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EDITORIAL COMMENT

We just received a supply of original Radio Shack full height single-sided disk drives from Radio Shack that have never been installed in any computer. We have also received a shipment of the last Model 4 Non-Gate Array Motherboards that are new and also have never been installed in any computer. The prices for these new boards is slightly higher than the price we have been charging. Please refer to the MODEL 3 and MODEL 4 HARDWARE price list in the TRS-80 Shoppers Guide Section for the new prices.

We also have a few upgrade kits to upgrade a Model III to a Model 4 Non-Gate. It is only economical to do this if you have a Model III that has disk drives already in it. Otherwise you have to add disk drives if the Model III is a cassette based only computer. It really doesn't pay to stay with a Model III computer when you can have the advantages of the higher memory in a Model 4, run TRSDOS which will support double-sided drives and the many programs that have been written for the Model 4 in the past eight years. These are programs that were not available when Radio Shack was selling the Model 4 and in every case these new programs are far superior to the programs that were available then.

One such program is David Goblen's BCX spreadsheet program and from his column in this issue BCX-2 looks like it will be available shortly. And by our next issue we hope to announce the price for the complete package, along with an upgrade price for those who already own the BCX original version.

How many noticed the ad where you can become a subscription sales agent for Computer News 80 and Computer News PC? You can earn a few extra bucks by signing up your computer friends with a subscription to CN-80 or CN-PC and help spread the word that we exist. We constantly get calls from individuals that have had a Radio Shack or Tandy 1000 for years, but didn't know that Computer News

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has been supporting these computers all those years. Not only can you earn a few bucks, but you are also assuring that CN-80 and CN-PC can continue to survive and continue to support your computer.

Since both Magazines are supported by your subscriptions and not by advertisers it is important that our subscriber base is as broad as possible. Even though we have done extensive advertising over the years trying to reach those people who use the Model I, III, and 4 computer, it is difficult to find an advertising media that will get to the people who still use these computers. The best advertising has been the efforts that you - the reader - have made to let others know that we exist. This word-of-mouth advertising is greatly appreciated by CN80. But we now feel that we have to dig a little deeper and work a little harder to find those who still are not subscribers, so we are willing to share some of the dollars with you.

If you are interested in becoming a subscription agent for your area drop us a line and we will send you all the information you need and register you as our agent in your area. It really doesn't take any selling ability, CN80 sells itself if the user simply has a chance to know that it exists.

ED-IT 4, A FAST, EASY-TO-USE, PLAIN-VANILLA WORD PROCESSOR

by Harold J. Hendriks

QUICK, EASY AND INEXPENSIVE!

If you run on a busy, time-pressing schedule and need to write short, no-frills letters or memos in a hurry, then give Mark Reed's ED-IT for the Model 4 a try.

If you're not at ease with, or are impatient with the more complex, full-featured word processors, such as ALLWRITE or SCRIPSIT Pro, and yearn for a fast, simple, easy-to-use, no-frills word processor, then give ED-IT a try.

If you are turned off by high prices or frustrated by the unavailability of full-featured word processors for the Model 4, then give ED-IT a try.

OFF TO A FAST START!

To load the program and get it off and running, ALLWRITE and SCRIPSIT Pro require the entry of a file name for the letter or the memo that you

are in a hurry to start writing. If you're "firing up" your word processor to write a letter to your friend, Johnny Jones, for example, you might concoct the file name, JONESJ/LTR:1 to place the file on Drive 1. If you are using ALLWRITE, you would enter at the DOS Prompt:

AL JONESJ/LTR:1 [ENTER].

If you are using SCRIPSIT Pro, you would enter at the DOS prompt:

SCRIPSIT JONESJ/LTR:1 [ENTER].

If you are using Mark Reed's ED-IT for the Model 4, then at the DOS prompt you simply enter:

E4 [ENTER].

ED-IT does not require the entry of a file name to load the program. You can get right at writing that pressing letter in no time at all! There is no need to waste time entering a file name unless you wish to save the document to a disk file after you've printed the letter.

The following Table shows the approximate, elapsed time from the moment that the [ENTER] Key is pressed to start loading the program until the word processor presents the blank screen on which you can start entering text.

ED-IT	04 Seconds.
ALLWRITE	18 Seconds.
SCRIPSIT Pro	25 Seconds.

If you're usually in a hurry to get started writing, and you tire of sitting impatiently in front of your computer twiddling your thumbs while you wait for your trusty Model 4 to load your full-featured word processing program, then you should give ED-IT for the Model 4 a try! Of all the word processing programs for the Model 4, ED-IT is the FASTEST off the starting line!

RUSH TO PRINT

The following Table shows the approximate, elapsed time from the moment that the command to print the document is entered until the printer starts printing the document.

ED-IT	01 Seconds.
ALLWRITE	17 Seconds.
SCRIPSIT Pro	12 Seconds.

In a rush to print your letter? ED-IT is the FASTEST off the starting line! If you like a speedy response to your commands and you like a QUICK

word processor, give ED-IT a try.

ALLWRITE VERSUS SCRIPSIT PRO

In the race to load the program so you can get started writing, ALLWRITE beats SCRIPSIT Pro by about seven seconds. On the other hand, in the race to start printing the finished document, SCRIPSIT Pro beats ALLWRITE by about five seconds. So which is the fastest overall, ALLWRITE or SCRIPSIT Pro? It's a toss up!

TIME TO SAVE

After printing out a letter or memo, it is not necessary, in many cases, to save documents such as short letters or memos to a disk file. All that you may need is a hard paper copy for your files. A convenient and time-saving feature of ED-IT is that the program does not require that you waste precious time saving a completed document to a disk file before you can start work on a new document or to exit to DOS.

SCRIPSIT Pro requires the user to save the active document to its disk file when exiting to either SCRIPSIT Pro's main menu or to DOS. This is an unnecessary, time-consuming process if you do not need to keep a disk file of the document after it is printed. When exiting from ALLWRITE or starting a new document, ALLWRITE gives you the option of saving the document or exiting without saving.

The following Table shows the approximate, elapsed time from the moment that the command to save a 6K document to disk and then exit to DOS is entered until the DOS prompt appears.

ED-IT	11 Seconds.
ALLWRITE	18 Seconds.
SCRIPSIT Pro	19 Seconds.

MISCELLANEOUS CONVENIENT FEATURES

You can enter text or edit text in ED-IT in either the "Insert" or the "Over Type" mode. The [F3] function key toggles ED-IT back and forth between the two modes. In the "Insert" mode the cursor is a "blinking block". In the "Over Type" mode the cursor is an "underline" character.

ED-IT provides for the entry of ASCII characters that are not on the Model 4 keyboard. To enter the left bracket symbol "[", for example, press and then release the [CTRL][C] key combination. (The letter "C" stands for "Code", that is ASCII Code.) Then enter the ASCII code number, 091, for the left bracket symbol. With the entry of the ASCII code number, the left bracket symbol appears on the screen. Note the necessity for the leading zero. Three digits must be entered to specify a valid

ASCII code number.

You can use ASCII characters not available on the Model 4 keyboard in ED-IT's "Search and Change" operations. You can use this special feature of ED-IT to massage an "ENTER" or "CARRIAGE RETURN" delimited ASCII data file into a "COMMA" delimited ASCII data file.

To search for the "ENTER" or "CARRIAGE RETURN" character, ASCII 013, call up the "Find" menu option. At the "Find" prompt press and then release the [CTRL][C] key combination. Then enter the ASCII code number, 013, for the "ENTER" character. With the entry of the ASCII code number, a special symbol for the "ENTER" character appears following the "Find" prompt. When the [ENTER] key is pressed, the cursor moves to the next "ENTER" symbol in the file.

If you mistakenly quit or exit ED-IT without saving an important document to a disk file, all is not lost, provided that you haven't executed certain DOS commands and haven't turned the computer off. If you are lucky, the file is still resident and intact in memory. ED-IT provides a special "Warm Start" procedure for rescuing and retrieving the file. See the USER's MANUAL.

ED-IT's "MAIN MENU"

ED-IT's text entry screen is uncluttered. Normally, all you see on the screen is the text that you are entering. Pressing the [BREAK] Key calls up ED-IT's "Main Menu" which temporarily replaces the bottom line of text on the screen.

ED-IT's "Main Menu" consists simply of one line of six words listing the options for action:

File Block Search Print Other Quit

If, for instance, you wish to save a document to a file, or to load an existing file into ED-IT, or you wish to initiate a new document, you call up the "File" Sub-Menu simply by pressing the [F] (for File) key. Likewise, to call up the "Print" Sub-Menu you press the [P] (for Print) key.

Once the Menu Item of choice is invoked and the desired action is completed, the Menu Line at the bottom of the screen is replaced by the text line that was temporarily blanked by the Menu Line.

ED-IT's "FILE" SUB-MENU

The "FILE" SUB-MENU consists simply of one line of only three words listing the options for action:

Load Save New

Press the [L] key to call up the "Load" option. You are prompted to enter the File Name for an existing text file that you wish to load into ED-IT. Select the "Save" option and you are prompted to enter a File Name for the disk file to which the current document is to be saved. Select the "New" option and a prompt asks if you wish to save the current document or not before ED-IT clears the screen for a new document. If you wish to save the current document to a disk file you are prompted for a File Name.

ED-IT's "BLOCK" SUB-MENU

The "BLOCK" SUB-MENU consists simply of one line of eight words listing the options for action:

Begin End Delete Move Copy
Load Save Unmark

The "BLOCK" SUB-MENU provides options for moving a block of text from one location in a document to another location in the same document, for copying a block of text and duplicating it at another location in the same document and/or for deleting a block of text. The "Save" option permits the saving of a marked block of text to a disk file with an identifying File Name.

For anyone that is at all familiar with word processing procedures, the "Block" Sub-Menu needs no further explanation.

ED-IT's "SEARCH" SUB-MENU

The "SEARCH" SUB-MENU consists simply of one line of five words listing the options for action:

Find Change Automatic Repeat Line

The "Find" function will search for and find a specified string of characters. Invoking the "Change" function will replace the "Found" string with a specified replacement string of characters.

Invoking the "Automatic" function will automatically repeat the "Find and Change" operations using the specified strings starting from the position of the cursor to the end of the file. Invoking the "Repeat" function will repeat the previous "Find" operation or the previous "Find and Change" operation depending upon which operation was the more recent. The "Repeat" operation can be reinvoked with the [CTRL][R] key combination.

Invoking the "Line" function will prompt you to enter a line number. The cursor will then move to the first character in the specified line of text. It would be nice if there were a related function which would report the line number of the line of text at

the current location of the cursor.

ED-IT's "PRINT" SUB-MENU

The "PRINT" SUB-MENU consists simply of one line of five words listing the options for action:

Print Margins Titles Number Other

The "Print" function sends the file to the printer using the tab intervals, margins, line length, titles, etc. which have been selected. The "Margins" function will prompt you to enter values for the left margin, top margin, number of printed lines and the page length. As each prompt appears the current value is displayed. If the current value is satisfactory it can be confirmed simply by pressing [ENTER].

