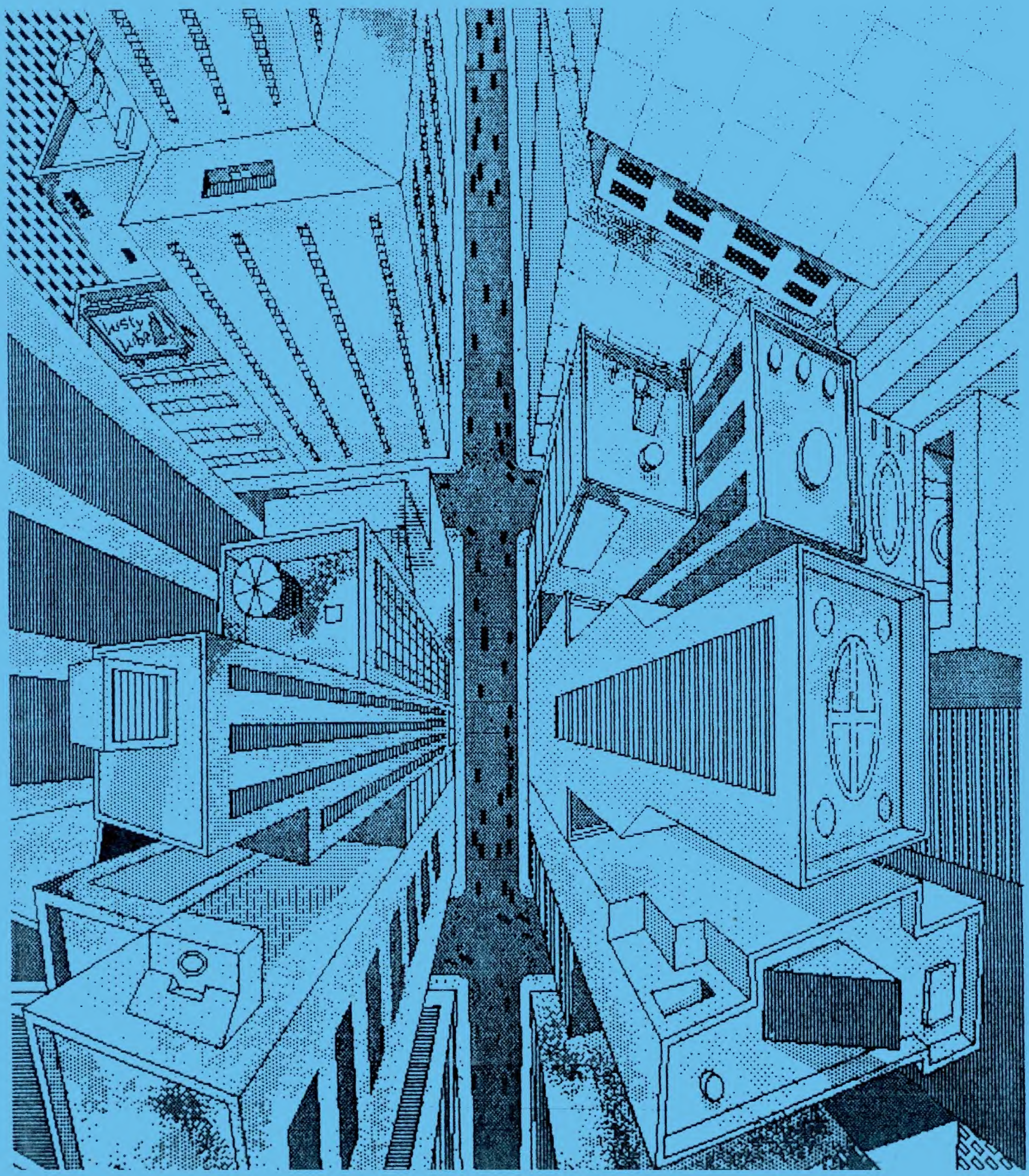
# TRS TIMES

## Keeping Models 3 & 4 Alive

Volume 1. No. 3. - May 1988 - $3.00



# LITTLE ORPHAN EIGHTY

During its long life, the TRS-80 has had its share of critics. Some of them pointed out that our machines have lousy sound, no color and, at best, crude graphics. We are all aware of these drawbacks and we love the machines in spite of them and in some cases, because of them. However, anyone having had the pleasure of playing a Leo Christopherson game, especially VOYAGE OF THE VALKYRIE, may come to the conclusion that the sound and graphics capabilities are not quite as lousy and crude as our detractors believe them to be. Install a Hi-Res board, and they are left yelling: "No Color!!"

In fairness, though, the critics are correct to claim that, in the aforementioned categories, we do not compare well with other popular machines. We must bite that bullet.

These critics have my respect. Through testing and comparing the machines, they have reached an informed opinion. When they write articles in which the TRS-80's do not fare well in certain areas, I have no problem. I do have a beef, however, when a major publication runs a story about the TRS-80 in which omission and misinformation is the highlight. My patience gets tested further when the writer attempts to cover up his/her ignorance of the machine by being 'cutesy'.

Such did occur in the March 1988 issue of CONSUMER ELECTRONICS. In their BITS AND PIECES column on page 10 the following words of wisdom appeared:

**"IS THIS A RELATIONSHIP THAT CAN BE SAVED?**

People get attached to their computers. Hunched over the keyboard, probing its innermost secrets, eyes riveted to every nuance on the monitor, the relationship between operator and computer is a long-lasting bond, certainly a **tu** relationship rather than **vous**. (Or should that be **Du** rather than **Sie**?) Anyway, it's certainly a relationship based on honesty. But for almost half a million owners of Radio Shack's TRS-80 Model 4 computer, it's a troubled relationship due to a flaw. It seems that because of a quirk in the software TRS-80s made before August cannot accept dates after December 31, 1987. Trying to enter January 1, 1988 (or any date after that), results in what might be called "offended computer"-the machine simply refuses to work. So the owner has two option: 1. buy a new software program for $39, or 2. lie about the date.

Apparently the Tandy Corporation (which owns Radio Shack) has been aware of the situation for several years. We don't suggest people should lie to their computers (once they start doing **that** what might they do **next**?), but it's not a problem that is solved once and for all. We hear the new version won't work after 1999."

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Such wonderful journalism should be rewarded by an immediate induction into the NATIONAL ENQUIRER Hall of Fame.

Had the writer bothered to do his/her homework, maybe even talked to someone who owned a Model 4, he/she would have learned that it NOT the computer that cannot accept a date past 12/31/87, it is the DOS, TRSDOS 6.2. It would probably also have been revealed that along with the two options listed, a very important third alternative exists: TURN THE DATE PROMPT OFF.

The writer might also have been made aware that most TRS-80 oriented bulletin boards offer patches to TRSDOS 6.2. that will, at least temporarily, fix the date problem. As a matter of fact, TRSTimes is releasing a machine language program called DFIX89/CMD that will fix TRSDOS 6.2. to accept dates through 12/31/89 while reading the dates on the existing files correctly. It is included as a bonus program on TRSTimes on Disk #1. Information on TRSTimes on Disk appears elsewhere in this issue.

LW

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**COMPUTER NEWS 80**

In our last issue, I briefly mentioned another publication specifically covering the TRS-80 machines: COMPUTER NEWS 80.

It is a monthly newsletter coming out of Casper, Wyoming and, as of this writing, I have seen the first three issues. The January and February issues each had 16 pages. The March issue had 20 pages. I very much enjoyed reading them, as they contain a wealth of information for our machines. A gentleman by the name of David Goben seems to be very involved with the publication, and that is a big plus. Now, that name may not mean anything in particular to some of you, but when I tell all you ex-80 Micro readers that the 'Mercedes Silver' columns were written by David, it ought to give you an idea of the knowledge he brings to their pages.

Along with David's input, there are nice articles, patches to popular programs, letters, reader questions and other good stuff.

Do I recommend COMPUTER NEWS 80?

Well, let me put it to you this way: I just mailed off my check for a 1988 subscription.

Introductory subscription rate for the first 12 months: $18.00

**COMPUTER NEWS 80**
**P.O. Box 680**
**Casper, WY. 82602-0680**

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And now....**Welcome to TRSTimes #3**

Lance W.

# TRSTimes - Volume 1. No. 3. - May 1988

## CONTENTS:




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# THE MAIL ROOM

For those of you languishing with Profile 4 Plus, there are two items that I would like to bring to your attention.

First, Radio Shack published a patch 1635-01 April 11-1985, to correct an error, but the patch itself contained an error. The error made the printer on reports stop after about 100 lines. I brought the problem to Small Computer (now located in Hawthorne, NY) and they figured out a correction to the error. Change patch line 7 of RS version of the patch EFCA/CMD from:

(X'61F3' = CD 40 6F) to:

(X'61F3' = C3 40 6F).

Second, Clay Watts Software (68C North Loop. Cedar Hill, TX. 75104) has created an excellent basic program to provide forms and lookup to the Profile 4 Plus. The program has been a godsend for me. Watts personally is very helpful and gives it excellent support, although the docs are adequate. This adjunct to Profile 4 Plus implements the power of the already powerful Profle, and completes it. Now you can do mail merge, etc.

