure to specify for which computer you require SYSTEM DIAGNOSTIC.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape 1 **11-1271**
Tape 3 **11-1238**
Disk 1 **11-1272**
Disk 3 **11-1239**

DISK AID — ANOTHER THIRD GENERATION ZAP

This disk investigation and modification program is similar to PROZAP shown elsewhere in this section. The two utilities, both of excellent quality, do have some different features and hence it was considered worthwhile to offer both of them. Probably the best way to describe DISKAID is to list the commands, which are as follows:

0	Display sectors	1	Print sectors
2	Display memory	3	Print memory
4	Display file	5	Print file
6	Search file	7	Locate file
8	Directory repair	9	Encode/decode password
A	Copy sectors	B	Backup
C	Copy bytes	D	Clear sectors
E	Verify sectors	F	Esc. to DOS

Although both programs can display memory, they do so in different ways. PROZAP does it through the debug utility, whereas DISKAID does it direct from the program itself. The latter displays 256 bytes at a time from any section of ROM or RAM starting at any address, ending in 00H. The directory repair feature in DISKAID is probably a little easier to use than PROZAP, although with both programs the results will be the same. With DISKAID the function restores read protected status to any sector of the directory track that has lost it. It will also examine every live entry in the directory and report on certain errors and finally, if no errors are found in the GAT or HIT sectors, these are re-written back to the disk automatically. The backup facility in DISKAID is similiar to the one in PROZAP, but does have the advantage that it may be used on a single drive. The Verify command in DISKAID is almost the same as the Match command in PROZAP. DISKAID will encode and decode a password, whereas PROZAP will only encode. The above are the principal differences in the common commands. It is fair to say that PROZAP contains more commands and features than DISKAID. On the other hand, DISKAID costs a little less than PROZAP.

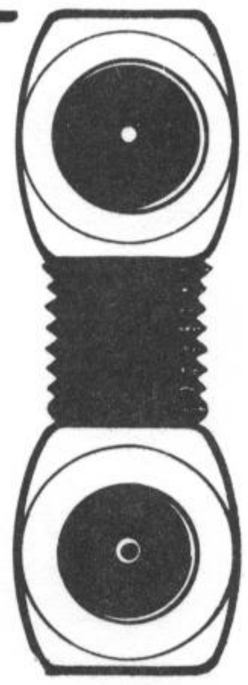
Memory Requirement 32k **11-1207**
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

CROSS REFERENCE

This program maintains a cross reference of all types of information which requires to be crossed. The information on the items to be crossed is maintained in data statements at line 1000. The reference list must therefore be built up by you, starting with that line. Options in the program include: seeing the pages of data, a page at a time; searching for a specific item in column A (assuming A is being cross referenced to B); searching for a specific item in column B; entering new data; searching column A for a contained string. That is of part number ABCDEF you can only remember BCD, but you need to know whether the full number is on file and what that number is. Type it in and it will find the full number together with a display, you are then able to provide a cross reference.

Memory Requirement 16k **11-1205**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

SMART TERMINAL — HOOK UP ANOTHER COMPUTER



This program is intended for users who wish to use either their TRS-80 computer as a terminal to another computer, connected via the RS-232-C and a Modem. When connected or "logged on" to another computer the 80 is in communication status. Any character typed at the TRS-80 keyboard is automatically transmitted to the host computer via the interfaces and any character received from the host is displayed on the 80's VDU. When the interface is in full duplex mode, transmission may occur in either direction at one time. In half duplex mode, transmission may occur only in one direction at a time. In full duplex characters typed at the keyboard are displayed only after being "echoed" by the host. In half duplex the echo is provided by the modem so that the characters are displayed automatically.

This SMART TERMINAL program has been written to include a number of special features. In addition to supporting lower case (if your TRS-80 has been modified) the program can also be set to receive graphic characters. Data received by the interface can be displayed, printed on a line printer and stored in memory. Memory files may be built and saved on disk. Files may be loaded from disk, stored in memory and then transmitted. SMART TERMINAL will change the baud rate under software control, furthermore, an automatic test is continually carried out internally to make sure that the RS-232-C interface is operating correctly and if not a warning is given. In order that data may be held in memory for transmission or after reception, a memory buffer is created for the program. For a 16k machine this will be approximately 8k bytes long, 24k for a 32k and 40k for a 48k. In addition to being able to load the memory buffer from disk, a unique feature of this program is the ability to type directly into the memory buffer so that the data so typed may be held for later transmission.

The program commands fall into two categories. Firstly, those that are operative whilst the machine is in communcation status, which in the main are made up of controls for transmission or reception - Transmit line, End of Transmission, various tabulation controls, Line and Form feed and so on. Secondly, a sub-system which enables 25 commands for the program itself. These are accessed by a special command whilst in communication status and consist of the following:

LC:	Upper/lower case	RF:	Read disk file	CK:	Change control key
UC:	Upper case only	SF:	Save disk file	CP:	Change prompt char.
EM:	Erase memory	RC:	Read cassette	TR:	Automatic trans.
TM:	Type to memory	SC:	Save cassette	NT:	Stop auto trans.
BR:	Backspace record	RM:	RS232 to memory	LP:	Line print
FR:	Forward space record	NR:	Stop RS232 to memory	NP:	Line print off
CL:	Display current line	ST:	Display memory stats.	EX:	Exit to Basic
L1:	Set to first mem. line	CB:	Change baud rate	OS:	Exit to DOS
SW:	Reset sense switch.				

Due to the differences in RS-232-C configurations, this program is not suitable for the SYSTEM 80.

Memory Requirement 16/32k — Tape **11-1301**
TRS-80 Tape/Disk Model 1 & 3 — Disk **11-1304**

TELCOM — COMMUNICATIONS AT AN ECONOMY PRICE

Like SMART TERMINAL, TELCOM is a sophisticated machine language program that gives your TRS-80 or SYSTEM 80 "Smart Terminal" capability. It is menu driven and extremely simple to use. In the terminal mode, it supports upper and lower case characters, spooled printer output, internal character echo, RAM storage of data with character count, transmission of up to 8 programmable automatic (log on) messages, and 10 programmable character keys for special codes not normally available from the TRS-80 keyboard. Other modes that may be quickly selected from the menu include: transmit a disk file, receive a disk file, examine or modify the data format (baud rate, bits per word, parity, and stop bits) save RAM buffer on disk, define a "halt/resume" protocol for file transmission, define a buffer "open/close" protocol for saving only selected data, and save the entire TELCOM program as configured on disk for later use. Since TELCOM will send or receive a full 8 bit data word, TRS-80's may exchange machine language or Basic programs without the need to convert them to ASCII. This saves half the time required to generate and exchange a 16 bit checksum to verify accurate transmission. If the computer on the other end is also running TELCOM, it will inform you if errors have occurred in transmission. This program is supplied on disk, it does not have all the feature of the preceding program, however we are able to supply TELCOM at what we think is a very competitive price. SYSTEM 80 owners should not that it is not compatible with the RS-232-C on their machines.

Memory Requirement 32k — **44-1303**
TRS-80 Disk Model 1 & 3

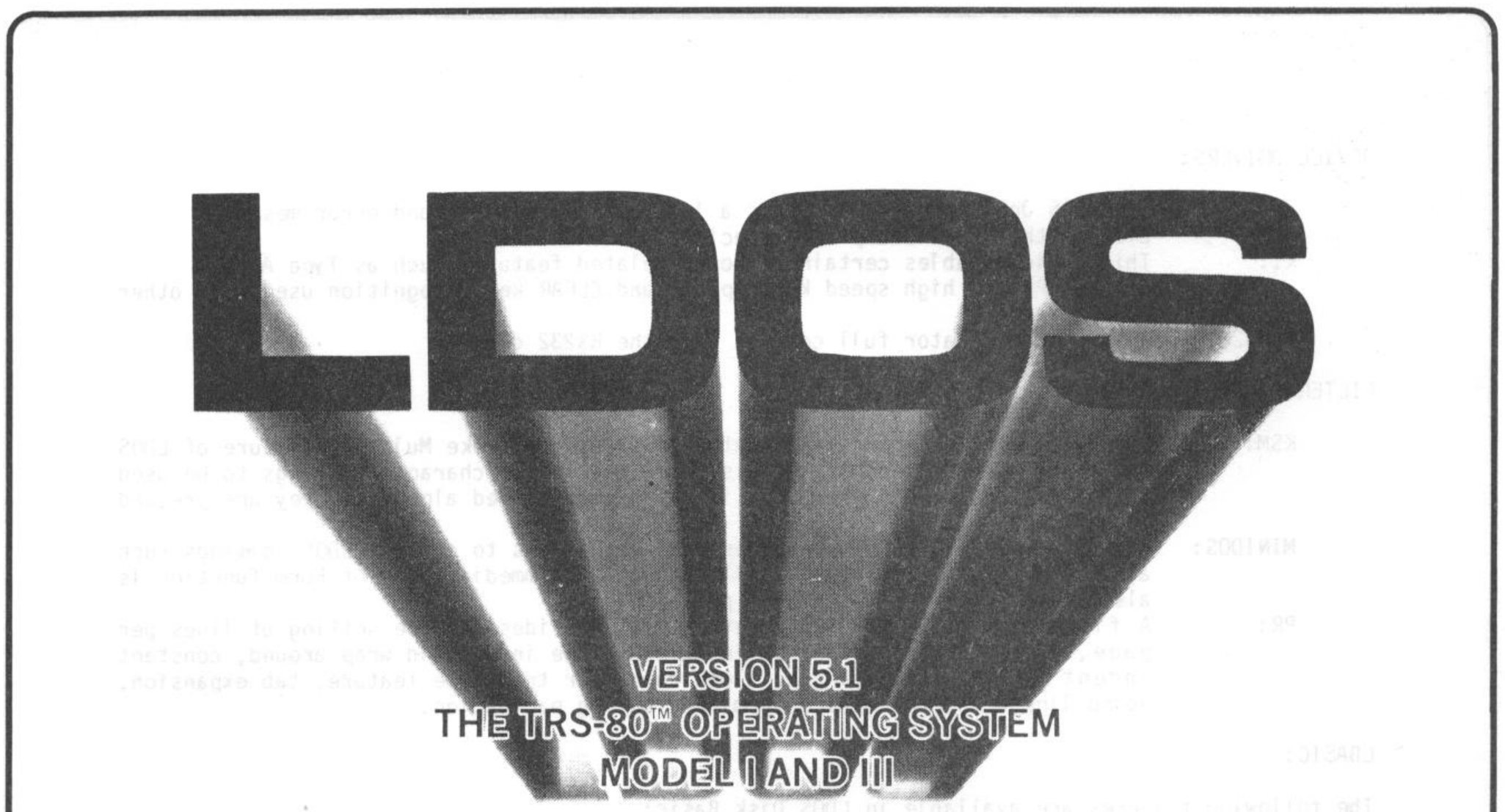


ATERM 1.4
— FUNDAMENTALS FOR TERMINAL COMMUNICATION

ATERM is a terminal program with the "smarter" features on its bigger brothers. It is full-duplex compatible, supports all 128 ASCII characters including lower case (if your 80 has been modified) and a Bell sound on the cassette Aux line from your computer.

You can set the baud rate, parity, word length and stop bits from the keyboard, even while receiving. Line printer output is buffered in memory to allow slow printers to be used without nulls. ATERM 1.4 is completely compatible with Tandy's Communications Package. Regrettably, ATERM 1.4 is not compatible with SYSTEM 80 machines due to the difference in RS-232-C configurations.

Memory Requirement 16k — **40-1302**
TRS-80 Tape Model 1 & 3



LDOS — THE FIFTH GENERATION OPERATING SYSTEM

Existing TRS-80 and SYSTEM 80 users will no doubt be familiar with TRSDOS, VTOS, NEWDOS+ and NEWDOS 80. Each of these systems carry associated features, this is not surprising as generically they derive from the one source, namely Randy Cook's original version of TRSDOS. LDOS is a major departure from this approach in as much that it was written by no less than 8 first rank programmers at a cost of approximately ½ million dollars. The important point is that the LDOS team were able to plan their operating system with all the preceding DOS's in mind being aware of the best parameters of each. The result is a disk operating system which we feel should become the industry standard.

Documentation has always been a gripe of many computer users. It has either been framed too heavily in "computerese" or presented with serious omissions. With these criticisms in mind the LDOS programming team seen to have excelled themselves. The documentation that accompanies LDOS is in a binder encompassing some 300+ pages and the layout is reminiscent of the original Tandy book. Each library command, for instance, starts with a short description of what it does, then gives the syntax and parameters and, finally, comments are made on its application and use, together with an example if necessary.

The team responsible for planning LDOS obviously gave a great deal of thought as to what it should contain. They have avoided presenting features which are readily available on other operating systems, and are in the main bug-free. By avoiding this unnecessary duplication, sufficient space has been left on the disk for new utilities and features. These features can be split into the following sections: Library Commands, Utilities, Device Drivers, Filters, Job Control Language, and LBASIC.

It is beyond the scope of this catalogue to give a step by step description of each of the commands and utilities, suffice to say that many of the features are enhancements of existing commands used in other systems. To overcome this problem we have available a pamphlet describing LDOS 5.1 for both the TRS-80 Model 1 & 3 and SYSTEM 80 Mark I & II.

LIBRARY COMMANDS:

APPEND	ATTRIB	AUTO	BOOT	BUILD	CLOCK	COPY
CREATE	DATE	DEBUG	DEVICE	DIR	DO	DUMP
FILTER	FREE	KILL	LIB	LINK	LIST	LOAD
MEMORY	PROT	PURGE	RENAME	RESET	ROUTE	RUN
SET	SPOOL	SYSTEM	TIME	TRACE	VERIFY	

UTILITIES:

BACKUP	CMDFILE	CONV	FORMAT	LCOMM	LOG	PATCH
REPAIR						

DISK OPERATING SYSTEMS

DEVICE DRIVERS:

JL:	The LDOS Joblog feature. Sends a list of all commands and error messages along with a time stamp to a specified file or device.
KI:	This device enables certain keyboard related features such as Type Ahead, Screen Print, high speed key repeat, and CLEAR key recognition used with other LDOS features.
RS232	Allows the operator full control over the RS232 device.

FILTER PROGRAMS:

KSM:	A keyboard filter routine that allows the Keystroke Multiply feature of LDOS to read in predefined files, assigning phrases or character strings to be used as keyboard input wien the CLEAR and specified alphabetic key are pressed together.
MINIDOS:	A keyboard filter that provides constant access to certain LDOS commands such as Directory, Free Space, Kill, Debug. An immediate Top of Form function is also provided for use with line printers.
PR:	A filter for use with line printers. It provides for the setting of lines per page, physical page size, line width, line indent and wrap around, constant indent of the left margin, a one character translate feature, tab expansion, added line feed, and a hard form feed during pagination.

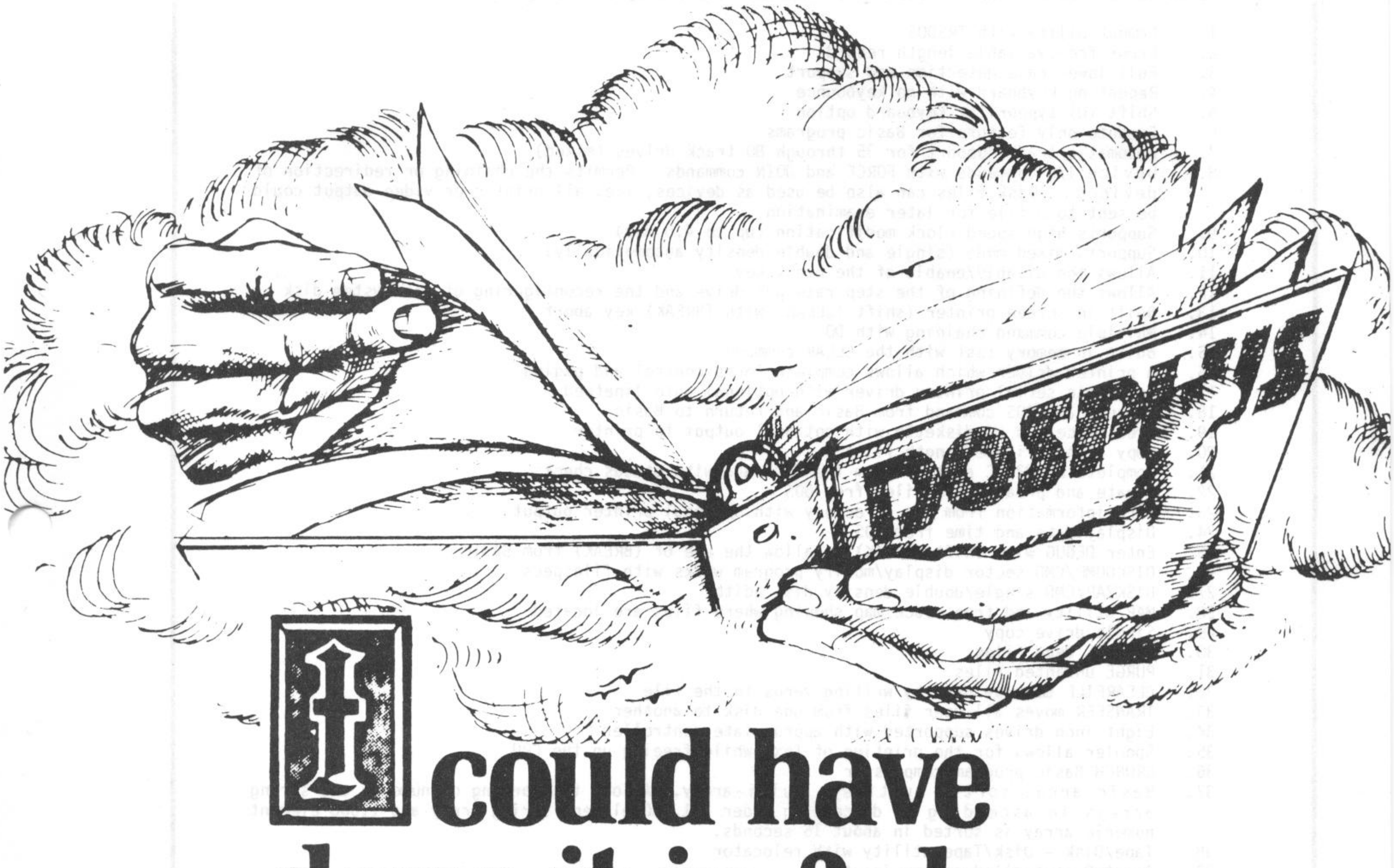
LBASIC:

The following features are available in LDOS Disk Basic:

Upward compatibility with Microsoft Basic
Single key commands to edit or list the first or last program line, to list the next or previous program line, or to list the first or last program line.
Single character abbreviations for some commands.
Single stepping through program execution.
High speed load and save.
Run multiple programs with common variables. Programs may also be run starting at a specified line number.
Block (variable length) files are supported.
LDOS commands may be executed from Basic.
Built in string array sort.
NEW STATEMENT: SET EOF allows the user to adjust the End of File marker for Random files, and reclaim disk space beyond the new EOF marker.
NEW STATEMENT: RESTORE nnnn restores the data pointer to a specified line number.
Variable and line number cross reference.
Program renumbering.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

Model 1 **43-1801**
Model 3 **43-1802**



I could have done it in 3 days.

DOSPLUS 3.4

On a dollar for dollar basis we believe DOSPLUS 3.4 is the best disk operating system currently available for your TRS-80 or SYSTEM 80. It offers a number of powerful features, reliability, ease of use, and outstanding disk I/O speed. The manual accompanying DOSPLUS is some 200+ pages in length, not only does it clarify the differences between DOSPLUS and TRSDOS, but it goes to considerable length in explaining the systems commands and utilities. For the programmer, there is a 42 page technical section detailing the available DOSPLUS system calls.

The following features are available with DOSPLUS 3.4, this is not a finite list, rather a selection of features which reveal the inherent flexibility of the system.

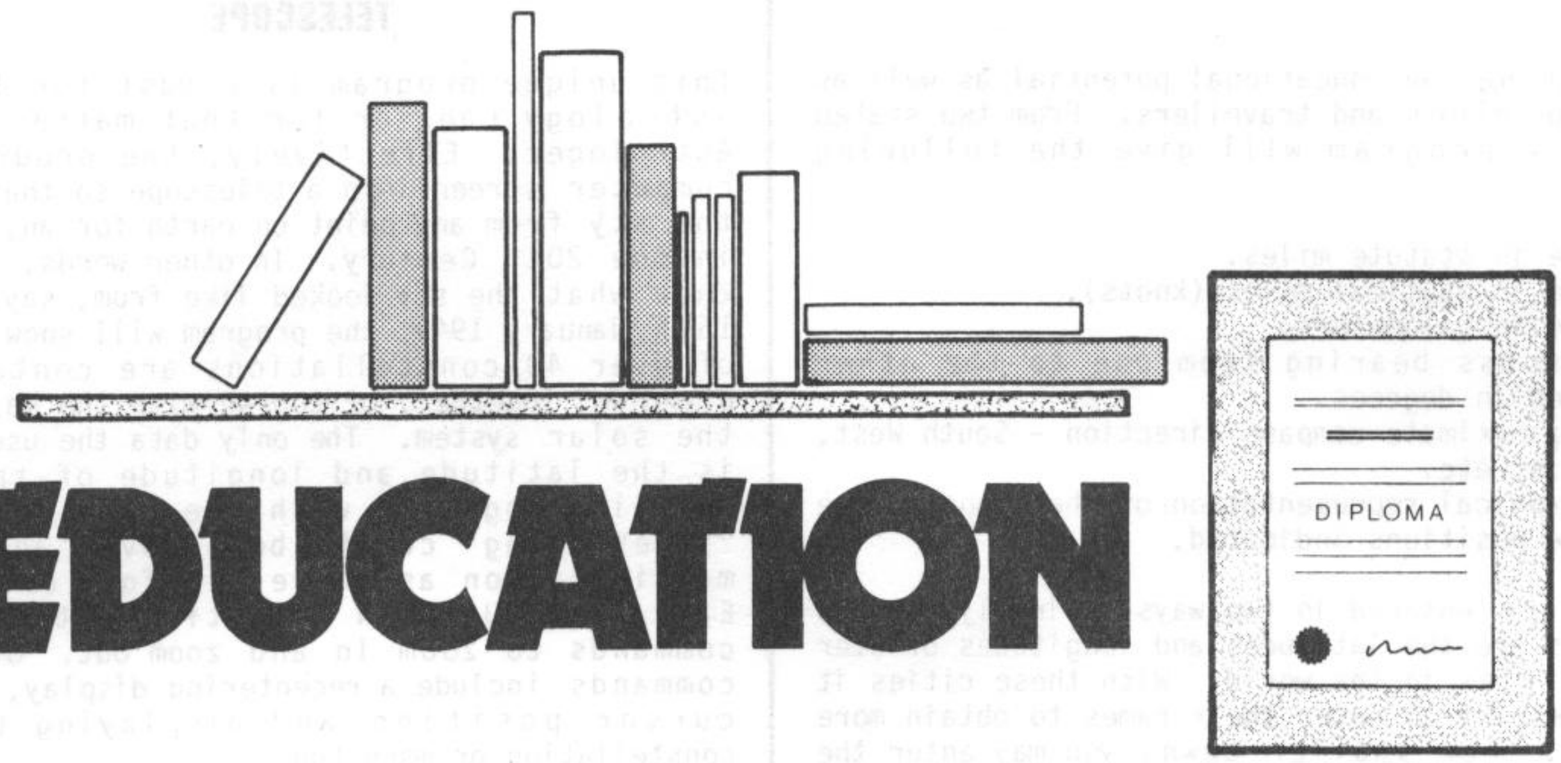
1. Compatibility with TRSDOS
2. Error free variable length records
3. Full lower case detection and support
4. Repeating keyboard with no keybounce
5. Shift {0} typewriter keyboard option
6. Execute only feature for Basic programs
7. Automatic track support for 35 through 80 track drives (mixed)
8. Device I/O commands with FORCE and JOIN commands. Permits the chaining or redirection of devices. Disk files can also be used as devices, i.e. all printer or video output could be sent to a file for later examination
9. Supports high speed clock modification (up to 4.0 mhz)
10. Supports mixed mode (single and double density automatically)
11. Allows the disable/enable of the break key
12. Allows the defining of the step rate per drive and the reconfiguring of the System disk
13. Built in screen printer (shift {CLEAR} with {BREAK} key abort
14. Multiple command chaining with DO
15. Built in memory test with the CLEAR command
16. A printer driver which allows complete forms control and paging
17. Automatic serial printer driver with optional auto linefeed
18. Execute any DOS command from Basic and return to Basic
19. Free space map of diskette with optional output to printer
20. Copy with variable length files
21. Complete RS-232-C control from the keyboard with status check
22. Create and preallocate files from DOS
23. More information from the directory with optional printer output
24. Display data and time from DOS
25. Enter DEBUG with shift {BREAK} to allow the use of {BREAK} from Basic
26. DISKDUMP/CMD sector display/modify program works with filespecs
27. DISKZAP/CMD single/double density disk editor
28. MAP utility and free space map showing where files are located
29. Single drive copy
30. RESTORE dead files
31. PURGE unwanted files
32. CLEARFILE destroy data by writing zeros to the file
33. TRANSFER moves all user files from one disk to another
34. Eight inch drives supported with appropriate controller
35. Spooler allows for the printing of text while freeing up the CPU
36. CRUNCH Basic program compressor
37. Basic array sort - multikey, multi-array. Allows the sorting of numeric and string arrays in ascending or descending order - 1,000 element string array and 1,000 element numeric array is sorted in about 15 seconds.
38. Tape/Disk - Disk/Tape utility with relocator
39. Input @ controlled screen input
40. Basic checks for active DO
41. BACKUP and FORMAT from a DO file
42. Repeat last DOS command with / ENTER
43. Wildcard specifications on disk files
44. Single file convert from Model III TRSDOS
45. Ability to save Basic programs directly to another machines memory (if equipped with DOSPLUS 3.4.)

Within DOSPLUS Extended Disk Basic the following features are available:

1. Basic reference utility (lines, variables, keywords, printer option)
2. Basic renumber utility (renumber sections of text, block text move)
3. Shorthand feature for almost any direct command (LOAD, SAVE, etc.)
4. Shorthand features for editing (list and edit with single keystrokes)
5. CMD "M" instantly displays current set variables
6. Global search and replace in Basic text
7. Line printer tab to 255
8. Open "E" to end of sequential file (for output).
9. DI (delete and insert text line)
10. DU (duplicate text line)
11. "R" & "V" options after LOAD and RUN (files open and save variables)
12. OPEN D allowed (Model II compatible) equal to OPEN R
13. DOS commands from Basic
14. Automatic, error free variable length records
15. Single step execution with TRON (excellent utility for debugging)
16. TBASIC (tiny Basic) offers full Basic commands
17. TBASIC and DOSPLUS together use 8k of RAM (40k left in a 48k TRS-80)

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

Model 1 **48-1803**
Model 3 **48-1804**



PILOT — AN EDUCATIONAL INTERPRETER

Pilot is probably the foremost language used by educationalists. This version of the language is written by Alec Wood of the Wirral Pilot Group and is a complete programming system for controlling interactive text, designed to make the creation of interactive computer-assisted learning programs as straightforward as possible. As well as the interpreter the system also includes extensive edit and tape facilities allowing the ordinary subject teacher, or parent, to write the sort of user-friendly text which is difficult to write with a general purpose language such as Basic. The Wirral Pilot distributed by use is an extensive integer subset of the common Pilot. For the uninitiated, Pilot is not a keyword language like Basic, instead it uses single or double-letter commands known as op-codes. Each instruction is built up by adding conditioners and/or modifiers to the op-codes required. The core op-codes provided in this Pilot are:

PR: Set options	J: Jump
R: Remark	U: Use subroutine
T: Type text	E: End Subroutine/Program
A: Accept input	C: Compute

Only one modifier is provided which is J. It is used with the match op-code and causes the program to jump to the next match instruction if the successful match is not found. Five conditioners are available as follows:

- Y: Execute instruction only if the last match was successful
- N: Execute instruction only if the last match was not successful
- n: (n is a digit 1-9) Execute if n matches the answer counter, e.g. first time through an accepted loop instruction 1 is executed, the next time instruction 2 etc.
- E: Execute if the error flag is set
- C: Execute if the last relational expression conditioner was true.