The "Margins" function does not prompt for a value for the right margin. The right margin is determined by the combination of the specified left margin and the line length in characters which is set using the "Other" function on the "MAIN MENU", not the "Other" function on the "PRINT" SUB-MENU.

The "Titles" function provides for the entry of header and footer lines which also provides an option for the automatic printing of the page number as part of the header and/or footer line. The "Number" function prompts you to enter the page number at which printing is to start.

The "Other" function prompts you for answers to three questions:

1. "Pause after each page?" Y/N?
2. "Add line-feeds?" Y/N?
3. "Print slashed zeros?" Y/N?

ED-IT's "OTHER" SUB-MENU

The "OTHER" SUB-MENU consists simply of one line of five words listing the options for action:

Tab Length Info Mode DOS

The "Tab" function prompts for the entry of a new Tab Interval which can be any number from two to twenty. The "Length" function prompts for the entry of a new line length which is stated in terms of the number of characters per line including spaces. The line length can be any value from twenty to eighty. The specified line length is the line length displayed on the screen and also the length of the printed line. ED-IT is a "WYSIWYG" word processor.

Invoking the "INFO" function displays pertinent information regarding the current file. Invoking the "Mode" function permits the selection of a specified mode of operation for ED-IT:

1. Assembly Language Programming mode.
2. BASIC Programming mode.
3. C Programming mode.
4. TEXT mode.

Invoking the "DOS" function temporarily returns the user to the "DOS Ready" command line from which many normal DOS commands can be executed, for example the formatting of a new data disk. At the completion of the DOS operation the user is returned to the current ED-IT document.

ED-IT's "QUIT" SUB-MENU

If ED-IT's editing buffer contains text when the "QUIT" SUB-MENU is invoked, ED-IT informs you as to whether or not changes have been made in the text and prompts for a "Yes" (Y) or "No" (N) answer as to whether the file is to be saved before quitting ED-IT. If you tell ED-IT to save the file, the file is saved to disk and then ED-IT returns the user to the "DOS Ready" prompt line. If you tell ED-IT to quit without saving the file the user is returned immediately to the "DOS Ready" prompt line without saving the file. This feature can be a real time saver when writing short letters or memos.

ED-IT's USER'S MANUAL

The USER'S MANUAL is clearly written and very easy to use and understand. It is BRIEF but ADEQUATE. Compared to other MANUALS, ED-IT's MANUAL is very brief.

ED-IT	16 Pages.
ALLWRITE	338 Pages.
SCRIPSIT Pro	284 Pages.

MIRROR, MIRROR ON THE WALL, WHICH IS THE BEST WORD PROCESSOR OF THEM ALL?

Answer: None of them! There is no such thing as a "Best Word Processor. Which is better, a powerful chain saw or a small jig saw? Which is better, a big sledge hammer or a small tack hammer? Which is better, a big Mack Truck or a Golf Cart?

For some of the writing jobs which I do, I much prefer to use ALLWRITE. On the other hand, for most of my writing jobs, I prefer to use SCRIPSIT Pro. However for quickly writing short, simple letters and memos I prefer ED-IT for the Model 4.

If you need to format some of the paragraphs in your document with different margins and indents than are used for other paragraphs, then you don't want to use ED-IT. If you wish to print certain words in italics or to use bold facing and underlining and other text enhancements, then you

don't want to use ED-IT. If you want to employ justified printing or you want to print your document in a multi-column format, then you don't want to use ED-It.

ED-IT is a fast, easy to use text editor; it is a no-frills, plain vanilla word processor. If you have no need to vary the formats of individual paragraphs in the documents you write, if you have no need to change type styles within a document, or to use text enhancements such as bold facing and underlining, and if you have no need to justify lines of text or to print text in multi-column formats, then ED-IT will serve you very well. Its virtues are that it is simple and easy to use and it is fast and inexpensive.

ED-IT does not include an integrated spell checker. Since ED-IT creates an ASCII text file you can use David Goben's SCRIPT SPELLING VERIFIER to spell check the ASCII text files created by ED-IT.

Mark Reed's ED-IT for the Model 4 Text Editor program and David Goben's SCRIPT SPELLING VERIFIER program are available at very reasonable costs from "Computer News 80".

I use ED-IT; I like it, and I recommend it for the creation of short, simple letters, memos, etc. It works great on the Model 4s.

Happy computing on your Model 4, 4P and/or 4D computer.

-Harold J. Hendriks

OMISSION CORRECTED

Figure 1 for Harold Hendriks' article on Super Utility was inadvertently left out of last months issue. It has been printed here as the first item in the Program Listing Section.

We are sorry for any confusion this has caused.
-CN80

REMINDER

If the last four digits on your mailing label are 95/03, then this is your last issue. Time to get your renewal in the mail.

MOVING?

Remember to send us your new address.

A VISIT WITH DAVID GOBEN

by David Goben

The rumors of my demise from CN-80 have been greatly exaggerated. I have been working, but in the background. It is interesting to read presumed "knowledgeable" experts on my whereabouts expounding total misinformation on the Internet and in the BBS groups. It seems interesting that some people who would otherwise be producing quality software for CN-80 have put their projects on hold, because they figured that if I had left the TRS-80 community, then the market must be totally dead. Dead wrong. It is flattering, though, that some people think that much of me, but sad that they don't realize that their work might not be the keystone to its revival.

What have I been up to? A lot. So much that I wish I had a cloning machine to make more of me so that I could finish everything that I want to get done. Since I last wrote this last spring, I have changed jobs twice. First I moved from the University of Connecticut to take on the double role of Distribution Manager and Director of Management Information Services at a failing publications firm. Unfortunately they got me too late, because although my long 10-12 hour days (at 8-hour wages) were effective, they took much too long to wean themselves from their poor business practices. Although I left the firm after six months when the business initially collapsed, I was glad to see someone step in and buy the business (bail it out), and start from the ground up incorporating the business plan the financial officer and I had developed (we didn't trust the Business Manager, who had a track record of putting the last four businesses he managed out of business in record time due to over-spending), and to see that it did in fact work effectively, and now the business is, albeit a much smaller business for now, beginning to prosper. From there I began working in the heart of Hartford, sandwiched between ETNA Insurance and the Hartford Insurance Group. I now do contract service on computers and networks. Lately I've been laying a lot of cable bringing businesses up to date with Local Area Network (LAN) systems.

COMING SOON! BCX2

Yes, BCX2, the enhanced and expanded version of my "Business Calculator for memory Expanded Model 4's" is becoming a reality. The program is fully written and finally debugged. Sure, I'll be a bug or two might be found down the road, but they should all be minor, unless Murphy wants to apply one of his laws to it. This is the most powerful spreadsheet program ever written for the Model 4. Jeez, if I had written this program 10 years ago, not

only would the Model 4 computer still be alive, but the Model 4E or 5, or the TRS280 -- although it would probably incorporate the Z380 chip) would be out (it was actually designed and a certain number were manufactured using the buggy Z280).

For those of you who do not know about BCX2, let me whet your appetite. BCX2 is a spreadsheet program. Some might call it a financial spreadsheet, but mathematicians, engineers and even chemists, to name only three others, also use it to solve problems. BCX2 is a full-featured professional-level personal productivity tool that assists you in the interpretation and analyzation of financial and numerical data in a variety of ways, ranging from the simple to the astutely creative. You utilize BCX2 as an electronic replacement for the commonly used pencil, calculator, and sheet of paper; the tools normally employed in the everyday world to figure such things as income taxes, financial ratios, engineering changes, personal budgets, cost estimates, financial forecasts, to evaluate past, present and future expenditures, and to perform countless other number-related endeavors, to include the hopefully simple task of balancing your checkbook.

BCX2 was designed to combine these tools into a powerful, all-in-one package, and allow you to use them all from a single place; your Model 4 computer extended with at least 64K of additional memory above the standard 64K configuration. Further, BCX2 adds a new dimension in worksheet tabulation maintenance by allowing you to quickly alter variables on the sheet without using a large eraser and doing a lot of manual recalculations; it will do all these recalculations, no matter how intricately involved, for you with unbelievable ease! Using BCX2 will save you literally hours of work on just a single project so that you can do more productive things with your valuable time, such as spending it with your family instead of wasting it in a dim, lonely office, trapped behind a ledger and a deadline. BCX2 could well be the most important financial, time-saving program you will have ever obtained for your Model 4, and can in fact fully justify your ownership of your computer.

BCX2 is also easy to use and easy to learn. But don't let its simplicity fool you; its power is tremendous! In fact, its capabilities and versatility are limited only by the skill and creativity of you, the user. So the more you become familiar with the many useful commands and functions BCX2 supports, the easier it is to use and the friendlier it will be.

BCX2 was developed as a child of, but as a much

more extensively powerful kin of the popular Busy-Calculator program, also available from Computer News 80. When Busy-Calculator was introduced, its purpose was to fill a void left by the sudden pulling of Electronic Art's VisiCalc and Microsoft's Multiplan spreadsheet programs from the commercial market. Busy-Calculator was (and is) a full-featured program which allows those who currently lacked a powerful spreadsheeting program to be able to obtain one. However, as time went by a new and louder voice was heard from those many unrealized users who wanted to upgrade from the Model I or Model III versions of VisiCalc to the Model 4 without having to lose their many time-tested I/III spreadsheet templates. Others, weary of the painful, teeth-grinding sluggishness inherent in Model 4 Multiplan voiced the desire for a powerful and much faster program to move over to. Business professionals were also looking for more powerful tools than those offered in Busy-Calculator (normally more than adequate for the average user) to allow them easier manipulation of their complex analytical models and forecasts. Finally, many people were growing tired of the memory constraints imposed on both VisiCalc and Multiplan, who deceptively boasted a large working field (63 x 254 entry positions), but fully lacked the capability to support such an extensive template due to the inability to utilize more than 64K of extended memory.

BCX2 supports a grid with 64 columns and 256 rows, thus allowing a grid consisting of 16,384 "cells." These cells are referenced by column and row. A column can have a name from A-Z, AA-AZ, and BA-BL, comprising 64 total columns. Rows are named from 0 to 255. Thus a cell which is 'mapped' to column AB and row 14 would be referred to as AB14. Thus, cell names range from A0 through BL255, which covers every possible cell in the spreadsheet. You can write text, values, or formulas in a cell. Within formulas, you can reference other cells, and ranges of cells, to arrive at a result. Thus you can change the value in a cell, and when the spreadsheet is updated, any cell that has formulas that reference that cell in their own calculations, their results will change to reflect the changes in the referenced cell.

BCX2 supports up to 26 macro keys, which allow you to execute a long series of keystrokes by simply holding down the CTRL key and typing a letter key which you have assigned to that series of keystrokes.

Unlike BCX, its predecessor, BCX2 does not support fixed record lengths, but uses dynamic memory. BCX, and Busy-Calculator, used fixed record lengths of 32 and 64 bytes (characters). BCX2

employs chains of 16-byte records, up to 128 bytes. Editing has also been expanded so that you can edit records that are longer than the screen (80 characters). Also 13 new functions have been added. Formula interpretation is much more expanded and freer in BCX2. Many functions that were 'stand-alone' under BCX can now be incorporated within larger formulas in BCX2.