Charles Harris, MD
Island Heights, NJ.

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You and your readers may be interested in the enclosed letter from PowerSoft. For one thing, it suggests some knowledge of the LS-DOS protection scheme (and that one exists). Also, it might explain a problem some hard disk users have been having. I bought PowerSoft drivers specifically to boot my 4P directly from the hard drive, so I asked PowerSoft if they had a fix when this feature wouldn't work with LS-DOS. I'm sending a copy of the letter to LSI, and if I get a response I'll pass it on to TRSTimes.

A few words of warning about version 1.80 of LeScript. I upgraded as soon as it was announced, and my original copy was totally unreliable. It often locked up my computer, and the spelling checker didn't work at all. When I contacted them, they quickly sent me another disk on which they had fixed "all the problems we know about". This was better, but still caused (much less frequent) lockups and loss of data. The spelling checker worked part of the time. I recently called them, and they have offered to send a third disk, implying that more bugs have been found. So far, their efforts to suppor the program have been excellent, but they did say that to get any more fixes, I'd have to use their standard problem report process. Hope the next disk does the job. I'll let you know as soon as I've tried it. For now, I'm using version 1.70 which, like all the previous ones has been very reliable.

I enjoyed my first issue, and am looking forward to the next one. Keep up the good work.

Don Singer
Scottsbluff, NE.

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**PowerSoft's reply to Don:**

We have recieved your letter concerning the "auto-boot" function of our Rigid drivers. There is not a problem with our drivers. They did not change. What changed was the operating system version 6.3. When we wrote our drivers, we stuck strictly to documented calls and memory areas that were endorsed and published by Logical Systems. At this stage of the TRS-80's life, we see no reason for them to change around the operating system, since not every company is still in a position to "patch" their software, if necessary, or even in business any longer.

Version 6.3. of the Model 4 DOS extends the date and adds a few functions, but at the same time adds ridiculous copy protection that changed some important system calls around from what they have always been published as. This defeated the auto-boot right there, as the location we used to "hook" onto was no longer there. The programmer that wrote those drivers for us now works for MicroSoft, so there is no practical way to patch the driver at this time. We are not complaining about the operating system update, per se, but about the relocating of system calls at this stage of the TRS-80 game.

Some suggestions: If you want to use 6.3., then use a floppy to boot from. Control is then transferred to your hard disk and things are like they were.

Use 6.2. and turn the date function off (forever).

Use 6.2. and apply one of the date patches available on the LSI Sig on Compuserve that you can download. This gives you a date fix, yet leaves the operating system locations alone.

Sorry that we cannot be more help than this. It is too bad that when the TRS-80 needs all the help it can get, that a company has to start changing the programming rules and adding protection on a whim, causing people to scramble around to get patches. If we do find a fix, we'll let you know. If you find one, please let us know about it and we'll pass it along to others.

Sincerely,
PowerSoft Products

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Here is some follow up on my previous letter. As you can see, LSI takes (rather pointedly) exception to Powersoft's statements. I didn't want to start a war between two of the few TRS-80 supporters left. and I hope they will work together to solve the problem. In any case, I'll let you know what happens.

Don Singer
Scottsbluff, NE.

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**LSI's reply to Don:**

Thank you for bringing this to our attention. The owner of LSI will be taking this up with Powersoft. The anonymous person at powersoft that wrote to you, obviously does not know what he is talking about. I have enclosed a copy of a page from the Model 4 Technical Reference Manual (RS cat # 26 - 2119) and highlighted the major part of the documented program interface that Powersoft violated.

If Powersoft still had an assembly language programmer on staff, they would have no problem because it would be fairly easy to fix their product. All it requires is a re-assembly. Instead of maligning LSI, they should have simply contacted LSI. Our system programmer knows exactly what their problem is and how to fix it. Surely, something could have been worked out if Powersoft wished to support their customers.

Sincerely Yours,
Virgil (signature)
LSI(Virgil)
Customer Support

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**Editor's note:**

For the record, Virgil enclosed a photocopy of page 209 of the Model 4 Technical Reference Manual. The heading is:

**7/TRSDOS Version 6**
**Programming Guidelines**

Virgil highlighted portions of the second and third paragraph. They read as follows:

"When programming in assembly language, you can use TRSDOS Version 6 routines for commonly used operations. These are accessed through the supervisor calls (SVCs) instead of absolute addresses. **Nothing in the system can be accessed via any absolute address reference (except Z-80 RST and NMI jump vectors).**

IMPORTANT NOTE: TRSDOS provides all functions and storage through supervisor calls. **No address or entry point below 3000H is documented or supported by Radio Shack.**"

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Our thanks go out to Don for this information. We trust the readers will form their own opinions on the correspondence.

Ed.

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# TRSTIMES ON DISK

Issue #1 of TRSTimes-ON DISK is now available. It features the following programs from the January, March and May 1988 issues:

| | | |
|---|---|---|
| POKEDEM1/BAS | M4 | TRSDOS 6.2.-6.3. |
| INKROUT/BAS | M1,3,4 | ALL |
| CAT/CMD | M3 | LDOS 5.1.4. |
| CAT/SRC | M3 | LDOS 5.1.4. |
| STUTOR/BAS | M1,3 | ALL |
| KILL/CMD | M4 | TRSDOS 6.2.-6.3 |
| KILL/SRC | M4 | TRSDOS 6.2.-6.3. |
| CUSTCMD/BAS | M4 | TRSDOS 6.2.-6.3. |
| POKEDEM2/BAS | M4 | TRSDOS 6.2.-6.3. |
| JUMP80/BAS | M4 | ALL |
| CAT13/CMD | M3 | TRSDOS 1.3. |
| CAT13/SRC | M3 | TRSDOS 1.3. |
| STUTOR34/ASC | M3,4 | ALL |
| COPYAID/BAS | M3 | NEWDOS/80 |
| TRSTEXT/BAS | M4 | ALL |
| CLOCKMOV/BAS | M4 | TRSDOS 6.2.-6.3. |

Included on this disk will be two bonus assembly language programs that are just too long to publish in TRSTimes:

**COPYAID/CMD** is the enhanced machine language version of COPYAID/BAS for Model 3 NEWDOS/80.

**DFIX89/CMD** is the ultimate datefix utility for Model 4 TRSDOS 6.2. that fixes both system and data disks - CORRECTLY.

TRSTimes-ON DISK #1 is reasonably priced:

**U.S. & Canada:** **$5.00 (U.S.)**

**Anywhere else:** **$7.00 (U.S.) shipped air-mail.**

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**PC-Four** even works with assemblers such as **ALDS, EDAS** and **MZAL** and debugger/monitors such as **TASMON** so you can write, assemble, debug and run Z80 machine code programs on your PC. To use it you must transfer your old files to MSDOS disks first. For this **we recommend PCXZ or Hypercross** - see below for details.

**Runs on PCs or compatibles with at least 384K of memory.** Put it on your lap-top, now you can carry your TRS-80 in your briefcase, wherever you go!. Also runs on IBM PS/2s.

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**PC Cross-Zap (PCXZ)** is a utility that runs on your PC or PC-compatible. With it you can **copy files to or from** TRS-80 disks at will. Suitable for all types of files, BASIC, ASCII and Binary. **Converts BASIC and text files automatically** as you copy. You can also format a disk, copy disks, explore, read and write sector data, repair bad directories and much more. Long after your TRS-80 is gone you will still be able to read your old disks. **Formats Supported:** Model I mixed density: DOS+ 3.4, DoubleDOS, LDOS (SOLE), MultiDOS, NEWDOS 80 V2, TRSDOS 2.7/8; Model I/III Double Density: DOS+ 3.5, LDOS 5.x. Model III: DOS+ 3.4, MultiDOS, NewDOS 80, TRSDOS 1.3; Model 4/4P: MultiDOS, DOS+ 4, TRSDOS 6., LSDOS 6.3; Max-80: LDOS 5.1. PCXZ supports single or double sided, 35, 40 and 80 track formats.
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## TRS-80 Corner.

### HyperCross reads CP/M and PC-DOS on TRS-80s

Using **HYPERCROSS** 3.0 you can **COPY** files between TRS-80 disks and those from many **CP/M** and **IBM-PC** type computers on your own TRS-80 Model I, III, 4/4P or Max-80. If you have access to more than one kind of computer, or you are changing to a new machine then you need **HYPERCROSS** to transfer your files. You can FORMAT alien disks, read their directories, copy files to and from them, even copy directly from one alien disk to another.
**Formats supported:** IBM-PC and MS-DOS including DOS 1.1, 2.0-3.2 Tandy 2000, single and double sided, 3.5 and 5 inch. CP/M from Aardvark to Zorba, including all popular TRS80 CP/M formats such as Holmes, Montezuma, and Omikron. Also supports CoCo format.
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# COPYAID

## A Model 3 utility - Newdos/80

by Lance Wolstrup

'There is no CONV or CONVERT utility like there is in LDOS or DOSPLUS'

The best operating system for the Model III is, in my opinion, NEWDOS/80. This is not to belittle LDOS, DOSPLUS, MULTDOS or TRSDOS, as they all certainly meet or exceed the standards of what an operating system should be. But NEWDOS/80 is a shining example of what an operating system CAN be. Not only does it offer some powerful utilities, such as SUPERZAP, LMOFFSET and DISASSEM, but the system itself is fast and offers the user many more options than the other operating systems.