The program is accompanied by a 26 page manual which is both instructional and operative in content.

Memory Requirement 16k — **11-2410**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

CORPLAN — EXPERIENCE BUSINESS IN ACTION

CORPLAN was written to simulate a business environment. It has already received extensive use as a training program for schools, colleges, and businesses. Essentially, CORPLAN is an entrepreneur's business game. The player takes the part of the Managing Director of a mythical company which manufactures an equally mythical product called a "Corple". The business, which you are called upon to name, sells to a market over which it has a considerable degree of control. You are free to change the company's manufacturing, selling and financial policies to suit your objectives. The player is also called upon to make decisions as to the hiring and firing of employees, capital investments and many other factors which go to make up the success or failure of a business. On these decisions will depend the ultimate fate of the company. The game may be played either singularly or by a number of players. In the latter case, the players make up the Board of Directors and each player is appointed Director of Finance, Director in Charge of Production and so on. A unique feature of the game is that the player may set his own criteria by which a win or loss is determined. In operation you are thrust into a position of deciding policy. Whether you go for growth by buying more plant and machinery, taking on workers and salesmen and advertising heavily, or adopting the philosophy of simply going for survival. You have to raise cash by borrowing, or by issuing shares. You must know when to pay dividends to the shareholders best advantage. You plan production together with making policy. You advertise, set prices and understand how to maximise profits. To enable you to monitor your day to day progress, a set of accounts is screened showing materials, production, profit and loss account and balance sheet. The manual accompanying this game is extensive. You are taken step by step through the game and in fact a specimen run is even supplied. Although the game comes on tape, it is written in Basic and may easily be saved to disk, an advantage as it is almost 16k long. No previous knowledge of finance or accounting is needed to enjoy CORPLAN. It is worth stressing that Corplan is an ideal program for assessing students and for conducting competitions.

Memory Requirement 16/32k — Tape **13-2403**
TRS-80 Tape/Disk Model 1 & 3 — Disk **13-2417**
SYSTEM 80 Tape/Disk Mark I & II

DIRECTION FINDER — A GEOGRAPHICAL COMPASS

This program has an educational potential as well as an appeal for pilots and travellers. From two stated points this program will give the following information:

1. Distance in statute miles.
2. Distance in nautical miles (knots).
3. Distance in kilometers.
4. The compass bearing from one to the other expressed in degrees.
5. The approximate compass direction - South West, North East etc.
6. The graphical representation of the compass rose with the positions indicated.

The points are entered in two ways. Firstly, stored in data lines are the latitudes and longitudes of over 125 major cities in the world. With these cities it is only necessary to enter their names to obtain more information. For smaller towns you may enter the latitude and longitude and the same information will be provided. Additional features are:

1. Distances and bearing plus the time taken
2. Table of distances and times on a multi-leg voyage.
3. Bearing, speed and time taken, corrected for wind.
4. A list of the cities and their data on file.

Memory Requirement 16k — 11-2406
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

STOCK MARKET — A CHALLENGING SCENARIO IN HIGH FINANCE

This program is a must, whether you are a student of economics or simply a fledging capitalist. The idea of the game is that you are given $10,000 and two years within which to make a fortune - or go bust! The two years are divided into 24 periods of a month each. Each month you may buy or sell shares and at the end of the month all prices are affected by what has happened during the month. During each period you are given various tips from well meaning friends - which may or may not be correct - and items of general news which might affect the values of shares you own. Market news may be that companies are on strike, the announcement of new products, new developments, more investment into a company and so on. The bad news depresses prices and the good improves them - no doubt this sounds vaguely familiar. Sometimes annual profit and loss news is given for a particular company which seriously affects prices. There are 10 share categories stretching from Banking to Industrials and each category contains five shares. You may either buy or sell in each category in order. At any time during the game you may call up a list of the shares which you own giving details of their cost, any change, the number owned, average cost and profit or loss on the holding. Similar details are also given under each category of shares. If you have ever had an inkling that you might do well on the market (and incidently it is the English market, not the American) then attempt STOCK MARKET and find out!

Memory Requirement 16k — 11-2413
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

CONSTELLATION — TURN YOUR COMPUTER INTO A TELESCOPE

This unique program is a must for the Science or Astrology Lab, or for that matter any budding Astrologer. Effectively, the program turns your computer screen into a telescope so that you may view the sky from any point on earth for any time and date in the 20th Century. In other words, if you want to know what the sky looked like from, say Mt Isa on the 15th January 1949, the program will show you. Details of over 40 constellations are contained in the program, together, of course with the major planets of the solar system. The only data the user has to know is the latitude and longitude of the observer's position together with the data and time. The "telescoping" can be both moved and adjusted for magnification as there are four cursor movements: East/West, Up/Down Directions, together with two commands to zoom in and zoom out. Other ancillary commands include a recentering display, setting a new cursor position and displaying the stars by constellation or magnitude.

Memory Requirement 16k — 11-2405
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

CHEMICAL FORMULAE — AND HOW TO WRITE THEM

This program has been designed to enable you, your children or your pupils to construct and write chemical formulae. It makes use of graphics to construct letters (both upper and lower case) which are displayed on the screen together with the charges of the ions. Ions may be added or subtracted until the total charges have been balanced. The computer will then display the correct formulae for the chosen compound using brackets and descending numbers as required. Assuming the use of a 26" television screen, the ions and formulae are readable across a normal size classroom. This program may be used by teachers as a demonstration, or by individual pupils to help with particular problems, and finally by pupils at home for revision and practice.

Memory Requirement 16k — 11-2402
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

ELEMENTAL MAZE — A PLEASANT WAY TO LEARN

This program is for students of chemistry at about the mid-stream of their secondary education. The player is presented with a maze on the screen. The maze is comprised of a series of black and white squares. You are not allowed to pass through the white one and when you arrive at a black one you will be given a clue as to the name of an element. For instance: " A metal whose Chloride or Nitrate is used to test for Sulphates". For each move the player is deducted 10 points, however 15 are gained by identifying the element described correctly. Identification of an element is only available on the first visit to a square and the player starts with 500 points. Each time the maze is entered or the game run, the elements are reshuffled.

Memory Requirement 16k — 11-2420
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

TABLES — LEARN MULTIPLICATION THE FUN WAY

Tnis is a unique program, the purpose of which is to get youngsters, of say around eight years of age, to learn their multiplication tables (a) without knowing they are doing it, and (b) have fun at the same time. Actually, it is rather hard to describe the program because it boils down to the child having a chat with the computer. When first starting, the program asks the child whether he or she wants to do some multiplication, or have a chat. No doubt the normal child will respond that he wants to have a chat. This leads into a whole array of cross jokes and comments, most of which inevitably lead back to the child doing some multiplication. The program has been extensively tested with a number of children and apparently the writing of it became evolutionary. Even if you try to avoid learning their multiplication tables, this program is sure to interest them, if not educate them.

Memory Requirement 16k — **11-2414**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

MATHS SPEED TEST — EDUCATIONAL AND FUN

This program is a clever attempt to make basic mathematics a little more palatable than it normally is. The program gives you up to 20 questions at a set speed. It records the length of time it takes you to answer and keeps a running note of the latest score. It is, therefore, essentially both a game and an education. The first level is simply questions of the 6 x 12 variety. The second level is a choice of questions on either addition, subtraction, multiplication, division or a mixture of them all. These questions are somewhat harder, although all the questions generated by the program are capable of being worked out mentally. In other words, use of a calculator is considered cheating! This program will support sound.

Memory Requirement 16k — **11-2407**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

TOUCH TYPING COURSE — A SUPERIOR TYPING COURSE

This course is designed as a complete suite consisting of eight separate and different lessons. The suite offers a methodical learning process which gives the necessary instructions in a progressive and efficient manner. Learning is automatic, not requiring any self-discipline on the part of the user once the initial decision has been made to load the program. All user errors are monitored and the program reacts to such mistakes. It is suitable for any age of student. It would, for instance, be possible for a seven year old to learn to type from it whilst, on the other hand, a school leaver should be able to pass a typing exam and get a job on the basis of the first six lessons. Probably the most important point is that a rhythm which is so important to typing, is maintained throughout the lessons. It is only by attaining this rhythm that a user is able to increase speed past about 25 words per minute. Typing speeds are varied during the first four lessons in accordance with the difficulty of the material presented and the user is told his final speed when he reaches the end of the lesson. The fastest of the optional speeds in lesson 5 brings the user to about 30 words per minute and in lesson 6, this is 35 words per minute. In the last two lessons, the student chooses his own speed, which is analysed line by line in the program. The last two lessons, nos. 7 and 8, are practice sessions. In lesson 7, the practice is in copy typing from amended copy and in lesson 8 in high speed typing. The contents of the lessons are as follows:

1. Second row (home keys). Each practice text maintains rhythm while building up accuracy at a set speed.
2. Third row. Exercise as above, using sentences from the second and third rows.
3. First row. Exercises as above, with sentences from the first three rows, and introducing the use of the SHIFT key for symbols and intial capital letters.
4. Top row. Exercises as above for the top row numbers, followed by exercises for the symbols with optional practice length. The BREAK key is disabled to avoid accidentally BREAKing and there is more practice with the Shift key and with various kinds of text material.
5. The basis of the error count is now word-by- word, as used in speed tests, and the user is provided with a series of types of text from menus. There is a simulated Shift Lock and also an automatic spacing mechanism. For each text, one of three possible speeds can be chosen. Rhythm is still maintained, the user now being given a period of time to type each word which is proportional to its length, thus reducing the strictness of the previous letter-by- letter rhythm drill. At any time the user can obtain an evaluation of his error rate at the chosen speed.
6. As in no.5, a menu is provided, and the three possible speeds are now faster, the fastest being 35 w.p.m. Use of the ENTER key when typing computer program lines is introduced and practice in the use of a tabulation device is now available, allowing the user to copy tabulated material provided in the documentation.
7. This lesson offers practice in copy typing from three texts provided in the documentation: poor handwriting, neat handwriting, printer' proofs, and a separate list of these symbols is provided. The correct version of the texts is contained in the program and the user can call up this copy of a line to compare it with the version he has typed. He can now type as fast as he likes and the time taken on each line as well as his words per minute taken overall will be given.
8. The user can build up his speed by typing a long text as fast as he likes; it is stored within the program and can be called up line by line for comparison with the original. The words per minute rate on each individual line is given.

Each lesson uses between 10 and 15k of memory and so the entire course may be used by 16k owners. Available on either tape or disk.

Memory Requirement 16/32k — Tape **11-2415**
TRS-80 Tape/Disk Model 1 — Disk **11-2416**
SYSTEM 80 Tape/Disk Mark I & II

FRENCH VOCABULARY — AN AID TO LEARNING FRENCH ON YOUR COMPUTER

This program, which teaches the vocabulary of French has been written with simplicity and efficiency in mind. It is highly recommended as a mandatory exercise before your next trip to French Caledonia, or for the French student up to Junior Level (10th grade). Included with the program are 10 vocabulary data programs each containing 300 French/English word pairs. The total of 3000 word pairs provides a comprehensive basic French vocabulary. Each French word, or course, is matched with the English word, giving its meaning. If there is more than one meaning the most common is given. The nouns, which make up well over half the vocabulary, include the gender and are mostly arranged according to subject matter. This greatly aids learning. Each set of 300 word pairs is subdivided into 10 groups of 30. Frequently, more than one group is assigned to any particular subject. For instance, in the first set of 300 the first two groups are concerned with motoring, the next two are words that would be required in and around town. One group is assigned to airport words and so on. All of this data is used in three principal tests, a speed test, a multiple choice test and a spelling test. All these tests may be used in either the English/French or French/English direction.

Memory Requirement 16k — 11-2412
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

LANGUAGE TEACHER — LEARN THE BASICS OF A FOREIGN LANGUAGE

This program is one of a series that we import from Acorn Software in the United States. LANGUAGE TEACHER offers hundreds of word combinations, verb conjugations and phrases. You choose the topic of the drill and whether it is foreign language-to-English or vice versa. There is the option of having multiple choice questions as well as being retested on missed items. The program provides a running percentage of correct answers. Full print capability and a great deal of "human engineering" has gone into enhancing each of these programs. Teachers will appreciate the ample documentation and the ability to get printouts of quizzes.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

French **40-2411**
Italian **40-2418**
German I **40-2419**
German II **40-2420**

MULTIPLE CHOICE QUESTIONS — EASE THE BURDEN OF COMPILING TESTS

This program is an extremely useful aid for the busy teacher and enables him to compile a series of multiple choice questions which can be saved to a disk file and also provides the student with the facilities to answer the paper after the teacher has written it. Various provisions are made for printing out and various other ancillary matters. The program will not accept any entries except those for True, False, and Doubtful. After the questions have been answered, the machine will report on the number of correct entries, with a correct answer yielding one mark, an incorrect answer loosing a point, and a doubtful answer remaining unmarked. At the completion of the session, the students total marks and percentage achieved can be displayed.

Memory Requirement 32k — 11-2409
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II



HOME & PERSONAL

DOMINOES — FULL GRAPHICS AND REALISM

The graphics of this game are excellent and show the bricks exactly as they appear in a normal game. The usual Dominoes rules apply, the game can be played against the computer or the computer can be made to play itself. Each player is given 7 bricks, the player, of course cannot see those held by the computer, although there is a facility for "peeking". It should be stressed that the computer cannot see your bricks, hence it is unable to cheat! As play progresses, the bricks are laid end to end, automatically turning corners as the end of the screen is met. If you cannot lay a brick you pass (called "knocking") and the winner is the one who lays all his bricks first. The computer play has quite a bit of built-in skill but it is quite possible to beat it if you play a good game. We have found this game quite addictive - probably because the games do not take long and the activity is fast and furious - highly recommended.

Memory Requirement 16k — 11-2628
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

PELMANISM — A COMPUTER VERSION OF THE CARD GAME

Essentially the object of the card game PELMANISM is for the player to remember the position of the cards so that when a subsequent card is turned over he may match it. The computer version is a very good simulation of the original and essentially amounts to the same thing. When first started, the program displays the cards on the screen. The player or players select cards from various positions which are displayed and the player must remember what they are. They are then covered by the computer and another turn is taken. When the player thinks he can remember a match, he can "call it" and see whether or not he is correct. The player with the most pairs at the end wins. PELMANISM is an easy game to play, ideal for some of the younger members of the family. Understandably, a strong "gambling" element may be introduced if the players so decide.

Memory Requirement 16k — 11-2626
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

KNIGHT DELUXE — A CHALLENGING TOUR OF THE CHESSBOARD

KNIGHT DELUXE is a program for fanatics of the Knight's tour on the chessboard. The following functions are available:

1. Compose Knight's tours
2. Enter a part tour and have the machine find all tours starting that way.
3. Examine, invert, reflect tours once composed or found.
4. Save tours for later examination.

KNIGHT will theoretically find all possible tours on the chessboard - this stretches into the millions . . Even small objectives, for instance to find all tours starting with, say, a particular set of three moves, can take a long time. Tours, when found, may be displayed in numerical or semi-graphical format, printed on a line printer or simply counted. For the enthusiast, this program remains a serious study of the Knight's Tour puzzle.

Memory Requirement 32k — 11-2639
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

GOMOKO — AN ANCIENT ORIENTAL GAME

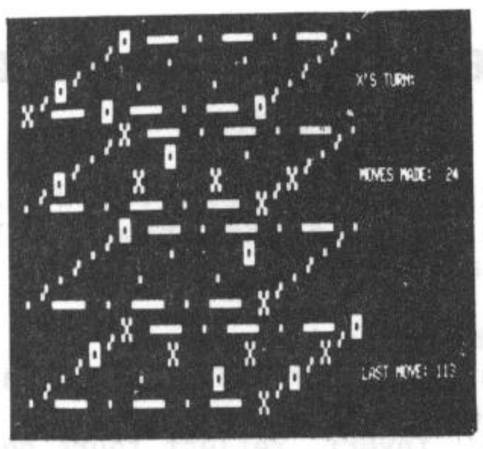
We are not too sure of the origination of this game. It is, in some ways, very similar to the Chinese game of GO and is played on a similar board. The author Dr Shafto, who also wrote the DRAUGHTS program listed above, says it is an ancient oriental game. Anyway, the game is played on a rectangular grid, the size of which may be chosen by the user. The maximum size is 20 wide by 14 high. Tokens are placed on the grid by the user and the computer in turn, and the first player to get five of his tokens in a row is the winner. A simple game perhaps, but fascinating to play and greatly enhanced by the feature of being able to choose the size of the board.

Memory Requirement 16k — 11-2624
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

QUAD — MIND BENDING

Quad is three dimension noughts and crosses. As its name implies, it is played on a cube of four layers each with four ranks. Like noughts and crosses, the aim of the game is to get crosses and noughts in a line either horizontally, vertically or diagonally. The cube is depicted graphically on the VDU and either two players may take part or a single player may play the computer. Four levels of difficulty are provided and a time clock is also included for each move. A particularly important feature of the game is that the cube on which the game is played may be rotated so that the player can see it from a different angle. A number of commands are provided including setting up previous positions, backing up to a previous position, progressing to the next position, reversal of order of play and switching of opponents. This is a complex game of strategy in which the player will need all his skills.

Memory Requirement 16k **40-2645**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



DRAUGHTS — AN EXCELLENT VERSION OF THIS POPULAR GAME

This version contains excellent graphics. The board, in fact, is almost identical to that used in the Sargon Chess game. All of the standard rules apply, including Huffing and Crowning and six levels of play are supplied. As far as we can determine, the computer is almost unbeatable at the highest level. A particularly interesting feature of these levels is that if particular levels are chosen, the computer will play a very aggressive game, taking its opponent's pieces almost regardless of the future strategy. The program is, of course written in machine language and the computer response time varies from one second to eighty seconds, depending on the level of play chosen. Levels of play can changed during the game and it is possible to set up specific board games for consideration and it is also possible to cancel a previous move.

Memory Requirement 16k **11-2629**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

KUBIK — THAT CUBE AGAIN

Rubik's Cube does not need an introduction, it took the country by storm some time ago. A number of computer magazines have published solutions to the Cube. Despite this, some people will prefer to purchase the program ready made and with full TRS-80 graphics to illustrate all the various permutations. A number of functions are available with this program: a position may be saved either to disk or tape so that the user can restart at some future time. You may enter you own position and then address the Cube to turn clockwise or anticlockwise, or swivel to a different angle. In effect, you can freely manipulate the Cube from the keyboard. We found the most rewarding command was to instruct the computer to solve the Cube. However, in view of the millions of permutations possible it is simply not possible to state how long this takes. The final facility available is a self test, in other words, the program can be made to repeatedly scramble the cube by generating random moves, solve it, scramble it again and so on, an infinitum.

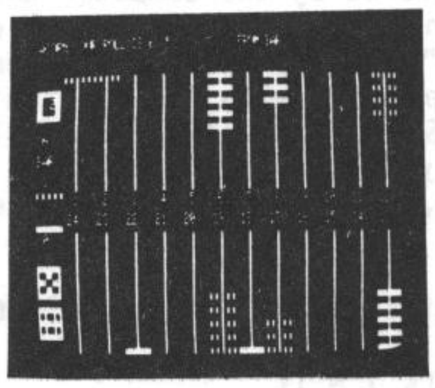
Memory Requirement 16k **11-2633**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

GAMMON CHALLENGER — BACKGAMMON WITH SOUND

This version of the game is a formidable opponent. We are told that it has already beaten the Backgammon issued by Hayden Publications and Instant Software. GAMMON incorporates three levels of skill. An additional feature is that an extra level is available. With this option the program plays with the skill of Level 1 which is the highest, but before each roll of the dice, the machine enquiries whether you wish to specify the roll. This is a great feature in that it enables you to study the game. The graphics are good, the dice being represented by two cubes. As a safety feature, the screen may be redrawn if ever it is accidently erased . Some of the more important features are as follows:

1. The board may be saved and recalled for later use.
2. The board may be set up by the user, in this manner, the computer's response to given tests may be studied.
3. Sides may be changed so that you play the computer's game and vice versa.
4. The skill level may be changed during the game.

Memory Requirement 16k **40-2644**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



SAM LLOYD — A PUZZLE

While KUBIK is designed to test your immagination on a 3 dimensional plane, SAM LLOYD is constructed along more traditional lines. At one time or another we have probably all encountered one of those small block puzzles, a set of 15 small blocks set on a two dimensional plane whereby the user has to manipulate them to form word, pictures, or some given sequence of numbers. SAM LLOYD is based on this very same premise, offering five choices of puzzle or function. The first is a computer representation of what we have just described. In other words the blocks to be moved are numeric. The 2nd and 3rd options are concerned with creating your own puzzles. This is done using the cursor keys to draw a picture, or for that matter, anything on the screen. When you are satisfied with the design the computer will then compile the design permitting you to save it on tape for future use. The last two puzzles require a little more explanation. The first is a crossword made up of letters which can be read either vertically or horizontally into meaningful words. On command the program will shuffle the letters and it is then up to the player to attempt to solve the puzzle. Or alternatively, he can instruct the computer to find the solution. The final command is a picture puzzle, where the blocks when arranged form a picture. This option will probably be of the most interest to purchasers as it reveals TRS-80 and SYSTEM 80 graphics at their highest level. The picture puzzle is that of a house and if that is not enough, a data tape is supplied which contains data for four pictures, namely a mountain scene, a TRS-80, a bear and a message.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2634

MILES PER GALLON - SAVE MONEY ON YOUR CAR

There have been a number of programs which purport to assist the car owner in getting the best mileage and performance out of his vehicle. The ones that we have seen have not been particularly good, in the main they have been file handling exercises which simply keep a record on the computer rather than on paper of the miles per gallon and other performance factors. This program is considerably more sophisticated. Chris Wilkinson, the author of MILES PER GALLON has based his research on a statistical approach known as Kalman Optimal Recursive Techniques, or simply Kalman filtering.

The program, when supplied with details of fill ups, calculates the miles per gallon and compares this with the expected value. The comparison of actual and expected values allows both sudden changes and longer term changes in petrol consumption to be detected. A sudden change might be indicative, for instance, of a failed spark plug, a longer term change could be due to the gradual wear of points and plugs. As we all know, it is imperative that a car owner should change his oil from time to time and it is not really disputed that the more systematic and regular these changes are, the better it is for the condition of the vehicle. Accordingly, this program will remind you of when it is time to change oil and, additionally, prompt you to other events as previously chosen by you. When you run the program, the first thing that must be done is to set up a file containing the vital statistics of your vehicle. You will be asked for a number of different inputs and it may be of use if we go over these briefly here for they will indicate some of the features of the program.

1. INITIAL MILEAGE READING: The speedometer reading at the time that the program is first run should be entered.
2. EXPECTED MILES PER GALLON: This should be an educated guess. Alternatively, a manual record of one or two fill-ups can be made, but it does not matter if the figure entered is a little inaccurate, it would simply generate a spurious message for the first run or two.
3. NUMBER OF EVENTS TO BE FLAGGED: The decision must be made as to how many events such as oil change, point adjustment, brake adjustment, brake adjustment and services of which you wish to be notified. If you do not wish to use this section of the program then no events need be entered, but if you do enter some, the number must be less than 10.
4. DEFAULTS: For each of the further parameters a default has been supplied by the program. You can either elect to accept those defaults or to enter your own figures.
5. VARIANCE OF MILES PER GALLON: The default is .02 . This is the factor which governs how much notice is taken of each new miles per gallon value in calculating the expected value. This is an important entry and will require some thought. If you allow the variance to be high, then you will not get the warnings you requested, on the other hand, if you set it too tightly you will get a lot of spurious warnings. You must also consider whether you normally do a lot of motorway driving or a lot of town driving as this will obviously affect the consumption.
6. VARIANCE OF MEASUREMENT: The default is 0.4 . This takes account of inaccuracies in the measurements of the total amount of petrol and the mileages.
7. THRESHOLD FOR SHORT TERM ALARM: The default is 1.26. If the calculated miles per gallon is greater than plus or minus the short term alarm theshold away from the expected miles per gallon, a short term message will be displayed.
8. THESHOLD FOR LONG TERM ALARM: The default is 2.53 . The longer term alarm is calculated by summing the differences at each fill-up between the calculated and expected miles per gallon. If this sum is greater than the theshold, the long term alarm message is displayed.

The above complete the parameter initialisation. It should be mentioned that they can be changed at any time. In order for this program to help you, there are one or two things that the user must do to help himself. Most important, of course, is that the figures entered into the computer must be reasonably accurate. Certain build-in variances are allowed for as explained above, but gross errors in input will cause gross errors in output. It is probably true that the more frequently you buy petrol and enter this information into the program, the greater the accuracy and efficency of your results. Needless to say, fleet owners or other owners of more than a single vehicle can use the program, and fleet owners particularly may well benefit substantially. The program is available on disk.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-2638

SHARE ANALYSIS — INVESTMENT ANALYSIS

Investment analysis is not easy. Even with a good calculator, long boring hours can be spent in determining the necessary "indicators" of market action. Then graphs have to be drawn to get an extended view of what is going on. It is only then that the investigator can get an overall picture upon which to base a decision. The purpose of this program is to allow the user to jump straight to the last step with a minimum of effort. All he is required to do is to type in certain data which the program records. It then calculates the indicators, makes a "symbolic chart" and draws the graphs. The user may input data as frequently or as infrequently as he wishes. This is kept in a datafile and is available at all times. A useful feature of the program is that it provides a symbolic representation of probable Stock Market movements. It fills the screen up with up-arrows, down-arrows and hyphens. These indicate probable market movements, with the hyphens indicating that insufficient indicators are available to assist you in your analysis. A text file is supplied which is an account of how the data is used to prepare the indicators and how the indicators are used to imply market trends. The program obviously requires the input of various indices. This information is obtainable from the financial section of you local paper, or in the financial section of the Australian Financial Review. We have found this to be a useful program, and while it will not guarantee you success on the Stock Exchange, it will certainly be of some assistance.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-2635

SHARE PORTFOLIO — A DISK MANAGEMENT PROGRAM

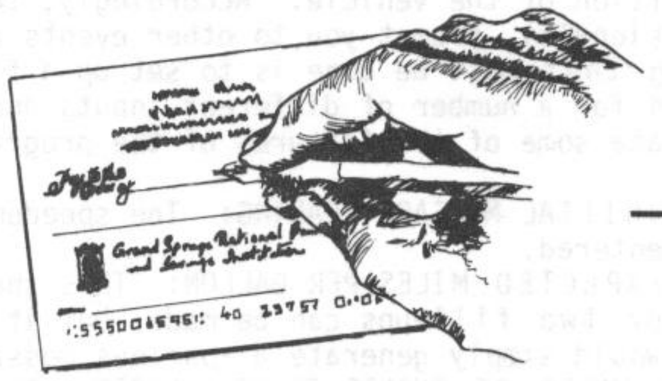
This program allows for the straightforward management of your share portfolio, we recommend that it be used in conjunction with Share Analysis. The main menu of this program provides five choices:

1. To see present holdings
2. To make records of purchases
3. To make records of sales
4. To revalue present holdings
5. To see records of buy/sell deals

Each of these are self-explanatory. If the first choice is made the user is given the option of either a screen display or a printout and then the data is presented in seven columns. The first indicates a buy or sell, the second a date, the third a name of a share, the fourth the number of shares, the fifth the cost, and finally the cost plus fees. After the shares in the portfolio have been displayed, three titles are given namely the total value, the total cost and the total fees paid. The second and third items in the menu are used when a purchase or sale is made and then entries, of course, update the datafiles. The fourth menu item is used when you wish to revalue your portfolio and it takes you through each share holding in turn, giving your the purchase price and inviting you to entry the present price. The format if you choose the final menu option is similar to the first and lists your past buy or sell deals share by share. The amount of profit or loss is shown either as a positive or a negative figure.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-2636



MONEY MANAGER — A FINANCE PACKAGE FOR PERSONAL AND SMALL BUSINESS USE

MONEY MANAGER is a complete management tool for all your budgeting activity enabling you to effectively monitor your income and expenditure. The outgoing money is categorised into accounts that you design according to your needs. It provides a means of keeping complete, accurate records including itemisation of tax deductible expenditure. Information on up to 250 cheques per month can be maintained on a 48k machine. Standing orders or direct debits may be specified and cheques made payable to credit card companies, suppliers, departments stores, and similar entities. All transactions can be broken down so that individual expenses can be categorised. The program of course supports a line printer where formatted printouts may be made by category and time period. The program is menu driven and perhaps the best way of describing the features of the program is to list the menu as follows:

- Add New Entries to the File
- Delete/Modify Cheque book entries
- Review and cheque book entry
- Change display/balance
- Print all categorised entries
- Reconcile cheque book
- Review complete cheque book file
- Review cheque book file by month
- Review categorised entries
- Review deposits
- Review bank charges
- Review miscellaneous withdrawals
- Review outstanding cheques
- Modify/list categories
- Display category/month matrix

Finally, we would like to emphasise that the ability to establish your own customised categories reflecting your own needs is one of the most important features of this program. Obviously, it cannot decide how much you should spent on what. This decision is best made in consensus with your Accountant. Where it is invaluable is in monitoring how well you are keeping to your budget.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

40-2647

LOAN

This is a loan amortization program for loans of all types, including mortgages. You are called upon the enter the amount of the loan, how many payments are to be made and the interest rate. The computer calculates and displays the amount of each payment and the total interest paid, which is fairly straightforward. However, enter the month and the year that the loan or mortgage will (or has) started and a complete Amortization schedule will be displayed, containing the month and year each payment is due, the total monthly payment, how much of that is for interest and how much for the principal, plus the amount of the remaining principal. For peace of mind you are better off without it but it is a very good program for those who need this type of data.