Another new feature of BCX2 is the support of variable width columns. This has been something that many BCX users have been asking for. You can now set individual column widths from 3 through 76 characters wide. Also, automatic, default filename extensions are supported. Thus, if you save a file and do not specify a file extension, then /BCX will be automatically added. Additionally, when prompted for a filename, you can press the right arrow and BCX2 will scroll through a series of pre-existing files. Other enhancements feature cell centering, invisibility (for a cleaner looking screen), named ranges, full-featured replication, including replication of only formats, cell and range locking, and dozens of other new features.

Happy Computing!
-David Gobin

Submitting Articles and Programs

Contributions to CN80 are valued from anyone. We want CN80 to be as varied and as helpful as possible.

Programs and articles must be on a disk saved in ASCII and have a hard copy enclosed.

Programs submitted for publication in CN80 must be released into the Public Domain.

Shareware and PD programs for the File Cabinet Library are welcome and will be reviewed in future issues.

Mail to:
Computer News 80
PO Box 680
Casper, WY 82602

Material submitted cannot be returned.

NEW HI-RES GRAPHICS FILES

IN THE FILE CABINET

by Gary W. Shanafelt

In past articles, I described a number of slide show programs available from The File Cabinet for a Model 4 equipped with a hi-res board, including one that I co-authored with Matthew Kent Reed, HRSLIDE/CMD. These programs allow you to set up graphics displays on your hi-res board, with various other options depending on the program. HRSLIDE gives you a menu of choices you can input while running a slide show, but little automatic programming beyond setting the viewing speed from a batch file of graphics images to display. On the other hand, Mike Harrow's DEMO/CMD and David Miller's HRPS/CMD allow less input "on the fly," but more commands which can be programmed in advance into the slide sequence -- which can also have more slides. The bottom line is, if you want to run a hi-res slide show, you aren't limited to a single program.

The obvious next question is, What kind of graphics are available to be displayed?

The answer is both a lot and a little. There are a lot of Model 4 hi-resolution graphics pictures around, but the quality varies enormously. Many hi-res files were drawn, laboriously, on the screens of Model 4s using either the arrow keys or the old MicroLabs Joy-Mouse interface. How good these are depends to a great extent on the artistic ability of the drafter. Other files are converted RLE files. This is a now obsolete format sponsored by CompuServe; a standard RLE file might fill up a low-resolution Apple II screen, but barely covers a third of the Model 4's 640x240 pixel grid. Finally, there are MACpaint files. The problem with these is that the MAC format is shorter across than a Model 4, but about three screens up and down. Moreover, because of the differing X,Y screen ratios, even when you get a MACpaint picture fitted on a Model 4 screen it will usually look elongated or distorted.

If these are the only hi-res images you've ever seen on your Model 4, then you're missing out on what the hi-res board is really capable of displaying. Remember, its pixel grid offers resolutions comparable to or better than those of the IBM PCs until the advent of VGA (640x480) mode. Can a Model 4 display the same types of pictures you now see on a PC? The answer is yes, if not in SuperVGA mode or 256 colors.

Current PCs support a considerable assortment of file types, with names like TIFF or PCX or JPEG.

These, as you probably know from seeing them on displays in computer stores, encompass not just line drawings but digitalized photos, paintings, etc. The range of the images goes far beyond the simple draw-and-fill quality of the usual Model 4 hi-res stuff. Most of these files can be converted from one format to another on PCs, including CompuServe's GIF (Graphics Interchange Format). And from GIF they can be displayed on a Model 4 hi-res screen -- and then saved to disk in any Model 4 format you want -- thanks to Frank Slinkman's outstanding conversion utility, GIF4MOD4/CMD. Yet there aren't very many Model 4 hi-res files converted from GIFs. Why?

The main reason is that the conversion process is a hassle. First, you have to get the GIF files. The biggest source is CompuServe, but this is expensive. GIFs are also available on many BBSes, and numbers are showing up on the Internet. But you generally spend a lot of time downloading files that you can't see in advance, so when you finally view them with GIF4MOD4 they turn out not to be what you want. Processing the files can furthermore be a major pain, for these things are now often over 100,000 bytes long. Many are over 200,000 bytes long -- too big to fit on a standard single-sided TRS-80 disk. And increasingly they are sizes like 800x600 pixels, too large for GIF4MOD4 to process. Finally, many don't convert very well from 256 colors to two, particularly if there's a lot of detail (which winds up as a grainy blur) or little contrast between the colors.

And if all that isn't enough, as I write this there is a patent controversy which may lead to GIF being replaced by something else (such controversies seem to be normal to the computer world, but they are certainly confusing for us end users!)

So, if you want to use your slide show program to display some of the images in GIF format, how do you get them? Being something of a masochist, I've collected together nine disks of converted GIFs for inclusion in The File Cabinet. Each contains 8 graphics images, now in standard HR format, so they can be viewed with any Model 4 hi-res file viewer:

HRPIC94:	Vehicles
HRPIC95:	Art
HRPIC96:	Space Exploration and Planets
HRPIC97:	Places
HRPIC98:	People
HRPIC99:	Plants and Flowers
HRPIC100:	Animals
HRPIC101:	Weird and Strange
HRNUD13:	Classic Nudes

Some of the original files came from CompuServe, many came from a CDROM of public domain GIF files (the kind of software collection that has gotten the new computerese name of "shovelware"), a few came from local Abilene BBSes (I live in Abilene, Texas). Most started out in MSDOS format, which means they had to be transferred to TRS-80 disks before I could display them with Frank's GIF4MOD4. A few came off the Internet in JPEG format and had to be converted to GIF before further processing. Finally, I discovered I got the best results on the TRS-80 if I edited the files with a MSDOS graphics editor before moving them to my Model 4, cropping scenes, changing the color ratios, increasing the contrast, etc. Anything larger than 640x480 I reduced in size to make it compatible with GIF4MOD4. Once I had the images in standard HR format, I did touchup work on them with MDRAW/BAS. Even then, some pictures simply didn't look good and got scrapped, and of those that were included some came out better than others.

The contents of the various disks should be fairly obvious from their names. Vehicles means cars, hot air balloons, and two trains. The Art disk has paintings from Rembrandt to van Gogh, but a lot of Renoir because a lot was available. The Space Exploration disk has photos of planets and space vehicles. My favorite here is a shot of the planet Jupiter. The Places on the disk of that name range from the Texas Alamo to the Brandenburg Gate in Berlin. The People disk includes individuals from King Tut to Churchill. On the Plants and Flowers disk is a photo of a forest with dim light filtering through the mist; it looks like something you might see on the X-Files. The Animals disk includes a dog, kittens, a bird, a snake, and two dinosaurs (the last are not photos, obviously!) Weird and Strange was where I put images like human skulls or two giant eyeballs rolling across a grid. They might come in handy if you do Halloween displays on your Model 4.

Finally, for people who are tired of the usual fare you get when you see a disk of "adult" material, there is the disk of Classic Nudes. These include things like Michelangelo's Adam in the Sistene Chapel, Botticelli's Birth of Venus, a pin-up photo of Marilyn Monroe, and (of course) another Renoir. What they all have in common is that the figures wouldn't last five minutes out of doors in any part of the world except the tropics. If you like pictures of people trying to give themselves pneumonia, then this is your disk.

Of course, these offerings barely scratch the surface, for they leave out all sorts of other categories of

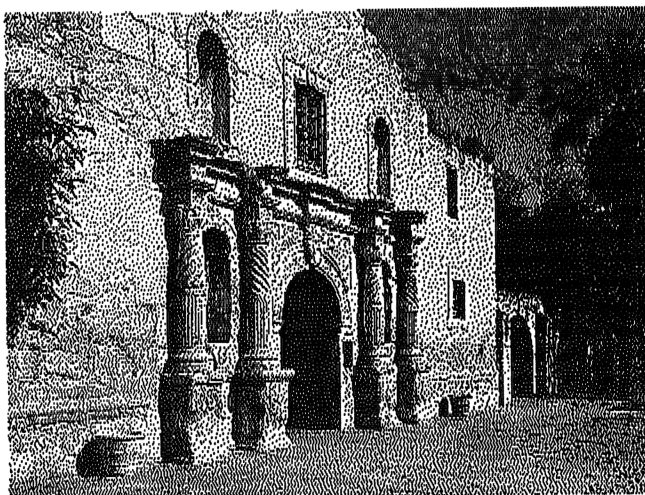
graphics. Sports, movies, food, holidays... how about you graphics lovers out there converting some more GIFs to fill in these gaps?

Again, the above disks are all available from The File Cabinet at \$3.50 each plus \$2.00 shipping.

-Gary W. Shanafelt

Please Note: HRSLIDE/CMD Program and accompanying documentation are on the File Cabinet Disk M4HRZ25.

In last month's issue it was incorrectly printed as M4HRZ24.



Samples of some of the Hi-Res Graphic Files.

QuikDisk

A Better Use for Your Model 4's 128K of RAM

by J.F.R. "Frank" Slinkman

When it comes to that optional, extra 64K of RAM which converts your Model 4 to a "128K Machine," the truth is that, with a few very notable exceptions, this extra memory is under-utilized.

Most users simply use it to create a Memdisk -- a small, but very fast, simulated "disk drive." Usually, most of the /SYS files are copied to it to let it be used as the "system" drive.

This makes our machines run faster because our operating systems make extensive use of "disk overlays" -- DOS code which doesn't reside permanently in RAM, but which is loaded temporarily to perform a specific task.

For example, whenever you do a DIR command, TRS/LS-DOS program code is read from a /SYS file on disk into the system's "overlay area." That code is then executed to generate the desired directory report.

Then, if you want to list one of the files which was listed in the directory report, the system has to load another section of /SYS code into the same area to do that job.

Obviously, this process of loading code from disk for each library command is slow, even from a hard drive. It's especially slow on floppy-only systems.

Putting /SYS files in a Memdisk gives the Model 4 much faster access to this data. Memdisk is several times faster than a hard drive, and many times faster than a floppy.

But using a Memdisk as a system disk has its drawbacks.

First, it's time-consuming to initialize. At the start of each session, it must be created and formatted. Then the desired files have to be BACKUPed to it. Then it has to be swapped with Drive 0. This takes a lot of time even when the process is automated through the use of a JCL file.

Second, it's very wasteful of RAM. Outside the resident portion of TRS/LS-DOS (SYS0/SYS) I'd estimate only about 1/3rd of the code in the /SYS files is ever used during a typical session. Two thirds of the initialization time, and 2/3rds of the RAM used by Memdisk, is therefore wasted.

Third, if you're using your Memdisk to hold user

data -- say a program or a word processing document you're working on -- if you forget to copy the new or altered file from the Memdisk to a physical disk before you turn off the computer, all your hard work will be lost forever, with absolutely no way to recover it.

So what do we need to do to overcome these shortcomings?

First, we want to be done with the time-consuming, pain-in-the-rear process of initializing the Memdisk. We want the creation, formatting and loading process to be completely automated, and take no extra time at all.