This is both good and bad. Good, because you gain a lot of power over your machine. Bad, because power demands knowledge, and even though the infomation-packed NEWDOS/80 manual is excellent, it is not easy reading since the people at Apparat went out of their way to document just about every small detail. This is great for programmers, but can be overwhelming and confusing to the average user.

Some time ago, a couple of students in my Advanced Basic class asked me how they could copy TRSDOS 1.3 files to NEWDOS/80. "There is no CONV or CONVERT utility like there is in LDOS or DOSPLUS", they said.

True, no such command exists in NEWDOS/80. However, as explained in the NEWDOS/80 manual, the conversion ability DOES exist. The trick is to fool the drive with the TRSDOS diskette (usually drive :1) into thinking that it is being operated by TRSDOS. This can be accomplished by using the PDRIVE command to temporarily set up drive :1 to act as a TRSDOS drive.

If you type PDRIVE,0 from DOS ready, you will see a list of specifications for 10 drives. Specification number 4 should hold the following:

TI=AM,TD=E,TC=40,SPT=18,TSR=3,GPL=6,DDSL=17,DDGA=2

If you have a different spec, change it to the above by typing:

PDRIVE,0,4,TI=AM,TD=E,TC=40,SPT=18,TSR=3,GPL=6,DDSL=17,DDGA=2,A <ENTER>

You can now at will change drive :1 to recognize a TRSDOS 1.3 diskette and copy the content to a NEWDOS/80 diskette in drive :0 by typing:

COPY1,0,,CBF,CFWO,SPDN=4 <ENTER>

It works, but unfortunately it is not simple, and it was out of this frustrating lack of simplicity that this program was conceived.

COPYAID started out as a demonstration program to illustrate conversion procedures from TRSDOS 1.3 to NEWDOS and from NEWDOS to TRSDOS 1.3. It became, thanks to the suggestion of the students, a utility program written in BASIC to make the most common file handling commands easier.

Aside from the conversions back and forth between NEWDOS and TRSDOS 1.3, you can FORMAT a diskette in either drive :0 or drive :1, BACKUP NEWDOS to NEWDOS from :0 to :1 or from :1 to :0, COPY individual NEWDOS files from :0 to :1 or from :1 to :0, DELETE (KILL) individual NEWDOS user files in drive :0 or drive :1, DELETE (KILL) all user files on drive :0 or drive :1 and ability to read the directory on either drive :0 or drive :1.

As an afterthought, options for disabling or enabling the DATE-TIME prompt when booting the diskette, disabling or enabling password recognition, copying NEWDOS to DOSPLUS or LDOS and finally copying DOSPLUS or LDOS to NEWDOS were added.

COPYAID is menu driven and you simply press the number or letter associated with the option desired and you will instantly be placed in that module.

Should you find yourself in a module you decide you don't want to be in, just press Q to any of the 'drive number:' prompts and you will be returned to the menu.

Let's look at these file handling commands in more detail:

**1. Format diskette**

Format in either drive :0 or drive :1.

Once the drive number has been entered from the keyboard, you will no longer be able to escape. If escape is desired, you must reset the machine, otherwise just follow the prompts.

**2. Backup NEWDOS diskette**

Backup from drive :0 to :1 or from :1 to :0 is supported. Destination diskette will automatically be formatted before backup.

**3. Copy individual files**

Copying NEWDOS user files from drive :0 to drive :1 or from :1 to :0 is supported. The destination diskette is NOT automatically formatted. The files will be displayed one at a time and you will be prompted if you wish to copy it.

**4. Copy TRSDOS to NEWDOS**

TRSDOS diskette (source) MUST be placed in drive :1. The program will display each TRSDOS user file one at a time and prompt you if you wish to copy it. System and invisible files will not be displayed nor copied. Using this feature with the Password protection disabled (see option P) allows you to copy most of the protected software from Radio Shack and other vendors.

As long as the diskette has TRSDOS and is using only password protection, COPYAID will copy it. However, this is to be used ONLY for backing up your own diskettes to protect yourself from loss. This is NOT a license to duplicate copyrighted software for trading purposes.

Before returning to the menu, drive :1 will be restored to normal Newdos status.

**5. Copy NEWDOS to TRSDOS**

TRSDOS diskette (destination) MUST be placed in drive :1.

The program will display each NEWDOS user file one at a time and prompt you if you wish to copy it. System and invisible files will not be displayed nor copied.

Before returning to the menu, drive :1 will then be restored to normal Newdos status.

**6. Delete individual files**

This module uses the PURGE function and you may delete user files from drive :0 or drive :1. Each user file from the selected drive will be displayed one at a time and you will be prompted if you wish to delete it. System and invisible files will not be displayed nor deleted.

**7. Delete ALL files**

Using this module allows you to delete all the user files from either drive :0 or drive :1. System and invisible files will not be deleted.

**8. Disk directory**

Display short directory from drive :0 or drive :1.

Only NEWDOS diskettes will be able to display directories. If by accident try to get a directory of an alien diskette, you will get an error message and then returned to the menu.

**9. Exit program**

Ends program and returns to BASIC.

**D. Date - time on/off**

One of the things I dislike the most about TRSDOS and LDOS is the mandatory entering of the date when cold booting the system (DOSPLUS and MULTIDOS does not require this).

NEWDOS is even worse. It mandatorily requires both the date and the time before allowing you to get to DOS ready. Using this module you may at your discretion disable or enable this feature on any system diskette in drive :0.

**P. Password protection on/off**

You may at your discretion disable or enable password protection for your files on any system diskette in drive :0.

**M. Copy DOSPLUS or LDOS to NEWDOS**

DOSPLUS or LDOS diskettes cannot be read directly by NEWDOS. What we must do, is take advantage of the fact that all Dos'es can read Model I, 35 track, single density diskettes.

From DOSPLUS or LDOS, format a 35 track, single density diskette (type 35 when asked the track number and type S when prompted for density).

When the formatting is completed, use the DOSPLUS or LDOS COPY command to transfer the DOSPLUS or LDOS files over to the single density diskette.

This diskette is now readable by COPYAID and by using the M option, the files will be copied from the single density diskette (placed in drive :1) to a Model 3 NEWDOS system diskette in drive :0.

Drive :1 will then be restored to normal NEWDOS Model 3 status.

**N. Copy NEWDOS to DOSPLUS or LDOS**

Place empty diskette in drive :1. Pressing Y to the warning message configures drive :1 to a 35 track, single density drive. Then the diskette in that drive is formatted.

Next the Newdos files from drive :0 is copied to drive :1. Drive :1 is then restored to NEWDOS Model 3 status.

The destination diskette is now directly readable by DOSPLUS or LDOS.

COPYAID was fun to write, and I hope you will find it useful and timesaving.