Memory Requirement 4k 11-2640
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

FARMER BROWN — STRICTLY FOR CHILDREN

This program does not pretend to be a program for adults, although the graphics are so good than many adult programmers will wish to investigate the techniques used in this program. It has evolved from a very old children's game, whereby Farmer Brown has a farmyard through which many peculiar animals and objects pass. Pictures of these animals walking across the screen are displayed and the child must enter the first letter of the name of the animal in order to gain a point. Points are deducted for incorrect or zero responses and the maximum score is 300 in 30 tries. There are 26 animals or "things". The graphics are excellent and will probably appeal to an age group from about five to ten years. Sound is included in the program.

Memory Requirement 16k 11-2630
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

COMPUT-A-ORGAN — YOUR COMPUTER BECOMES AN ORGAN

This program literally turns you computer keyboard into a 2½ octave instrument which instantly plays back the notes which are struck. In other words, in the same way as an organ or piano. All four rows of your TRS-80 or SYSTEM 80 keyboard are used in a logical way and they are made identical to the keys of the instrument. To generate sound, all that is necessary is to connect a mini-amplifier to your cassette output. For the more electronically minded, we have included a free circuit diagram on how to build you own sound box.

Memory Requirement 16k 11-2604
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

CHEQUE BOOK — A SIMPLE APPROACH TO HOME FINANCES

This program is divided into four parts. The first is a cheque book account which allows a maximum of 100 entries per file. Options include adding debits and credits, re-reading current data, making alterations, recording a new data file, reading a data file and maintaining a running bank statement. The actual display is split into four headings, notably: Item, Debit, Credit and Balance. As entries are made, the balance is immediately updated. The second part carries out mortgage calculations and supplies the usual information as to monthly, interest and tax gains per week or month. This information may be displayed either as a continuous table or as a summary. The third section of the program is concerned with investments. It asks for the investment account, the interest rate and the period and supplies at the end of the investment and the total profits that will be made. The final section is designed to calculate the investment potential or regular monthly payments into a SAVE program. Input is the monthly payment interest rate and expected term and the program caters for single persons or a married couple. Overall, a compact and easy to use program.

Memory Requirement 16k 11-2606
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

MUSIC MAGIC — CREATE AND PLAY OR ADD MUSIC TO YOUR BASIC PROGRAMS

There are a number of programs in the market-place which turn your computer into a music keyboard, we stock one such example, namely COMPUT-A-ORGAN. MUSIC MAGIC is of the same genre, however its sophistication far exceed previous attempts at creating music from the keyboard. This is not to imply it is difficult to use, far from it, with its teaching sections and sample note entry procedure it can probably be learnt in an hour by anyone regardless of programming experience.

MUSIC MAGIC can be used as a music composer, player and compiler for your computer. It allows you to enter notes into memory using standard notation and then create disk files of these songs. With the Music Magic editor you can then replay these songs at 9 different speeds and in three octaves with sharps and flats. To further your creative ability, these same songs can easily be edited, or adapted with repeating sections, vibrato effects or modified by altering the timing values between Whole Notes to Dotted Sixteenth and Rests.

As a teaching aid, MUSIC MAGIC has tremendous potential. Using your TRS-80 or SYSTEM 80 graphics set, it simulates a piano keyboard on the screen as the notes are being played. For the user with programming experience, MUSIC MAGIC allows you to save your songs as a Basic Language program. This powerful utility has an obvious implication if you are contemplating the writing of recreational or educational software. MUSIC MAGIC is supplied with a 10 page manual and a library of songs for experimentation purposes.

Memory Requirement 32k 45-2619
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

MARQUEE — A SIGNBOARD PROGRAM

The principle feature of MARQUEE is that there is a fantastically large buffer provided, thus making it possible to have messages of many thousands of characters apparently revolving around the screen. In fact it is so large that we imagine it would be possible to compose some type of attention-getting puzzle or instruction, such as "wait here until you find this letter". To complement this feature it is possible to have a static message on the screen at the same time as the revolving one. Another advantage is that you may elect to have a 24 hours digital clock of hours and minutes and second displayed at the bottom of the screen. Incidentally, the characters for the clock and the Marquee message are about 25mm (1 inch) high.

Memory Requirement 16k **11-2616**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

MORSE CODE — LET THE COMPUTER TEACH YOU

This is a nifty little program for teaching yourself Morse Code. The only additional equipment you require is a mini-amplifier to be connected to the cassette output of your computer. The program starts by asking what speed of code you want. Thereafter you have a number of choices. You can instruct the computer to output the code (at the speed) you have set for random letters, numbers of a mixture of both and optionally display the letter on the screen as the output is made. In the training mode the computer will output code and you have to type the correct key. If you are incorrect the code will again be output until the correct entry is registered. In the keyboard mode you type a key, the character will be displayed on the screen (optionally) and the code output. The speed may be adjusted at any time so that as you get more proficient you can increase the pace.

Memory Requirement 16k **11-2620**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

MORSE CODE TRANSLATOR — A SOFTWARE APPROACH

This is a fascinating program that will not only have an application for radio amateurs, but also for any shortwave listener curious to translate those funny dits and dahs. Input and output to the computer is through the cassette port, with the source either directly from radio or straight from tape. Essentially, the program is a morse code generator or decoder with input and output in English. Maximum speed is in either mode is 28 word per minute and all morse shorthand is supported and correctly displayed. Other features included the ability to vary the speed of transmission of morse code either direct from the English input from the keyboard or by typing a screen of text before transferring the code to the transmitter. Various notes are contained in the documentation accompanying the program which enable the pitch of the output to be changed to suit the transmitter in use.

Memory Requirement 16k **11-2641**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

AMATEUR LOG — A UTILITY FOR THE HAM

This program is strictly for the radio amateur and will have no application to anyone else. It is designed to store and re-access all on air activity of a radio amateur and provides real time QSO logging, history file access, file update and create, repeater timer, QRA locator and full QSY facilities. In use, the time and data are entered into the program first of all, the form in GMT. The program then formats the screen with the work area and waits for a menu prompt as displayed on the split screen. In operation the QSO to be worked is first signed on to the system. The program will then check that the computer has been given a frequency in Mghz. The disk file is then opened to check through for any file with the same call sign. Only one file is created for each call sign on any given disk. If any previous QSO has been worked with that station, the computer will advise that a file exists and will display the first name of the operator and/or the last date worked. If the QSO being worked is not found on the disk, a file is immediately opened. Any file may be updated as required and 250 files may be created on a formatted disk. A disk with a minimum operating system on it can contain 235 records. A repeater timer is available which, upon request, starts counting and displaying seconds from the internal clock. The seconds are displayed at the top right hand corner and will prompt the operator after 10 minutes, if not reset, or after 15 minutes to remind of call sign regulations requiring a call sign to be broadcast. A QRA locator facility is provided which, upon entering the QRA locator, will display the grid reference.

Memory Requirement 32k **11-2621**
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

CALENDAR — AN HISTORICAL UTILITY

This is a useful little utility which displays a full monthly calendar for any month from January 1800 to December 2399. It is written in Basic and uses about 2.5k of memory. Either incorporate this utility into you own software or answer the riddle which troubles us all . . . on what day of the week were you born?

Memory Requirement 16k **11-2603**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

FAMILY TREE — TRACE YOUR ANCESTRAL ROOTS

This program caters for both the professional geneologist and the interested user who wishes to construct a "family tree". Each record contains an ancestor's name, year and place of birth, marriage and death. Provision is also made for comments and an indication of the person's position in the family tree being traced. Direct ancestors only are accommodated by the program, this is to say, parent, grand-parents, great grand-parents, etc. to the limit of your family history or the computer's memory. Uncles, cousins, nieces and second spouses are peripheral to your family tree. However, you may elect to use the comment area of your ancestor records to include siblings. Once all the ancestor records are inserted into the computer, the hard work is done and the program will display several options as follows:

1. A three generation ancestral character may be displayed on the screen, based on the person you select.
2. A pedigree may be displayed listing a single line of descent (with spouses) for any given ancestor.
3. The records may be searched for full or partial names by country, county of birth, marriage or death. Searches may also be carried out by year, decade, or century of the birth, marriage or death.
4. Comments may also be searched for commonalities in whatever characteristic the user has chosen to place in his comments, e.g. occupation or religion.
5. Printer output is supported so that a paper version of any chart, pedigree or list which the user creates may be produced in hard copy. For instance, if you want to maintain a printed family tree, this will end laborious paperwork as you add new findings. The computer can produces a full or partial set of fresh ancestral charts each time that you provides it with your latest updates. The ancestors will be numbered automatically and uniquely so that there will be a clear linkage between pages.

A 16k TRS-80 or SYSTEM 80 should be able to hold 50 ancestor records, this will vary on the length of the names and comments. A 32k disk based machine should hold 100 records equally easily. A comprehensive manual is supplied with the program.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **40-2617**
Disk **40-2618**

ANIMATION — CREATE OUTSTANDING GRAPHICS

ANIMATION is a machine language program which enables you to easily create animation sequences on your TRS-80 or SYSTEM 80 computer. Pictures are built up as a sequence of frames, each one being as small or as large as you wish, and composed using an easily used graphics cursor. The entire graphics content of a screen can be shifted in any direction to assist in animating separate frames. As each new frame is completed it is automatically stored in memory and given a number, so that it may be recalled and edited at will. The timing of the projection of each frame is definable up to a maximum of 100 seconds. When the picture is completed, it may be viewed and edited as you wish. The sequence may either be stored on cassette as a System program or to disk. Thereafter, it may be loaded and accessed either by ANIMATION or by any Basic program. The commands for ANIMATION are as follows:

1. Dump the entire sequence to tape or disk
2. Load the sequence from tape or disk
3. Display a single frame or sequence at any point on the screen.
4. Frame set. Set the size of the frame required.
5. View the entire "movie" - i.e. run the entire sequence on the screen.
6. Clear the screen or the current frame.
7. Single step backwards or forward through the sequence.
8. Quit the program and go to Basic.
9. Clear the sequence and restart with a new one.
10. Enter graphics mode whereupon a new series of commands is available to enable the user to easily draw the pictures.
11. Kill the current frame.
12. Jump to another frame in the sequence.
13. Set the time period that the frame is to appear on the screen. (up to 100 seconds).

In addition to these commands, any frame can be set to reverse the graphics (black on white instead of white on black). During the construction of a sequence, all vital statistics are available for display on the screen. These consist of the number of frames that have been store, the current frame number, the current frame size and the memory size currently set from Basic. An added bonus with ANIMATION is that two other items of software are supplied with it. The first is a pre-written sequence showing a Lunar Lander coming down to the Moon's surface and the second is a Basic program in which this sequence is used. This program is supplied on either tape or disk and is accompanied by a comprehensive manual.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-2623**
Disk **11-2625**

SLOT MACHINE — PLAY THE POKIES AT HOME

If you like to play the One Armed Bandits, then this program is for you! All the old friends - cherry, bell, orange and so on. It pays off at 84% (or so it says) and obeys casino rules. Exceedingly realistic graphic treatment of the slot machine window. It looks exactly like 3 drums turning. The amount of the bet (it is a $1.00 machine) the payoff for each go, how much you are ahead or behind and the % return are all continuously displayed. An interesting assumption is that if you have bet $5.00, you are "ahead". Sounds familiar!

Memory Requirement 16k — 11-2611
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

COMPUTER POOLS — INCLUDING FORM PREDICTION

Computer pools is a program written to help you predict the result of football matches for the football pools. Obviously, we cannot guarantee that this program will make you a fortune, however it will increase your chances and make the mundane task of filling in coupon more enjoyable. The important feature of this program is that it stores the performance of a team in its three previous games and three away games and uses this to help predict the result in the next match. Various weightings are incorporated, although they can be overridden by the user. This enables the football enthusiast to incorporate his own bias and hopefully improve the computer's predictions. Basically, the program allows you to keep track of the performance of the 130 teams in the four English divisions and three Scottish divisions. It keeps track of each team's performance in its previous three home games and its previous three away games. and combines these to predict a performance potential. It then compares the performance potential of teams in forthcoming fixtures and lists the matches, indicating those with the greatest likelihood of away wins, draws and home wins. Because the form is based upon the results of the three previous home games and three previous away games it takes approximately 6 - 9 weeks before the full form file is created and before the full predictions can be made. We see no reason why this program could not be adapted to forecast the results in the Australian Pools competition.

Memory Requirement 16k — 11-2605
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

Molymerx

HONEST JOE — RACING FROM THE OTHER SIDE OF THE FENCE

There are many program to do with horse-racing and betting on the "Gee-Gees". HONEST JOE seems to have pushed the State of Art still further, representing a very imaginative piece of programming. This program can be played between 1 - 4 players and either a single player or several players can play the part of the bookmakers. Each game is made up of four meetings held at different courses in England, and each meeting consists of 4 races of varying length. Each race has 10 horses of varying stamina competing in each race. A horse's stamina, history and the length of the race all have a bearing on the outcome of each race. Essentially, the player has to manage a book. He must set the odds, accept the beds and, hopefully, come out ahead. One of the things that help him are reports from major sporting newspapers with regard to each race. Three rather nice examples are:

" A trainer was overheard in the Nag's Head at Doncaster to say the Whiz Kid would not be trying very hard . . . "
" Over a few pints of beer at the Broken Bridle yesterday a stable lad was persuaded to tell our reporter that Maple Leaf was suffering from a dislocated fetlock".
" Patchy has not be seen training recently, and is rumoured to be suffering from equine haemorrhoids".

All the racing occurs on the flat. Historical information is maintained about every horse, and the player is given the chance to lay his odds. Everything is then set for the race, and quite a thrilling commentary is displayed on the screen, culminating, of course, in the winner and the placed horses. Details of payout and amount of cash bet follows after the race and the financial details on how you, as a bookmaker, made out. The amount of cash bet on each race can be regulated by the bookmaker in precisely the same way as an ordinary bookmaker does, namely by restricting or opening the odds. The lower the odds, the lower the amount of money your customers will bet. Overall, we feel this game is a realistic simulation and good fun to play . . . even if you loose!

Memory Requirement 16k — 11-2608
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

GAMBLERS GALLOP

PURCHASE ALL FOUR: HONEST JOE, HORACE, RACE, COMPUTER POOLS, AND RECEIVE SLOT MACHINE FREE!



HORACE ~ A HORSE RACING GRADING METHOD

This program has been written to help you pick the winners. Obviously, it will never be the definitive answer to your betting blues, rather it has been written to assist you in cutting an intelligible path through the mass of information presented by the sporting press in he guise of form. Even with this however, it must be borne in mind that there are literally as many ways of interpreting 'form' as there are horses. What HORACE does guarantee to provide is a reasoned assessment of form based on the one factor than most punter ignore, namely value for money. The main points considered by HORACE are:

The type of race	The weight carried then	The odds available
The prize money at stake	The location	When the horse last raced
The state of the going	The distance	The weight carried now
When the horse last raced		

Once all this information has been input to the program, HORACE will project the first three past the post, together with some rather important information such as the related decimal chance, the value odds acceptable, the betting forecast chance, the expected starting price and the cash class. HORACE is an extensive program, and it should be borne in mind that the results are a measure of the horse's merit in relation to his companions in each particular race.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2610

RACE ~ A HORSE RACING GAME

This is a fascinating horse racing game featuring extremely good graphics. The horses racing up and how your screen have to be seen to be believed. The player is given the choice of racing over fences or on the flat. Up to six players can participate, with each player being allocated 100 dollars with which to bet. The horses in any particular race are chosen from a pool of 50 and the odds are posted relative to their speed and past performance. After each player has placed his bet the race is run. After the finish each player has his betting money adjusted, according to the odds. Providing at least one player has some money left - no credit is allowed! - another race is formed.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2637

YI CHING — ANSWERS TO DAILY LIFE

YI-CHING is in function somewhat similar to Tarot card reading. It is extremely ancient and according to the author easily predates Confucius. The function of Yi-Ching is that the seekers of knowledge may ask any question that he or she desires. In the Chinese traditional method, bamboo sticks are used in order to obtain a hexagram and this is still considered to be the "proper" way to do it. An additional method is to use coins, each representing a two or a three. Three coins are cast and the side which are uppermost are totalled. Although the bamboo sticks are traditional, there is no reason why the hexagram should be cast in different ways and particularly in this case by a computer. There are only four combinations of total possible, numbered from six to nine. The number six represents a moving YIN line, seven represents a moving YANG line. The YIN is a broken line whilst the YANG is the unbroken line. The program takes you through the Yi-Ching in a easily understood manner and it needs no experience or knowledge in order to follow it. The question is written in as precise manner as is possible using less than 32 letters. When the question is asked of the computer, the user should concentrate when asked to and repeat the question over to himself. The answers are traditional and use such phrases as "to cross the great stream" which would indicate a forward action no matter what hazards are met. The meaning of the answers have been deliberately chosen to be traditional and are entirely interpretative.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2613

TAROT — AN ACCOMPANIMENT TO YI CHING

This program has been written so that it will be useful for both the person who considers TAROT as a "fortune telling game" and those like the author who work in the field and use it as a substitute for a pack of cards. This program has been used frequently to lay a reading for people who are not present or who wish an example reading. Part of the purpose of the program is to educate those who wish to learn the interpretation side of Tarot. A full course would require 30 or 40 megabytes, however the 16k provided would seem to be a happy compromise. The layouts used are those which are used professionally and the Tarot cards and interpretations are based upon the Tarot of the Golden Chakra. Unlike the pure game versions of Tarot, no question is answered by the cards. The reason is two-fold. Firstly, that a general reading is given taking into consideration all aspects of a person rather than centering on just one and secondly (bearing in mind the anxiety such programs cause) there are a number of subjects which the user should not be permitted to ask about. The issue of a person's health is a typical example.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2615

BIORHYTHM — PLOT YOUR DAILY LIFE CYCLES

BIORHYTHM is a theory which states that all of our lives are controlled by three life cycles known as Physical, Emotional and Intellectual. Each cycle is set at zero when we are born and transcribes regular cycles of 23, 28 and 33 days respectively throughout our lives. As each cycle is of different timing they transcribe three separate sine curves and it is their position on any particular day of your life which decides the type of day you will have. Whether or not you support this hypothesis, it is still fascinating to check your "performance" on any given day, past or future.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2601

ASTROLOG — FOR ASTRONOMERS AND ASTROLOGERS

This program has been designed to carry out many of the rather complex and mundane calculations necessary to calculate the positional data for the Sun, Moon, 59 navigational stars, inner Planets, Jupiter and Aries. The program starts by asking the user to input the latitude and longitude of the observation point. He must also input the height above sea level. The time zone correction will accept decimal hours as there are one or two places with hour fragment differences. Provision is made for readouts to be made automatically in GMT. The program is an interactive one and it has been made very simply to use, for instance, times are entered in hours, minutes and seconds, rather than as decimals. After the initiation date (the program is valid for the period Jan.1 1900 to Dec.31 1999 for any place on Earth) has been entered into the computer and the celestian body chosen, two options are given. The first is to obtain data at a specified moment in time. This includes GHA, LHA, SHA, RA, declination, altitude, the azimuth and where appropriate, semi-diameter parallax and distances, together, in the case of the Moon, with its age. The second option provides rise and set for the day in question, time of the lower meridianal passage and altitude at upper meridianal passage. The plus or minus accuracy as minutes of arc are as follows: Sun 1, Moon 5, Stars and Aries one half, planets 10. Distance accuracy is to two decimal places, stated is the worst case, usually it will be better. It should be stressed that this is a full and serious program written by an experienced astronomer for practical purposes, not as a superficial insight into the subject.

Memory Requirement 16k
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

11-2612

PROBE — PERSONALITY EXPLORATION BY COLOUR CHOICE

PROBE is based on the theory of colour choice as a determinate of personality. With the program are supplied eight colour cards. These are used to determine a person's specific preference, the answers are fed into the computer whereby certain characteristics of a person's personality are analysed and output, either to the screen or line printer. This is the general theory of the program. In actual use we admit to having achieved some rather surprising results, in that the output does seem to fit that of the operator. The program outputs a large quantity of information. The first is concerned with the amount of conflict present in the personality of the user. In total eight separate areas of conflict are examined. Next an anxiety rating is forecast on a scale of 0-12, representing calm to anxious. Finally, a colour decode is carried out. The computer, in fact, accesses about 50k of data to compile the colour decode. It lists the user's desires or behaviour as dictated by those desires, the existing situation and its influences on the user, characteristics under restraint, details of the characteristics that are being suppressed within a personality and are therefore causing anxiety and, finally, any areas which are causing stress. The program is extremely easy to use and as we have said, on the occasions that we have used it, the results do seem to bear some relationship to the personality of the user. As is the case with programs of this nature, we must make the general disclaimer that we cannot guarantee the results! Due to the large amounts of data which is accessed by the program, PROBE is supplied on disk and is not available on tape.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-2643

HOROLOG — A FULL HOROSCOPE PROGRAM

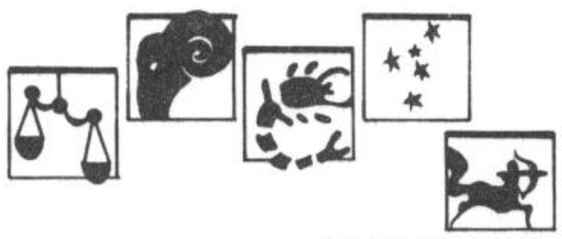
HOROLOG has been written for the layman who wishes to cast a horoscope. It will calculate a horoscope for any person with a birthday from Jan 1 1900 to Dec. 31 1999 and for a birthplace at any point in the world. Either Zenith equal house or Placidus methods may be selected. Accuracy is as follows:

Sun 1 minute, Moon 3 minutes, Planets to Jupiter 15 minutes, other Planets except Pluto 20 minutes, Pluto 1 degree, ASC, Node, MH 1 minute, PF 2 minutes.

The Nodes are based on the Mean Lunar Node. The Pars Fortuna is the same distance from the ascendant as the moon is from the Sun. Generally speaking, accuracy will be closer than the tolerances shown suggest. The second part of the program, which does the actual interpretation, may at the election of the user, either be considered as a sophisticated parlour game or as a serious attempt to interpret the user's data. Nonetheless, the interpretation section of HOROLOG can produce some fascinating results. For the curious, or mathematically inclined, the distinct interpretations it can generate are more than a thousand times the present world population.

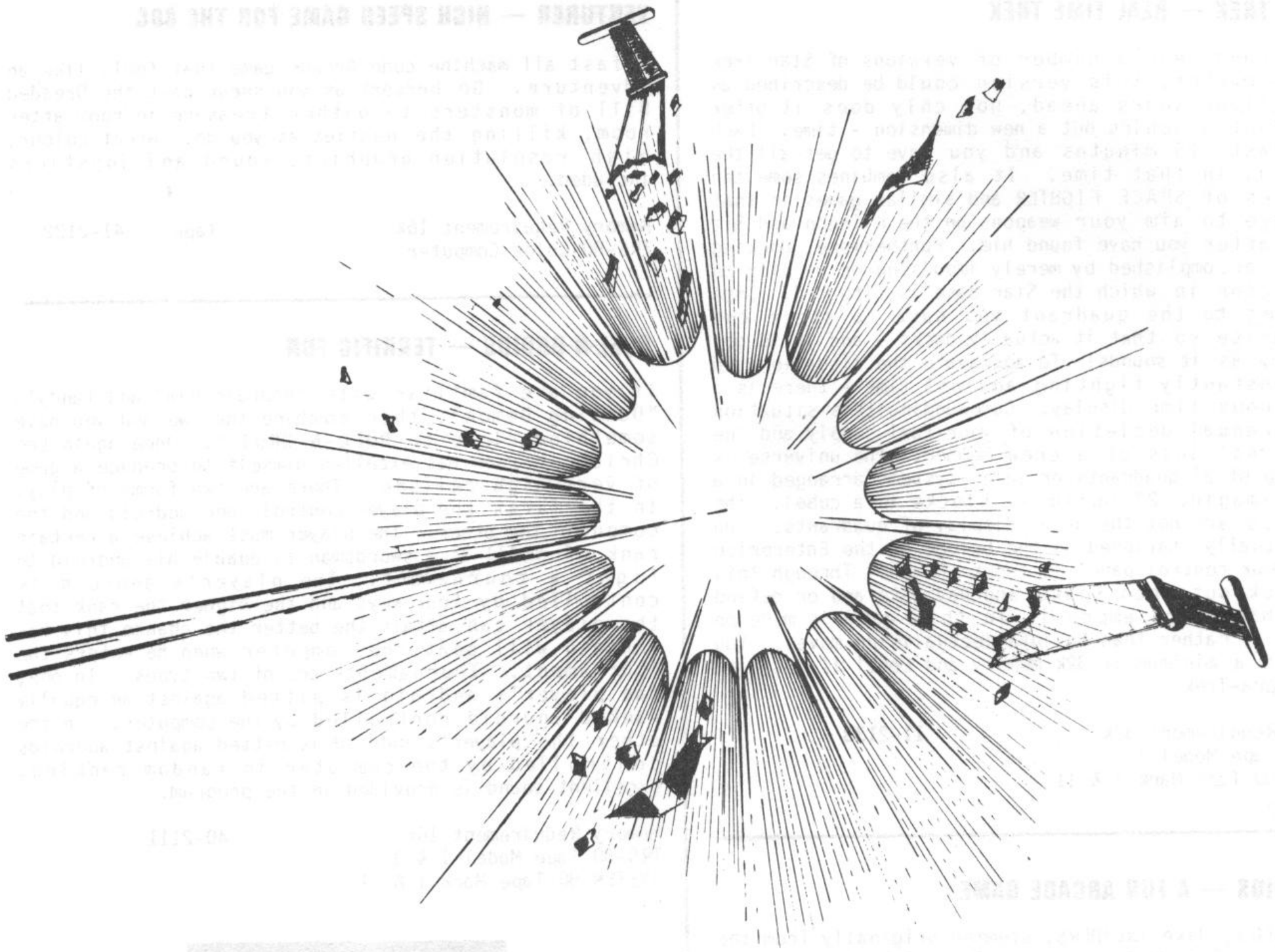
Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2614



SPECIAL OFFER

PURCHASE ANY FOUR OF THE FOLLOWING:
ASTROLOG, PROBE, HOROLOG, YI-CHING, TAROT, BIORHYTHM
AND TAKE $15.00 OFF THE TOTAL PURCHASE PRICE



ARCADE GAMES

INVADERS FROM SPACE –A REVAMP OF AN OLD FAVOURITE

The INVADERS program hardly needs an introduction, it has become synonomous with the word "Arcade". Our version is different in that it offers everything that the classic Invaders left out. The Aliens drop bombs, move around and try to overrun your bases. To combat this onslaught you are equipped with a laser gun and have the ability to move your base and simultaneously fire at marauding the Aliens. An additional feature is that almost all of the game parameters can be chosen at the start of the game. In other words, you can control how fast the game runs, how many bases are to be provided, how many shots in the air at one time and so forth. As seasoned players will be aware, the object of the game is to destroy the Aliens before they destroy you! The program is written in machine language for fast action. Sound is supported.