Second, we want to make the most efficient possible use of our limited RAM. We want to store more programs and data in RAM -- data we're ACTUALLY going to use -- not a just bunch of /SYS files we only MIGHT use.

Third, we want the computer to automatically make sure our work is always saved out to a physical disk drive.

We want all the benefits (and more) of Memdisk, but we don't want any of the problems connected with it.

In other words, we want QuikDisk -- the new utility I've just released for the TRS-80 Model 4.

QuikDisk is very similar to SmartDrive (tm), which used to be a separate utility for MS-DOS, but which is now (as of Version 6) built into that operating system.

QuikDisk is so sophisticated that it's hard to explain without using a lot of "techie" talk, but I'll try to keep this as non-technical as possible.

Essentially, QuikDisk converts the extra 64K in your 128K machine into a "smart" disk I/O buffer. It positions itself between the computer and the disk drives, and intercepts and manages data being read from and written to disk.

When data is read from disk, it is passed to the system as normal, but a copy of the data is also stored in the QuikDisk buffer. This takes no additional time; so initial disk reads are not slowed down or affected in any way.

This is the way QuikDisk performs the equivalent of automatic Memdisk initialization and loading.

When the system requests the same data a second

or subsequent time (as often happens -- especially with /SYS files), no physical disk I/O is required. QuikDisk simply supplies the data from its RAM buffer at lightning fast RAMdisk speeds.

In most cases, QuikDisk is about 50% faster than Memdisk at supplying data already stored in RAM. At worst, it transfers data at the same speed as Memdisk.

Thus, when it comes to the system reading DOS overlays and other data, QuikDisk acts just like Memdisk -- only faster and "smarter."

When data is written to disk, QuikDisk intercepts it and writes it to its RAM buffer instead. This makes disk writes appear to be virtually instantaneous, and results in tremendous speed improvements for programs which do a lot of disk I/O.

The "write" data is stored in the QuikDisk buffer until one of two things happens:

- 1) Your program closes the file(s) or you leave the program and go back to TRS/LS-DOS Ready. In this case, all stored "write" data is automatically copied from the QuikDisk buffer to your disk drive(s). Because the stored data is written in large blocks instead of in little pieces, the physical write is often significantly faster than it would be without QuikDisk.

- 2) The QuikDisk buffer gets full. In this case, QuikDisk analyzes the statistics it keeps about the data it has stored. The most frequently accessed data (typically /SYS file overlays) gets the top priority, and "old" and/or infrequently accessed data gets a lower priority. Old "write" data is quickly "flushed" to disk, and is then "forgotten." Old "read" data is just forgotten.

This process allows QuikDisk to replace old, low priority data with newer, higher priority data. And this, in turn, allows QuikDisk to automatically "follow" you as you do different things with your computer.

Suppose, for example, you start your session to work on a spread sheet. QuikDisk will store the /SYS overlays needed to load programs, open and close files, and read and write data. It will also store the spread sheet program and the spread sheet itself.

All access the program makes to its data will thereafter be at RAMdisk speed. When you finish and resave the spread sheet, it, too, will be saved at RAMdisk speed. When you exit the program, the

spread sheet data will be quickly written to your disk drive.

Next, you want to do some word processing. The necessary system overlays are already stored; so the program and document data will both load faster than normal.

The combined size of the spread sheet program, the spread sheet, the word processing program and the document will probably exceed the 62K QuikDisk buffer size, forcing QuikDisk to forget at least some of the spread sheet program and/or data. But so what? You're done with it, and don't need it stored in RAM any more anyway.

Again, after the word processing program and data are stored in QuikDisk RAM, all accesses to this data will now be at RAMdisk speed.

When you finish word processing, the stored data will be quickly written to disk, and your system -- and QuikDisk -- will be ready for the next program you want to run.

How long does it take to initialize QuikDisk? About two seconds longer than it takes you to enter "QD (ON)." And you can even do that via an AUTO command on boot-up.

You'll find two things when you get used to running with QuikDisk.

First, it's so "transparent" that, once you get used to it, you'll not only forget it's there, but running your Model 4 without it will come to seem irritatingly slow.

Second, as you get deeper into each computing session, you'll find your disk drives (hard or floppy) will "run" less and less frequently. The more things you do, the more QuikDisk is able to learn about the data you're using, and do a better and better job of making the data you need available at RAMdisk speed.

Now, what about drawbacks? After all, there's a price to pay for everything -- even QuikDisk.

First, QuikDisk references the disk data it stores by the physical description of where it "lives" on disk. The disk drive, track and sector numbers are all stored. Thus, whenever you change a disk in a floppy drive, you need to inform QuikDisk by using the command "QD :d."

If you don't do this, QuikDisk could supply data stored from the previous disk instead of reading

new data from the current disk. Reading data from the wrong disk could cause your programs to run incorrectly or crash, and/or confuse the system and result in disk I/O error reports.

Second, you shouldn't run BACKUP, DISKCOPY or similar programs while QuikDisk is active. The QuikDisk buffer operation disrupts the normal read-write-verify sequence, usually causing destination disk sectors to be verified before they're written to, instead of after.

While it's unlikely this would ever result in a faulty backup copy, it's still safest to turn QuikDisk off via the "QD (OFF)" command before doing any backups.

Third, QuikDisk is not intended for Model 4s which have large RAM expansion boards like MegaMem and the XLR8er. But those systems don't need QuikDisk anyway.

QuikDisk is for the rest of us, who "only" have 128K -- to help make our machines run as fast as theirs do.

Fourth, a few programs will sometimes repeatedly fill and refill QuikDisk's 62K buffer. One beta tester reported that AllWrite, because of its very large (30K+) printer driver overlay, ran slightly slower with QuikDisk than without it when he switched back and forth between printing and editing a large document. QuikDisk didn't cause any harm in this case, but it didn't do much good either.

But for the vast majority of your Model 4 use, QuikDisk will provide speed and operating benefits worth far more than its modest \$31.95 price tag.
-J.F.R. "Frank" Slinkman

(Note) Order QuikDisk directly from

J.F.R. "Frank" Slinkman
1511 Old Compton Road
Richmond, VA 23233
\$31.95, +\$3 S&H,
add \$2 for outside North America,
VA res. add \$ 1.44

*Not for use with systems with XLER8er or
Memory Expansion Boards. 128K required.*

FANFOLD/BAS

by Robert Knowles

I thought I would write a check writing program in basic until I got into it and saw that its just a little beyond me at this time, I'm not going to give up, I will keep after it and in the end I will get it, but until I do I thought something like this might be of some use to some one.

There are two programs here for addressing envelopes, The first will do one envelope at a time, as long as the program is running you only have to enter your return address once, you just keep putting in the address, and as long as the stack holds up you can put in addresses. Remember a goto will put one on the stack and when the stack gets full the program will stop, and we do have a goto in our program.

When I had the computer room built I wrote and told you all about what I had done, well, I saved a long time to build the best computer room I knew how, you don't have to do what I did, you can get a computer, take it home and plug it in and have no trouble at all, but be sure there is nothing heavy on the same line, and get a surge protector, electrical surges can do strange things to your computer.

Line 10 is cls for clear the screen. Lines 20-90 are input lines for your return address, and where the letter is going, and each input must have a variable to store your input, and each variable must have a \$, because the input will be letters and numbers, a variable with \$ will hold letters and numbers but a variable by itself will not hold numbers and letters, just numbers. Line 100 is just print so that there will be a blank line on the screen, so that it will be easier to see what your doing. Lines 110-180 does all the work, lines 110-130 prints the return address two tab stops in from the side. Line 140 is a nice line to have, instead of writing seven lprints to move down to the right place, we write lprint string\$(7,10), which is not to bad, but, when we have to move down 27 lines, it saves a lot of time and trouble, after we move down seven lines, the program will read lines 150-170 which will move each line of the address to tab(30) and print it, then there is line 180 which is an other lprint string\$ to move to the next envelope and be ready for the next address, and there is line 190 the goto line to take us back to line 60 for the next address, lines 30 and 70 are if lines. If you are finished, instead of a name you enter end to drop down to line 200 to end the program.

Now we come to the second program which is like

the first program but just a little bit different, this is an address file, you type run, enter your return address, press enter and the printer will print out all the addresses in the file, I put the return address in an input line but you don't have to do that, you can write the program so that all you will have to do is type run and set back and let the computer do the work, stay close, you don't have to set there like a rock, but stay close in case something happens, you will be there to fix it.

The two programs are alike, the change comes in at lines 90-110, and its not much of a change, instead of input and variables we go direct, where the # signs are put the address, and then all it is, is a matter of repeat, you just put in lines 50-120 for each new address.

I wrote these two programs and tested them and they work just fine, but there was one thing wrong with them, I didn't have any envelopes to test the programs on, so I wrote to CN80 to order some fanfold envelopes and they sent me an order form and told me that I should place my order with Compatible Forms and checks P.O. Box 669324 Charlotte, N.C. 28266-9324, so, I looked the form over and saw that they didn't have fanfold envelopes, they had continuous envelopes, logically this was what I wanted, but, I have ordered like this before and when I received what I ordered it wasn't what I wanted, so I called them up and asked them "are we talking about the same thing?" yes, they said, they are the same thing, so I sent an order and when they came they didn't fit, its not their fault I ordered the wrong size, I ordered 11 inch and I should have ordered 10 inch, but, they were very nice about it when I called them, all I had to do was return the 11 inch and they would send me the 10 inch.

The program doesn't like commas, it hurts nothing to leave them out of the address. I keep testing these programs hoping something will go wrong, but, nothing ever does, so, the program must be right and the envelopes must be right. I hope you enjoy it. (Very strange, hoping something will go wrong, if something goes wrong now I can fix it, but, if something goes wrong after I send it, it's going to be kind of hard to fix).

-Robert Knowles

FANFOLD1/BAS - See program listing number one.
FANFOLD2/BAS - See program listing number two.

CAL4/BAS

N.C.Cannon's DATE/CAL, back to Model 4.

by Henry H. Herrdegen

There is no need for an instruction, you just run the program and follow the prompts in order to do what you want to do. The following is merely a bit of history and explanation.

It is basically Norman Cannon's Calendar program with reminders (from his 89 disk), now with the menu in an upper left "window", the calendar on the right, and pulling up date reminders for the shown month underneath, with a printout choice for the reminders. The edit section permits you to add, change or delete these notes. It can get correct calendars from Jan 1753 to Dec 2199, 1793 being the year the Gregorian Calendar system was adopted in England, and 2199 being far enough away that me thinks nobody would be interested further on. Not to make the code more involved, you can not scroll into and out of the "non leap" years 1800, 1900 and 2100, but have to enter the month and year you want next. A prompt will tell you so, and no harm done. The calendar "window" at the right serves also as a correct "Day of the Week" indicator. (See program listing number three.)

Norm's program appears to have been written originally for TRSDOS 6.x, and I had "remodeled" it for TRSDOS 1.3, as DATECAL/BAS. (published in the December 91 issue and on disk 15). I call it re-modeled, as it took some heavy changes to make it suitable for the smaller screen, especially in the reminder editing section.