---

## COPYAID/BAS

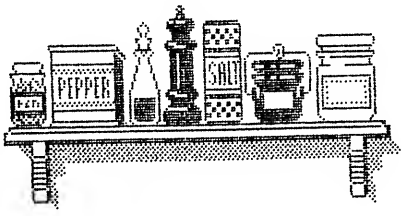
**Newdos/80 only**

```
90 CLEAR 1000: LO = 320: DIM PR$(64)
100 'A$(1) is the top half of COPYAID graphics
110 CLS: A$(1)=CHR$(191) + STRING$(3,131)
+ STRING$(2,32)+CHR$(191) + STRING$(2,131)
+ CHR$(191) + STRING$(2,32) + CHR$(191) +
STRING$(2,179) + CHR$(191) + CHR$(32) +
CHR$(130)+CHR$(139)+CHR$(176)+CHR$(135)
```

```
+CHR$(129)+CHR$(32)+CHR$(191)+STRING$(2,179) + CHR$(191)
 120 A$(1)=A$(1)+STRING$(2,32)+CHR$(191)+STRING$(2,32)+CHR$(191)+STRING$(2,131)+CHR$(188)
 130 'A$(2) is the bottom half of COPYAID graphics
 140 A$(2) = CHR$(143) + STRING$(3,140) + STRING$(2,32) + CHR$(143) + STRING$(2,140) + CHR$(143) + STRING$(2,32) + CHR$(143) + STRING$(6,32) + CHR$(143) + STRING$(3,32) + CHR$(143) + STRING$(2,32) + CHR$(143) + STRING$(2,32) + CHR$(143) + STRING$(2,32) + CHR$(143) + STRING$(2,140) + CHR$(131)
 150 GOSUB 180: GOTO 270

 160 'SUBROUTINES
 170 'scroll protect the first 4 lines. Print copyright notice
 180 POKE 16916,4: PRINT@20, CHR$(21) CHR$(143) CHR$(244) CHR$(245) CHR$(246) CHR$(21)"  Lance Wolstrup";
 190 'print COPYAID graphics
 200 PRINT@78, A$(1); @142, A$(2); @192, STRING$(64,131): RETURN
 210 'scan keyboard for keypress. Return to caller when key has been pressed with a numeric value in variable I
 220 I$ = INKEY$: IF I$ = "" THEN 220 ELSE I = VAL(I$): RETURN
 230 'erase entire line pointed to by variable LO
 240 PRINT@LO, STRING$(64,32);: RETURN

 250 'MAIN MENU
 260 'erase occasional asterisk left by DOS routines
 270 PRINT@63,CHR$(32);
 280 PRINT@320, "1. Format disk";
 290 PRINT@384, "2. Backup Newdos disk";
 300 PRINT@448, "3. Copy individual files";
 310 PRINT@512, "4. Copy Trsdos to Newdos";
 320 PRINT@576, "5. Copy Newdos to Trsdos";
 330 PRINT@352, "6. Delete individual files";
 340 PRINT@416, "7. Delete ALL files";
 350 PRINT@480, "8. Disk directory";
 360 PRINT@544, "9. Exit program";
 370 PRINT@656, "D.  Date-time on/off";
 380 PRINT@720, "P. Password protection on/off";
 390 PRINT@784, "M.  Copy Dos+/Ldos to Newdos"
 400 PRINT@848, "N.  Copy Newdos to Dos+/Ldos"
 410 PRINT@973, "Select your option (1-9, D,P,M OR N)";
 420 GOSUB 220
 430 IF I$ = "D" OR I$ = "d" THEN 470 ELSE IF I$ = "P" OR I$ = "p" THEN 580 ELSE IF I$ = "M" OR I$ = "m" THEN 670 ELSE IF I$ = "N" OR I$ = "n" THEN 750
 440 ON I GOTO 820, 920, 1110, 1310, 1420, 1530, 1790, 1630, 1760
 450 GOTO 420

 460 'DATE & TIME PROMPT AT BOOT-UP DISABLE-ENABLE
 470 CLS
 480 PRINT@LO, "Date - time prompt at Boot time....."

 490 PRINT@LO+128, "<D>isable, <E>nable, Quit";
 500 GOSUB 220
 510 'set up SY$ with the SYSTEM syntax. Then execute as a DOS routine
 520 FL = 0: IF I$ = "Q" OR I$ = "q" THEN 900 ELSE IF I$ = "D" OR I$ = "d" THEN SY$ = "SYSTEM,0,AY=N": ELSE IF I$ = "E" OR I$ = "e" THEN SY$ = "SYSTEM,0,AY=Y": FL = 1 ELSE 500
 530 CMD SY$
 540 CLS: PRINT@LO, "Date - time prompt at Boot time is ";: IF FL = 0 THEN PRINT "disabled" ELSE PRINT "enabled"
 550 PRINT@LO+128, "Press any key for menu"
 560 GOSUB 220: GOTO 900

 570 'PASSWORD PROTECTION DISABLE & ENABLE ROUTINE
 580 CLS: PRINT@LO, "File password protection...."
 590 PRINT@LO+128, "<D>isable, <E>nable, Quit"
 600 GOSUB 220
 610 'set up PW$ with SYSTEM syntax. Then execute as a DOS routine
 620 FL = 0: IF I$ = "Q" OR I$ = "q" THEN 900 ELSE IF I$ = "D" OR I$ = "d" THEN PW$ = "SYSTEM,0,AA=N" ELSE IF I$ = "E" OR I$ = "e" THEN PW$ = "SYSTEM,0,AA=Y": FL = 1 ELSE 600
 630 CMD PW$
 640 CLS: PRINT@LO, "Passwords are now ";: IF FL = 0 THENPRINT "disabled" ELSE PRINT "enabled"
 650 GOTO 550

 660 'COPY DOS PLUS OR LDOS TO NEWDOS ROUTINE
 670 CLS: PRINT@LO, "Copy DOS+/LDOS - Newdos": PRINT@LO+128, "Place Dos+ or Ldos diskette in drive :1": PRINT@LO+256, "It MUST be in single density format....Is it? (Y/N/Q)"
 680 GOSUB 220: IF I$ = "Q" OR I$ = "q" OR I$ = "N" OR I$ = "n" THEN 1090 ELSE IF I$ = "Y" OR I$ = "y" THEN 730 ELSE 680
 690 'set up error trap. set up PD$ holding PDRIVE specs for 35 track, single density drive. Execute as DOS routine set up PD$ to write directory protect to disk in drive :1. Execute as DOS routine
 700 'set up PD$ to COPY from :1 to :0 using nonformatting of destination diskette-copy by file-user files only-check file with operator. Execute as DOS routine
 710 'set up PD$ to restore drive :1 as normal NEWDOS drive. Execute as DOS routine
 720 'NOTE: THE Dos+ or LDOS diskette MUST be in single density format. Both operating systems
```

```
have options for formatting a 35 track single density
diskette
  730 ON ERROR GOTO 2100: CLS: PD$ =
"PDRIVE,0,1, TI=A, TD=A, TC=35, SPT=10,
TSR=3, GPL=2, DDSL=17, DDGA=2,A": CMD
PD$: CLS: PD$ = "WRDIRP,1": CMDPD$: PD$ =
"COPY,1,0,, NFMT, CBF, USR, CFWO": CMD PD$:
PD$ = "PDRIVE,0,1=0,A": CMD PD$: GOTO 1090

  740 'COPY NEWDOS TO DOS+ OR LDOS
ROUTINE
  750 CLS: PRINT@LO, "Copy Newdos ··
Dos+/Ldos": PRINT@LO+152, "*** WARNING
***": PRINT@LO+258, "Destination diskette in drive
:1 will be formatted to single": PRINT@LO+322,
"density before copying. All existing data will be
lost.": PRINT@LO+471, "Continue ? (Y/N)"
  760 GOSUB 220: IF I$ = "N" OR I$ = "n" THEN
1090 ELSE IF I$ = "Y" OR I$ = "y" THEN 800 ELSE
760
  770 'set up error trap. set up PD$ with specs to
make drive :1 into a 35 track single density drive.
  Execute as DOS routine. set up PD$ to FORMAT
drive :1. Execute as DOS routine
  780 'set up PD$ to COPY from drive :0 to :1
using nonformatting of destination drive-copy by file-
user files only-check file with operator-no disk
mount wait. Execute as DOS routine
  790 'set up PD$ to restore drive :1 to normal
NEWDOS drive.
  800 ON ERROR GOTO 2100: CLS: PD$ =
"PDRIVE,0,1, TI=A, TD=A, TC=35, SPT=10,
TSR=3, GPL=2, DDSL=17, DDGA=2,A": CMD
PD$: CLS: PD$ = "FORMAT,1": CMD PD$: PD$ =
"COPY,0,1,, NFMT, CBF, USR, CFWO, NDMW":
CMDPD$: PD$ = "PDRIVE,0,1=0,A": CMD PD$:
GOTO 1090

  810 'FORMAT DISK ROUTINE
  820 CLS
  830 FO$ = "": PRINT@LO, "Format using which
drive ?"
  840 GOSUB 220
  850 IF I$ = "Q" OR I$ = "q" THEN 900 ELSE IF
I$ = "0" OR I$ = "1" THEN 860 ELSE 830
  860 GOSUB 240: PRINT@LO-64,;
  870 'Format drive number specified by I$ - set
up FO$ to hold the syntax to the format command.
Execute FO$ as a DOS routine
  880 FO$ = "FORMAT," + I$ + ",,,,Y": CMD FO$
  890 'no error occurred, so drop error trap
  900 GOTO 1090

  910 'BACKUP NEWDOS DISK ROUTINE
  920 CLS
  930 ON ERROR GOTO 2050
  940 BA$ = "": PRINT@LO, "Source drive: ";
  950 GOSUB 220
  960 IF I$ = "Q" OR I$ = "q" THEN 1090
  970 IF I < 0 OR I > 1 THEN 950
  980 II$=I$:II=I:PRINT@LO,"Source drive =";II
  990 PRINT@LO+20,"Destination drive: ";
 1000 GOSUB 220
 1010 IF I$ = "Q" OR I$ = "q" THEN 1090
 1020 IF I = II THEN I$ = "": II$ = "": GOSUB
240: GOTO 940
 1030 IF I < 0 OR I > 1 THEN 1000
 1040 PRINT@LO+20, "Destination drive =";I
 1050 'II$ holds source drive number. I$ holds
destination drive number. Set up BA$ with syntax
for backup and  execute BA$ as a DOS routine
 1060 BA$ = "COPY " + II$ + ":" + I$ + ",,
NDMW"
 1070 PRINT@LO-64,;: CMD BA$
 1080 'no error occurred, so drop error trap
 1090 ON ERROR GOTO 0: CLS: GOTO 270

 1100 'COPY INDIVIDUAL NEWDOS USER FILES
ROUTINE
 1110 CLS
 1120 ON ERROR GOTO 2050
 1130 BA$ = "": PRINT@LO, "Source drive: ";
 1140 GOSUB 220
 1150 IF I$ = "Q" OR I$ ="q" THEN 1090
 1160 IF I < 0 OR I > 1 THEN 1140
 1170 II$ = I$: II = I: PRINT@LO, "Source drive
=";II
 1180 PRINT@LO+20, "Destination drive: ";
 1190 GOSUB 220
 1200 IF I$ = "Q" OR I$ = "q" THEN 1090
 1210 IF I = II THEN I$ = "": II$ = "": GOSUB
240: GOTO 1130
 1220 IF I < 0 OR I > 1 THEN 1190
 1230 PRINT@LO+20, "Destination drive =";I
 1240 'set up BA$ with syntax for copy, using
copy by file- user files only-check each file with
operator extension. II$ holds number of source
drive. I$ holds number of destination drive
 1250 'Execute BA$ as DOS routine
 1260 BA$ = "COPY,:" + II$ + ",TO,:" + I$+",,
CBF, USR, CFWO"
 1270 PRINT: CMD BA$
 1280 'no error occured, so drop error trap
 1290 GOTO 1090

 1300 'COPY TRSDOS 1.3 TO NEWDOS
ROUTINE
 1310 CLS
 1320 ON ERROR GOTO 2060
 1330 PRINT@LO, "Transfer utility. TRSDOS ···>
NEWDOS"
 1340 PRINT@LO+128, "Insert TRSDOS diskette
in drive 1 and press <ENTER>"
 1350 I$=INKEY$: IF I$="Q" OR I$ ="q" THEN
1090 ELSE IF I$ <> CHR$(13) THEN 1350
 1360 CLS
 1370 'set up PD$ with copy syntax, using nonfor-
matting of destination drive-copy by file-check file
with  operator-and set source pdrive number to 4.
Execute PD$ as a DOS routine.
 1380 PD$ = "COPY,1,0,, NFMT, CBF, CFWO,
SPDN=4": CMD PD$
 1390 'no error occured so drop error routine
 1400 ON ERROR GOTO 0: CLS: GOTO 270
```

```
1410 'COPY NEWDOS TO TRSDOS 1.3 ROUTINE
1420 CLS
1430 ON ERROR GOTO 2060
1440 PRINT@LO,"Transfer utility. NEWDOS ---> TRSDOS 1.3"
1450 PRINT@LO+128, "Insert TRSDOS diskette in drive 1 and press <ENTER>"
1460 I$ = INKEY$: IF I$ = "Q" OR I$ = "q" THEN 1090 ELSE IF I$ <> CHR$(13) THEN 1460
1470 CLS
1480 'set up PD$ with copy syntax, using nonformatting of destination diskette copy by file check each file with operator and set destination drive to
   pdrive number 4. Then execute PD$ as a DOS routine
1490 PD$ = "COPY,0,1,, NFMT, CBF, CFWO, DPDN=4": CMD PD$
1500 'no error occured so drop error routine
1510 GOTO 1090

1520 'DELETE INDIVIDUAL NEWDOS USER FILES ROUTINE
1530 CLS
1540 PRINT@LO, "Delete files from which drive ?"
1550 GOSUB 220
1560 IF I$ = "Q" OR I$ = "q" THEN 1610
1570 IF I$ = "0" OR I$ = "1" THEN CLS: PRINT "PURGE " + I$: GOTO 1590 ELSE 1550
1580 'set up PU$ with purge syntax, using only the user files. Execute PU$ as a DOS routine
1590 PU$ = "PURGE " + I$ + ",USR"
1600 CMD PU$
1610 CLS: GOTO 270

1620 'DISK DIRECTORY ROUTINE
1630 CLS
1640 PRINT@LO, "Directory for which drive ?";
1650 GOSUB 220
1660 IF I$ = "Q" OR I$ = "q" THEN 1730
1670 IF I < 0 OR I > 1 THEN 1650 ELSE GOSUB 240: PRINT@LO, "DIR " + I$
1680 ON ERROR GOTO 2080
1690 DI$ = "DIR " + I$: CMD DI$
1700 'set up DI$ with directory syntax. execute DI$ as a DOS routine
1710 PRINT: PRINT "Press any key to continue": GOSUB 220
1720 'no error occured, so drop error trap
1730 GOTO 1090

1740 EXIT PROGRAM ROUTINE
1750 'unprotect all lines on screen. Erase & end
1760 POKE 16916,0: CLS: END

1770 'DELETE ALL NEWDOS USER FILES ROUTINE
1780 'erase and then unprotect all lines on screen
1790 CLS: POKE 16916,0
1800 ON ERROR GOTO 2050

1810 PRINT@LO, "Delete ALL files on which drive ?"
1820 GOSUB 220
1830 IF I$ = "Q" OR I$ = "q" THEN 2030
1840 IF I$ = "0" OR I$ = "1" THEN 1860 ELSE 1820
1850 'set up directory syntax in DI$. Execute DI$ as a DOS routine
1860 DI$ = "DIR " + I$: CMD DI$
1870 PRINT@0, STRING$(64,32);: PRINT@0, "Deleting ALL files on drive " + I$ + "...just a second...";
1880 'peek the screen to get the filenames. Put filenames in PR$(X)
1890 FOR X = 0 TO 63: PR$(X) = "": NEXT: C = 0
1900 FOR X = 2 TO 16: PR$ = "": FOR Y = 0 TO 63: PR$ = PR$ + CHR$(PEEK(15360 + Y + (64*X))): NEXT
1910 IF PR$ = STRING$(64,32) THEN 1960
1920 FOR P = 1 TO 64: P$ = MID$(PR$,P,1): IF P$ = " " THEN 1940
1930 PR$(C) = PR$(C) + P$: NEXT: GOTO 1950
1940 IF ASC(P$) = 32 AND P$ = MID$(PR$,P-1,1) THEN NEXT ELSE C = C + 1: NEXT
1950 NEXT
1960 PRINT@29, STRING$(19,32);: FOR X = 0 TO C-1: PR$(X) = PR$(X) + ":" + I$
1970 IF LEN(PR$(X)) < 3 THEN 2020
1980 PRINT@832, STRING$(120,32)
1990 PRINT@832, "Killing " PR$(X)
2000 'kill file stored in PR$(X)
2010 KILL PR$(X)
2020 NEXT
2030 CLS: GOTO 150

2040 'ERROR TRAPPING ROUTINES
2050 CLS: RESUME 900
2060 CLS: GOSUB 180: PRINT@LO, "TRSDOS DIRECTORY NOT FOUND ON SOURCE DISKETTE.": PRINT: PRINT "PRESS ANY KEY FOR MENU."
2070 GOSUB 220: RESUME 900
2080 CLS: GOSUB 180: PRINT@LO, "Unable to read directory.": PRINT: PRINT "Press any key for menu."
2090 GOSUB 220: RESUME 900
2100 PD$ = "PDRIVE,0,1=0,A": CMD PD$: CLS: PRINT "Diskette in drive :1 is not readable": PRINT: PRINT "Press any key for menu."
2110 GOSUB 220: RESUME 900
```