Memory Requirement 16k — 40-2114
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

SPACE FIGHTER – FAST ACTION FOR THE COLOR COMPUTER

SPACE FIGHTER is a well known program which has been around in various guises for a number of years. The idea is that you are out in space, under the stars, with five enemy fighters to shoot down. You are, of course, provided with sights and laser beams, and if your aim is true, then your enemy is destroyed. Not surprisingly, this demands a certain amount of skill in zero gravity conditions. Provision for joysticks and sound are included.

Memory Requirement 16k Extended Color Basic
TRS-80 Color Computer — Tape — 11-2136

STAR FIRE — A SPACE SHOOTING GAME

If you like shooting games then this one will appeal to you. It is written in machine language for fast action and can be played either against the computer or by one player against the other. The players fight it would across the far reaches of space, not only against each other, but also against the clock. The player with the highest number of kills wins. The action is fast and furious and the graphics are very good, in particular the manner in which the closing scores are displayed.

Memory Requirement 16k — 11-2107
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

SUPRA TREK — REAL TIME TREK

There have been a number of versions of Star Trek on the market, this version could be described as being light years ahead, not only does it offer excellent graphics but a new dimension - time. Each game lasts 15 minutes and you have to get all the Klingons in that time. It also combines some the features of SPACE FIGHTER and similar games in that you have to aim your weapons on the Klingon and hit him - after you have found him. Furthermore, docking is not accomplished by merely impulsing or warping to the sector in which the Star Base is situated. Once you get to the quadrant you have to steer the Enterprise so that it actually docks - and it is not as easy as it sounds! To aggravate the situation you are constantly fighting against time - there is a continuous time display. Compounding this situation is a gradual depletion of your fuel supply and the occasional loss of a crew member. The universe is made up of 27 quadrants or solar systems arranged in a cube (imagine 27 building blocks in a cube). The graphics are not the usual display of quadrants. You are actually stationed on the bridge of the Enterprise with your control panel in front of you. Through this you look out into space and navigate and or defend your ship. The emphasis in this game is more on action - rather than on intellectualising moves. You require a minimum of 32k memory and Level II Basic to play Supra-Trek

Memory Requirement 32k — **11-2138**
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

ASTEROIDS — A FUN ARCADE GAME

ASTEROIDS, like INVADERS, stemmed originally from the arcades. For those not familiar with the game, the idea if that you take the place of a space ship which encounters a shower of Asteroids. You have to dodge them and annihilate them with your ray guns. The problem is every time you hit one with your laser beam it splits up into a number of others, all of which are potentially dangerous to your craft. When a asteroid hits you your craft is destroyed and one life is taken from your score. This particular version has a number of enhancements. You can rotate the ship around its axis and fire in different directions, you can supply thrust to your ship, and if the going gets rough, then you can enter hyperspace. To keep your fingers active, from time to time you encounter fast moving alien ships. These crafts are undoubtedly ruthless, they fire off rays in all directions, and if they hit your ship you loose a life. A major plus feature of this game is that the game parameters can be changed. The player has control over the speed of the game, the initial number of asteroids, the increase in asteroids per frame and the starting number of lives. Written in machine code, ASTERIODS is fast and highly enjoyable.

Memory Requirement 16/32k — Tape **11-2101**
TRS-80 Tape/Disk Model 1 & 3 — Disk **11-2108**
SYSTEM 80 Tape/Disk Mark I & II

BREAKAWAY — MULTIPLE LEVELS ON THE 80C

Every computer has some form of BREAKAWAY available. Ours is all machine language, fast, smooth and carries 15 levels of difficulty.

Memory Requirement 16k — Tape **41-2128**
TRS-80 Color Computer

VENTURER — HIGH SPEED GAME FOR THE 80C

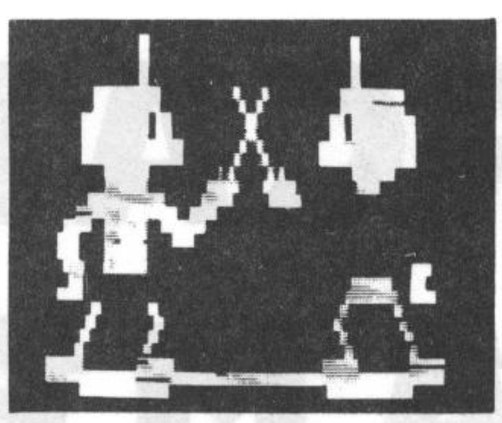
A fast all machine code Arcade game that feels like an Adventure. Go berserk as you sneak past the Dreaded Hall of monsters to gather treasure in room after room, killing the nasties as you go. Great colour, high resolution graphics, sound and joysticks included.

Memory Requirement 16k — Tape **41-2122**
TRS-80 Color Computer

DUEL-N-DROIDS — TERRIFIC FUN

If you are familiar with "Android Nim" and Tandy's "Dancing Demon", then combine the two and you have something close to DUEL-N-DROIDS. Once again Leo Christopherson has excelled himself to produce a game of very high calibre. There are two forms of play. In the first the player controls one android and the computer the other. The player must achieve a certain rank of skill as a swordsman to enable his android to fight a tournament. The player's android is controlled by four keys and the higher the rank that the player can attain the better the chance this his android will beat the computer when he enters the tournament. Tournaments are of two types. In one, the player's android is pitted against an equally ranked android controlled by the computer. In the other the player's android is pitted against androids controlled by the computer in random ranking. Excellent sound is provided in the program.

Memory Requirement 16k — **40-2111**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



SPACE EYE — PLAY THE PART OF A BADDIE!

You play the part of a Vogon space commander and your mission is to destroy Earth, the Moon, Mars or Jupiter, before the surface defences shoot you down. However, this is not just another shooting game. During the progress of play the centre of the screen is taken up by a very realistic view of the planet underneath. Obviously, the topography of Earth will be better known to us than that of the other planets. Regardless of whichever planet you are orbiting, the impression given is quite uncanny and really has to to be seen to be appreciated. In fact, the graphics for the various planets are so extensive that the data for each planet is fed into memory from either tape or disk. Although the shooting back and forth is good fun, the value of the program is in the outstanding display of graphics. An added feature of this program is the commentary of the main geographical features as you orbit each planet, these can come in handy as very few of us have already orbited either Mars or Jupiter!

Memory Requirement 16/32k — Tape **11-2105**
TRS-80 Tape/Disk Model 1 & 3 — Disk **11-2106**
SYSTEM 80 Tape/Disk Mark I & II

SEAWOLF — FOR UNDERWATER ARCADES

If you are tired of battling it out in outer space against marauding alien ships, then this game offers something of a difference. The idea of this game is that you control a submarine which can be moved in any direction, including diagonally with the arrow keys. Of paramount importance is to avoid all the dangers that lurk in the deep. You have to contend with depth charges and a liberal sprinkling of mines. If that is not enough, then the seabed has mountainous terrain which is continuously changing and must be avoided at all costs. The submarine carries an armament of torpedoes which can be fired either vertically or horizontally, these can be used at your discretion. For the seasoned campaigner there are five skill levels, affecting the speed of the submarine and also the number of depth charges dropped by the search vessels. Sound, of course, is included, however it is only fair to say that this is not one of the prime features of the game.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2135

SERPENT — AN UNDERWATER GAME

This is a unique game. Essentially, it is a shooting game, but its prime appeal is that it takes place underwater and the battle is between submarines, serpents and whales, very big whales we might add. The player is in command of a submarine which can fire torpedoes with which he must hit large sea serpents that wriggle around the screen. The main objective is to achieve a "clean kill", otherwise the serpent may divide doubling your problems. If you collide with a serpent you sustain damage, five such collisions destroy the submarine. You must also avoid colliding with the whales, these mammals are extremely large and have the capacity to destroy your ship completely. Like many of our other arcade games, certain parameters can be preset. There are five preset speeds, as well as the option to go on a special mission in which the following parameters can be set: game speed, submarine speed, torpedo speed, number of torpedoes in the salvo and the serpent's speed. All in all, a lot of fun and a refreshing change from zapping space ships. Written in machine code.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2104

DEFEND

— THE HIGHLY ACCLAIMED ACTION GAME

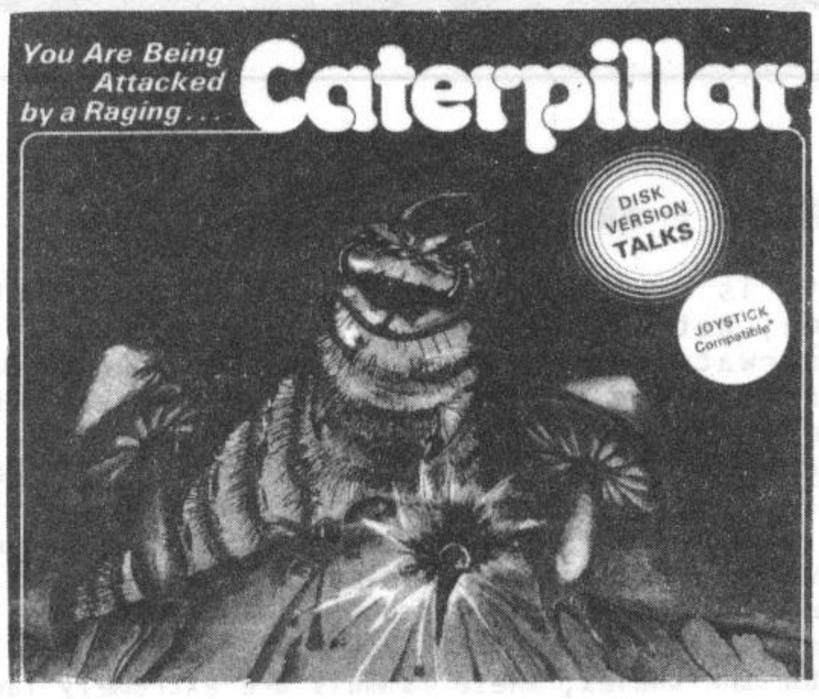
INVADERS as you have probably already discovered is a great deal of fun, but it is only played on one plane - vertical. ASTEROIDS is more "three dimensional", but it is concerned with inanimate objects, namely lumps of space rock. With DEFEND you actually feel as if you are piloting the craft. The result is a game with a high addictive content. Your objective is to shoot down a squadron of aggressive enemy ships. If you are skilful or lucky enough to obliterate them all, you have to navigate through a shower of meteorites. If you get through that then you must navigate a tunnel before you are in the clear. You then automatically return to the beginning and begin another orbit, albeit at a somewhat harder level.

The game is played on a horizontal plane, but one of the great features of the game is that you can control you ship in all directions through a single plane. In other words, you can not only go up and down and sideways, but also diagonally. In the highest of the three levels of play the control of the ship is very crisp and fast, the sound effects are good, and with the disk version the five highest scores can be saved.

In addition to your main armament of laser cannon you also have a limited number of Smart Bombs. These cause all of the alien ships to lose their cannon power. To warn you of impending danger there is a radar screen provided on the top right of your screen, this represents the space which is being approached. As well as three levels of play, there are various game parameters. For instance, a different number of aliens will appear with each level, and as each circuit of the course is completed five ships are added to a maximum of 60 - at this level the action becomes extremely fierce . . ! The disk and cassette versions are essentially the same, although the former does save scores to disk. SYSTEM 80 owners should note that it is only compatible with their machines if the clear and arrow keys have been added.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-2102**
Disk **11-2103**



CATERPILLAR

You are being attacked by a raging caterpillar. As he creeps down the valley, you must destroy it or be destroyed. If you escape from the first you will have only survived to fight another. Beware of the trained killer moths and tumblebugs.

Memory Requirement 16/32k	Tape	**42-2122**
TRS-80 Tape/Disk Model 1 & 3	Disk	**42-2120**
SYSTEM 80 Tape/Disk Mark I & II		

SKY SWEEP

You are flying above an ever changing terrain. Missile after missile is launched at you from below, while you battle oncoming gun fire, only to enter an ominous cave where danger is tripled. Only a high level of skill will guide you through this game.

Memory Requirement 16k **42-2127**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

FORTRESS

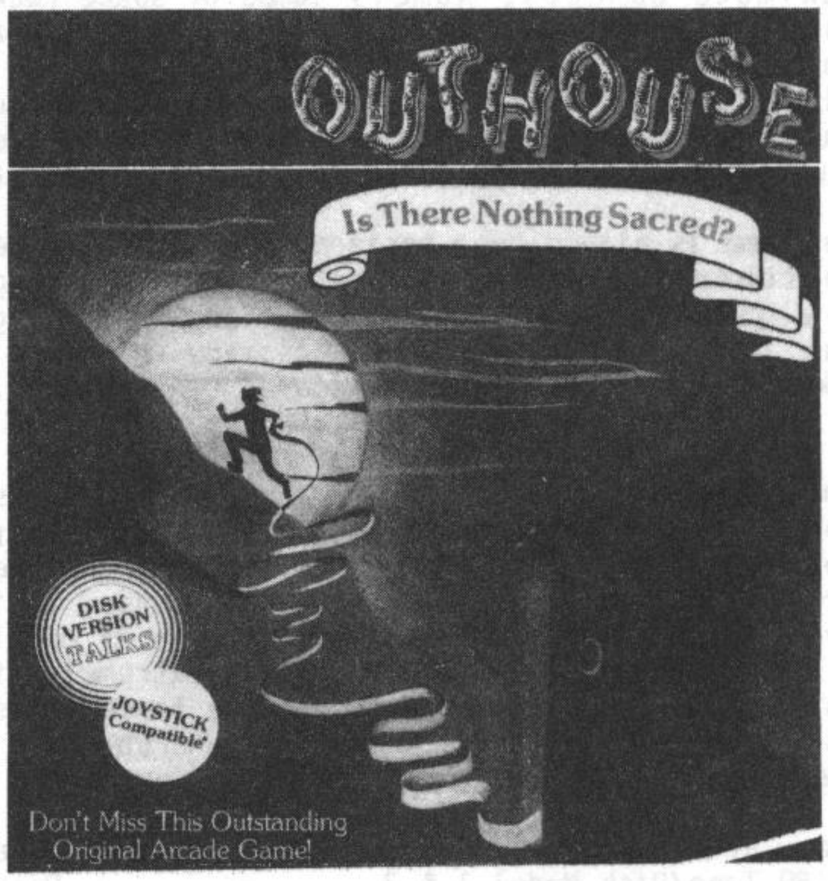
A super-fast paced arcade game. Defend your fortress from alien fighters, but watch out for the sneak attack. The game starts out slowly but speeds up quickly.

Memory Requirement 16k **42-2124**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

ALIEN DEFENSE

Piloting your ship across the horizontally moving terrain, you must battle the various enemy spacecraft. You are under attack almost constantly from missiles and bombs, to make matters worse, your ground patrol people are being picked up by the alien landers. To save them you must shoot the landers and swoop down to "catch" the falling man. This fast action game requires skill and rapid reflexes. The Model 3 version makes excellent use of the that model's special graphic features and both the Model 1 and Model 3 disk versions TALK.

Memory Requirement 16/32k	Tape	**42-2126**
TRS-80 Tape/Disk Model 1 & 3	Disk	**42-2125**
SYSTEM 80 Tape/Disk Mark I & II		



OUTHOUSE

Is there no place sacred? Even the outhouse has been invaded. Ward off intruders who creep up to the outhouse to snatch the paper supply. At the same time you must defend yourself from their firing ships in the sky. Be very careful, when your paper supply is gone . . . so are you! With sound and the disk version talks.

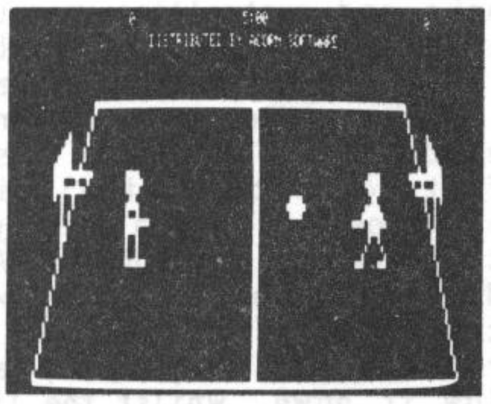
Memory Requirement 16/32k	Tape	**42-2123**
TRS-80 Tape/Disk Model 1 & 3	Disk	**42-2119**
SYSTEM 80 Tape/Disk Mark I & II		

SIMULATION GAMES

BASKETBALL – A REALISTIC SIMULATION OF "ONE ON ONE"

This simulation has a high level of graphics, it is written in machine language and is supported with sound. Each game lasts four minutes and either two players take part or one player plays the computer. The graphics are based on a three dimensional depiction of a Basketball court on which there are two players. The appeal of the game is its realism. The court player may be controlled in one of four directions, he may steal the ball, duck around his opponent, dribble the ball, go in for a lay-up. Regrettably hook-shots are not supported, apologies to all aspiring Kareem Abul-Jabbars. True to life, the player who scores the most baskets in four minutes wins the game.

Memory Requirement 16k — 40-2213
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



DARTS — AN ENJOYABLE SIMULATION

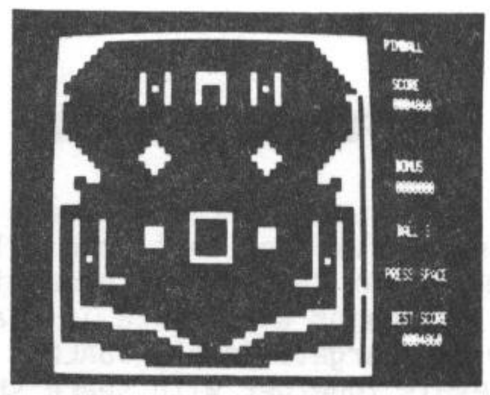
You are probably wondering how the author of this program has managed to draw a circle on the screen, a virtually impossible task if you are using a standard TRS-80 or SYSTEM 80. The author has managed to get around this problem by displaying only part of the board at a time. Surprisingly, this does not really detract from the actual playing of the game, for if you visualise yourself playing darts you are normally aiming at one particular number or those adjacent. The authors has been extremely clever in incorporating into the game a certain amount of skill in the actual throwing of the dart. I promised not to go into the details of the techniques used, merely to say that the results are a superb simulation of the game of darts on a TRS-80 computer.

Memory Requirement 16k — 11-2210
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

PINBALL — COMPLETE WITH FLIPPERS

This is an extremely good graphic representation of a normal pinball machine in so far as it can be presented on the computer screen. The usual arcade rollovers and bumpers are present and the flippers which guard the exit are particularly life like. A theoretical 299,999 points are available, but as far as we know, this has never been achieved. A good player will score about 30,000 and an excellent player will score 50,000. The great ability of this program is that it has been written to give as close a representation of a pinball machine as probably is possible, with flippers, the infamous 'Bermuda Square', bumpers, speed balls etc. all with varying quantities of points. All in all, this is an extremely lifelike simulation which really has to be played to be appreciated.

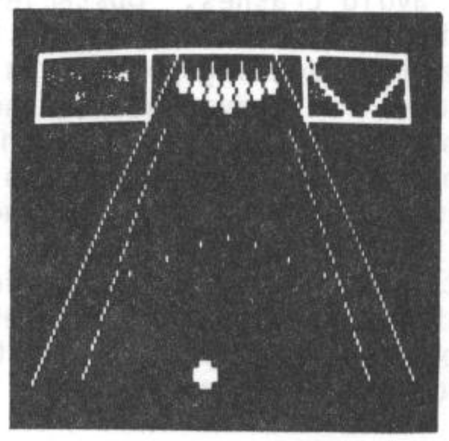
Memory Requirement 16k — 40-2216
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



TENPIN — TENPIN BOWLING ON THE COMPUTER

This is another program from John Allen of PINBALL and ASTROBALL fame. Like his other games there is an emphasis on graphics, in fact this program stands as a very good simulation of Tenpin Bowling. The program is written in machine language for speed. When you start the game the ball comes up the right-hand gully of the lane, the ball is taken across the lane with either one or two arrows keys and thrown with the space bar. The speed of the ball can be controlled by the length of time the space bar is held down, there is even the facility to place spin on the ball. Like John Allen's other games, TENPIN follows the real life game very closely. With plenty of practice there is no reason why you should not achieve the occasional "Strike" and have lots of fun in the process.

Memory Requirement 16k — 40-2212
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



GOLF — A GOOD GRAPHIC SIMULATION OF THE GAME

This is a disk orientated program written in Basic with a machine language subroutine. It follows the real game quite closely. As supplied it has 17 holes, with provision to construct different or additional holes as required. Each hole is played on a map of the course with symbols indicating the features associated with each hole. Up to four players may take part at the same time. Strokes are made by indicating the club and the angle of the stroke required. Eleven clubs are provided, divided into woods, six irons and three wedges. Course terrain and weather information is continually available. Provision is made for penalty strokes, wind consideration and the inevitable water hole. Each hole is selected randomly by the computer, you may only play each hole once in a round. We found this to be an enjoyable game requiring a high component of skill. Overall, we felt that the author of GOLF has been successful in balancing the inevitable restrictions of a computer game with the live enjoyment of an actual game of golf.

Memory Requirement 32k — 11-2203
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

ASTROBALL — AN OFFSPRING OF PINBALL

There are close similarities between Astroball and Pinball. However, we feel that John Allen the author of both games seems to have bettered himself in this simulation. The major difference is that there are a lot more moving targets in ASTROBALL. There are now five skill levels together with space ships that move across your screen for extra bonus points, and for the faint of heart there is a black hole into which you can quietly disappear. Sound is of course available.

Memory Requirement 16k — 40-2215
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



RACING DRIVER — THRILLS AND SPILLS WITH THE 80C

There have been a number of programs written which simulate the driving of a racing car along a speed track. Some do it on a plan basis, viewed from a helicopter looking down at the track, and some from the drivers position. This program is similar to DRIVER for the Models 1 & 3 in that, whilst driving, you are able to see the road ahead or you, not a plan of the whole course, and therefore you have to be pretty fast to avoid crashes. Obstacles are placed in your way and sheets of ice form on the track from time to time, sometimes sending you off in a random spin. The program takes full advantage of the facilities of the TRS-80 Color Computer. To drive the car you either use the Tandy joysticks or two keys, sound is included throughout the program and the display is as colourful as one is likely to see. A running best score is kept and there are three levels of skill. These do not affect the speed of the vehicle, but they have a more pronounced effect on the number of obstacles and ice patches supplied.

Memory Requirement 16k — Tape 11-2207
TRS-80 Color Computer Extended Basic

DRIVER — FAST ACTION BEHIND THE WHEEL

There are many versions of this game in which you are a racing driver trying to complete a course with the least number of faults. This version is particularly good and features excellent graphics. Unlike others, you only see the road ahead of you - not a plan of the whole course - so you are not able to prepare for corner ahead of time. The track is strewn with hazards and slicks of oil. The former cause a crash if you hit them and the oil may spin you towards the track edge, from which you may (with skill) recover. A running "best score" is kept, so that more than one player can take part.

Memory Requirement 16k — 11-2201
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

SHUTTLE II—A COMPUTER MODEL OF THE COLUMBIA FLIGHT

This program is a simulation of the shuttle flight of the space vehicle Columbia. The entire flight is covered, proceeding from the initial countdown, through the launch, and into orbit. From there you may drop out of orbit, fly the shuttle through the atmosphere, to a safe landing. You will, however, need a lot of skill to do it!

An important feature of this program is that it can be started at any of three points. Either at countdown, while the Shuttle is in stable orbit around Earth, or shortly before landing enabling you to clock up your practice hours before the maiden flight. Your objective is to guide the Shuttle, and to do this you are provided with a number of different controls. The thrust of the ship can be varied on a scale or 0-9, the craft may be rotated vertically in either large or small increments, there are controls for jettisoning your fuel tanks and controlling your undercarriage. To achieve a stable orbit you must be able to control you height, horizontal speed and vertical speed. Skilful use of the orbiter motor in conjunction with the altitude controls will achieve this result. One remarkable feature of this simulation is that it includes a full atmosphere with a density that closely follows that of the real atmosphere. As the density steadily and rapidly increased below about 55,000 yards, the craft begins to experience both life and drag similar to an ordinary aeroplane. The drag starts to slow it down, whilst the lift allows the craft to start to fly. This is a very tricky part of the flight as several things can go wrong. If the Shuttle is too "nose up", it can experience enough lift to shoot it back into space. Alternatively, if the opposite occurs, the G-Force will rise above tolerable values making the pilot unconscious and then, if allowed to continue to a level of 10 G's, the craft itself will disintegrate. These cheerful remarks apply, incidentally, apply throughout the flight. The secret is to loose speed and height in a controlled manner. Apart from the attitude controls, the lift and drag can be controlled be setting an air brake on or off and by setting flaps for extra lift.

The emphasis in this program is in presenting as realistic as simulation as possible. It combines the control of a space vehicle with that of an aircraft and gives the user the best of both worlds. It is not a graphic simulation. The joy remains in controlling the orbit and landing the craft successfully, rather than presenting a graphic representation of an orbiting Shuttle.

Memory Requirement 16/32k — Tape 11-2208, Disk 11-2202
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

ASTRO NAVIGATOR — MORE THAN A SPACE GAME

To label this program as a game is to underplay the incredible realism of what can best be described as a simulation. The software programs your TRS-80 or SYSTEM 80 to produce a complete and highly accurate simulation of the solar system. All the orbits of the various planets are correctly calculated, as are their orbital speeds and gravitational pulls. Each time the game is played the planets and stars in the solar system are differently placed, but still in correct relationship to each other and to the Sun. Hence every game is different and presents different problems to the player.