Having done that, and, in the process, shortened the program considerable, my thought was that I should re-convert this shorter version back to the Model 4 LS-DOS, as I boot up more and more in the 4 mode. I had given the reminder edit section a listing choice, either total or by month, so you could look at the file before changing or deleting a note, and the edit choices became individual prompts, not a menu, and I got rid of the temporary data file. The quite lengthy sort algorithm (from 80micro, 3/85) had been replaced by that sooo convenient CMD"O".

For this "re-conversion", the edit section is almost as it is in the Model III program, just spread it a bit over the larger screen with some cosmetic changes. Just recently I added a printout feature. The 4, not having an equivalent of the CMD"O", can use a fairly slooow "swap" routine, but only as a last resort. The primary routine the program is set up to use is the BSORT/CMD from the TRSDOS 6.2 Utility disk (26-0315), but if you do not have it, I

tacked some code onto the end (L 160 - 172), to first call for Dave Goben's SORT4/CMD from CNDISK #5. It uses some high memory, and you have to install it in DOS by typing <SORT4> before calling the BASIC CAL4 program. And, if you haven't that either (what's wrong?) then it will go to the "last resort", the "SWAP" routine. You are better off to get that utility disk. The Menu is not disappearing any more, the blank screen with the grr-tu-dun's of the (seemingly endless) disk accesses at the menu choices and in between is gone. A change in month now is silent, screen doesn't black out, and it takes about 2.5 versus 16+ seconds. All that reduces the program from about 16K, 203 lines and 5 pages printout to 8.6K (with an empty /DTS file), 145 lines and 3 pages.

With a bit of PRINT @ juggling, the menu remains now in a 'window' at the left upper quadrant, except for reminder handling, and the changeable calendar is to the right of it. Menu choices are: <A>nother month/year, <L>ast month, <N>ext month, <R>eminder edit, <H>ardcopy the reminder list, and my usual <E>nd or e<X>it. Date inputs are prompted exactly as required, so watch the commas and digits. Wrong inputs are rejected with a prompt, as is the "forbidden" scrolling, or requested dates beyond the limits. At first, if there is no data file (CAL4/DTS) on the disk, an error trap will generate one. 10 lines of reminders have room on the screen below the menu/calendar windows. <Spacebar> input scrolls for more, with the menu and calendar unmoved. Reminders are shown only for the months of the current year.

To any purists out there, let me apologize. The code is not elegant or highly structured, maybe hard to follow (I have it not really divided it into blocks), the forth and back conversion and the inclusion of past 1999 dates (the next, normally "non leap" century year, 2000 IS a leap year, as it is not only evenly divisible by 100, which would make it one, but also by 400!) did not help, but it works. The calendar math algorithm is unchanged from the original. There is simpler code around to achieve that, such as used by CodeWorks (Nov/Dec 1985), but I wanted to stick with Norman's, and not re-construct the whole program. I have put in a few more input safeguards, for proper date inputs so the data file can't get screwed up, but have not restored the sound effects. I don't like my machine to talk back to me when I goof.

I'll try and put a bit of a technical description together, to help you to analyze the program if you are interested.

L 1-4 set up the DIM, the variables representing

CHR\$\$, the error trap and the computer date 'D' as YY MM DD, which L 11 then prints on the top of the screen.

L 10 is the normal menu entry, and, if flag 'FC' is set, diverts to the sort/save routine in L 30, if an irregular return to menu was done.

L 11-58 are sub-routines and repeatedly addressed code, with L 34 going to the DOS BSORT command.

L 60-66 puts the menu on the screen, with 6 operational and 2 quitting choices. <L>ast-, <N>ext- and ack to current month change the calendar dates only, without affecting the menu, and, if the month is in the current year, also the reminders, after the calendar is printed (L 78).

L 67-79 prints the calendar, with (mostly) the original algorithm. Sub 19-28 correcting the values for scrolling into another (leap) year, but not the 3 century non leap years, which have to be called by a date input (L 19 to 29 handle that).

L 80-89 opens the data file and prints the reminders below the menu and the calendar, 10 at a time, and if more, permits scrolling without affecting anything else on the screen.

L 90-92 is now, after displaying the calendar and reminders, the INKEY evaluation from the menu. The quitting, <A>nother, and <R>eminder choices clearing the screen. <A> goes to L 47 for the new date input (checked for syntax starting at L 15), <R> drops thru to

L 100, starting the editing section, with the choice of seeing and editing the whole file, changing or deleting, or a specific month portion of it, including adding new reminders. <ENTER> will get back to the menu without changes from all but the L 116 prompt, and if a change had been made prior, first sort and store the changed data file.

L 106 starts the '<A>dd or <C>hange' portion for a specific month,

L 112 asking for the new data input, again checked for syntax at L 17. The data string (I) is then divided up in L 115 into the array string N(x) for the screen display. It is finally re-formed into the storage string A\$,B\$,C\$ at output to the disk in L 37. The format carried over from the original, to make old data files (CAL/DTS) compatible (when you have added the '4' to the filename).

Flag 'FC' in L 119 and 139 prevents any 'shortcut'

returns to the menu without sorting and saving the new entries.

L 146 is the new hard copy code, printing the date 'D' on top.

L 150 is the start of the error traps and messages,

L 154 is establishing the CAL4/DTS file the first time around,

L 160 is checking for the SORT4/CMD, and if it is not available, calls the "Swap" at L 170.

Again, this is a program developed for my own use, but it might be of general interest, and I want to share it with you. Enjoy it, and keep the 80 humming!

-Henry H. Herrdegen.

PUP1.3 VERSION 3

PATCH UTILITY PROGRAM FOR TRSDOS 1.3

by Henry H. Herrdegen

Now that someone, Richard G. Snow to be specific, has written what I think is the last missing patch for the venerable TRSDOS 1.3, the paginating for the LIST command, similar to what Andy Levinson did for the DIR command, I am glad to release version /3 of my PUP1.3 patch disk. It not only includes Richards lengthy patch, but also two already printed in CN80, a couple of others, and some improvements in old files.

One important, "REQUIRED", Tandy patch is fixing possible garbage characters in the CMD"D" DIR. It has always been in the third line in PATCH4/BLD. All Radio Shack issued patches, from MAY 1, 1981 version (bulletin 5) to bulletin 15, the 'available' spelling correction, are covered in the PATCH1/BLD to PATCH5/BLD files.

Since the last release of PUP1.3, I have learned about a few worthwhile new patches, 2 of which 18 and 19, were printed in Vol. 3 No 7, some improvements to existing patch files, the lines to accommodate the Feb 20 date, and, most important, the LIST patch.

This is all covered now on PUP1.3/3. PATCH18 makes for a faster "COPY" thanks to Gary Campbell, and 19 allows a more convenient period for the Date entry, thanks to Northern Bytes and

some improvements by Richard. The PATCH6/BLD file has grown to 11 lines, by another patch to delete the (in the 1.3 useless) Time input prompt. I have also included a patch to improve the CONVERT/CMD, to list files with a Y/N choice. There are now 345 patch lines, including the SuperScript and Profile III+, in 26 /BLD files on that disk, plus a list of all patch lines, sorted by Hex address.

There are several patches Andy Levinson and others had published, which I did not feel I wanted, and did not include them on PUP. It was written for my own use, and only later on a bit polished for publication. If you know a patch you have to have, it is easy to write a /BLD file with the included minimum Script, convert it to ASCII format, and add the name and short description to the listing part of the main program. Much simpler then typing (with typos?) patch lines to a number of disks.

Some of these "dropped" patches: Change PAUSE from <@> to <SHIFT><@> (why 2 keys if one will do??), colon optional before drive #, DUMP below 5FFF, eliminate BASIC banner altogether, change stepping rates, change Track count, change the "TRSDOS Ready" to something else, various ways to change the TRSDOS banner, change the protection level, etc. If you have need for one of these, David has not included them in his lists, and you have no access to 80micro 1.95 and 8.95 (Andy's Patchworks) or Northern Bytes, drop me a line.

A bit of confusion: Northern Bytes published patches to modify to 42 or 80 tracks, which differs in some addresses and bytes from the one on pg 18 (in 7.8). Both patches may be right, as there are sometimes different ways to achieve the same result. But I definitely do not understand the last line, 0000 address, find and change both 00?? Printing error? The N.B. patch has only 5 lines for *7 overlay. If you want to play with the track count, there may be caution advisable.

I am glad that CN80 has reprinted these articles and will make the new PUP version available. Keep the interest in the 1.3 alive. With these correction and convenience patches, it is as good a DOS as most users will ever need, and it is easier and friendlier then most others. It runs beautiful on the Model 4 and 4D (no 4P in my hutch, so I can't comment), and there are oodles of fine programs out there for it.

Keep the 80 humming!

-Henry H. Herrdegen

Patch Utility Program Version 3 - \$10 + (Z) S&H

Figure 1. For The Article, RESUSCITATING FLAKY DISKETTES.
by Harold J. Hendriks

```

**          CONFIGURATION TABLE FOR Super Utility 4          **

Configuration
--          --
=>Dual=N Graphics=N Locase=Y Linefeeds=N Usr Key=8 Speed=Y

+:0 T4D' Ptk= 40 Rtk= 40 Dir= 20 Stp=0 Rdly=2 Wdly=2 WP=N
+:1 T4D' Ptk= 40 Rtk= 40 Dir= 20 Stp=0 Rdly=2 Wdly=2 WP=N
+:2 T4D' Ptk= 40 Rtk= 40 Dir= 20 Stp=0 Rdly=2 Wdly=2 WP=N
+:3 T4D' Ptk= 40 Rtk= 40 Dir= 20 Stp=0 Rdly=2 Wdly=2 WP=N

? #
-----

```

FANFOLD1/BAS PROGRAM LISTING NUMBER ONE by Robert Knowles

```

5 'FANFOLD1/BAS
10 CLS
20 INPUT"NAME";A$
30 IF A$="END" THEN 200
40 INPUT"ADDRESS";B$
50 INPUT"CITY,STATE AND ZIP";C$
60 INPUT"SENT TO";D$
70 IF D$="END" THEN 200
80 INPUT"SENT ADDRESS";E$
90 INPUT"SENT CITY,STATE AND ZIP";F$
110 LPRINT TAB(2) A$
120 LPRINT TAB(2) B$
130 LPRINT TAB(2) C$
140 LPRINT STRING$(7,10)
150 LPRINT TAB(30) D$
160 LPRINT TAB(30) E$
170 LPRINT TAB(30) F$
180 LPRINT STRING$(27,10)
190 GOTO 60
200 END

```

FANFOLD1/BAS PROGRAM LISTING NUMBER ONE by Robert Knowles

```

5 'FANFOLD2/BAS
10 CLS
20 INPUT"NAME";A$
30 INPUT"ADDRESS";B$
40 INPUT"CITY,STATE AND ZIP";C$
50 LPRINT TAB(2) A$
60 LPRINT TAB(2) B$