# CP/M - The alternate DOS for Model 4

by Roy Beck

Jesse Bob Overholt, aka Monte, has provided us with a program known as CONFIG. It enables us to read and write disk formats of other CP/M machines, and while not all-inclusive, it is nevertheless a very useful and powerful program. It is one which we all need to understand and use.

While CP/M was standardized in some respects at an early date, the disk format situation was allowed to grow in wild and wooly fashion from the beginning. The 5.25" disk formats are far more diverse than the 8" ones, but the problem is universal. The only pretense of a standard of interchange is the 8", SS, SD disk. This format is fully accepted by all. The reason it is universal seems to be that almost no one uses 8" drives anymore, and there is no competition to change it! Meow!

Anyway, we must contend with the multiplicity (mess?) of 5.25" formats which abound, seemingly in the ratio of 2 or 3 different formats for every machine which ever existed. Fortunately Monte smiled upon us and supplies us with the capability of handling over 100 formats at no extra charge. He also promises to create new formatting files for us in case we run into yet another strange format. This service is also gratis. Praises be to Monte.

Monte himself has not been fully consistent, and has created a variety of disk formats for us to contend with. The actual nuts and bolts of any particular format are stored in, or with the BIOS, and Monte simply changes the contents of the appropriate table when he changes the disk format.

Since MM CP/M in a Model 4 can read and write, simultaneously, 4 different disk formats, then it follows that there must be four tables of parameters for disks in the BIOS region.

Apparently Monte has issued two different series of BIOS' for CP/M on the Mod 4. In addition, there are several versions of each BIOS series. I have purchased libraries from two other parties, and have found disks with BIOS' in the 1.xx and 2.xx series; my own original BIOS has the Vers 2.32 BIOS. I have tried and discovered that Thou Shalt NOT Mix BIOS Versions. But to alleviate the problems, Monte has provided a file on my disk entitled DSK.FDF which contains over 100 alternate formats. Near the end of this file are some formats which appear to be compatible with Monte's earlier BIOS, allowing upgrading of programs to disks using the later formats. Included are formats used with V.1.26, 1.30, 1.32, 1.42, and 1.44.

In my BIOS version, I need only hit ^F2 to call up the reCONFIGuration program. The method of calling it up may vary with the BIOS in use, but there will be a way to copy (PIP) the files from the earlier to the later disks.

Let me go through the necessary keystrokes to change the format of one of my drives, in hope that an example plus ritual practice will add facility to all of you and allow you to readily interchange disk formats. I will go through the sequence of commands applicable to my BIOS, V.2.32. Other versions of the BIOS may require somewhat different sequences.