The purpose of the game is to blast off from the planet of your choice and travel throughout the solar system. There are no prizes, no free goes, nothing else. If you succeed in making a landing on another planet then your reward is the thrill of having been able to do so. Believe us when we state that it really is a thrill. Part of the reason is that the game is unbelievably difficult because all the physical laws and relationships are obeyed. Although the player of this game has the help of a computer, it will only tell him the statistics of the journey. It remains for the player to decide how much fuel to take on, what thrust to use, whether to try to blast off slowly, or whether to launch at a somewhat higher velocity. Apart from the flight data, there are maps of the other planets, of the inner planets and a close up view of a planet when the craft reaches a specific proximity. Superimposed on these maps is the position of the spaceship together with the last few positions that have been occupied. At all times, gravitational pull, the laws of momentum and various other considerations are acting on the crafts course. We should add that graphics are only a subsidiary part of the simulation, yet this program remains tremendously engrossing, attributable we feel to the high level of skill required to master ASTRO NAVIGATOR.

Memory Requirement 16k — 11-2209
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

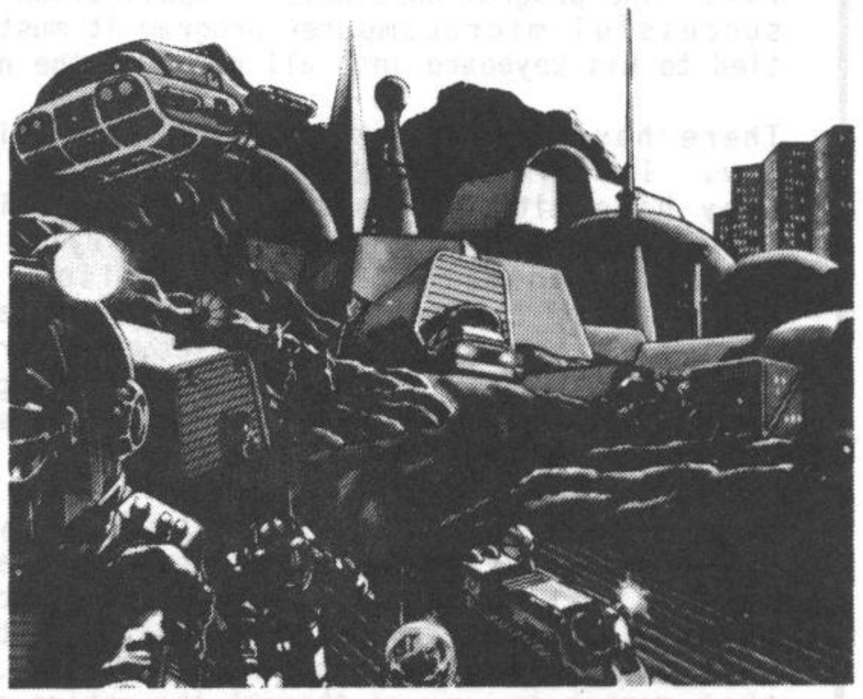
LUNAR LANDER — A DIFFERENT LANDING

This real time Lunar Lander executes its descent with only one variable, the amount of thrust which may be varied in a range from 0 - 9. It is therefore a very easy and enjoyable program to use. Graphics are used extensively together with a continually changing display of Height, Time and Fuel Remaining. An added feature is the ability to command a demonstration, thus proving that a non-fatal landing can be achieved! The graphics show the Lander coming down at altitude display. The speed of its descent (or ascent if you over-react) is relative to thrust entered. A further graphic display is of the Lunar landscape, which is different for each game. During the last 500 feet, the altitute display is magnified, which greatly enhances the enjoyment of the game.

Memory Requirement 16k — 11-2205
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

LOST COLONY — MANAGE A NEWLY COLONISED PLANET IN DEEP SPACE

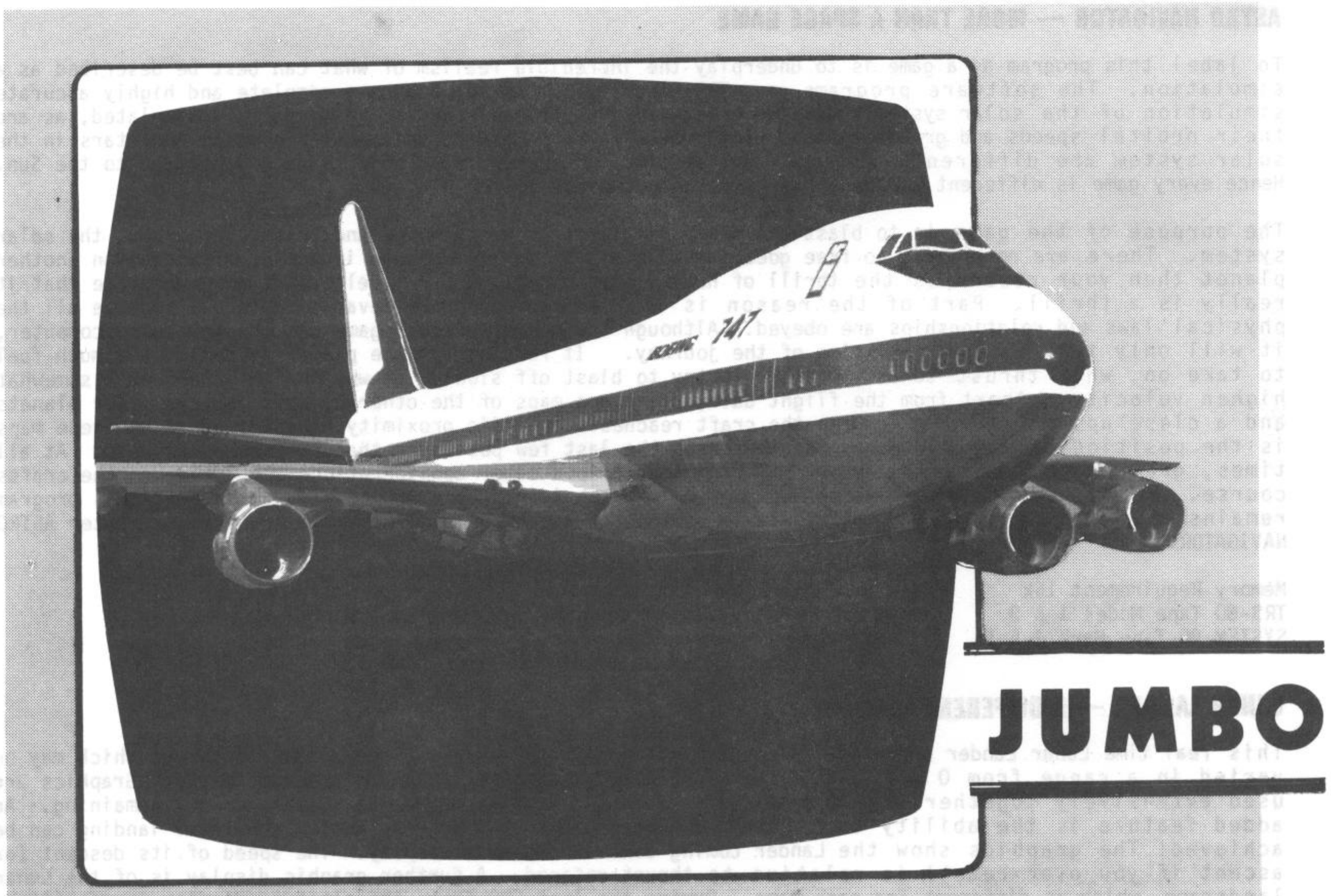
LOST COLONY is a resource management simulation. The scene is "Warrens World", the world's first attempt at colonising a planet in deep space. The next support ship isn't due for about 15 years, and . . . well, let's just say that things are not going too smoothly. An election was held for an economic manager to straighten things out, and guess who won!



While there are traces of Colonialism, it remain a democratic simulation in that you will be turned out of office if the workers under your control become dissatisfied with your administration. In order to bring the game within some reasonable limits, all economic activity is condensed into five broad industries: agriculture, minerals, energy manufacturing, and transportation, while worker satisfaction remains tied to their standard of living. To assist with your administration, you are provided with a number of maps and charts as a guideline to distributing the economy's resources. Throughout the simulation you must assign human and robotic labour forces, explore new land, and allocate production quotas. At the same time you must determine equitable pay scales and taxes that will both optimise productivity and keep the populace happy (or at least quiet and hardworking).

Communication is handled between you and the computer using sentences like, "ASSIGN 1200 SEMI LITERATE MEN TO FARMING", or commands as short as "1200 FARM". LOST COLONY is a challenging simulation, not only as a recreational program but as an insight into Public Policy for students of Government, Economics and Citizenship.

Memory Requirement 16/32k — Tape **40-2211**
TRS-80 Tape/Disk Model 1 & 3 — Disk **40-2214**
SYSTEM 80 Tape/Disk Mark I & II



JUMBO - A TRUE FLYING SIMULATION.

Without a doubt JUMBO is the best flying simulation that we have ever seen. Indeed, it is so good that we made an exclusion in our royalty agreement with the authors to the effect that they had specific permission to use the algorithms from the program for flight training. Such excellence, of course, does not necessarily mean that the program is good for the average microcomputer user. After all, it is not the object of such a user to learn to fly a Boeing 747. The program does have an application for people who wish to do this, but in order to be a successful microcomputer program it must also have that certain something which get the user tied to his keyboard into all hours of the night, JUMBO has this.

There have been one or two flying simulations before and we do not wish to degrade them in any way. In our experience, however, they have suffered by trying to be everything to all men. They have either concentrated on purely simulating the use of the controls or they have used a large proportion of the program in trying to simulate (very good) graphics of the ground. It may be an anomally, but it is also a fact they when you are flying an aircraft you do not really have too much time to be worrying about what the ground looks like, particularly if the aircraft is a 747. Such graphics, however good they are, waste memory. The graphics in JUMBO are first class, but they are not of the ground. They are of the instrument panel, and if you want to fly an aeroplane, whether big or small, it is the instrument panel that you had better concentrate on.

The program has been written conjointly, one of the authors is a professional pilot and the other is a very good programmer. The former has instilled into the program such a fantastically accurate simulation and "feel" of flying a large aircraft that it is almost uncanny. The latter has used a large number of programming techniques so that literally every last byte of the available memory is used. When you start JUMBO you are in the cockpit. From that moment on, you go thought the entire spectrum of the trip. You have to start the engines, choose your route and course, take off, climb to an altitude, cruise, start to let down, find the airport and eventually, hopefully, land. In other words, you get the whole flying experience. What is more, you can carry out your flight anywhere your want. Eight airports are available to you: Perth, Canberra, Adelaide, Sydney, Auckland, Wellington, Melbourne, and Darwin. We have already emphasised the authenticity of this software, and of course it takes some 7 to 8 hours to fly from Perth to Auckland. Accordingly, the authors have allowed for a time abbreviation, or time out, feature. This permits one to go forward in minutes or hours, in seconds. During this time, an automatic pilot is assumed to be on and the distance to go, fuel consumption and time are continually updated as they would be in real life.

If you are beginning to feel that this is a bit beyond you, take heart. We have prepared one of the most extensive manuals for this program that we have had available for any piece of software of even a slightly similar nature. In particular, it occurred to us that not everybody knows how to fly a 747. Indeed, many do not know how to fly at all. In order to get true value from this program, it is necessary to know at least the rudimentary facts of flying. Accordingly, the documentation supplied has been split into two parts. The first is a treatise on the theory of flight and how to control an aircraft. In order to maintain contact with customers who are not familiar with any sort of flying, this has been written by a private pilot and although it refers to flying a 747 occasionally it principally uses as its guide the flying of a light aircraft. The second part of the manual, which contains instructions on running the program and flying a 747, has been written by the author of the program, that is, a professional 747 pilot. Accordingly, the documentation on its own is of considerable value, if you are in any way interested in flying. In addition to the foregoing, a chart is supplied containing various items of data which you will need when flying JUMBO. It mainly consists of various parameters such as the take-off speeds for various weights of aircraft, the flap retraction rates, climb and cruise speeds, and descent distances.

While what has been said above is of the greatest importance, what is really impressive about the program is that it feels right. For even a private pilot with obviously limited experience or perhaps nil experience of flying large aircraft, a feel of flying is obviously apparent, even sitting behind the controls of a TRS-80 or SYSTEM 80. The controls are pretty well complete, even to dive and wheel brakes. The instruments supplied are as follows:

Artificial horizon	Attitude	Fuel
Aileron indicators	Compass	Elapsed time
Indicated airspeed	Turn indicator	Distance to landing
Power setting	Flap indicator	Rate of climb
Elevators		

In addition to the above, the programming half of the authorship consortium has somehow managed to squeeze into 16k maps of Australia and New Zealand with the Tasman Sea in between. If you are flying towards the vicinity of Auckland it is even possible to pinpoint Fiji and Raratonga on the screen. As one progresses on a flight, so one's existing position is shown on the appropriate map. In addition, route information and in particular the bearing of the destination airport is shown. In other words, at all times one knows the compass direction to fly to arrive at the destination chosen. To say the least, this makes life a bit easier. When one gets to the chosen airport an instrument landing system is provided. This, as pilots well know, is a radio beam transmitted along the runway at a specific angle so that if, when it is picked up say 15 or more kilometres out, the aircraft flies the beam exactly, he will finish up on the runway.

We keep on mentioning the realism of this program, which is in our opinion quite outstanding. For instance, the flying simulation programs that we have previously seen all assume a specific stalling speed for the aircraft concerned. Although a given wing will stall at a given angle, the stalling speed of the aircraft is dependent on a large number of factors. These factors are re-enacted in JUMBO completely and in fact the present stalling speed is shown is shown on the instrument panel at all times. Even a small thing like this has been polished up. As one approached the stalling speed, this figure starts to flash to draw attention to it. When one gets to the actual stall, which we hope you never do, a very large indication appears on the screen. This is not, of course, a crash. The Jumbo will stall, and one can recover from it, even though it is a highly undesirable manoeuvre to attempt.

There is a lot more that could be said about JUMBO, but perhaps the most important is that whether or not you have ever piloted an aircraft, you will be captivated by JUMBO.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-2204**
Disk **11-2206**

ADVENTURE GAMES

QUEST — A DIFFERENT KIND OF ADVENTURE

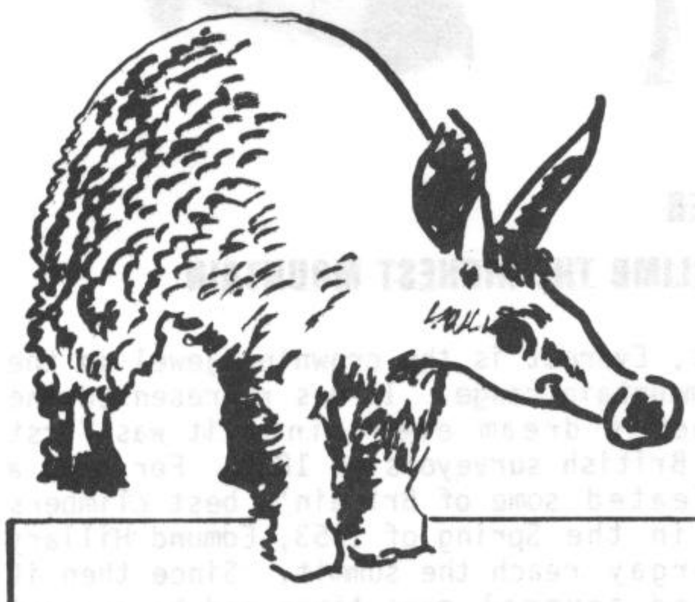
QUEST is played on a computer generated map of Alesia. Your job is to gather men and supplies by combat, bargining, exploration of ruins and temples and outright banditry. When your force is strong enough, you attack the Citadel of Moorlock in a life or death battle to the finish. Playable in 2 to 5 hours, this Adventure is different every time.

Memory Requirement 16k	80C	**41-1915**
TRS-80 Tape Color	I/III	**41-1923**
TRS-80 Tape Model 1 & 3		
SYSTEM 80 Tape Mark I & II		

TREASURE TROVE — SEARCH THE DUNGEONS FOR TREASURE

TREASURE TROVE is a type of adventure game (note the small "a") which can be played by 1-3 players. Although it is a familiar theme in that the player or players must search dungeons and corridors for treasure, this program does have a lot to recommend it. The dungeon is made up of a block of 100 cells on four levels. The instructions include two sample player sheets, the first is made up of a map of one level and the second a map of all four levels. Thus the player can map his progress as he goes. The winner, of course, is the first person to retrieve a set amount of treasure and get out alive. In your search for the elusive treasure, you will have to fight monsters of varying strengths, avoid numerous traps, and use the full potency of the 6 magic items. The good news about this game is that all is not lost if you are killed. TREASURE TROVE is a three generation game, this is to say, if you get clobbered your son inherits your treasure and may continue the family quest. This program, as supplied, is compatible with Disk Basic and a customer may transfer it if he wishes.

Memory Requirement 16k	**11-1907**
TRS-80 Tape Model 1 & 3	
SYSTEM 80 Tape Mark I & II	



QUAD PACK SPECIAL

PURCHASE ALL FOUR AND TAKE $15.00 OFF THE TOTAL PURCHASE PRICE

AARDVARK ADVENTURES

These four Adventures from Aardvark are written in Basic, are full featured, fast action, full plotted Adventures and take some 30-50 hours to play. They each require a minimum of 16k memory, are available on Tape and are compatible with the TRS-80 Color, Model I & 3, and SYSTEM 80 Mark I & II.

ESCAPE FROM MARS

Tape 80C **41-1910**
Tape I/III **41-1918**

This Adventure takes place on the Red Planet. You'll have to explore a Martian city and deal with the possibility of hostile aliens to survive this one. A good first Adventure.

PYRAMID

Tape 80C **41-1911**
Tape I/III **41-1919**

This is a particularly challenging Adventure. It is a treasure hunt in a pyramid full of problems. Exciting and tough.

TREK ADVENTURE

Tape 80C **41-1912**
Tape I/III **41-1920**

This Adventure takes place aboard a familiar starship. The crew has left for good reasons, but they forgot to take you, and now you are in deep trouble.

HAUNTED HOUSE

Tape 80C **41-1913**
Tape I/III **41-1921**

This is a real adventure - with ghosts and ghouls and goblins and treasures and problems - but it is for the kids. Designed for the 8 to 12 year old population and those who haven't tried an Adventure and do not wish to be disillusioned with their first attempt.

CUBE HUNT — A PICTORIAL WORLDWIDE SEARCH

In the world there are hidden eight separate segments of a cube. Your mission is to find and collect them. The game is played against an excellent graphic representation of a map of the world divided into two. The first shows the continents from the British Isles to China and the other overlaps the first showing the British Isles against the west side of Africa and Spain and stretches westerly to Alaska. The map scrolls automatically as you travel the globe. One of the real advantages of this game over one or two similar ones that we have played is that it will change every time you play. Each continent has three separate cube positions and three ports of entrance and one of these is chosen randomly each time the game is run. The cursor arrows are used to guide yourself about the world and to find each cube segment you must attempt to dock at a specific port on a specific continent. In the first instance no clues are given, but as your failures mount you may be thrown a crumb of a clue. Actual attempts to dock at various points on a continent must be made. It is no good just cruising by! Damage can occur to your craft for various reasons varying from storms to shark attacks and if this damage exceeds 50 you sink. The left hand ten columns of the screen are reserved to continuously show you your X & Y coordinates at any given time together with the damage estimate and the number of cubes you have collected. It is in this area also that the position of the game, the details of attacks, and any clues are reported. Having docked at a continent the display shifts to a map of the land mass and somewhere the cube segment is lurking. You must find it then then return to the sea to continue your search. As far as we have been able to ascertain, CUBE HUNT is compatible with Disk Basic.

Memory Requirement 16k — 11-1903
TRS-80 Tape Model 1
SYSTEM 80 Tape Mark I & II

DERELICT — A TOUGH ADVENTURE FROM AARDVARK

This Adventure should keep you locked into your keyboard. It takes place aboard an alien ship that has been deserted for a thousand years - and is still dangerous!

Memory Requirement 16k — 80C **41-1914**
TRS-80 Tape Color — I/III **41-1922**
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

WUMPUS — AN OLD FAVOURITE

Probably one of the earliest computer games in an updated fresh version. The Wumpus is a mythical animal which is asleep (unless you wake it up, in which case you get eaten) in one cave of a cavern containing 20 caves, interconnected by tunnels. You are provided with 5 crooked arrows (they go around corners) with which to get the Wumpus before he gets you. Unfortunately, some caves have pits in them, down which you can fall; others are the homes of Super Bats which can pick you up and deposit you in a new room. You are provided with various clues as you travel from room to room, together with information on which caves are interconnected by tunnels, so that you can hunt the Wumpus, if you choose the expert rating, you may have to cope with an earthquake which will move you around the cavern!

Memory Requirement 16k — 11-1909
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II



EVEREST EXPLORER — ATTEMPT TO CLIMB THE HIGHEST MOUNTAIN

At 29,028 feet, Everest is the crowning jewel in the vast Himalayan mountain range. It has represented the mountain climber's dream ever since it was first discovered by British surveyors in 1852. For over a century it defeated some of Britain's best climbers until finally in the Spring of 1953, Edmund Hillary and Tenzing Norgay reach the summit. Since then it has been climbed several more times and by several more routes. Nonetheless, it remains one of the most difficult challenges in a mountain climbers portfolio. In this game you take the place of a director of an Everest expedition and you must plan your assault in three phases: selection of climbers and equipment, establishment and provisioning of a series of camps and, finally, the direction of the ultimate assault on the summit. As with any expedition, you will have to live within the amount of money that you have been able to raise and as organiser, you will need to deal with six major expense items, namely, climbers, Sherpas, tents, oxygen, food and fuel. EVEREST EXPLORER is a fairly complex game in which a number of parameters have to be chosen correctly, if you are to achieve the ultimate accolade at the peak. The route is obviously important and the timing, because of weather conditions, is all important. You must plan all or these matter and when you have finally established a chain of camps up the slopes, you will need well rested climbers. Their chances will be markedly better if you use oxygen, better still if each climber has two tanks. Even when, and if you succeed in reaching the summit, you still have to get your climbers and Sherpas back down to base camp. The instructions come with a good drawing of Everest with the two major routes marked, together with the positions of the camps. The program is available on tape or disk. A game may be saved for future use on the disk version.

Memory Requirement 16/32k — Tape **40-1918**
TRS-80 Tape/Disk Model 1 & 3 — Disk **40-1919**
SYSTEM 80 Tape/Disk Mark I & II

Magic Trilogy

A SERIES OF THREE ADVENTURES WRITTEN IN BASIC AND RECOMMENDED FOR YOUNG CHILDREN

When one comes to think of it there is no reason why an Adventure should not be written in Basic. Some of the earlier one were, but they were not particularly good. However, that was before the microcomputer machine language Adventures became available, which, as we all know, created something of standard in the industry. We elected to publish this Trilogy of Basic Adventures as they follow the structure of many of the machine language Adventures currently on the market. There are really only two objections to a Basic Adventure. The first is a question of speed and the second of security, not in the sense of copying, but in the sense of being able to cheat by listing the program and looking at the strings. At any rate, in each of these Basic Adventures, the speed problem is pretty well overcome. It is certainly true to say that there is some delay after an instruction is entered and the computer complies. However, we feel that this does not serious detract from the enjoyment of the game. The author Ken Campbell, has overcome the second point by disabling the Break key at the beginning of the game and enabling it at the end. Obviously, this can be overcome by a knowledgeable user, but at least it will go some way to stopping an unscrupulous player from getting a listing whilst the game is in play.

FAIRYTALE ADVENTURE

This is the first in the Trilogy and is aimed at family participation. It's theme is fairy stories and nursery rhymes that all interconnect to provide "souvenir" treasures from the stores. We have found that these stories have a "captivating" effect on young children, whilst the parents will probably be required to provide vocabulary and perhaps "adventure experience" in solving some the the problems. The game has thirty-six locations and over thirty moveable objects. The player will have to travel through secret passages, grottos, waterfalls, caves, candy houses and many other interesting locations.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1904

WONDERLAND ADVENTURE — PART TWO IN THE TRILOGY

WONDERLAND ADVENTURE follows FAIRYTALE in content in that it is aimed at family participation. Again, fairytales and nursery rhythms are used, indeed about 10 stories or rhymes are referenced, together with Mickey Mouse, Tom and Jerry, and so on. While some people may carry an inbuilt discrimination against fairytales and wonderlands, we suggest you attempt them. They are surprisingly good fun. After all, it isn't very often that you get the chance of playing croquet with flamingo on a computer!

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1908

DREAMWORLD — PART THREE OF THE TRILOGY

DREAMWORLD is based on the following stores and rhymes: Oliver Twist, Wizard of Oz, Christmas Carol, Peter Pan, Jack and Jill, Ding Dong Bell, Old King Cole and Little Jack Horner, with, as the author says, a guest appearance from Santa Claus. The network of the game comprises a real world and a fantasy world. It is possible to sleep and dream when in bed and subsequent dreams land the player in different locations and open up successive sections of the work previously inaccessible. The player can move from dream to real world, but not vice-versa, quite often fantasy becomes confused with reality. The command WAKE always terminates a dream and returns the player to his bed. There are 12 treasures in DREAMWORLD and about 35 locations. Although it would be foolish to pretend that these programs do not have more appeal to children than to adults, it is equally fair to say that the adults that we have seen playing it seem to thoroughly enjoy a fleeting trip down memory lane.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1902

MAGIC TRILOGY SPECIAL OFFER

PURCHASE ALL THREE ADVENTURES AND TAKE $10.00 OFF THE TOTAL PURCHASE PRICE

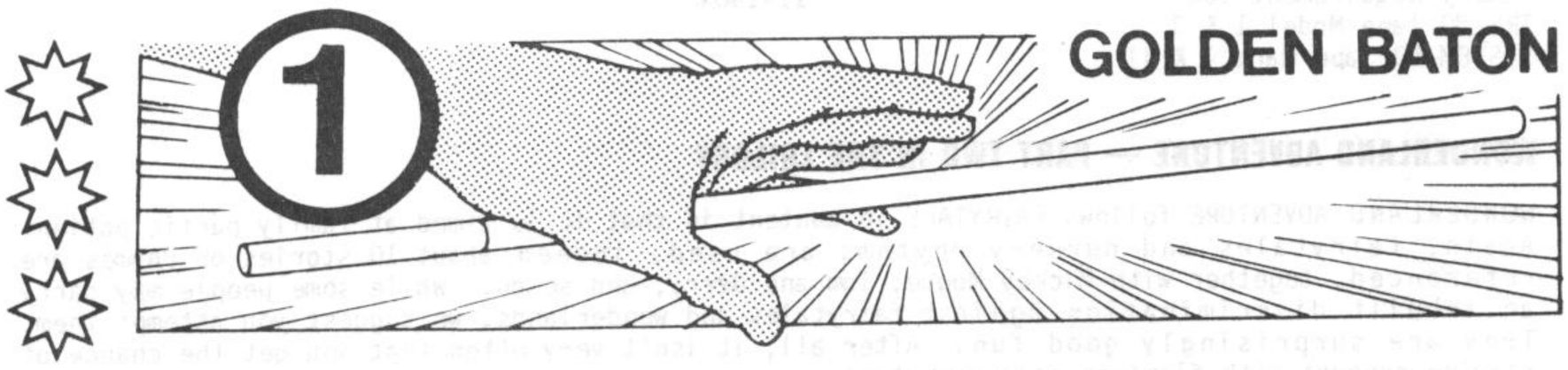
Mysterious Adventure

MYSTERIOUS ADVENTURE is a series of Adventures written by English author Brian Howarth. The feedback that we have had from customers is that the quality is better than the well known Scott Adams series. At the moment the series consists of 5 MYSTERIOUS ADVENTURES. To give you a preview, the additional Adventures planned for 1983 are:

Circus, Perseus and Andromeda, Waxworks, The Ghost of Mars, Ten Little Indians, Beyond Infinite, After the Fire.