```

Cont'd on next page.

```

70 LPRINT TAB(2) C$
80 LPRINT STRING$(7,10)
90 LPRINT TAB(30);"#####"
100 LPRINT TAB(30);"#####"
110 LPRINT TAB(30);"#####-#####"
120 LPRINT STRING$(27,10)
130 LPRINT TAB(2) A$
140 LPRINT TAB(2) B$
150 LPRINT TAB(2) C$
160 LPRINT STRING$(7,10)
170 LPRINT TAB(30);"#####"
180 LPRINT TAB(30);"#####"
190 LPRINT TAB(30);"#####-#####"
200 LPRINT STRING$(27,10)
210 END

```

CAL/BAS PROGRAM LISTING NUMBER THREE by Henry H. Herrdegen

0 "CAL4/BAS": originally written by Norman C. Cannon, adapted as "DATECAL/III" for TRSDOS 1.3 & NEWDOS (89 08 27), corrected back to 1753 and up to 2199, & reminder printout added. Henry H. Herrdegen, (93 12 20). 95 01 20

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1 CLEAR: DEFSTR A-N: DEFINT F, P-X: DIM N(366): ON ERROR GOTO 150
2 CE=CHR$(13): CF=CHR$(15): CL=CHR$(31): CN=CHR$(14): CQ=CHR$(34): CR=CHR$(16)
3 CS=CHR$(32): CV=CHR$(17): IF PEEK(51)>99 THEN L1="20" ELSE L1="19"
4 D=RIGHT$(DATE$,2)+" "+LEFT$(DATE$,2)+" "+MID$(DATE$,4,2)
10 CLS: IF FC THEN PRINT @170, "first lets sort and save, using ";: GOSUB 34
11 PRINT @19, CF "**** today's date is: " D " ****": GOSUB 14: GOTO 60
12 K=INKEY$: IF K="" THEN 12
13 IF ASC(K)>96 AND ASC(K)<123 THEN K=CHR$(ASC(K)-32): RETURN ELSE RETURN
14 R=VAL(MID$(D,4,2)): L=L1+LEFT$(D,2): RETURN
15 IF VAL(LEFT$(L,2))>12 THEN 31 ELSE IF LEN(L)>7 THEN GOSUB 40: GOTO 90
16 IF INSTR(L,"")<>3 OR LEN(L)<7 THEN 30 ELSE RETURN
17 IF INSTR(L,"")<>3 OR INSTR(4,L,"")<>6 THEN 30
18 IF VAL(LEFT$(L,2))>12 OR VAL(MID$(L,4,2))>31 OR L<"1753" THEN 31 ELSE RETURN
19 IF L="1800" OR L="1900" THEN FY=1: IF R<=2 THEN U=U+1: IF R=2 THEN V=V-1
20 IF L="2100" THEN FY=1: IF R=2 THEN V=V-1
21 IF L="2100" AND R>2 THEN U=U-1: IF U=7 THEN U=0 ELSE IF U<0 THEN U=6
22 IF FB THEN IF L="1799" OR L="1899" OR L="2099" THEN H=RIGHT$(STR$(W),4): F=1
23 IF FF AND FY THEN H=L: F=1
24 IF FF THEN IF L="1801" OR L="1901" OR L="2101" THEN H=RIGHT$(STR$(W),4): F=1
25 IF FB AND FY THEN H=L: F=1
26 IF L>"2100" THEN U=U-1: IF U<1 THEN U=U+7: IF U=7 THEN U=0
27 IF L<"1900" THEN U=U+1: IF U=7 THEN U=0
28 IF L<"1800" THEN U=U+1: IF U=7 THEN U=0
29 FY=0: FB=0: FF=0: RETURN
30 FW=1: PRINT TAB(7) "Wrong input! Please watch the Digits and Comma!": RETURN
31 FW=1: PRINT TAB(7) "No such date possible!": RETURN
32 PRINT @1203, "Use Month/Year input to get the "L" calendar! The program can"
33 PRINT " NOT go into or out of Century Non Leap Years, such as: " H: RETURN
34 PRINT @203, "BSORT/CMD ... ";: SYSTEM"RUN BSORT QN%,N$(1)": FC=0
35 OPEN "O",1,"CAL4/DTS"
36 FOR T=0 TO SN-1:
37 A=LEFT$(N(T+1),2): B=MID$(N(T+1),4,2): C=RIGHT$(N(T+1),LEN(N(T+1))-7)

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38 PRINT#1,A;"",B;"",C: NEXT: CLOSE: RETURN
39 V=U+X: IF V/7=INT(V/7) THEN P=P+80: PRINT @291+P,,: RETURN ELSE RETURN
40 PRINT @1046, "Date is out of range!";
41 PRINT @1126, "resume with a Menu choice.": PRINT CN: RETURN
42 IF S/20=INT(S/20) AND S>0 AND S<>SN THEN PRINT @1760, CN; ELSE RETURN
43 LINE INPUT "More Reminders in File. Enter <number> or <C> to continue: "; K
44 IF K="C" THEN CLS: RETURN ELSE IF K="" THEN 10
45 IF ASC(K)<48 OR ASC(K)>57 THEN PRINT STRING$(2,27): GOTO 43
46 T=VAL(K): GOTO 125
47 PRINT @1040, CL;
48 PRINT @1046,,: LINE INPUT "Enter wanted MM,YYYY: ", I: IF I="" THEN 58
49 GOSUB 15: IF FW THEN FW=0: GOTO 48 ELSE R=VAL(LEFT$(I,2)): L=RIGHT$(I,4)
50 IF L<"1753" OR L>"2199" OR VAL(L)<1 THEN GOSUB 40: GOTO 90 ELSE 67
51 IF R=1 THEN R=12: FB=1: FF=0 ELSE R=R-1
52 IF R=12 THEN W=VAL(L): L=RIGHT$(STR$(W-1),4): GOSUB 19
53 IF F AND R=12 THEN GOSUB 32: F=0: GOTO 48
54 IF VAL(L)<1 THEN GOSUB 40: L="1": R=1: GOTO 90 ELSE 67
55 IF R=12 THEN R=1: FF=1: FB=0 ELSE R=R+1
56 IF R=1 THEN W=VAL(L): L=RIGHT$(STR$(W+1),4): GOSUB 19
57 IF F AND R=1 THEN GOSUB 32: F=0: GOTO 48 ELSE 67
58 P=0: GOSUB 14: GOTO 67
60 PRINT @86, "type for:": PRINT @170, "<A> nother year and/or month,";
61 PRINT @250, "<B>ack to the current month,":PRINT @330,"<L>ast month's, or";
62 PRINT @410, "<N>ext month's calendar,";
63 PRINT @490, "<R>eminders: add, edit or delete,";
64 PRINT @570, "<H>ardcopy the Reminder list."
65 PRINT @646, "to quit, you can:": PRINT @730, "<E>nd, and remain in BASIC,"
66 PRINT @806, "or e<X>it to DOS.": PRINT @890, "<?>";
67 M=" Jan.Feb.Mar.Apr.May Jun.Jul.Aug.Sep.Oct.Nov.Dec.": M=MID$(M,R*4,4)
68 P=0: W=VAL(L): PRINT @141, CF M USING"#####"; W;
69 Y=INT(15.25*(W+(R<3)))+INT(2.6*(R+1-(R<3)*12))-1: U=INT((Y/7-INT(Y/7))*7+.3)
70 V=VAL(MID$("303232332323",R,1))+(R=2)*(W=INT(W/4)*4)+28: GOSUB 19
71 PRINT @211, " Sun Mon Tue Wed Thu Fri Sat";
72 FOR T=291 TO 691 STEP 80: PRINT @T, STRING$(27,32): NEXT
73 PRINT @291+(4*U),;
74 FOR X=1 TO V
75 IF RIGHT$(L,2)=LEFT$(D,2) AND R=VAL(MID$(D,4,2)) AND X=VAL(RIGHT$(D,2))
THEN PRINT " " CR: PRINT USING"###"; X: PRINT CV " ": GOSUB 39: GOTO 77
76 PRINT USING"###"; X: PRINT " ": GOSUB 39
77 NEXT: PRINT CN;
78 IF RIGHT$(L,2)><RIGHT$(DATE$,2) THEN PRINT @960, CL: GOTO 90
79 S=0: IF FL THEN 84
80 PRINT @1046, CL "loading Reminder file . . . ";
81 OPEN "I",1, "CAL4/DTS": SN=0: FL=1
82 FOR T=0 TO 366: IF EOF(1) THEN CLOSE: GOTO 84
83 INPUT #1, A, B, C: N(T+1)=A+" "+B+" ": "+C: SN=SN+1: NEXT
84 PRINT @1040, CF: FOR T=1 TO SN: IF S<10 THEN 87
85 PRINT @1842, CN "more to come, press <SPACEBAR> to continue ": S=0
86 GOSUB 12: IF K<>CS THEN 86 ELSE PRINT @960, CL;
87 IF R=VAL(LEFT$(N(T),2)) THEN PRINT CL M+RIGHT$(N(T),LEN(N(T))-2): S=S+1
88 NEXT: PRINT CN
89 IF S=0 THEN PRINT @1040, " no Reminders for this month !" CL
90 PRINT @891,,: GOSUB 12: IF K="E" THEN CLS: END ELSE IF K="X" THEN CLS:SYSTEM
91 PRINT K: IF K="A" THEN 47 ELSE IF K="B" THEN 58 ELSE IF K="H" THEN 145
92 IF K="L" THEN 51 ELSE IF K="N" THEN 55 ELSE IF K<>"R" THEN 90
100 CLS: PRINT @165, "You can -Add- or -Change- the reminders for a"

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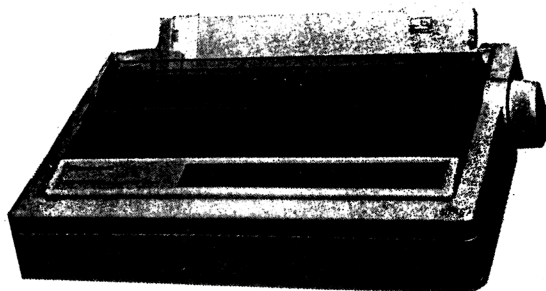