If you are using an earlier BIOS, you really ought to have Monte update it for you. That assumes, of course that you have your own legal copy of Monte's CP/M. If you don't, shame on you. I say that sincerely, because we TRS users need all the help we can get, and failing to support our few remaining vendors is undercutting yourself and all the rest of us.

To continue, at the A prompt, I key ^**F2** to get the CONFIG program. This will give me a menu of possible activities.

I first choose **F** (Disk drive Definitions) to verify that the DOS correctly understands the available drives on the machine I am using.

At the next menu, use the **last entry** (Number of drives) to tell the DOS how many physical drives are connected to the machine. The actual letter to hit varies with the number of drives previously entered into the BIOS. If, for example, the previous setup was for **two drives**, then letter **C** will allow you to reset the quantity. If **four** was the setup, then the letter to change quantity will be E. While this may sound confusing, it will be readily apparent when you go through the procedure.

I next type the letter **B** corresponding to physical drive B to tell the BIOS the size of the drive. (Don't fiddle with the A drive, as you may make the DOS disk unbootable)! A new menu then comes up giving me the choice of the following:

A. type of drive (5" or 8")
B. how many tracks are on the drive
C. how many sides are available
D. the head stepping rate.

Since only two options are available for A and C, these toggle each time you hit them.

B and D give you additional menus with a range of choices. In the latter cases, hit BREAK to back up one menu level. In general, hit BREAK to back up one menu level except in the case of items which toggle. Repeat this for each drive. Finally hit Break to return to the top CONFIG menu level.

I now select **G** (Disk format definitions) on this menu to get to the current format assignment list. Montezuma Micro will allow up to 4 logical drives to be defined at any given time, each with its own

format, plus a MEMDISK (always identifed as drive M for ease of remembrance).

Note that while Monte has allowed us up to 4 logical disk drives (5 if we enable MEMDISK), if we have less than 4 physical drives, we can assign more than one logical drive to the SAME physical drive. The advantage of this arrangement is that the same physical drive can be simultaneously configured for two completely different disk formats, responding according to which logical drive we ask for.

To carry this a step further, the same physical drive can be configured, for example, as a Montezuma Micro Drive B with DS, DD, 40Tk data disk of 400K, as drive C with the same configuration as the DOS disk in drive A (useful for backing up a DOS disk) and can be simultaneously configured as Drive D on a Kaypro Model 4, SS, DD, 392K machine. This allows one to read and write to your own data disk, backup DOS disks, and read and write to a Kaypro disk, all in the same physical drive by addressing it as 3 different logical drives. Believe me, this works as advertised! I should add in passing, that many public programs are available on Kaypro disks, as this appears to be somewhat of a standard of exchange in the presentday CP/M world.

To continue, I will now select a logical drive, say **D**, to assign a different format. As soon as I indicate which logical drive I am going to reassign, the program immediately presents me with a list of 8 different Montezuma Micro formats from which to choose. But look at the last choice; it says:

"More format choices".

Hitting **I** provides 8 more Montezuma formats, and another "More format choices"! By continuing to step through the available formats, a screen at a time via the **I** key, you will be offered formats from "Access Matrix" to "Zorba GC200", including Cromemco Z-2, the Digital Research SS SD 8", Lobo MAX-80, Omikron, the Osborne Executive, and many others, some of which I have never heard of elsewhere!

Having found the Kaypro 4, for example, I hit the corresponding key. The screen now confirms to me the choice as "Kaypro 2X, 4, & 10 (40T, DS, DD, 392K)" and asks me which physical drive is to be assigned to this Kaypro logical drive D. For my 4P I respond with **1**. The screen now returns to a menu listing the new current assignment of all 4 (or 5) logical drives. At this point I can go ahead to change any other logical drive, but now being satisfied with the assignments, I hit BREAK.

At this point I have changed the format of drive D in memory, but it is not yet written to the DOS disk. I now choose **H** to "Save current configuration on disk (SYSGEN)".

The screen next asks which disk to save this configuration on. In my case I am modifying the operating DOS disk, so I reply **A**.

Next, you will be asked if you want an AUTO command at bootup. Your option here; MDIR is nice, but certainly not necessary. I usually use it, but this is up to you.

You will then be asked if you want the MM CP/M banner displayed at bootup. I usually say "yes", because the banner is reassuring.

Finally the DOS will ask if you want the MEMDISK enabled at bootup. Again, your option. Personally, I don't do this unless I need the MEMDISK. It does require some extra time to create the MEMDISK on bootup, and if not needed, save the time.

The DOS will now SYSGEN and return you to the CONFIG menu, in case you have second thoughts on anything. Finally you will have to press BREAK once more. This reboots with the new configuration.

Having done all the above, you now have reconfigured one or more of your 4 logical drives, and you can now insert a Kaypro disk, for example, and read or write to it.

CAUTION! When you insert a disk into drive 1, be very certain you then log onto the correct logical drive. If you have the Kaypro format assigned to logical drive D on physical drive 1, don't log onto logical drive B (which has some other format, but is also assigned to physical drive 1) and try to write a Kaypro file. Instant garbage on the Kaypro disk will be the result! (The voice of experience is speaking here).

As I mentioned in an earlier column, I have a Model 4DD which contains 4 half height, DS, DD drives, two of them 40 Track and two of them 80 Track. Monte has provided the necessary CONFIG formats to allow me to match these drives, and I have no trouble operating from these 4 drives. I have WORDSTAR 4.0 on a 40 Tk system disk, with the Spelling checker on one of the 80 Tk drives. In this way I have the entire WORDSTAR system available without having to swap disks. Of course, the document files are kept on the other 40 Tk drive configured as a 400K data disk.

When I wish to operate on the Model 4P, I have two system disks, one with WORDSTAR, the other with the spelling checker. The second 40 Tk drive then accommodates the same data disk as was used on the 4DD. The WORDSTAR system disk and the data disks will operate in either machine.

Actually, I am fudging a bit when I describe my WORDSTAR system as I write much of my stuff on my favorite portable, my Model 100 with 32K of RAM and WRITEROM from Portable Computer Support Group. I use it almost every day at work, writing memos, preparing tables of data, etc, and I am most comfortable and fluent with it. Fortunately, RS designed the TEXT program in the Model 100, 102, 200 family with command keystrokes which are similar to those of WORDSTAR, so I am able to easily move from one to the other.

Any questions?

It would make my task easier if I was answering specific questions instead of essentially writing tutorial articles, so let's hear from you.

---

# FIXES & ENHANCEMENTS

### TEACHING AN OLD DOS NEW TRICKS

We goofed!!! Listing 2 of Scott McBurney's 'Teaching an old DOS new tricks' (March 1988 - page 5) does not work. Don't blame Scott. We are the ones that left out a line in the program listing.

To make the program work as described, simply insert line 127 as follows:

```
127 B = -1
```

Sorry about that.

---

### SPELLING TUTOR

Frank Blunda of Laytonsville, Md. has modified the SPELLING TUTOR program (January 1988 - page 19) to work both on Model III and 4.