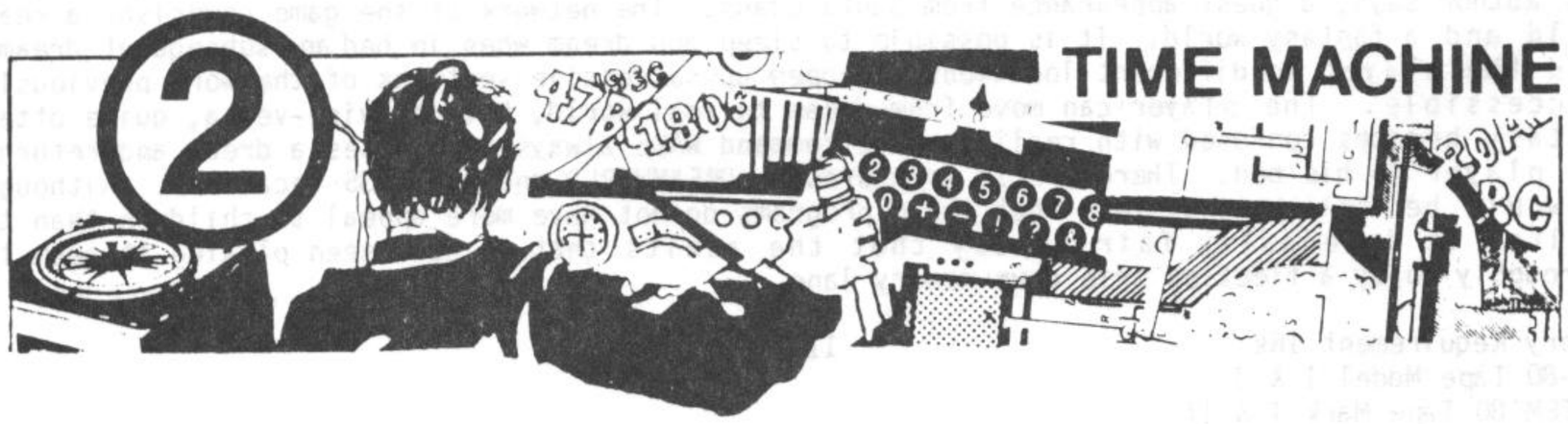
All the MYSTERIOUS ADVENTURES are written in machine code and are therefore very fast. Lower case from the third MYSTERIOUS ADVENTURE is fully supported and the full 16k is used for the Adventure itself. Synopsis sheets can be purchased separately. The MYSTERIOUS ADVENTURE series are available on either tape or disk with a Memory Requirement of 16/32k, and are compatible with TRS-80 Model 1 & 3, SYSTEM 80 Mark I & II.

ADVICE SHEETS are available for those customers who get stuck during an Adventure. It should be emphasised that they are not step by step instructions, but are merely items of advice to help you out of "sticky situations". The policy at MOLYMERX is that we do NOT give clues over the telephone - such advice we feel detracts from the spirit of our Adventures. For those customers who remain totally frustrated, rest easy, we are currently preparing a series of ADVICE SHEETS for all of our Adventures. They will be available throughout 1983. Please be sure to specify on the order form the Adventure for which you require assistance.



The first of Brian Howarth's Mysterious Adventures. This Adventure is a little easier than the others, however you must still overcome numerous problems and obstacles before being able to retrieve the mysterious Golden Baton.

Tape	11-1905
Disk	11-1916



The second of Brian Howarth's Mysterious Adventures is compounded by the dimension of time. Recommended for those Adventurers who enjoy a sense of historical intrigue.

Tape	11-1924
Disk	11-1925

3 ARROW OF DEATH

(PART 1)



You and Sorcerer Zarda must restore the Kingdom from the engulfing sense of bitterness and ill feeling that has forced the ruler to flee the palace. This program contains 60 objects to manipulate and approximately 30 problems or puzzle to solve.

Tape 11-1926
Disk 11-1927

ARROW OF DEATH

(PART II)

Having successfully completed PART 1 you are in possession of the component parts of the Arrow. These you will need to destroy Xerdon the Evil, the source of the ill which has befallen your homeland. You new find yourself on the fringe of Desolation Marsh with no clear idea about what to do next. The main objective is to seek out the only man able to create a Magical Arrow from the parts which you now possess. This man is Arnid, the royal fletcher. However, he has been kidnapped by the minions of Xerdon the Evil who have somehow learned of your intent. Hence you must set off in search of Arnid. Danger lurks at every step and your only hope of survival on this quest is to rely on quick wits and cunning!

Tape 11-1928
Disk 11-1929

4 ESCAPE FROM PULSAR 7

You are alone . . . or almost alone on the space freighter "Pulsar 7". As you sit in the relative safety of the social room, your thoughts drift unwillingly back to the day two weeks ago when the nightmare began . . . It started out as a routine mission, an exploratory flight into the outer regions of the Xanotar system. The purpose of the the mission was, as always to deliver the precious ore Redennium to minor planetoids whose civilisations had evolved beyond primitive nuclear power and were seeking out new methods of energy transferrence in these far flung regions of the Xanotar system, consequently most governments of these planetoids were only too eager to accept samples of new elements, particularly Redennium whose energy transferrence characteristics were second to none. After successfully trading the current load of Redennium and also receiving as part payment of the consignment a strange but interesting creature for the intergalactic zoo in your home planet, you and your crew set course for home. Initially the trip was uneventful except for a minor disturbance when the creature broke out of its cage and took to rolling about playfully in the remains of the Redennium ore left in the cargo hold. After recapturing the creature and placing it back in its cage the Pulsar 7 resumed its monotonous course for home. In the following days, however, the creature became restless and began to grow at an astonishing rate. It was decided at this point that the creature was likely to become a danger to the crew and should therefore be sedated for the remainder of the journey home. The decision came too late. The creature, now the size of a small horse, had ripped open its cage and savagely killed and eaten two of the crew members. It has concealed itself somewhere aboard the gigantic freighter. Since then the creature had accounted for all of the remaining crew except yourself. Your only option now is to abandon the freighter and attempt to make your escape in the frail shuttle craft . . . if you can avoid the deadly creature!

Tape 11-1930
Disk 11-1931

RANDOM DUNGEON GENERATOR — FANTASY GAME COMPILER

RANDOM DUNGEON GENERATOR is a game aid for umpires controlling conventional "paper and dice" fantasy role playing games such as Dungeons and Dragons, Chivalry and Sorcery, Runequest, Empire of the Petal Throne etc. Those who have tried these as well as computer Adventure games will be in no doubt that the "paper and dice" games offer far greater flexibility and variety of play, plus all important continuity. Their main disadvantage, however, is that the umpire must spend long hours designing and preparing the "dungeons" that the players will explore. At least, however, for users of the TRS-80 and SYSTEM 80, this problem has been solved. RANDOM DUNGEON GENERATOR is a suite of three 16k programs which allow the user to generate his own specification of size and shape any sort of human or non-human habitation, temple, palace, prison, tomb etc. The first program designs the floor plans of the "dungeon" complex. The user specifies the number of levels, how many are above and below ground, and the size and shape of each level. The program does the rest. The second program selects the contents of each room in the complex. The user chooses the function of each level of the complex - noble living quarters, servants' quarters, palace, temple, tomb, prison or lair. He selects whether the principal occupants will be warriors, sorcerers, priests, thieves, elves, dwarves, or one of the other non-human races. He can give any name he likes to the whole complex and to the owner of the complex. Thus the program can generate a sorcerer's tower, a mighty temple, a dark and dusty tomb, a bandit hideout, a lord's castle, a royal palace, a noble mansion, a lofty pyramid, a goblin cave warren, or whatever the user's imagination can encompass. The encoded complex is then dumped on tape for permanent storage. The third program decodes the complex, displaying he floor plans on screen, showing the rooms, corridors, doors and secret doors, stairs and trapdoors. The user selects the floor level and room number he wishes to examine, and a full report on the content of the room is displayed, including room function, furniture, decor etc. occupants, monsters, traps and treasure. If a sorcerer or priest is encountered, a full list of spells he has available is displayed. It is then up to the players to decide their actions, and the umpires to adjudicate the results, according to the set of rules he is using. RANDOM DUNGEON GENERATOR has been designed so that it can easily be customised by the user to fit the exact details of the particular set of rules he is using. All monsters, spells etc. have been placed in data lists in the decoder program so that they can be easily replaced, if appropriate, but monsters, spells etc. which better fit the rules used. Full instructions for modifying the programs are given in the documentation. Note that RANDOM DUNGEON GENERATOR is not a complete game in itself and must be used in conjunction with one of the sets of rules mentioned above, or any similar rules.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1906

CITY ENCOUNTERS — GOES WITH RANDOM DUNGEON GENERATOR

CITY ENCOUNTERS is a companion program to RANDOM DUNGEON GENERATOR. It is a game aid for umpires controlling "paper and dice" fantasy games. When used in conjunction with the sets of rules supplied with these games, City Encounters forms a complete system for creating city adventures. Many thousands of permutations ensure a wide variety of encounters and adventures in a city for both inexperienced and experienced players and player characters. Typical city adventures for lower level characters might include pub brawls, burglaries, assassinations, rescues, attacks by rival or thieves, brushes with the militia, forays into the surrounding countryside, and, using RANDOM DUNGEON GENERATOR, raids on rich tombs, temples etc. The campaign can grow as the players' characters climb up the ladder of their chosen professions, so that eventually they can become involved in matters of high state policy or even aspire to the throne. The only limit to the expansion of the game is the umpire's and player's imaginations. CITY ENCOUNTERS is a completely menu driven program. Firstly, it can create new player characters, giving scores for strength, intelligence wisdom, charisma, comeliness, dexterity, constitution, and psychic faculty. It details the character's family background and social level. It describes his age, height, build, complexion, hair colour and voice pitch. It lists his starting funds, with which he must make his way into the world. (If the son of a beggar, he must start without such luxuries as money!). Secondly, the program will give a description of the street in which the players currently find themselves. This can either be used randomly to wander around an unfamiliar city, or it can be used to help build up a permanent gazetteer of their home city. Subsequent "dungeon" and "wilderness" adventures can use this home city as a base. When they have acquired enough money, the players can build their own house or business, and work their way up the social scale to achieve fame and power. Thirdly, the program will give details of encounters in the streets by day, in the streets by night, in taverns, and in areas where those offerings or seeking employment gather. The program details the type of encounter, (e.g. attack, insults, questions, propositions, pocket pickings etc.) and the reasons for the encounter (e.g. attack because of mistaken identity or racial hatred, or to capture the players as slaves or for sacrifice, propositions of buying and selling, or employment in a large variety of tasks and services). The list of possible reasons is far too long to include here. The types of characters encountered include nobles, high officials, priests, sorcerers, fighters, merchants, thieves, courtesans, elves, dwarves, guildsmen of each of the various guilds, ordinary townsfolk and visiting country folk of every walk of life, militia, soldiers, sailors, thugs and beggars. The list is almost endless. Where relevant the program gives their experience level and social level, any jewellery or magical items that they may be carrying, arms and armour, full lists of spells, and a breakdown of any followers or retainers. In a tavern, the program gives details of all the occupants. An offer of a drink to a likely individual may be the start of a whole new adventure. Should the players successfully burgle a house or other wealthy habitation, the program will give a breakdown of any treasure that may be found. At night, foul creatures walk the darker streets and unwary players may be unfortunate enough to meet ghouls, zombies, giant rates, gargoyles, vampires and others. Like RANDOM DUNGEON GENERATOR, CITY ENCOUNTERS has been designed so that it can easily be customised to fit the exact details of the particular set of rules used. Instructions for modifying the programs are given in the documentation and there is no difficulty in replacing the spells, monsters, treasures, gods, etc. listing in the program. Note that this program is not a complete game in itself and must be used in conjunction with a set of fantasy rules.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1901

STRATEGY GAMES

TRIUMPH OF ROME — A ROME WAR GAME

Set at the beginning of the 2nd century B.C. the game depicts the war between Antiochus III and the Seleucid Kingdom and the advancing legions of Rome fresh from their recent victory over Carthage. The Selucid Kingdom was a Greek empire stretching from north eastern Greece to the western borders of India. The prize over which the the two warring nation were fighting was the domination of Greece and the Greek cities of the western coast of Asia Minor. Invited into Greece by the Aetolians and Thebans, Antiochus sailed across the Aegean Sea with an army and set about conquering northern Greece. In retaliation, the Romans sent a larger army from Italy, which succeeded in driving Antiochus back to Asia. After several naval actions in the Aegean, the Roman fleet was finally victorious, and their army crossed the Hellespont into Asia unopposed. They then joined up with their ally, King Eumenes of Pergamum, and defeated Antiochus at Magnesia. In the peace treaty which followed, Antiochus was forced to surrender his western territories to Rome's allies.

In the basic format, the game is similar to Hannibal, but certain key improvement to the program logic have made the simulation of ancient warfare both more realistic and more decisive. A typical game will take about 3 hours to play and a facility for taping a partially completed game is included. Three maps are provided depicting Greece and the areas of Asia Minor on the Aegean Sea. The forces at the disposal of each player include infantry, cavalry, elephants, siege artillery, warships and transport ships. Taxes are raised, troops paid and new troop recruited. The program covers naval engagements, land battles and sieges and, of course, takes full account of the different capabilities of the various troop types in differing circumstances.

Memory Requirement 16k — 11-2011
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

EMPEROR — TRY RUNNING THE ROMAN EMPIRE

EMPEROR is entirely a game of strategy, played on a graphic map of the Roman Empire as it was in the first four centuries A.D. The player takes the part of the Emperor and he must pit his wits and forces against invading barbarians, rebellious provincials and treacherous Roman Generals. Even the Plebs of Rome will have to be placated with bread and circuses if the Emperor is to keep his head and his throne. If he can last out the first eight years of the game, he is judged on the state of the Empire at the end of that time. There are three levels of play. Depending upon his choice, the Emperor has to guide the Empire through three centuries with each century reflecting a different set of historical circumstances. During play Legions must be raised, taxes inflicted and troops moved. The choice of Generals can be critical - some are loyal and good fighters, some are neither. Battles must be fought and invasions repelled. All the while the citizens in Rome must be kept happy and - you must keep an eye on those Barbarians in outer Britannia.

Memory Requirement 16k — 11-2014
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

HANNIBAL — NOT FOR THE FAINTHEARTED

Before we attempt to describe this program, we should mention that it is a serious war games program from Dr Bodley-Scott, who was the co-author of EMPEROR. It is a long game and a complicated one. For this reason, provision is included to save on cassette a partly played game. Basically, HANNIBAL is an authentic, historical simulation of the Second Punic War, the epic struggle between Rome and Carthage for supremacy of the Ancient World. It is a game of considerable strategic skill for two players. The game starts in 220 B.C and each year has three campaigning moves, Spring, Summer and Autumn. Taxes are collected and troops paid during the Winter break. In each move, both players take their turn, whereafter the results of any conflicts are determined. Included in the program are maps of Italy, Spain, Africa and Sicily, which although in different scales are continuous with one another. The players at all stages must take into account various troop movements, treasury reports, recruitment and wars. An historical description of the period accompanies the documentation.

Memory Requirement 16k — 11-2006
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

KING ARTHUR — A SHORT HISTORICAL SIMULATION

This program is written by Dr Bodley-Scott, the author of EMPEROR and HANNIBAL. Dr Scott has now moved on in history somewhat and his present program is concerned with the reign of King Arthur who probably lived in the late fifth or sixth century A.D. In addition to changing his period, Dr Scott has also written KING ARTHUR so that, unlike the previous programs it can be completed in a comparatively short sitting. Normally it will take between twenty minutes and half an hour to play a game. As with EMPEROR and HANNIBAL, a map is displayed on the screen. In this case, of course, it shows Britain as it was at the beginning of the sixth century A.D. Also on the screen and to the right of the map is a status report listing the provinces currently under British control, together with their strategic strengths. Spies can be sent out to scout enemy territory and each year the War-Host musters at a place of the High King's choice. Contingents are sent out from the British Kingdoms, but in the Winter the men of the War-Host disperse to their homes. There are two campaigning moves each year, Spring and Autumn, and battle takes place after each campaigning move, whenever Britons meet Anglo-Saxons in the same province. In early spring of each year Anglo-Saxon reinforcements arrive, but ravaging the Anglo-Saxon lands will discourage such reinforcements. The ultimate aim of the game is to prevent further encroachment on British Territory by the Anglo-Saxons. The game covers a period of 10 years and the players' performance is assessed at the end of that time.

Memory Requirement 16k — 11-2007
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

HAMURABI

This game is for those who prefer a thought provoking game to an action one. You are appointed Governor of Sumeria for 10 years and your success or otherwise depends upon your handling of the country's land and resources. In particular, you are concerned with making such decisions as the harvesting of crops, the buying of land and the planting of how many acres to seed. Get it right and your people do not starve - get it wrong and we take no responsibility for what you are called!

Memory Requirement 16k 11-2005
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

CRUSADERS — SARACENS AND CRUSADERS

The scenario is that you are the King of Jerusalem and have to rule your Kingdom from 1169 to 1177. Your ultimate aim is to prevent any incursions by the invading Saracens. You have a total of forty-eight fortresses, all interconnected by caravan routes. The program will pick these off one by one, unless you can defeat the Saracen army in the field, by gathering together an army for yourself from the various garrisons. Each year consists of six (bi-monthly) moves. At the end of each year you will find a new Saracen army moves into the Kingdom for enemy territory. All Saracen armies that stay in the field for a year are reduced by desertions. The program itself has an artificial intelligence, in as much as the Saracens attempt to siege and take castles and fortresses that they have not previously moved to. In this way the Saracen army that has been sieging for a few years may be reinforced by a new army, which may be sufficient to affect the taking of the fortress. However, your troubles do not stop there! You have to provide food for garrisons and your assembling army. If you find a garrison is under siege, the only way to give them food is to send a caravan, which costs money!

Memory Requirement 16k 11-2002
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

ADMIRAL GRAF SPEE — A WAR GAME ON THE RIVER PLATE

The author says that two intentions lay behind the design of ADMIRAL GRAF SPEE. Firstly to produce an accurate and realistic simulation of the battle and secondly to include sufficient user interaction so that the player feels he can control all aspects of the ship's situation, except of course for the damage suffered. The program is written in Basic and after the program is entered, the initial map displayed shows the relevant positions of the ships with the Graf Spee always centrally disposed. General information about the Graf Spee and the exact details about the British ship Force G. The initial positions, speeds and headings are based on the historical position at first sight with a random element for each new game. The valid orders include the fire of a Salvo, calling up of the map display, information on the ship, speed and course change, launch torpedoes and exit.

Memory Requirement 16k 11-2012
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

NAPOLEON — A WAR GAME WITHOUT JOSEPHINE

NAPOLEON is a war game that takes place in Europe with the starting date of June 1798. You are playing the part of Emperor Napoleon of France and you have at your disposal six French armies. With these armies you are expected to conquer the whole of Europe. The computer, of course, will control the moving, finances etc. of the allied armies which consist of Austria, Britain, Prussia, Spain and Portugal. The player has until the end of 1815 to complete his task. Whenever an army is below 1,000 men strong, it ceases to exist. The British armies start from either Iberia or Prussia, the other allies start from their respective countries. The graphics, with the map of Europe, are of good quality and there is very little else to say, except that it might be mentioned that it is written by Simon Ford and shows a particularly fresh approach to computer war-games.

Memory Requirement 16k 11-2008
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

BATTLE OF BRITAIN — BY A SERVING AIR FORCE OFFICER

Terrific fun and completely authentic. The graphics of S.E. England and the N.W. French coast are particularly good. Each time you play it is a different day in August 1940 and you have to not only survive but shoot down the invading planes as well. The game is cleverly constructed to make it a mixture of action and strategic skill. You are, in effect, not only an individual pilot but also the Air Marshall commanding the fighter forces. You have 13 Squadrons at your disposal, all at authentic airfields. It is up to you when to alert them and then when to scramble them into the air. Although you will destroy more enemy planes if you have more fighters up, don't forget that petrol and ammunition were short in those days! As the fighters go out in sorties, so you are given radar information on the approaching German bombers. The graphics of the actual combat have been carefully prepared so that they give a close simulation of actual air battles. If you do not destroy enough enemy planes in the air, they will get through and bomb your airfields which further depletes your resources. During the air battles talking between the fighter pilots is flashed onto the screen to warn you of enemy planes on your tail or to tell you of other fighters which have gone down. Disposition of both the English and German Squadrons are shown on your tail at the beginning of the game and every time you are compelled to return to base to refuel and get more ammunition. You can control the speed of the game for the action sections and you also have an overall variable skill level depending on how many hours flying experience you enter. If you like strategy and action games this is the one for you!

Memory Requirement 16k 11-2001
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

Molymerx



LABYRYNTH — 3D GRAPHICS FOR THE COLOR COMPUTER

With amazing 3D graphics you fight your way through a maze facing real time monsters. The graphics are real enough to cause claustrophobia. This game has tremendous realism and will keep you enthralled at your keyboard.

Memory Requirement 16k — 41-2307
TRS Color Computer Extended Basic

MINEFIELD — A NEW VERSION OF AN OLD FAVOURITE

Minefield games for micro-computers are quite common but this is one of the best we have seen. The idea of the game is to successfully cross a minefield in which a number of hidden mines have been laid. If you step on one you will be blown up. In order to help you across, you are equipped with a mine detector. Unfortunately, this can only tell you that mines are in your vicinity, not their exact location, furthermore, it only has limited battery life. You will probably have to go about a quarter of the way on your own. The field in which the minefield is situated, is also strewn with rocks. These are a mixed blessing, for although there will not be a mine under them, they are too big for you to climb over! You may have to get yourself into a position where you are surrounded by rocks and mines! The rocks of course are visible. Your path through the minefield is plotted, this enables you to retrace your steps - however it doesn't get you too far as you are supposed to be going forward! After the game is over you may view the placement of the mines - even if you have been blown up! Movement is effected with the four cursor arrow controls and automatically repeat if you hold them down, this lends itself to an easily played, and therefore enjoyable game. The total number of steps in the field are 180 and as there are 20 mines and 20 rocks, the odds are set rather nicely! If you step on a mine and then choose to display them all, the one upon which you trod flashes on and off to separate it from the others. A nice touch which is the hallmark of a good program.

Memory Requirement 16k — 11-2304
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

LABYRYNTH — AN EXCELLENT MAZE GAME

We do not often get excited about maze games, however this is one of the best we have seen. Normally, with maze games the player is given a plan view - as if he or she were looking down from the top - and one has to guide a "third party" with various control keys. MINEFIELD is a good example of this process. However, in this game it is exactly as if you are in the maze yourself. Walls, doors and openings are shown and you have to make your own way through. Nigel Dibben, the authors of the program, has given the player the option of using either of two aids. The first, called footprints, will tell you whether or not you have been in a corridor before and the second shows you continuously the direction of North. Either aid can be selected at will. Controls are supplied so that you may turn and look in any of 3 directions and of course a control to move in the direction which you are looking. The maze is made up of 16 x 16 cells - the word is deliberately chosen!

Memory Requirement 16k — 11-2306
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

FOREST OF MORDOR — WATCH THOSE DWARVES

Although this program just sneaks into the maze category, it could be said to be a direct descendant of an Adventure game. The game is played on board which appears on you VDU. It is essentially an outlined square with various letters, numbers and graphic symbols randomly spread over it. The object of the exercise is to get from the starting point to the exit without being overcome by the many obstacles put in your way. These are Trolls, Dwarves, Orcs, Treorcs, Gormaz and, from time to time, Seredic the Magician. Treorcs are sleeping Orcs and do not move, but colliding with them will mean that you will be eaten. Mysterious forces do occasionally awaken them. Dwarves are slow moving, but extremely ferocious. Unfortunately they have rather one track minds because whenever they encounter each other they mate and produce the dreaded Orc. Trolls are rather like fast dwarves, but are constantly at war with the dwarves so they will destroy each other if they meet. Orcs are probably the biggest problem because they eat anything in their path and gain power thereby, hence they can move more and more quickly. The Men of Murduin are long time enemies of the Orcs and are constantly hunting them. If you are lucky, the odd Orc will be killed by the Mens' arrows. Seredic is a magician and when he appears you may optionally sample his powers. If you receive an Elf Clock you will become invisible for three moves. For instance, you can light flares from time to time which have the effect of stunning the creature temporarily and enabling you to move. The player is armed with some arrows which when shot will destroy the first thing they reach. Occasionally an army of Gormaz will pass through the forest and they destroy everything in their path. So, as you can see, the trip through the forest is one fraught with danger. The player starts out with 1000 points, each moves costs 5 and there are various other penalties. The game is, as we said at the beginning, made more interesting by the scenario which converts a moderately interesting maze game into a game which has considerable appeal. The program is compatible with Disk Basic.

Memory Requirement 16k — 11-2303
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

NUMERICAL & PROBLEM SOLVING

DESCRIPTIVE STATISTICS — MADE EASY

Many statistic programs suffer from being over complex. One of the chief advantages of this one is that it is extremely easy to use. It is effectively a composite program being made up of three parts. The first calculates an extensive range of descriptive statistics. The second illustrates a sample distribution with Histograms and a table of Centiles. The third creates a cassette data file of the univariate data. The program is designed to be used by those with no experience in computing and also all non-statisticians. Prompts and instructions are included throughout the program. Input to the program may be entered in three ways: from the keyboard, as data statements or from the cassette data file created by the program. After the data has been input in one of these ways the Descriptive Statistics section of the program will calculate the following:

Sample Mean	Skewness	Variance (unbiased)
Standard Deviation (unbiased)	Minimum value	Variance (biased)
Standard Deviation (biased)	Sum X	Kurtosis
Standard error	Number of values	Maximum value
Sum X Squared		

The second part of the program is the Centiles (some people call them Percentiles) and Histogram section. The program has been written to allow the distribution of the values at high and how resolution to check if the data appears normally distributed. For non-normal data a sample distribution can be analysed without assumptions of normality by generating a tables of Centiles. The confidence limits of the Centiles are also calculated. So far as is known it is the only commerically available program which calculates Centiles and their confidence limits. Hence this section of the program calculates the Centiles of a sample and 95% confidence limits of the Centiles. The sample distribution is illustrated with a Histogram with 50 groups, a Histogram with 10 groups and cumulative frequency (%) distribution. The final section of the program enables the user to create a permanent data file on cassette and six options are available therewith, namely to create a data file, to check it, to change an entry on the data file, to delete an entry, to extend the data file and, finally, to copy it. The programs have been written so as to accommodate virtually unlimited sample size, although, of course, in practice the size of the data file will be restricted to a practical size of cassette.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2501

MATRIX MANIPULATOR — COMPLETE NUMERIC ARRAY MANIPULATION

This program enables the user to set up a two dimensional array (rows and columns) or numeric data and thereafter manipulate it in accordance with some 33 commands. The array may be stored for later display with our GRAPH PLOTTER program, or by employing a means of regression analysis or some other linear program. The commands available in this program are as follows:

IR: Input by rows
LL: List last line
LR: List one row
LE: List last entry
LC: List one Col.
LO: Locate pointer
HO: Home pointer
MO: Change mode
XR: Exchange 2 rows
IN: Invert row or col.
SC: Serialise col.
ZR: Zero one row
ZM: Zero matrix
NR: Name one rows
RN: Name all rows
CN: Name all cols
TR: Transform
SV: Save to tape

IC: Input by Cols
IX: List input cmds
LM: Backspace matrix
BS: Backspace pointer
PS: Set pointer
DI: Dimensions
CM: List commands
XC: Exch 2 cols
SR: Serialise row
SO: Sort in asc. order
ZC: Zero one col.
NC: Name one col.
SA: Sum/Mean/devn
BC: Block copy
QU: Quit run

Maximum dimensions of the array are restricted only by the amount of memory available, although only 40x40 row or column names may be used. When saved to tape the array can be given a file name. This is a Basic program incorporating an automatically loaded machine code subroutine for high speed. Two versions of this program are available, Level II and Level III. Level II performs calculations in Single Precision whereas the Level III version has the option of Integer, Single or Double precision. Furthermore, the Level III version has 3 additional commands, 2 to set the real time clock and display the time - for which an expansion interface is required and the third to enable and disable the automatic command listing. This program is available on either cassette or disk. Please remember to specify which Level is required.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-2505**
Disk **11-2506**

GRAPH PLOTTER — SISTER TO MATRIX MANIPULATOR

This program may be used in conjunction the MATRIX MANIPULATOR or on its own. Like the Manipulator, it will accept data from the keyboard or from store. Data may be displayed either in the form of histograms (bar charts) or as a line plot. Additionally, the program analyses the data to display mean, standard deviation and where relevant means and mode. A large number of options are given to the user in both the display and type of analysis. Either rows or columns may be analysed for group frequency or single points. The display of the histogram or curve is exceptionally good giving options of block width, block height increment and the standard deviation required. The number of undisplayed points, above or below the scale are shown. Bearing in mind the problems of displaying graphs on a computer screen, a particularly important feature is the ability to turn on the cursor when a graph is displayed and then move it so that it coincides with a graph point, whereupon the exact value of that point is displayed. As with the Manipulator, extensive documentation is supplied.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-2507**
Disk **11-2508**

DIFFERENTIAL EQUATIONS — MADE PAINLESS

Extremely accurate numerical methods of solving differential equations are available, but are relatively unknown to the general populace. It is in number crunching, however, that a computer shows its real qualities and full advantage has been take of this in the composition of the program.