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101 PRINT @270, "<S>pecific month, or": PRINT @342, "see the <W>hole file before changing?";
102 PRINT " (<ENTER> will always get back to the CAL screen.) "
103 PRINT @590, "< >": PRINT @591,;
104 GOSUB 12: IF K=CE THEN 10 ELSE IF K<>"S" AND K<>"W" AND K<>CE THEN 104
105 CLS: S=0: IF K="W" THEN 122
106 PRINT @165, "You want to <A>dd or <C>hange/erase a reminder? ";
107 GOSUB 12: IF K=CE THEN 10 ELSE IF K="A" THEN 112 ELSE IF K<>"C" THEN 107
108 CLS: INPUT " which month's reminder you want to change/erase? (MM): ", R
109 IF R=0 THEN 10 ELSE IF R>12 THEN GOSUB 31: GOTO 106
110 FOR T=1 TO SN: IF R=VAL(LEFT$(N(T),2)) THEN PRINT T " = " N(T): S=S+1
111 GOSUB 42: NEXT: PRINT: IF K<>"A" THEN 124
112 PRINT: PRINT " enter the new Date and Reminder (MM,DD,abcde...):"
113 LINE INPUT " "; I: IF I="" THEN 120 ELSE R=VAL(LEFT$(I,2))
114 GOSUB 17: IF FW THEN FW=0: GOTO 112
115 SN=SN+1: N(SN)=LEFT$(I,2)+" "+MID$(I,4,2)+" "+RIGHT$(I,LEN(I)-6)
116 PRINT " is this now correct: " CQ; N(SN); CQ " ?"
117 PRINT " <Y>es or <N>o, or are there <M>ore additions? ";
118 GOSUB 12: IF K<>"M" AND K<>"Y" AND K<>"N" THEN 118 ELSE PRINT K
119 IF K="N" THEN 121 ELSE IF K="M" THEN FC=1: GOTO 112 ELSE IF K="Y" THEN FC=1
120 IF I="" AND FC OR K="Y" THEN GOTO 10 ELSE 10
121 N(SN)="" : SN=SN-1: GOTO 112
122 FOR T=1 TO SN: PRINT CF T " = " N(T): S=S+1
123 GOSUB 42: NEXT: PRINT: PRINT CN;
124 INPUT " To change/erase, enter the number of the record: ", T: IF T=0 THEN 10
125 CLS: PRINT " what do you want to change,"
126 PRINT " or do you want to erase this reminder:": PRINT
127 PRINT " " CQ N(T) CQ " ?": PRINT
128 A=LEFT$(N(T),2): B=MID$(N(T),4,2): C=RIGHT$(N(T),LEN(N(T))-7)
129 PRINT " change the <D>ate, the <R>eminder text, or <E>rase it?";
130 GOSUB 12: IF K=CE THEN 10
131 IF K="D" OR K="R" OR K="E" THEN PRINT K: PRINT ELSE 130
132 IF K="D" THEN LINE INPUT " new Date: (MM,DD,) "; I: ELSE 135
133 IF I="" THEN 129 ELSE GOSUB 17: IF FW THEN FW=0: GOTO 129
134 A=LEFT$(I,2): B=MID$(I,4,2): PRINT: GOTO 137
135 IF K="R" THEN C="": INPUT " new Reminder: "; C: PRINT: GOTO 137
136 IF K="E" THEN 140 ELSE 130
137 IF C="" THEN 10 ELSE N(T)=A+" "+B+" "+C: PRINT " new" T " = " N(T): PRINT
138 PRINT " If correct and complete, press <ENTER>, if not <SPACEBAR> ";
139 GOSUB 12: IF K=CE THEN FC=1: GOTO 142 ELSE IF K<>CS THEN 139 ELSE 125
140 PRINT: PRINT CF " ERASING: " CQ; N(T); CQ "...": PRINT
141 FOR T=T TO SN-1: N(T)=N(T+1): NEXT: SN=SN-1
142 PRINT: PRINT: PRINT CN " any more changes? (Y/N) : ";
143 GOSUB 12: IF K=CE THEN 143 ELSE IF K="Y" THEN CLS: S=0
144 IF K<>"N" THEN 143 ELSE FC=1: GOTO 10
145 LPRINT D: FOR T=1 TO SN: LPRINT T " : " N(T): S=S+1: NEXT: LPRINT: GOTO 89
150 IF ERL=81 THEN CLOSE: RESUME 154
151 IF ERL=67 THEN GOSUB 30: PRINT CN: RESUME 48
152 IF ERL=34 THEN 160
153 PRINT @1046, "ERROR #: " ERR " in line: " ERL: RESUME 90
154 PRINT @1126, "no file on disk! I am creating CAL4/DTS ...": GOSUB 35
155 PRINT @1046, "empty CAL4/DTS file is established. Continue ...": GOTO 90
160 IF PEEK(65344!) <> 83 THEN PRINT @203, "slow SWAP ...": GOTO 170
161 PRINT @203, "SORT4/CMD ...": FOR T=1 TO SN: N(T-1)=N(T): NEXT: N(SN)=""
162 SORT=5: PTR=VARPTR(N(0)): CALL SORT(PTR,SN)
163 FOR T=SN-1 TO 0 STEP -1: N(T+1)=N(T): NEXT: RESUME 35
170 FOR T=1 TO SN-1: FOR T1=T+1 TO SN
171 IF N(T)>N(T1) THEN SWAP N(T),N(T1)
172 NEXT T1: NEXT T: RESUME 35

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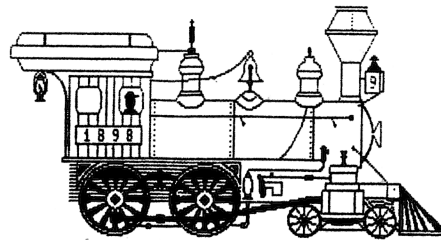
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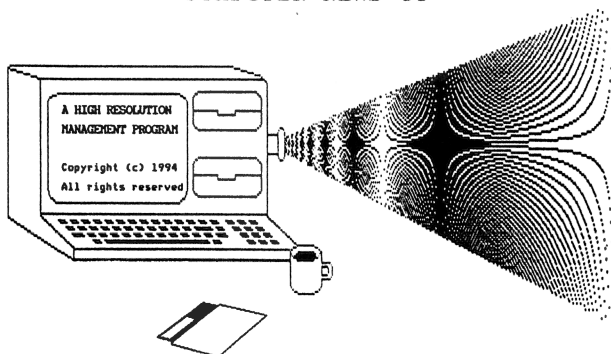
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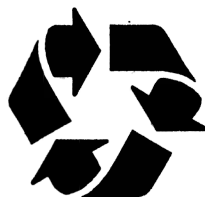
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By Jeff Vavasour

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Compose your own music files on a disk to be used with the player program and interface.

Mouse Driver program for 2 or 3 button mouse on the Model 4.

Mouse to Keyboard Interface, Model 4 Mouse Driver required.

□ □

Programs by David P. Miller

Build up to 26 DOS commands on a screen menu and then call up any program or use any DOS command by typing just one letter. Compatible with mouse, keyboard or arrow keys.

Transfer data files and program files from your TRS-DOS formatted disks to disks formatted for MS-DOS computers. Read MS-DOS formatted disk directories, Add or delete line feeds as needed. Requires a Model 4/4P/4D for use.

Create labels, full page bulletins, and letterheads, using creative icon (clip-art) and built-in fonts, with your dot matrix printer.

□ □

Programs by Howe Software

For Model 1, 3, 4/4P/4Ds

Word Processor, compatible with Scripsit. Send any control/graphics character to the printer. 16 help screens. Economical and easy to use.

The same word processor as above with spell checking dictionary included.

Complete test for every component of your TRS-80 Model 1, 3, and 4/4P/4D. Specify Model when ordering.

Telecommunication program for use with Model 1,3,4/4P/4D Automatic transmission and receiving data. Memory buffer and help screens.

Based on the Dome Bookkeeping Record complete business accounting with payroll and expense check writing and record keeping.

Create and maintain mailing lists of up to 32,767 names and addresses. Form letter merge.

A complete checkbook program combined with budget comparisons, for the Home or Small Business.

A complete point-of-sale program for small business, includes order entry, invoicing, inventory and sales reports.

[illegible]

Programs by Mark Allen Reed

For Trsdos/LS-DOS 6.x Model 4/4P/4D.
Full screen text editor that accepts up to 47K of ASCII text. Complete with block, copy, delete, find, and automatic tabs for programing with assembly language. Excellent program for editing any file, readme, patch listings, job control language or just word processing text.

16 Useful utilities for the Model 4. Complete with manual. This is a must file to have for all Model 4P/4D users.

XX

Programs by Richard VanHouten

For the Model 4 with a modem. Transfer ANSI IBM graphics to your model 4.

MINE FIELD

Game - Cross the mine field and flag all the mines in advance of your troops. Model 4 only, can be used with a mouse.

VH/LIB

Small C Support Library

Wildcard directory Searching, low and high resolution graphic routines, mouse interface. For anyone programming in Small C on the Model 4.

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Programs by Frank Slinkman

TRSCAN

Program to use the Chinon DS2000 or DS3000 full page scanner with your Model 4.

SLOT MACHINE

True rendition of a working slot machine on your Model 4 with High Resolution board.

VIDEO POKER

Remarkable screen rendition of playing cards for playing poker.

GIF4MOD4

Send and receive GIF high resolution graphics. Print to printer, or convert GIF to HR format. Model 4 required.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Programs by Vernon B. Hester

ASTROCAL

Programmable Calculator for your Model I, 3, 4/4P/4D. This unique product integrates mathematical programming functions into a single convenient application. For the student, professional, or engineer, accountants, brokers and designers.

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Programs by Dan Foy

ARRANGER II

Create a master index of all your Model I,3,4/4P/4D floppy disks. Reads any DOS any 5.25 or 3.25 disks. Sort, search or print records.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Programs by Henry H. Herrdegen

PATCH UTILITY PROGRAM

A collection of patches for TRSDOS 1.3, greatly improves the use of TRSDOS 1.3.

BOOK BY DON Ady

Z80 Machine Language Techniques, 236 8-1/2 by 11 pages. Presenting Machine Language fundamentals.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

THE BIBLE KING JAMES VERSION ON DISKS

Each Chapter and Verse stored in ASCII for easy search and print. See Product Guide for Prices

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

SPECTECH DISK

A collection of electronic and other math formula solving programs.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DOS (Disk Operating Systems)

MODEL 4/4P/4D

TRSDOS 6.2.1 System and Basic Interpreter Disk, upgraded to accept today's date, with new manual.

MODEL 3

TRSDOS 1.3 System and Basic Interpreter Disk Only.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

See Computer News 80 Product Guide for all prices and shipping and handling charges.

If you would like to have more detailed information on any of the above products please mail your request and include a stamped, self-addressed, business size #10 envelope.

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COMPUTERS FOR SALE

Model 4 Two Disk Drive 128K Call for Price

Model 4P Portables Two Disk 128k Call for Price

Model 4D Two Disk Drive 128k Call for Price

Tandy 1000EX \$100.00 +S&H

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DMP120 Dot Matrix Wide Carriage Call for Price

DMP130 Dot Matrix 80 Column Call for Price

DMP210 Dot Matrix Wide Carriage Call for Price

DMP420 Dot Matrix Wide Carriage Call for Price

Computer News 80 Product Guide

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CN80 BACK ISSUES Individual Copies	\$ 4.00 (X)
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Specify LSDOS 6.3 or TRSDOS 1.3	

NEW USERS GUIDE

NEWCOMERS GUIDE VOLUME 1	\$ 7.95 (X)
Reprint of all CN80 "Newcomers Corner" part 1 to 8.	
This is a must have for all new TRS-80 users.	