Add line 40:

```
40 PRINT@0,STRING$(EI,32);:PO = 0:RETURN
```

Change the following lines:

```
1 CLEAR 500:DEFINT A-Z:DIM WD$(20), WR$(10), CO$(10):QA = 0:CO = 0:CU$ = CHR$(176): IF PEEK(293) < >73 THEN MA$ = " TRS-80 Model IV":EI = 80:L3 = EI*3:HA = 40:DI = 10 ELSE MA$ = "TRS-80 Model III":EI = 64:L3 = EI*3:HA = 32:DI = 10
10 LO = PO*EI + INT((EI-LEN(A$))/2):PRINT@LO, A$;:RETURN
100 PRINT CHR$(15);:CLS:PO = 0:A$ = "Spelling Tutor":GOSUB 10:PRINT@0,"TRSTimes Presents:";: PRINT@EI-16,MA$;STRING$(EI,131)
1000 GOSUB 40:A$ = "Input Spelling Words": GOSUB 10
1010 F = 0:PRINT@L3,CHR$(31):PRINT@L3, "How many words will you input (20 is the maximum)";: W$ = "":INPUT W$:IF W$ = "" THEN 100 ELSE W = VAL(W$)
1020 IF W < 1 OR W > 20 THEN 1010 ELSE PRINT@L3,CHR$(31)
1030 PO = L3:FOR X = 1 TO W:PRINT@PO, "Word #";USING "##";X;:PRINT" "; STRING$(15,46);:PO = PO + EI
1040 IF F = 1 THEN 1050 ELSE IF X > 9 THEN F = 1: PO = L3 + HA
1060 F = 0:PO = L3 + DI:FOR X = 1 TO W: GOSUB 30:PO = PO + EI
1070 IF F = 1 THEN 1080 ELSE IF X > 9 THEN F = 1:PO = L3 + HA + DI
1100 GOSUB 40:A$ = "Edit Spelling Words": GOSUB 10
1110 PRINT@L3,CHR$(31)
1120 F = 0:L = L3:FOR X = 1 TO W: PRINT@PO + L,USING"##";X;:PRINT". ";WD$(X);:L = L + EI
1130 IF F = 1 THEN 1140 ELSE IF X > 9 THEN F = 1:L = L3 + HA
1150 PO = 14:PRINT@PO*EI,CHR$(31): A$ = "Type the number of the word to edit - type 0 when all are correct":GOSUB 10
1170 PRINT@PO*EI,CHR$(31):PRINT@PO*EI, "Change: ";WD$(X)::PRINT@PO*EI + EI + 4,"To: ";: WD$(X) = "":PO = 15*EI + 8:L = 0:ML = 15:PRINT@PO, STRING$(15,46);:GOSUB 31
1180 IF X < 10 THEN L = EI*2 + X*EI ELSE L = EI*2 + HA + (X-10)*EI
1190 PRINT@L + 4,WD$(X);:PRINT@PO-EI, CHR$(31):GOTO 1050
1200 GOSUB 40:A$ = "Saving Spelling Words To Disk":GOSUB 10:PRINT@14*EI,CHR$(31)
2010 GOSUB 40:A$ = "Loading Spelling Words From The Disk":GOSUB 10:PRINT@L3,CHR$(31)
2070 GOSUB 40:A$ = "Spelling Tutor":GOSUB 10: PRINT@0,"Words: ";USING "###";QA;: PRINT@EI - 12,"Correct: ";USING"###";CO;
2100 PO = 14:A$ = "Press any key when ready": GOSUB 10:GOSUB 20:PRINT@L3,CHR$(31)
2130 PRINT@PO*EI,STRING$(LEN(A$),32): A$ = "Now you spell it.":GOSUB 10
2300 QA = QA + 1:PRINT@7,USING"###";QA;: PRINT@EI-3,USING"###";CO;
2320 GOSUB 20:IF I$ = CHR$(13) THEN PRINT@L3,CHR$(31):GOTO 3110 ELSE IF I$ = "Q" OR I$ = "q" THEN 2400 ELSE 2320
2400 GOSUB 40:A$ = "Report Card":GOSUB 10: PRINT@L3,CHR$(31)
2800 GOSUB 40:A$ = "*** An ERROR has occurred ***":GOSUB 10:PO = 4:A$ = " The file named WORDLIST/DAT was not found":GOSUB 10
3000 CLS:PRINT CHR$(14);:END
```

---

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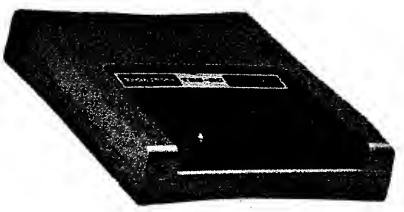

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# Doubling your Draw Power

by George Madison

Those of us who have Radio Shack's HIRes board have two excellent options for HiRes drawing/paint programs; ProDraw from MicroLabs, and TrsDraw, a ShareWare program written by Paul Bradshaw. With the advent of TrsText, an add-on for TrsDraw that allows the use of DotWriter fonts for on-screen text (written by yours truly), both programs have an impressive display of abilities. The problem?? CHOOSING one of them!!

This problem is no more, if you have 128k and a copy of DoubleDuty, for believe it or not, these programs can work VERY well together, if you are aware of a few little easily handled quirks.

The main drawback to having both programs resident at once is that both programs lose the use of the extra RAM; ProDraw uses it for block storage space, TrsDraw for two "Whoops" buffers. However, since this procedure saves tedious switching back and forth and back and forth between the two programs when you discover you need a capability of the OTHER program, it can be easily worth the minor inconvenience.

One little incompatibility is that when loading or saving files, ProDraw defaults to an extension of /HR, while TrsDraw uses /HRG. However, since TrsDraw runs under BasicG, it's quite easy to modify TrsDraw to use /HR instead. When doing this, it's also a good idea to change TrsDraw's block save extension to /BK, as its normal default of /BLK is identical to ProDraw's, but the two programs do NOT use the same format.

Since TrsDraw moves the screen window(*) slightly (8 pixels to the right and 3 pixels down) to accomodate some of its functions, you should only save and load graphics files from within TrsDraw; ProDraw appears to save properly, but to be on the safe side do all your saving and loading from TrsDraw. (This might seem to negate the problem I mentioned above; but if you use the programs independently at all, you are sure to encounter some headaches.) Also, this makes ProDraw's cursor addressing look a little off at the edges of the screen. However, since TrsDraw enables the mixed text/graphics mode, you can always see ProDraw's coordinate display, which helps you keep track of where you are.

The primary thing to be aware of is that since the switching is done outside program control, one has to be careful that the cursor of the program one is switching OUT of is "off" before the switch is made. This is easily done in both cases. When one is leaving TrsDraw, one can use the <Q> command; normally, this is used to Quit the program; however, it requires that you press <ENTER> to confirm it, and in the meantime suspends the cursor; when one returns, one can use <SHIFT><CLEAR> to abort the command. There are several other TrsDraw commands that temporarily suspend the cursor, such as accessing the <D>isk I/O menu.

For ProDraw, one simply uses the <M> command to display the command menu before switching out; when one returns, simply press <ENTER> to return to the drawing.

In summary, these two programs have highly complementary abilities, and work incredibly well together. If you have 128k, DoubleDuty and these two graphics editors, I'm convinced that this is the way to go for most graphic editing chores.

(*) On the RS board, the displayed screen is actually a "window" on the 1024x256 graphics plane provided by the 32k of RAM on the HiRes board. The methods for manipulating this "window" have been documented elsewhere.

# TRSText

Have you ever noticed that the one function missing from HiRes graphics editors for the TRS-80 is a decent text function?? The text produced by BasicG is horrible, harking back to the days of printers with no descenders; that by MicroLabs products looks better, but is quite plain. When you couple that with the fact that the TRS-80 world has a readily available source of bit-mapped fonts, the lack becomes even more curious; there are very few TRS-80 users who've been around for any length of time who haven't heard of ProSoft's DotWriter package, which can print out documents in a wide variety of great fonts.

Until now, it was a case of "Ne'er the twain shall meet;" there was no way to use the fonts intended for DotWriter with the HiRes screen. Now, however, there is an answer: TRSText. TRSText is an "add-in" for the shareware HiRes editor TRSDraw 2.1; it is not intended to work with any other version or any other graphics editor. What TRSText does is to replace the "Text" function in TRSDraw with routines which will allow you to use

your 8-bit DotWriter fonts ON SCREEN as a standard function within TRSDraw!

**What to do:**

Type in TRSTEXT/BAS and save it with the ASCII option; the command should be:
**SAVE"TRSTEXT/BAS",A**

Load TRSDRAW/BAS, then type:
**MERGE"TRSTEXT/BAS**

This command will overlay TRSTEXT on TRSDRAW, adding TRSText capability to TRSDRAW. Now, issue the command to **DELETE 155-160**. TRSText is shorter than the original TRSDraw text function, in number of lines at least. Save the modified program back to disk, and your installation is done. REMEMBER!!! BE SURE you have a backup copy of TRSDRAW on another disk; it's NEVER a good idea to modify your only copy of a program!

**Using TRSText:**

Not much could be simpler. Place the cursor near where you will want the upper left-hand corner of the text to be, then press . The screen will clear (don't worry! I've just switched to the text screen, not erased your work!) and you will be asked the name of the DotWriter font you wish to use. If the extension of the font you want to use is "/PR", you don't need to type it; the program will add if for you, even if you specify a drive.

Next, you will be asked for the number of screen dots to leave between characters; this will depend on the font you are using. Usually larger fonts will require larger numbers to look right; some fonts, such as CAMEO/PR, DOTBAN/PR and CHAIN3/PR will require a "0" here for them to connect properly. (The _Letterset Reference Catalog_ from ProSoft can be very useful here!)

Finally, you will be asked to enter the text you want displayed. Press <ENTER> when you are done. The screen will return to your graphics, with 4 blinking cursors showing you the approximate size the text will be (remember it may not be quite so tall, especially if you aren't using characters with "descenders" -- y, j, g, etc.) Don't expect perfection until you become familiar with the fonts you are using; there is a certain amount of trial and error involved.

At this point, you may press any of the usual TRSDraw movement keys to reposition your block of text, <ENTER> to have the text placed on the screen, or <SHIFT> <CLEAR> to abort the whole thing and return to the normal cursor. You needn't worry about the text being written off the edge of the screen; the program automatically checks to make sure it will fit, and if the line of text you enter won't fit onto the screen, text entry is aborted and the program returns to the main program cursor.

Have fun with this; I've debugged TRSText as thoroughly as I can, but as you know, "there's always another bug." If you have trouble, please check that you are installing TRSText on Version 2.1 of TRSDraw; I have no idea whether it would work with any other versions that may exist. Also, check your typing! I have no control over typing bugs. If the bug is "real", please let me know.

**Acknowlegements:**

TRSText is based on an algorithm for "decoding" DotWriter fonts developed by Scott McBurney (S.MCBURNEY on GEnie).