The program will handle up to six first-order equations in six variables. Almost any practical problem which comes up is already such a system or can be reduced to a system of this sort. For those customers who are acquainted with mathematics, at the core of the program is a four order Runge-Kutta method. The global accuracy of this method is remarkable. The accumulated error is roughly proportional to the fourth power of the integration step size, far superior, so the authors tells us, to the modified Euler method. Apparently the Runge-Kutta iteration is used extensively in numerical analysis program available on main frame computers.

Accompanying this program is an extensive manual, which not only takes the user through the program but discusses various ways on entering equations. Included is an exhaustive illustration of a sample program session including some general tips. Provision is made for the output of a graph of the results and a line printer is supported throughout.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-2502

FAST FOURIER ANALYSIS

The FAST FOURIER TRANSFORM is a method of analysing complex signals to extract their harmonic content. The FFT is used in analysing stock market and commodity trends, as well as for signal and speech analysis. It is very useful tool for many, and a mystery to everyone else. The program was written by Dr A.H. Gray, an expert in digital signal processing and co-author (with J.D. Markel) of the classic text, "Linear Prediction of Speech". It includes three version of the machine language fast fourier transform routine assembled for 16, 32, and 48k machines. These machine language routines use array variables, defined by a supporting Basic program, to make data entry and retrieval automatic, without the need of PEEKs and POKEs. The FFTASM package includes a short sample Basic program to demonstrate access to the subroutines as well as a fully developed 10k Basic program which includes sophisticated interactive graphing and data manipulation. The instruction sheets and examples thoroughly explain how the program operates, but are not intended to instruct the novice in the use of application FFT's in general. The machine language subroutines perform 20 to 40 times faster than their Basic equivalent (256 points in 12.5 seconds) and handle up to 1024 point complex FFT. These programs are compatible with Disk Basic.

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

44-2504

PASCAL A COMPLETE PASCAL PACKAGE

This implementation of Pascal uses the Jensen and Wirth Pascal User Manual and Report as the based document and is very similar to the University of California Pascal. We should point out that this package is not intended to be in any way an instructional one in the use of Pascal. It assumes that the user has some knowledge of the Pascal language. There are some restrictions in this implementation, the most important being that labels and GOTO statements are not supported. On the other hand there are a number of extensions, the most important of which are PEEK, POKE, RND, PLOT (SET/RESET), AT (PRINT@) and INKEY.

Standard keywords are as follows:

AND	CONST	GOTO	REPEAT	ABS	EXP	OUTPUT
ROUND	EOF	DIV	DO	IF	SET	ARCTAN
FALSE	PAGE	SIN	MOD	DOWNTO	IN	THEN
BOOLEAN	INPUT	PRED	SQR	NOT	ELSE	LABEL
TO	CHAR	INTEGER	READ	SORT	OR	END
OF	TYPE	CHR	LN	READLN	SUCC	ARRAY
FOR	PACKED	UNTIL	COS	MAXINT	REAL	TRUE
BEGIN	FORWARD	PROCEDURE	VAR	ODD	RESET	TRUNC
CASE	FUNCTION	PROGRAM	WHILE	EOLN	ORD	REWRITE
WRITE	WRITELN					

Non-standard keywords:

ANDBITS	ERRORCODE	LOW	ORBITS	RANDOM	TITLE	VARPTR
AT	ERRORTRAP	MEMORY	PEEK	RND	TRACE	WORD
CALL	FAIL	MOVEDN	PLOT	SHLBITS	TRACEON	CLOSE
HIGH	MOVEUP	POKE	SHRBITS	TROFF	CMD	INKEY
NOBITS	PRINT	STOP	TRON			

THE EDITOR: This is a straightforward but powerful screenbased editor, having a file format compatible with such popular word processing packages as Scripsit and Electric Pencil and the DOS commands LIST and PRINT.

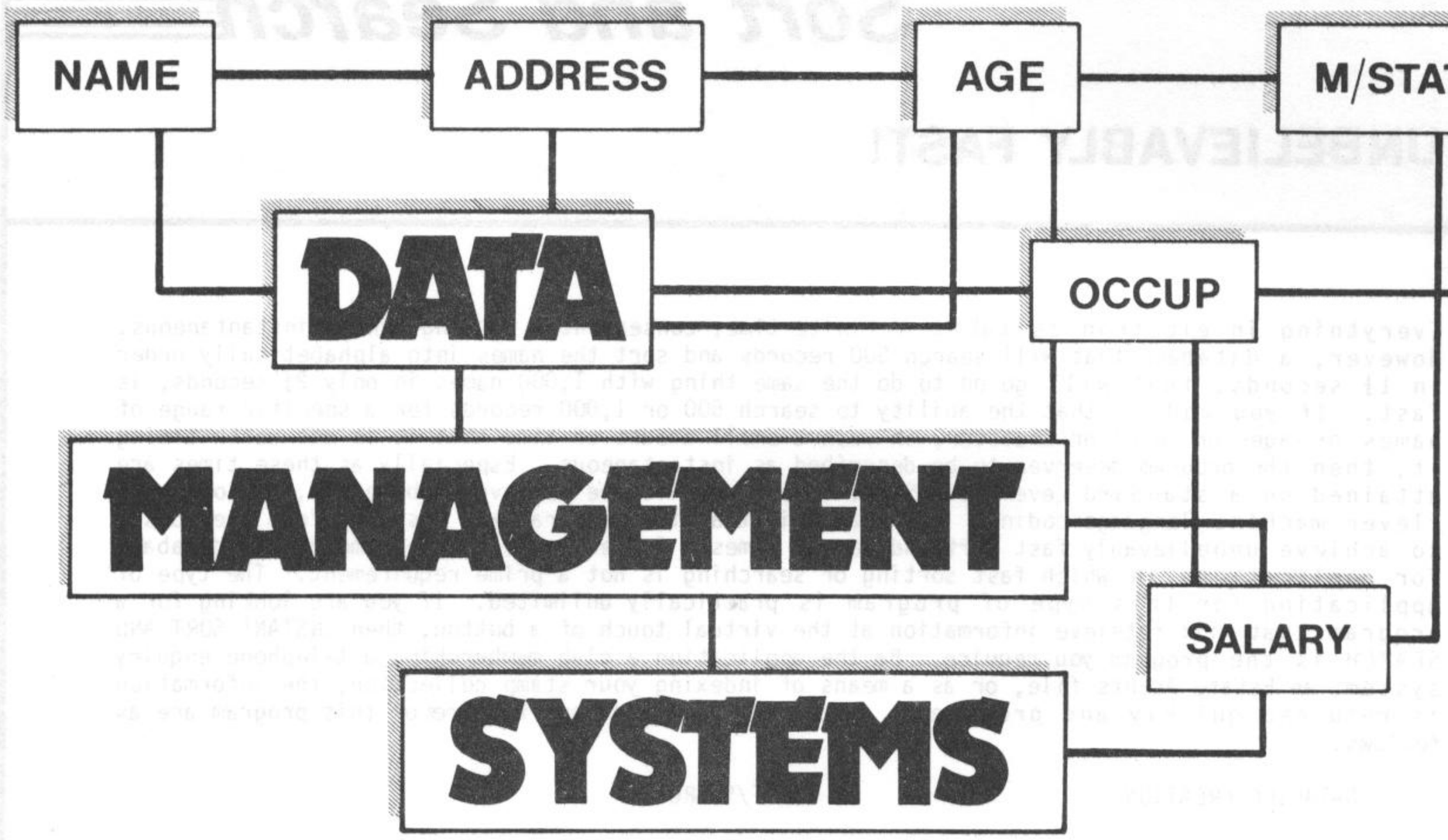
COMPILER: This accepts standard ASCII file as input and produces standard TRSDOS object file as output. Compiler options include pausing on each error, producing a printed listing, generating line numbers for use in error messages, accepting multiple input files one after the other, and checking for values outside the declared range.

RUNTIME SYSTEM: Supplied as a command or object file, this contains all the interfaces between your program and the DOS and ROM routines used. Simple instructions are provided for combining this with your program to give a single executable command file.

Memory Requirement 48k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-1401

LANGUAGES



PROTEXT — A DATABASE WITH TEXT EDITING

One of the major advantages of this program is that it has a built in text editor. This greatly facilitates the entry and deletion of data. When the editor is available the cursor assumes a flashing mode. There are seven commands in this mode: the right arrow inserts spaces to the right of the cursor, expanding the text automatically, and the left arrow does the same to the left. The up arrow moves the cursor non-destructively left and the down arrow moves the cursor to the right. Shift left arrow delete the whole entry and the clear key aborts the entire entry. Finally, hitting the enter key accepts the entry and moves the program to the next entry or function. An excellent feature of this program is that each file is given a "mark" which is automatically stored with the file. These may be deleted or changed at will and provide a very efficient method of finding selected data. Suppose, for instance that you use the Database to construct a file of your record collection and you decide that you would like to access the file by choosing all the Beethoven records you have but not his piano concertos. Simply instruct the program to mark accordingly and thereafter the selection will be made automatically. The same could be made to apply to a business file of people who own you money. Three methods of search are permitted . . . either for the exact entry, that is search for Smith with Smith as the key, or for characters in the same position entered, for instance ...th for Smith or finally floating, such as ith for Smith. This program is only available for disk users.

Memory Requirement 32k
TRS-80 Disk Model 1
SYSTEM 80 Disk Mark I & II

11-1608

PAGE FILE — AN ELECTRONIC BOOK

PAGE FILE is to some extent a specialised database in the sense that its format is quite unique. The title of the program probably best describes it. If you imagine a loose-leaf binder upon which you can write whatever you wish and then turn to another page, write something else, turn back if you so wish, and so on, you are getting pretty close to an understanding of PAGE FILE. Of course there is the provision to search the book. All one has to enter is the alphanumeric word or collection of characters required and instruct the search. It will then come up with the first occurrence and then proceed to each further occurrence. This feature is in fact an Instring search with the ability of being able to pick out parts of words or strings of figures. The editing features of PAGE FILE are quite comprehensive. First of all a page may be deleted, leaving of course a blank page. This may then be filled in with other data. There is the facility for repagination, that is to say, you can shift pages around the file. You can exchange pages, or better still, you can copy one page to another. Essentially, this feature allows you to manipulate and duplicate information easily. To enhance the program, the author has also included facilities for drawing diagrams, pictures, borders, and indeed any other graphic portrayal within the capabilities of the machine. All in all, this is a very easy program to use with countless applications in either the home or office.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-1607

INSTANT Sort and Search

UNBELIEVABLY FAST!

Everything in electronics takes a finite time, consequently nothing can be instantaneous. However, a database that will search 500 records and sort the names into alphabetically order in 1½ seconds, that will go on to do the same thing with 1,000 names in only 2½ seconds, is fast. If you add to that the ability to search 500 or 1,000 records for a specific range of names or ages or sexes or whatever, in such a small amount of time that it is not worth timing it, then the program deserves to be described as instantaneous. Especially as these times are attained on a standard Level II TRS-80. These results are achieved, obviously, by some very clever machine language coding. The reason is that this program was designed from the outset to achieve unbelievably fast sort and search times. Indeed we do not recommend this database for applications in which fast sorting or searching is not a prime requirement. The type of application for this type of program is practically unlimited. If you are looking for a program that will retrieve information at the virtual touch of a button, then INSTANT SORT AND SEARCH is the program you require. Be the application a club membership, a telephone enquiry system, an Estate Agents file, or as a means of indexing your stamp collection, the information is returned quickly and precisely. The prime commands and features of this program are as follows:

DATAFILE CREATION

1. Create a file
2. Add a record
3. Display a record
4. Delete a record
5. Store a file
6. Amend a record
7. Display the file data
8. Load a file

SORT/SEARCH

1. Sort up or down
2. Page forward or backwards
3. Select a range for search
4. Select or exclude a category
5. Select or exclude an initial letter
6. Resort records in a sort
7. Sort all new records
8. Extended sort
9. Arithmetic
10. Display file data
11. Load a file
12. Printout sorted data

The data is displayed in columnar form and may be alphabetical, alphanumeric, integer or decimal. The number of columns is from 2 to 10 and each record may contain a maximum of 60 characters depending upon the number of columns used. Columns may be exchanged, deleted, extended, reduced, or a new column created within the file. Columns may be of any width within the screen capacity but integer or decimal columns more than six characters wide cannot be used to search within a range. The program consists of two parts. The first is used for entering data and the second for sorting or searching. The second part overlays the first when it is loaded so only 4k of memory is used by the entire program. The remaining memory space is available for your data. The amount of data that can be stored will of course depend upon the amount of memory available, a rough guide is that a 16k user will be able to manipulate at one time 250 records of 39 characters each or 514 records of 17 characters each. As a rough guide to sort speed, the time to sort 1,000 records on fields of random strings of random length, or of random number between 1 and 99,999 averages under 2½ seconds. Numeric columns either integer or decimal may be arithmetically manipulated almost instantaneously. A total may be cast or an average taken for any numeric column up to five digits. This is so fast that when adding 1,000 numbers totalling over 50 million, only a slight hesitation can be noticed before the total is given. The disk version of this program has been made fully compatible with TRSDOS, DOSPLUS, LDOS, and NEWDOS.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-1605**
Disk **11-1606**



Molymerx

INDEX — AN EASY WAY TO INDEX A BOOK OR DOCUMENT

This is a specialist program written entirely for authors and others who have to index documents or objects. It affords a very real time saving to such people and yet is very simple in its use. A name and a number are entered, separated by a space. Up to 700 such entries are allowed. After the entries are completed the program will sort them and display, either by page number or by letter. INDEX may be saved on tape and later added to so that not all the work need be done at one sitting. It is VDU orientated but the program can be modified by replacing a few PRINT's with LPRINT's to make it usable with a printer. Very simple and very useful!

Memory Requirement 16k
TRS-80 Tape Model 1 & 3
SYSTEM 80 Tape Mark I & II

11-1604

DATABASE MANAGEMENT SYSTEM — A VERSATILE DATABASE FOR TAPE OR DISK

This program is for use for systems with a minimum of 16k memory. You have complete freedom when making the file - you define the number of fields and you define their contents. The only restriction imposed upon the size and number of fields is the amount of available memory. Each field can be searched for a specific item or value, or sorted numerically or alphabetically. All the data in the particular file can be totalled. The file can be printed on a line printer or displayed on the VDU. The following commands are available within the system:

A: Add records to a file
C: Change records in the file
D: Delete records - with automatic "close up"
E: Exit program
F: Find any item
J: Justify the printing or display format
L: List the file on the VDU
N: New file creation
P: Print the file on the line printer
S: Sort the file
T: Total the items in a field
W: Write the file to cassette or disk

To clarify the T command. It may be used in either one of two ways. Firstly, you can total the numeric contents of the same field in all of the records. An obvious use is a file containing payments from individuals; one field would be set up for their name and a second for the amount paid. After the file is created, the program will, under this command, total all of the amounts paid. The second way is to total selectively. With our previous example, assume that Pensioners are able to pay on a discount basis. Create a file with three fields; name, amount and pension number. This command will now total the second field, using the third as a key, in other words you can total the amount paid by Pensioners on your file. Furthermore, don't forget that this is a manipulation, the program is not committed, after adding the amount paid by Pensioners you could then total the amount paid by the remaining persons in the file. When you choose either the L or P commands, you have the following choices to format:

1. Print the entire file or part thereof. If you choose the latter you will be asked for the starting and ending record number in the display.
2. Print or omit the field specifiers (name, address or whatever).
3. Print or omit the record number of each record.
4. List in numerical order or sorted.
5. Whether or not you wish the print to be justified.
6. Whether or not you require numeric fields to be formatted. If the reply is affirmative the format will be as for money, that is to say with 2 decimal places, leading zeros suppressed and with all of the full stops between the dollars and cents in a vertical array.
7. How many blank lines you require between each record.

As can be seen this is an extremely versatile and complete program for sophisticated filing and manipulation of all types of file data. It is however, restricted by the amount of memory available and how that free space is allocated by the user. In general, a 48k disk system should be able to handle files of about 300 records of 10 fields each. A 32k cassette-based system would probably be about the same with a bit over. A 16k cassette system would run about 100 records of 10 fields with 10 characters reserved for each field. It should be borne in mind that you data can be split into a number of files, thus expanding the amount of data you can handle. The program itself before execution occupies about 6k of memory.

Memory Requirement 16/32k
TRS-80 Tape/Disk Model 1 & 3
SYSTEM 80 Tape/Disk Mark I & II

Tape **11-1601**
Disk **11-1602**

DATA MANAGEMENT SYSTEMS

TIME RECORDING — A SOPHISTICATED SYSTEM FOR ACCOUNTANTS AND OTHER PROFESSIONALS

The TIME RECORDING package we supply has been written by Understanding Ltd, an English software house who already supply the TRS-80 and SYSTEM 80 market throughout the Common Market and North America. In the first quarter of 1983 we will be releasing both a small accounts system and an outstanding Stock Control system to complement this program.

The TIME RECORDING SYSTEM provides both professional people especially accountants, but also solicitors, engineers, and other professional workers with a comprehensive cost ledger and work in progress recording system. The system is only available for the TRS-80 Model 3 with two disk drives. A 132 column printer is also required.

The following reports are produced from within the system:

1. Detailed cost accounts
2. Work in progress with a summary by clients
3. A fees listing
4. Control totals of different inputs
5. Audit trail of postings
6. A client index
7. Staff performance summary
8. Partners' financial summary

RESUME OF REPORTS:

COST ACCOUNTS: A ledger account is available for each client showing postings of the time charged, cost of time, disbursements, work in progress carried forward, and interim fees invoiced. The report is listed in number sequence against each partner.

WORK IN PROGRESS SUMMARY: A line by line listing in client order of work in progress carried forward, amounts of interim final bills, profit or loss account relating to each client. The report is listed in alphabetical sequence against each partner. The total work in progress and the number of clients per partner is also listed.

FEES LISTING: This reports shows the fees posted in each current month, with one line by allocated to each fee payment by the client. Each payment is flagged as to whether it is an interim or final fee. If a final fee is recorded, the work in progress is shown on the account up to an including the month the fee is dated, plus any debit or credit in progress. Fees are listed in client reference number sequence, within partner. Partner totals are printed separately.

CONTROL TOTALS: Monthly control totals are listed according to the hours chargeable and non-chargeable, current month and previous months postings, disbursements, interim and final fees, and profit.

EMPLOYEE SUMMARY: For the current month, the financial year to date, and the calendar year to date, there is shown for each employee, his hours divided into chargeable, holidays, illness, study leave, and administration. The report can be listed either alphabetically or alphabetically within charge out grades up to a maximum of 24 grades.

PARTNERS' FINANCIAL SUMMARY: Shows for each partner, the unbilled work in progress and fees invoiced for the current month and for the financial year to date.

VOLUMES:

200 fees per month	200 clients
4000 live transactions stored such as costs, disbursements, interim fees, journal entries etc.	70 staff

Memory Requirement 48k
TRS-80 Disk(2) Model 3

13-1712

BUSINESS MANAGEMENT PACKAGES

TANDYWRITER A MAILING DATABASE AND WORD PROCESSOR FOR THE TRS-80 MODEL 3

Written especially for the TRS-80 Model 3, TANDYWRITER is a very powerful database for merging information held on a mailing list with a document prepared in Scripsit. In this way documents reports or letters can easily be particularised or personalised according to any number of criteria as determined by your mailing list.

THE MAILING LIST: This has been designed to hold two sets of information for each address: the names and addresses, and up to 20 items of supplementary information as designated by the user.

SUPPLEMENTARY INFORMATION: With your ability to define up to 20 separate fields to hold this information, TANDYWRITER offers a vast range of applications. For instance, mailing lists for Estate Agents, Accountants, Doctors, business firms, or wherever a selection of a particular address is required. An example of a user defined data base is as follows:

Field Description:	Code letter (A to T)	
Created by the user (up to 8 characters each and 70 fields in total)		Information provided by the user for each field. From 1 to 32 characters, filled with a maximum of 100 characters in all.
Area	A	
State	B	
City	C	
Size	D	
Turnover	E	
Cr Limit	F	
Contact	G	
Client	T	

SELECTING RECORDS: Extremely powerful and flexible selection facilities allow both simple and complex testing of any information on file, together with user definable sorting keys. It will sort over any of the above fields, including name and address fields, applying up to 8 different types of selection tests viz: equal to, not equal to, greater than, less than, greater than or equal to, in between, not between.

FOUR TYPES OF REPORTS: Four different reports are available, sorted or unsorted, selective or non-selective, from a simple index to a full listing of each record. Fixed format address labels or user defined labels can be printed on almost any size of continuous label stationery with a unit size of not less than 7 cm by 3.5 cm.

BULK CHANGES: A very powerful tool enabling you to alter a specific item of information across a selected set of records with a single command.

SPLITTING AND MERGING OF MAILING LISTS: Mailing lists can be merged and split and generally rearranged as required.

VOLUME: Up to 600 records per disk. Works on up to four disk drives giving a maximum of 1800 records. Multiple mailing lists may be created on each disk.

TANDYWRITER is supplied in a high quality ring binder with some 80 pages of documentation.

Memory Requirement 48k
TRS-80 Disk Model 3

13-1718

FINANCIAL ANALYSIS A BUSINESS TOOL

This program enables businesses to handle their financial activities in an efficient manner. It carries out the following functions:

1. Internal rate of return
2. Present value of a given cash flow
3. Present value to future value and future value to present value
4. Annuities from required present value
5. Time span of payments

The program uses well-known business equations, available from most books which cover the subject of financial forecasting. The program adopts a rather unique method of memory management using a "work sheet" which contains the results of the latest computation of values input from the keyboard. After computation is complete, menu options allow the "work sheet" to be stored in a "memory" capable of holding up to ten sets of values. This work sheet can be listed or printed and also saved to disk. The "memories" are named (up to six characters) and can be given a reference number as well. For instance, a memory may be called MORTGE number one. On revision the reference number can be changed to two and so on. This "work sheet" method is extremely versatile and enables otherwise complicated calculations to be carried out with the least trouble.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-1703

GRAPHIT GRAPHS AND VISICALC COMPATIBILITY

There are a number of programs which will portray graphs on a microcomputer. In fact, we stock one already, namely GRAPH PLOTTER. This program contains additional facilities, however it remains fairly complex to use. GRAPHIT, therefore has been written with three prime requirements in mind. First of all, that it should not only be extremely easy to use but that there should be a HELP command available at all times so that the users can immediately ascertain any commands that he has forgotten. The second requirement was that the files which are created should be compatible with Visicalc and vice-versa. Finally, the author was asked to provide a program in which the user can manipulate the graphs in almost any way he can think of. In particular, we had in mind the scale of the graph, in other words, its magnification or enlargement should be almost infinite. We are happy to report that these requirements have been met. With GRAPHIT you can do very nearly anything you might want to do with a graph. Incidently, two types of graphing are available - either zig-zag (pen plot) or bar (histogram). These two options are interchangeable as some data in more easily displayed as a histogram and vice versa.

To explain the Visicalc compatibility first. In Visicalc you can elect to store data in a number of different ways, one of which is a DIF (Data Interchange Form) file. Such files (containing data which is capable of being graphed) can be loaded into GRAPHIT and a graph drawn. In the same way, if one elects to enter the data direct into GRAPHIT, any file which GRAPHIT makes can be loaded into Visicalc and the data manipulated in any way available to that program. There is, therefore, a complete interchange facility with the popular Visicalc program, as manufactured by Visicorp.

The best feature of GRAPHIT is that it is extremely versatile, particularly in its methods of display. Pages may be moved from left to right and up and down, either a page at a time or a column at a time. If one elects to enter data direct into GRAPHIT then the user has editing facilities for deleting items and adding them. They may, of course, be modified in any other way. In other words, one effectively has a screen editor available when in the data entry mode. The program is only disk compatible. It has no compatibility with tape, so that any data files which are produced must be saved to disk. The user has the facility for entering a title to the graph. Alternatively, GRAPHIT itself will give the file a name - "Graphit Data". A hard copy of the graph may be obtained. In other words, there is a command for sending data to a lineprinter. Alternatively a screen printer, which is supplied in most DOS's nowdays may be used. The data in tabular form may also be directed to the line printer. A particularly good feature is the ability of GRAPHIT to swap sides when it is displaying a graph. In other words, the X & Y axis can be exchanged at will. This function alone yields some very enlightening results. Equally as easily, the same data can be displayed in either a histogram (bar graph) or pen plot (zig-zag) format.

If you have ever worked with information from a graph, then you would be aware of the importance of scales of display. GRAPHIT selects its own scales automatically, however this need not remain permanent. With GRAPHIT you have the ability to either magnify or reduce either the complete graph or any section of your graph. This can be made to occur with a single keystroke. So far as numerical information is concerned, the range is from minus 100,000 to plus 100,000. This has been selected because it is all that can be reasonable displayed. If higher figures are required, then it is simple enough to reduce the scale and label each increment as one thousand.

An additional command which is easy to overlook is the ability to "correct" the axis. If, for instance, your Y axis has both positive and negative values, the graph will automatically select a scale with the zero half way up the screen. Correcting the graph in these circumstances would move the zero down to the left hand corner so that effectively only the positive values are shown. A secondary feature, which again enhances GRAPHIT's user friendliness, that on almost all entries a default value is displayed. The end result is that the tabulation, plotting and display of graphs can be performed very easily with GRAPHIT.

GRAPHIT is supplied on disk and requires a minimum of 48k of memory.