CN80 DISK SERIES

NUMBER 1	programs printed in Vol 1 No. 1 thru No. 6.
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NUMBER 3	programs printed in Vol 1 No.10, 11 and 12.
NUMBER 4	programs printed in Vol 2 No.1, 2 and 3.
NUMBER 5	programs printed in Vol 2 No.4, 5 and 6.
NUMBER 6	programs printed in Vol 2 No.7, 8 and 9.
NUMBER 7	programs printed in Vol 2 No.10, 11 and 12.
NUMBER 8	programs printed in Vol 3 No.1, 2 and 3.
NUMBER 9	programs printed in Vol 3 No.4, 5, and 6.
NUMBER 10	programs printed in Vol 3 No.7, 8, and 9.
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NUMBER 12	programs printed in Vol 4 No. 1, 2, and 3.
NUMBER 13	programs printed in Vol 4 No. 4, 5, and 6.
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NUMBER 15	programs printed in Vol 4 No. 10, 11 and 12.
NUMBER 16	programs printed in Vol 5 No. 1, 2 and 3.
NUMBER 17	programs printed in Vol 5 No. 4, 5 and 6.
NUMBER 18	programs printed in Vol 5 No. 7, 8 and 9.
NUMBER 19	programs printed in Vol 5 No. 10, 11 and 12.
NUMBER 20	programs printed in Vol 6 No. 1, 2 and 3.
NUMBER 21	programs printed in Vol 6 No. 4, 5 and 6.
NUMBER 22	programs printed in Vol 6 No. 7, 8 and 9.
NUMBER 23	programs printed in Vol 6 No. 10, 11 and 12.
NUMBER 24	programs printed in Vol 7 No. 1, 2 and 3.
NUMBER 25	programs printed in Vol 7 No. 4, 5 and 6.
NUMBER 26	programs printed in Vol 7 No. 7, 8 and 9.
NUMBER 27	programs printed in Vol 7 No. 10, 11 and 12.
NUMBER 28	programs printed in Vol 8 No. 1, 2 and 3.
NUMBER 29	programs printed in Vol 8 No. 4, 5 and 6.
NUMBER 30	programs printed in Vol 8 No. 7, 8 and 9.
NUMBER 31	programs printed in Vol 8 No. 10, 11 and 12.

\$ 5.00 PER DISK S&H Included

For your convenience advance orders for the Disk Series are accepted. Disks are shipped to you automatically as soon as they are ready. Write or call for free CN80 Disk Series Catalog.

PLEASE NOTE: All CN80 DISK SERIES are on FLIPPY 5-1/4" disks; TRS/LS-DOS 6.3 format on Side 1 and TRSDOS 1.3 format on Side 2. Also available on 3-1/2" disks @ \$5.50 each (LSDOS 6.3.1 or LDOS 5.3.1 format only). Each Disk Series has Bonus programs.

MANUALS & PROGRAMS PUBLISHED BY CN80

ANSITERM 4 by Richard VanHouten	\$ 30.00 (Z)
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Optimas	10 point
Palatine	10 point
Times Roman	10 point
Palatine	12 point
Centrum	12 point
Optimis	12 point
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Each Font Package supports normal, bold and italics printing of letters. Thirty-six soft font packages in all, Twelve soft fonts for each word processor supported.

Prices are \$10 for each soft font package,	plus (Z)
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MODEL 4 HIGH RESOLUTION	\$ 2.00 (X)
MODEL 4 MACPAINT HIGH RESOLUTION	\$ 2.00 (X)
MODEL 1/3 PUBLIC DOMAIN CATALOG	\$ 2.00 (X)
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TRSDOS 1.3 R/S Cat # 26-0312	\$ 7.00 (X)
Model 3, Disk Operating System and BASIC	
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Date extension applied/supports double sided drives.	

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Use as Double or Single Sided Disks. 100% Error Free Lifetime Guarantee with Paper Sleeves, Labels & Tabs. These disks are manufactured in South Dakota by Syncom and are equal in quality to 3M brand disks, with a 3 mil heavy duty jacket.	

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A-B SWITCH, PARALLEL \$ 14.75 (Z)
With three female 36 conductor centronics connectors.

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With three DB25 Female connectors.

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Printer to Selector Switch 6' \$ 13.49 (Z)
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RS232 Serial Cable 6 ft. \$ 8.95 (Z)
Equal to Radio Shack #26-240, Male - Female

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RS232 NULL MODEM Cable 6 ft \$ 9.95 (Z)
Connect two computers together.

RS-232 EXTENDER CABLE \$ 8.00 (Z)
For computers w/RS-232 connector pointing down on the bottom of the computer.

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HARD DRIVE CABLE, 4 ft \$ 16.00 (Z)
w/50 pin Edge Card connector & H D pin connector.

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RS232 EXTENDER CABLE

RS232 Extender \$ 8.00 (Z)
FOR Non-gate array computers which have the RS232 cable pointing down out of the bottom of the computer.

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Half Height 5-1/4 360K \$ 60.00 (Z)

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EXTERNAL DISK DRIVES

One Disk Drive Unit \$143.00 (S);
One 5-1/4 360K or One 3-1/2 720K Unit.

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64K UPGRADE KIT \$ 12.95 (Z)
Includes 8 150ns 128 refresh cycle dynamic ram chips, plus instructions and Memory Test Disk.

PAL CHIP \$ 8.00 (X)
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GRAFYX SOLUTION for Model 3/4/4P/4D \$ 66.00 (Z)
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Clock chip with ROMCLOCK4 or ROMCLOCK3 Utility
program package and installation instructions. Keep time
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I/O-BUS CLOCK EXTERNAL \$ 59.00 (Z)
Realtime clock uses exterior I/O Bus, no internal
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EXTERNAL MODEL 4 OR 4P HARDWARE ADD-ONS

I/O-BUS LD INTERFACE \$180.00 (Z)
Connect an exterior disk drive unit to your 4P or Model
4/4D, not required for the first two drives on your Model
4/4D.

POWER SUPPLIES FOR MODEL 4/4P/4D OR MODEL III

ASTEC 65 WATT POWER SUPPLY \$ 62.00 (Z)
For units that have only one supply.

ASTEC 38 WATT POWER SUPPLY \$ 22.95 (Z)
For units that have two small supplies.

MODEL 4 HARDWARE

Non-gate array Motherboards 64K memory \$ 49.95 (Z)
Non-gate array Motherboards 128K memory \$ 70.90 (Z)
Sound Board Kits \$ 10.00 (Y)

MODEL 4P HARDWARE

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All hardware is new and has never been installed unless
otherwise noted.

FLAT RIBBON CABLE

25 Conductor \$.38 ft.(Z)
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70-005 50 Pin 25x2 Header Male/Plug no/mtg \$ 8.50 (X)

70-006 36 Contact Centronics for Printers \$ 4.00 (X)

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70-008 34 Pin 17x2 Edge Card Connector \$ 1.35 (X)
70-009 34 Pin 17x2 Header Male no/mtg \$ 7.50 (X)
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70-011 25 Pin DB25 (RS232) Mail Plug \$ 3.00 (X)
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70-013 34 Pin 17x2 Box Header/Solder Pins \$ 2.50 (X)
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Call for prices and availability for CRT screens
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MEDIA MATE Holds 50 5-1/4" disks \$ 5.90 (Z)
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42.8 MEG for Models 4/4P/4D \$350.00 (S)
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85 MEG and 125 MEG Hard Drives
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Original for Model 1/3/4 Radio Shack Computers
New Full Height, Single Sided, 5.25" Drive \$35.00 (S)

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TOP QUALITY PRINTER RIBBONS

Printer	Radio Shack Cat. Number	CN80 Number	Type	Price Each	6 or More
LP I, II, IV	26-1413	CN1001	FABRIC REFILL	5.55	5.05
LP III, V	26-1414	CN1002	FABRIC CART.	6.38	5.88
LP III, V	26-1414	CN1003	FABRIC REFILL	4.79	4.29
LP VI/VIII,DMP 400/420	26-1418	CN1004	FABRIC CART.	5.60	5.10
LP VII, DMP 100	26-1424	CN1038	FABRIC CART.	6.00	4.50
DMP 110	26-1283	CN1005	FABRIC CART.	6.58	6.08
DMP130/130A/132/133/107	26-1236	CN1006	FABRIC CART.	6.40	5.90
DMP130/130A/132/133/107	26-1238	CN1007	FABRIC REFILL	5.00	4.50
DMP 500	26-1482	CN1008	FABRIC CART.	13.40	12.90
DMP 500	26-1482	CN1043	FABRIC REFILL	5.30	4.80
DMP 120, 200	26-1483	CN1009	FABRIC CART.	7.00	6.50
DMP 120, 200	26-1489	CN1010	FABRIC REFILL	4.85	4.35
DMP 430	26-1296	CN1013	FABRIC CART.	12.20	11.75
DMP 430	26-1296	CN1044	FABRIC REFILL	5.60	5.10
DMP 440	26-2809	CN1014	FABRIC CART.	19.30	18.80
DMP 2100, 2100P, 2110	26-1442	CN1015	FABRIC CART.	6.10	5.60
DMP 2100, 2100P, 2110	26-1442	CN1016	FABRIC REFILL	4.85	4.35
DMP 2120	26-2834	CN1017	FABRIC CART.	13.05	13.05
DMP 2120	26-2836	CN1018	FABRIC REFILL	7.90	7.40
LMP 2150	26-1287	CN1019	FABRIC CART.	8.00	7.50
DWP II, DWP 410/510	26-1419	CN1020	MULTI-STRIKE CT.	5.35	4.85
DWP II, DWP 410/510	26-1419	CN1021	M-S REFILL	4.50	4.00
DWP II, DWP 410/510	26-1449	CN1022	FABRIC CART.	6.55	5.95
DWP II, DWP 410/510	26-1449	CN1023	FABRIC REFILL	5.45	4.95
DWP 520, 230, 210	26-1445	CN1024	MULTI-STRIKE CT.	5.15	4.65
DWP 520, 230, 210	26-1445	CN1025	M-S REFILL	4.50	4.00
DWP 520, 230, 210	26-1458	CN1026	FABRIC CART.	5.60	5.10
DWP 520, 230, 210	26-1458	CN1027	FABRIC REFILL	4.80	4.30
DWP 220	26-1299	CN1028	MULTI-STRIKE CT.	7.95	7.45
DMP 300/2102	26-2819	CN1030	FABRIC CART.	7.15	6.65
EPSON FX/MX/RX-80		CN1033	FABRIC CART.	5.50	5.00
EPSON LX/80/90		CN1034	FABRIC CART.	5.00	4.50
PANASONIC KXP1090/2023/1150		CN1036	FABRIC CART.	7.35	6.85
PANASONIC KXP1180/1190/1191		CN1039	FABRIC CART.	6.90	6.40
SEIKOSHA SP-2000, SP-2400		CN1041	FABRIC CART.	6.40	5.90
SEIKOSHA SL-90, SL-70		CN1046	FABRIC CART.	7.25	6.75
SEIKOSHA SL-270		CN1047	FABRIC CART.	15.40	13.86

ALL RIBBONS ARE BLACK, CART. = Plastic Cartridge, REFILL = Refills Only/No Cartridge.

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1 to five items add (Y) ... 6 or more items add (Z)

Please refer to the CN80 Product Guide Shipping and Handling Schedule.

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