Memory Requirement 48k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-1704

SCRIPTR A MAJOR UPGRADE FOR TANDY'S SCRIPSIT

Since the introduction of Scripsit for the Model 1 & 3 microcomputers, there have been a number of programs released onto the market which enhance the main features of Scripsit. Many of these programs are in fact patches facilitating the use of DOS functions and adding driver routines so that a wider range of printers could be controlled from within the program.

SCRIPTR is of the same genre, however it remains in a class of its own in that it adds many new routines to Scripsit to create a program of unmatched versatility. SCRIPTR patches Scripsit L/C, the standard Model 1 version of Scripsit. This version will also operate in the TRS-80 Model 3 under TRSDOS 1.3 . SCRIPTR has been configured to work in a system using either single or double density disk, furthermore, the Model 1 version will work under any DOS that uses standard supervisor calls. As far as we can ascertain, the machine code of SCRIPTR remains entirely ROM independent. The major features of SCRIPTR are as follows:

1. **DOS REENTRY:** Infinite entry and reentry to the DOS from Scripsit and the unparallelled use of all DOS functions without disturbing the text buffer. Reentry to the text is performed by simply typing SCRIPTR.

2. **OUTPUT ANY CODE TO YOUR PRINTER:** SCRIPTR allows you to output to any parallel printer any code or code sequence. The codes may be used for graphics, printer control codes or special characters. SCRIPTR utilises a wide range of easy to remember mnemonic codes, these can either be transmitted independently or embedded in the text and transmitted with the document.

3. **COMPLETE MX-80/100 AND GRAPHTRAX SUPPORT:** SCRIPTR permits you to control all of the programmable functions of the Epson MX-80 and MX-100 printers directly from the text buffer. This covers some 24 printing modes as well as setting and executing variable tabs, linespacing, page numbering, linefeeds, page breaks, underlining, and super and subscripting. If you are using Graphtrax with your Epson printer then you can underline, italicise, and turn emphasised and double overstrike ON/OFF anywhere on the line, even on right justified text.

4. **WATCH YOUR PRINTOUT RUN:** With SCRIPTR you can command the text to be displayed on your monitor as it is being transmitted to the line printer. The speed of display can be varied, either on a character or line basis, with controls for automatic pausing or the completion of a section of text.

5. **DIAL-A-PRINT:** This feature works on any printer with the ability to separate carriage returns from line-feeds. If you are using an MX-80, you will require the special Epson cable. Effectively, this mode permits you to overprint any given line between 2 and 10 times. The result is particularly crisp copy, a desirable feature if you are preparing text for camera ready copy.

6. **WRITE FORM LETTERS & INSERT DURING PRINTOUT:** If you are regularly preparing standard form documents, maillists, or report forms, then SCRIPTR offers a unique feature. SCRIPTR gives you the ability to specify places within a document where you desire to insert information during the printout. The printer will stop allowing you to insert information directly from the keyboard, this same information is also transmitted to the text buffer.

7. **COMPLETE PRINTOUT CONTROL:** SCRIPTR gives you complete control of the entire printout. All of the original functions of Scripsit are retained and will work as per normal. Not only is the entire printout displayed on a line by line basis, but you may pause at any time and edit any line before it is transmitted to the printer. Furthermore, you can delete the text material in the buffer, send line and page feeds, adjust the display, edit a line, add graphic characters from the keyboard, change line lengths, even write in the margins or put footnotes at the bottom of the page.

8. **MACRO'S:** This facility give you the ability to re-use commonly used text or graphic sequences on succeeding lines without retyping them. In addition, this mode permits you to print vertical or horizontal borders using any of the MX-80/100 graphic symbols.

9. **DISPLAY ONLY PRINTING:** In this mode, SCRIPTR allows you to run a printout without printing anything on the page. The purpose of generating a "dry run" is to observe where Scripsit places the page breaks, graphics etc. The other feature of this mode is that it gives you single page printing from within a document, it also ensures that your headers, page numbers and footers remain correct.

10. **MERGING OF GRAPHICS:** SCRIPTR has a function call Picture which allows you to load into the document a display, for instance, bar graphs, tables and other forms of graphic reinforcement. For this feature you need to purchase CRAYON which is listed in the Programming Utilities section of this catalogue.

11. **EXCELLENT DOCUMENTATION:** SCRIPTR is accompanied by a 61 page manual. This is fully indexed for easy reference and explains many of the functions with examples. For your convenience, we have also included a number of appendices covering: the full range of Epson control sequences, the Epson character representations, a Decimal to Hex conversion table, and the Hexadecimal representations for the full range of upper and lower case characters printable on the Epson series of printers.

12. **TEACHING MODE:** To help you through the documentation, we have included a teaching program to demonstrate the various features of SCRIPTR. Furthermore, all the control codes of SCRIPTR are listed on the back cover of the manual for easy reference.

There remains a number of features which we have not covered, suffice to say that SCRIPTR is an extensive piece of software. In effect it upgrades your existing copy of Model 1 Scripsit to parallel and in many cases go beyond existing word processor packages like Lazywriter and Super Scripsit. SCRIPTR is only available on disk and requires of copy of Scripsit L/C (Tandy catalogue number 26-1563) to work on either the TRS-80 Model 1 or 3.

Memory Requirement 32k **45-1505**
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

TEXPRO A TEXT/WORD PROCESSOR PROGRAM FOR TAPE

There is a fairly restricted market for a word processor for tape users of 16k up. It is very difficult to write a good word processor or even a good text editor which will fit into 16k and can support only tape storage. TEXPRO has been developed to be compatible with 16k, 32k, and 48k machines. It is designed for an operator who used a word processor on an irregular basis, yet incorporates a number of features that one would expect to see on its bigger brethren.

For one, TEXPRO incorporates its own lower case together with its own video and keyboard drivers. In this respect it is able to add some special characters, for instance, left and right brace brackets are available together with a vertical divider. All parallel printers are supported, while it remains possible for the user to protect high memory for the location of a serial driver.

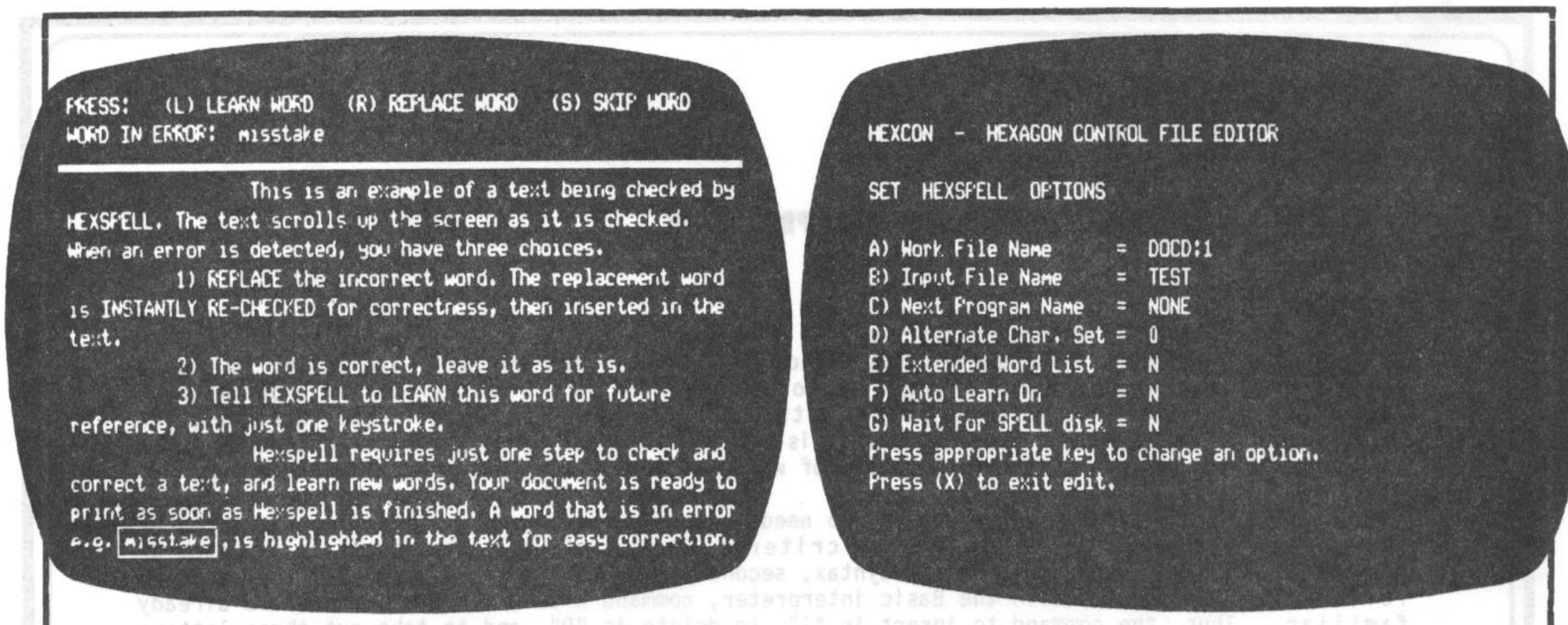
TEXPRO is essentially a menu driven program and 11 functions are available as follows:

1. Input - this supplies normal typing facilities
2. Edit - this command permits the insertion or deletion of lines. The cursor is controlled by the four arrow keys.
3. Display - permits the user to review the text on the screen with downwards scrolling being controlled by the down arrow.
4. File - stores the current text on disk.
5. Retrieve - the opposite of the above, loads text from cassette.
6. Merge - to rearrange the text in lines of reasonable uniform length. Of particular use after insertion
7. Tidy - right justify the text. Justification occurs by the insertion of spaces.
8. Print - sends the current print to the line printer.
9. Combine - this retrieves the sequence of segments which have been filed in order on tape and prints them out as one document. This is a particularly useful command for 16k owners.
10. Set - alters the parameters which control some of the other commands and also the tab settings.
11. Verify - for use with upper case only. Indicates which letters are capitals

To explain these commands in a little more detail: Input will call the last line of the existing text to the top of the screen. In this mode the Clear key acts as a repeat key and a shift left arrow will delete the entire line. The right arrow functions as a tab key, while Enter causes the line to be store in memory. The Edit function gives access to the text already typed. In this mode the line being edited is marked by an arrow pointing towards it from the right. The three previous and three following lines are shown above and below respectively with double line spacing. A message is displayed indicating the line number being edited. Text can be inserted using the shifted left arrow, furthermore, entire lines may be inserted or deleted. The Merge function arranges the text in lines which are within a specified range of lengths. The option of hyphenate is given from within this command. The Combine command works essentially the same as the Print command, except that it prints text as read from tape rather than from memory. The Set command enables the following settings to be changed: maximum characters per line, lines per page, page length, print margin, standard paragraph insert, tab positions, hyphenation and a print option for normal, small, and heavy type (depending on your line printer).

The program we supply is in three versions: one for upper case, the other for lower case, and the third for users of the TRS-80 Model 3. Please by sure to mention which version you require.

Memory Requirement 16k Model 1 LC/UC **11-1504**
TRS-80 Tape Model 1 & 3 Model 3 **11-1508**
SYSTEM 80 Tape Mark I & II



HEXSPELL 2·3

A WORD PROCESSING DICTIONARY

Now that word processors are becoming so widely used, a system whereby the spelling of letters and documents can be automatically checked is well nigh an essential item. It has been proved time and time again that the author or the typist of a long and possibly complex document can search that document many times with their eyes and still not see the most obvious mistake. HEXSPELL 2.3 is compatible with all word processing system of which we are aware, including Scripsit, AJEDIT, Electric Pencil and Worp 9.

Essentially, the program goes through any file produced by a word processor and checks each word against a self-contained dictionary. In the case of HEXSPELL, this dictionary consists of about 25,000 words in store on disk and another 6,000 words continuously held in the computer memory for fast access. An excellent feature of HEXSPELL is that the most commonly used words are continually "shifted" towards the top of the list and hence put into memory on power up. In other words, the program learns which words are used most commonly by any particular operator and makes sure than these are in a faster access area. The program can, of course be instructed to learn words and such words will be added to the dictionary. In this mode, HEXSPELL has the capacity to learn up to 22,000 additional words, for instance all your company product codes, or a library of organic chemicals and their formulae. Another alternative is to instruct HEXSPELL to build a completely new dictionary, this it will do automatically as it scrolls through the text. Model 3 users should be aware that as their computer has an alternative character set, HEXSPELL can be instructed to learn Greek (very useful if your subject is mathematics or engineering) or Japanese. As far as we are aware, HEXSPELL is the only spelling dictionary available with this powerful feature.

As the text is checked for spelling errors, each line is scrolled from the bottom of the screen upwards at a fast reading rate. When an unknown or mis-spelt word is found the program will stop, the word will be shown on the screen together with continuation words which follow the word in question. This is important as it gives the context the the phrase which sometimes has an actual bearing on the actual spelling of the word. The user may either replace the word, in other words, correct the error, leave it as it is, or instruct the program to learn the word for future use. To avoid any possible errors when new words are added to the list, HEXSPELL can be made to print out each word as it is added to the the dictionary. Effectively, these words can be checked at the end of the session, and the dictionary corrected if necessary.

One of the concerns with this type of program is that small differences in American and English spelling. With HEXSPELL this is not a difficulty, partly because HEXSPELL was written by a Canadian and partly because words can be deleted from the dictionary and new words added. For our customers who are uncertain about purchasing HEXSPELL, the author has supplied us with a special demonstration disk. The demonstration together with the operating manual can be purchased separately, the cost being deducted from the final purchase price. Customers with an earlier version of HEXSPELL may upgrade to 2.3 at a cost of $30.00 .

To overcome the complexities of different Disk Operating Systems, HEXSPELL 2.3 can be instructed to operate under either TRSDOS, LDOS, NEWDOS 2.0, or DOSPLUS. HEXSPELL requires an environment of 48k and two disk drives.

Memory Requirement 48k
TRS-80 Disk(2) Model 1 & 3
SYSTEM 80 Disk(2) Mark I & II

Hexspell 2.3 **49-1506**
Hexspell Demo **49-1507**

AJEDIT

A SIMPLE TO USE, MODERATELY PRICED WORD PROCESSOR

There are a number of word processors on the market which have been written for the TRS-80 and SYSTEM 80 and most of them are extremely good - why, therefore another? The answer is that a lot of people require, do not need, or for that matter want a word processor program which requires a degree of training before its full features can be realised. Scripsit, for instance, is an excellent program, but it is complex to use. Our experience is that this has tended to be detrimental to the realisation of what would otherwise be an excellent program.

AJEDIT has been written for the user who needs a word processor intermittently, say three or four times a week. It prime design criteria was ease of use. The result is a system of commands which is based around their syntax, secondly, the Edit command of AJEDIT very closely follow the Basic commands in the Basic interpreter, command with which many people are already familiar. Thus, the command to insert is "I", to delete is "D", and to take out three letters is "3D" and so on.

Before we go into summarising the various features, it should be mentioned that AJEDIT is written entirely in machine code. Furthermore, it has a feature not normally included in word processors, that is the ability to perform a Mail/Merge. What this amounts to is that the user can with little difficulty send out personalised letters and forms. Some of AJEDIT's outstanding features are as follows:

1. Cursor scrolling using the arrow keys
2. Cursor to beginning of file
3. Cursor to end of file
4. Display the first sixteen lines of text, then repeat
5. Insertion and deletion of lines
6. Insertion and deletion of characters
7. Overtyping
8. Kill to the right of the cursor
9. Search for a character string
10. Complete word wraparound
11. Screen justification - selectable
12. Place text in buffer - recall
13. Block moves
14. Chaining of text segments
15. Printer "hangs" eliminated
16. TRS-80 lower case support
17. System calls within the program - access FREE space map, DIR, printer controls etc.
18. Tab and indent settings
19. Fast screen refresh
20. Customised commands for Epson and Centronics 737 printers
21. Set current page number
22. Select line number of the page to be printed
23. Set the page length
24. Set the form length
25. Ability to use headers and footers
26. Set the number of characters to be printed on a line
27. Single page printing
28. Right justification supported (selectable)
29. Pause in printing, continue or terminate
30. Simultaneous display of text as it is being printed (selectable)
31. Centering of text on the line
32. Embedding of command codes in the text, i.e. select BOLD or ELONGATED
33. Printer control configuration - carriage return on/off, line feed on/off
34. Keyboard lock or normal typewriter mode
35. Automatic page numbering
36. Mail merge facility and labeller

As can be seen, this is a comprehensive word processor program. Retailing at less than $100.00 we believe it offers excellent value for money. Some of the more sophisticated features of Scripsit are not present, but then AJEDIT includes a number of almost essential features which Scripsit for some unknown reason omitted. In particular, the ability to get to DOS and the ability to access control keys on the printer.

The documentation we supply is in two sections: notably a 40 page manual for the user who is unfamiliar with word processing, and a second section covering some 21 pages for the more advanced user who has already grasped the fundamentals of word processing.

Memory Requirement 32k
TRS-80 Disk Model 1 & 3
SYSTEM 80 Disk Mark I & II

11-1501

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11-2206	JUMBO (DISK)	7.3	39.95	D	32K/DB
11-2204	JUMBO (TAPE)	7.3	34.95	D	16K/2
11-1220	KEYBOARD MASK	1.14	24.95	D	16K/2
11-2007	KING ARTHUR	9.0	24.50	D	16K/2
11-2639	KNIGHT DELUXE	5.0	24.50	A	32K/DB
11-2633	KUBIK	5.1	19.95	D	16K/2
11-1230	LABELLER	1.14	18.50	A	32K/DB
41-2307	LABYRINTH 80C	10.0	19.95	I	16K/ECB
11-2306	LABYRYNTH	10.0	24.50	D	16K/2
40-2411	LANGUAGE TEACHER (FRENCH)	4.3	34.95	D	32K/DB
40-2419	LANGUAGE TEACHER (GERMAN I)	4.3	34.95	D	32K/DB
40-2420	LANGUAGE TEACHER (GERMAN II)	4.3	34.95	D	32K/DB
40-2418	LANGUAGE TEACHER (ITALIAN)	4.3	34.95	D	32K/DB
43-1801	LDOS (MODEL 1)*	3.0	169.95	A	32K/DB
43-1802	LDOS (MODEL III)*	3.0	169.95	C	32K/DB
11-2640	LOAN	5.4	21.50	D	4K/2
40-2214	LOST COLONY (DISK)	7.2	29.50	D	32K/DB
40-2211	LOST COLONY (TAPE)	7.2	24.50	D	16K/2
11-2205	LUNAR LANDER	7.2	12.50	D	16K/2
11-1917	MA ADVICE SHEET	8.3	1.00		
11-1916	MA 1 - THE GOLDEN BATON (DISK)	8.3	29.50	D	32K/DB
11-1905	MA 1 - THE GOLDEN BATON (TAPE)	8.3	24.50	D	16K/2
11-1925	MA 2 - THE TIME MACHINE (DISK)	8.3	29.50	D	32K/DB
11-1924	MA 2 - THE TIME MACHINE (TAPE)	8.3	24.50	D	16K/2
11-1927	MA 3 - ARROW OF DEATH 1 (DISK)	8.4	29.50	D	32K/DB
11-1926	MA 3 - ARROW OF DEATH 1 (TAPE)	8.4	24.50	D	16K/2
11-1929	MA 3 - ARROW OF DEATH 2 (DISK)	8.4	29.50	D	32K/DB
11-1928	MA 3 - ARROW OF DEATH 2 (TAPE)	8.4	24.50	D	16K/2
11-1931	MA 4 ESC. FROM PULSAR 7 (DISK)	8.4	29.50	D	32K/DB
11-1930	MA 4 ESC. FROM PULSAR 7 (TAPE)	8.4	24.50	D	16K/2
11-1221	MACHINE CODE TO BASIC	1.4	25.50	A	16K/2
11-2616	MARQUEE	5.5	29.95	D	16K/2
11-2407	MATHS SPEED TEST	4.2	24.50	D	16K/2
11-2506	MATRIX MANIPULATOR (DISK)	11.1	69.50	D	32K/DB
11-2505	MATRIX MANIPULATOR (TAPE)	11.1	64.50	D	16K/2
11-2638	MILES PER GALLON	5.2	39.50	D	32K/DB
11-2304	MINEFIELD	10.0	19.95	D	16K/2
40-2647	MONEY MANAGER	5.3	49.95	D	32K/DB
11-1225	MONITOR 3 (TAPE)	1.14	49.95	D	16K/2
11-1260	MONITOR 4 (DISK)	1.14	69.95	D	32K/DB
11-1226	MONITOR 4 (TAPE)	1.14	64.95	D	16K/2
11-2620	MORSE CODE	5.5	24.50	A	16K/2
11-2641	MORSE CODE TRANSLATOR	5.5	32.50	A	16K/2
11-2409	MULTIPLE CHOICE QUESTIONS	4.3	44.95	D	32K/DB
45-2619	MUSIC MAGIC	5.4	34.50	D	32K/DB
46-1244	MZAL (MODEL 1)	1.2	149.00	A	32K/DB
46-1245	MZAL (MODEL 3)	1.2	149.00	C	32K/DB
11-2008	NAPOLEON	9.1	25.50	D	16K/2
11-1227	OBJECT CODE RELOCATOR	1.0	25.50	D	16K/2
42-2119	OUTHOUSE (DISK)*	6.3	29.50	D	32K/DB
42-2123	OUTHOUSE (TAPE)*	6.3	24.50	D	16K/2
11-1228	PACK/UNPACK	1.15	64.50	A	32K/DB
11-1607	PAGE FILE	13.0	44.95	D	32K/DB
11-1229	PARAFORM	1.9	34.95	D	32K/DB
11-1401	PASCAL	12.0	169.00	D	48K/DB
11-2626	PELMANISM	5.0	21.50	D	16K/2
11-2410	PILOT	4.0	32.50	A	16K/2
40-2216	PINBALL	7.0	21.50	D	16K/2
11-2643	PROBE	5.10	38.25	D	32K/DB
11-1608	PROTEXT	13.0	84.50	A	32K/DB
11-1232	PROZAP	1.5	44.95	D	32K/DB
41-1919	PYRAMID	8.0	19.95	D	16K/2
41-1911	PYRAMID 80C	8.0	19.95	I	16K
40-2645	QUAD	5.1	21.25	D	16K/2
41-1923	QUEST	8.0	19.95	D	16K/2
41-1915	QUEST 80C	8.0	19.95	I	16K
47-1243	QUIKPRO (MODEL 1)*	1.6	99.00	A	32K/DB
47-1244	QUIKPRO (MODEL 3)*	1.6	99.00	C	32K/DB
47-1273	QUIKPRO+PLUS (MODEL 1)*	1.6	169.00	A	32K/DB
47-1274	QUIKPRO+PLUS (MODEL 3)*	1.6	169.00	C	32K/DB
11-2637	RACE	5.8	22.25	D	16K/2
11-2207	RACING DRIVER	7.1	22.50	I	16K/ECB
44-1250	RAM SPOOLER	1.9	25.50	D	16K/2
44-1253	RAM TEST	1.11	19.95	D	16K/2
11-1906	RANDOM DUNGEON GENERATOR	8.5	32.50	D	16K/2
11-1233	RENUMBER BASIC	1.7	22.50	A	16K/2
44-1249	RESQ 2	1.15	25.50	D	16K/2
11-2634	SAM LLOYD	5.2	21.95	D	16K/2
45-1505	SCRIPTR	15.0	45.00	D	32K/DB
11-2135	SEAWOLF	6.2	24.50	D	16K/2
11-2104	SERPENT	6.2	22.50	D	16K/2
11-2635	SHARE ANALYSIS	5.3	44.95	D	32K/DB
11-2636	SHARE PORTFOLIO	5.3	44.95	D	32K/DB
11-2202	SHUTTLE II (DISK)	7.1	34.95	D	32K/DB
11-2208	SHUTTLE II (TAPE)	7.1	29.95	D	16K/2
42-2127	SKYSWEEP*	6.3	24.50	D	16K/2
11-2611	SLOT MACHINE	5.7	19.95	D	16K/2
11-1304	SMART TERMINAL (DISK)	2.0	67.50	G	32K/DB
11-1301	SMART TERMINAL (TAPE)	2.0	62.50	G	16K/2
11-1236	SOUND	1.15	22.50	A	16K/2
11-2106	SPACE EYE (DISK)	6.1	27.50	D	32K/DB
11-2105	SPACE EYE (TAPE)	6.1	22.50	D	16K/2
11-2136	SPACE FIGHTER 80C	6.0	19.95	I	16K/ECB
11-1237	SPEEDY	1.7	19.95	A	16K/2
11-2107	STAR FIRE	6.0	12.45	D	16K/2
44-1248	STEP 80	1.4	24.95	D	16K/2
11-2413	STOCK MARKET	4.1	25.50	D	16K/2
40-1252	STRUCTURED BASIC TRANSLATOR	1.7	59.95	D	32K/DB
11-2138	SUPRA TREK	6.1	29.95	A	32K/2
11-1241	SYSDUMP	1.5	24.50	A	16K/2
11-1272	SYSTEM DIAGNOSTIC (DISK 1)	1.17	84.50	A	32K/DB
11-1239	SYSTEM DIAGNOSTIC (DISK 3)	1.17	84.50	C	32K/DB
11-1271	SYSTEM DIAGNOSTIC (TAPE 1)	1.17	79.50	A	16K/2
11-1238	SYSTEM DIAGNOSTIC (TAPE 3)	1.17	79.50	C	16K/2
40-1251	SYSTEM SAVERS	1.7	25.50	D	16K/2
11-2414	TABLES	4.2	24.50	D	16K/2
13-1718	TANDYWRITER	14.1	299.00	C	48K/DB
11-2615	TAROT	5.9	25.50	D	16K/2
44-1303	TELECOM	2.0	49.95	G	32K/DB
40-2212	TENPINS	7.0	21.25	D	16K/2
11-1504	TEXPRO (MODEL 1)	15.1	44.95	A	16K/2
11-1508	TEXPRO (MODEL 3)	15.1	44.95	C	16K/2

INDEX & PRICE LIST
(Dec.'82)

CATALOGUE NUMBER	PRODUCT	PAGE	A$ RETAIL (inc.S/Tax)	M	MEM
13-1712	TIME RECORDING SYSTEM*	14.0	799.00	C	48K/DB
11-2416	TOUCH TYPING COURSE (DISK)	4.2	127.50	A	32K/DB
11-2415	TOUCH TYPING COURSE (TAPE)	4.2	122.50	A	16K/2
11-1240	TRACKER	1.1	44.95	A	32K/DB
11-1907	TREASURE TROVE	8.0	22.50	D	16K/2
41-1920	TREK ADVENTURE	8.0	19.95	D	16K/2
41-1912	TREK ADVENTURE 80C	8.0	19.95	I	16K
11-2011	TRIUMPH OF ROME	9.0	24.95	D	16K/2
12-1257	TSAVE	1.9	12.50	A	16K/2
41-2122	VENTURER 80C	6.1	24.50	I	16K
11-1256	VISION LOAD	1.9	27.00	D	16K/2
11-1908	WONDERLAND ADVENTURE	8.2	22.50	D	16K/2
11-1909	WUMPUS	8.1	12.50	D	16K/2
11-2613	YI-CHING	5.9	24.50	D	16K/2

* Available Jan. '83.

MACHINE TYPE CODES

A = TRS-80 MODEL 1, SYSTEM 80 MARK I & II
B = TRS-80 MODEL 2 & 16
C = TRS-80 MODEL 3 ONLY
D = TRS-80 MODEL 1 & 3, SYSTEM 80 MARK I & II
E = SYSTEM 80 MARK I & II ONLY
F = TRS-80 MODEL 1, NOT SYSTEM 80
G = TRS-80 MODEL 1 & 3, NOT SYSTEM 80
H = TRS-80 MODEL 16 ONLY
I = TRS-80 COLOR COMPUTER

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