## TRSTEXT/BAS

```
6 CLEAR:
DEFINT A-Z:
CLS:
SCREEN 1:
OUT 142,1:
SYSTEM "system (break=n)":
RESTORE 153:
FOR N=1 TO 83:
READ A$:
FO$=FO$+CHR$(VAL("&H0"+A$)):
NEXT

43 IF CU=1
THEN IF FL=2 OR FL=6
OR FL=13 OR FL=20 OR FL=24
THEN PUT(X-3,(Y*ABS(FG<>0))+V-3),CU:
PUT ((X*ABS(FG<>0))+U-3,Y-3),CU:
PUT((X*ABS(FG<>0))+U-3,
(Y*ABS(FG<>0))+V-3),CU

44 WEND:
IF CC=-1 AND FL<>5
THEN PUT(X-3,Y-3),CU:
IF FL=2 OR FL=6 OR FL=13
OR FL=20 OR FL=24
THEN PUT(X-3,(Y*ABS(FG<>0))+V-3),CU:
PUT((X*ABS(FG<>0))+U-3,Y-3),CU:
PUT((X*ABS(FG<>0))+U-3,
(Y*ABS(FG<>0))+V-3),CU

61 M=0:IF FL<>0THEN ON FL GOTO
36,95,100,161,126,85,200,66,68,36,36,90,
115,64,36,74,36,36,69,139,36,36,80,36,36,36
```

```
129 IF B = 20 THEN SCREEN 1:
   PRINT "Enter the DotWriter Font filename you
wish to use:";:
   LINE INPUT FONT$:
   IF LEN(FONT$) = 0 THEN CLS:
   CREEN:
   GOTO 42

130 IF INSTR(FONT$,"/") = 0
   AND INSTR(FONT$,":") < > 0 THEN
   FONT$ = LEFT$(FONT$,INSTR(FONT$,":")-1) +
   "/PR" + RIGHT$(FONT$,LEN(FONT$)-
   INSTR(FONT$ ,":") + 1)

131 IF INSTR(FONT$,"/") = 0 THEN
   FONT$ = FONT$ + "/PR"

132 INPUT"Input # of dots between characters
   (0 9)";SD:
   ON ERROR GOTO 152

133 OPEN "I",1,FONT$:
   CLOSE:
   OPEN"R",1,FONT$,1:
   FIELD 1,1 AS C$:
   ON ERROR GOTO 0

134 GET 1,1:
   L = ASC(C$):
   GET 1,2:
   L = L + 256*ASC(C$):
   GET 1,3:
   W = ASC(C$)

135 GET 1,7:
   PL = ASC(C$):
   IF PL > 6 THEN PL = 6

136 GET 1,9:
   NC = ASC(C$):
   IF NC > 255 THEN NC = 255

137 LINE INPUT "Text:";CHAR$:
   CLS:
   SCREEN:
   IF LEN(CHAR$) = 0 THEN CLOSE:
   GOTO 42

138 U = 0:
   FOR I = 1 TO LEN(CHAR$):
   A$ = MID$(CHAR$,I,1):
   GOSUB 150:
   U = U + W1 + SD-1:
   NEXT I:
   U = U-SD:
   IF U > 640 THEN U = 0:
   CLOSE:
   GOTO 42:
   ELSE V = PL*8:
   FG = 20: FL = 20:
   GOSUB 32:
   GOTO 42
139 IF B = 28 THEN U = 0:
   V = 0:FG = 0:FL = 0:
   CLOSE:
   GOTO 42:
   ELSE IF B < > 27 THEN GOTO 42

140 FO! = VARPTR(FO$):
   FO! = PEEK(FO! + 1) + PEEK(FO! + 2)*256:
   FOR I = 1 TO LEN(CHAR$):
   A$ = MID$(CHAR$,I,1):
   GOSUB 150

141 Z = 1:
   IF A$ = " " THEN X = X + W1:
   GOTO 149

142 A = L*(ASC(A$)-32)

143 FOR J = 0 TO PL-1:FOR K = 0 TO W1-1

144 GET 1,A + Z:A1 = ASC(C$)

145 IF A1 < 128 THEN DY = (Y + J*8) + (256*A1):
   ELSE DY = (Y + J*8) + (256*A1)-65536!

146 X1 = X + K:
   CALL FO! (X1,DY):
   Z = Z + 1:
   NEXT :
   Z = Z + (W-W1):
   NEXT

147 IF W1 = 0 THEN W1 = W

148 X = X + W1 + SD-1

149 NEXT I:
   FG = 0:FL = 0:
   CLOSE:
   GOTO 42

150 IF A$ = " " THEN W1 = INT(W*.6):
   RETURN

151 PR = L*NC + (ASC(A$)-31):GET
1,PR:W1 = ASC(C$):RETURN

152 IF ERR < > 0 THEN CLS:
   PRINT"Font ";FONT$;" is not on line; please try
   again!":
   PRINT:RESUME 129

153 DATA 3E,73,D3,83,D5,E5,DD,E1,DD,6E,00,
   DD,66,01,DD,E1,DD,7E,00,47,DD,7E,01,4F,C5,7D,
   E6,07,CB,1C,CB,1D,CB,1C,CB,1D,CB,1C,CB,1D,
   67,3E,07

154 DATA 94,47,3E,01,28,04,CB,27,10,FC,5F,55,
   C1,78,D3,81,7A,D3,80,06,08,CB,01,DB,82,38,07,
   67,7B,EE,FF,A4,18,01,B3,D3,82,10,EE,C9
```

# Meet the Model 4P, the ROM-less wonder!

by Roy T. Beck

Recently, Gordon Collins of NATGUG NEWS enquired on behalf of some of his readers about "hidden" commands in the 4P ROM. Could I offer any info along those lines? This little essay will reveal the sum total of my knowledge on this subject.

First, I suppose all of you know that the Model 4P "has no ROM". While that's what is always said about the 4P, like a lot of other old sayings, to quote Gershwin, "It ain't necessarily so!". In fact the 4P, like every other computer on the market, does indeed have a ROM. The trick is that it disappears during the boot-up process, and does not wait around to be interrogated once the DOS is controlling the machine.

As a side note, every machine HAS to have a ROM in order to make an orderly cold or warm start. The smallest Boot ROM I have ever seen is one Don Tarbell used in an S-100 floppy disk system. It was only 16 bytes long and contained just enough code to load one sector of code from a floppy disk. That sector of code was in turn a loader routine which loaded the actual DOS which operated the machine.

The 4P actually has a very respectable ROM, 4K in length, which contains a lot of intelligence; enough, in fact, to load a Model III ROM image if the intent is to run a Model III DOS and program, to load a Model 4 DOS if a Model 4 program is to run, and to load special programs if desired. Actually, the ROM will load any DOS or program if the software is written to fit the machine.

At powerup or RESET, a ROM routine scans the keyboard for 3 seconds, looking for any keypresses. Any keypress during this time will be interpreted as one of the special hidden commands. If you don't want to wait out the 3 seconds, just hit ENTER, either after a special command or instead.

The 4P ROM contains a lot of cute tricks in its bits and bytes. How about the built-in memory test? If you want to test your memory chips, just press and hold the period key <.> while pressing RESET. After the test intro message appears, press <ENTER> to start the test. The ROM will then begin executing a RAM memory test, which will run indefinitely. It will put up a message identifying the bad RAM chip if it should find one. I assume it also tests the extra 64K of RAM if it is installed, but I haven't verified that.

The Model III ROM image is loaded from a file on the boot disk named MODELAIII. If you do not specify to the contrary, the ROM will look for and load the MODELA/III file. But the designers of the 4P provided the capability of selecting a different boot file if you wish.

This is accomplished by depressing any one of the letters A through G immediately after RESETting the machine. In that case the ROM will look around the boot disk directory seeking a file named MODEL**x**/III where **x** matches the letter depressed.

This allows loading an alternate ROM image if desired. Such an image might contain something like a Dvorak keyboard image instead of the normal QWERTY, for example. The possibilities are limited only by your imagination and programming skill.

There is no specific length limit on programs loaded by the ROM. The Model III ROM image, for example is approximately 14K in length, and the ROM has no problem with that.

If you want to know what version of the ROM is in your machine, press <BREAK> and <v> simultaneously while RESETting your machine, and the ROM version will appear on the screen. My version is "1(16) 18-Oct-83".

Holding down a function key (or in this instance the corresponding numeric key 1, 2, or 3) during Reset will do the following:

**F1** This is supposed to cause the machine to boot from a Hard Disk. I don't know how well this works, as I don't have an HD connected.

By the way, the 4P (but not the 4), is supposed to autoboot from an RS hard disk. I understand this autoboot won't work with TRSDOS V6.3 on your HD, even for those who had it working under V6.2. The reason is said to be that Bill Schroeder (LDOS) moved some addresses around in V6.3 that the ROM autoboot needs, so it hangs the machine instead. The Hard Disk can still be booted from a floppy in this case, but a simpler answer might be to keep V6.2 on your HD.

**F2** will cause the 4P to boot from a Mod 4 floppy disk, even if it normally self-boots from an HD.

**F3** works similarly, but boots a Mod III floppy. If you wish to load the MODELA/III disk from one disk and change to a different DOS disk, then hitting <p> followed by <ENTER> will cause the machine to load the Mod III ROM image, and then pause with a message to change to the desired disk. Hitting <ENTER> will then proceed to load the DOS from the second disk.

The advantage of this procedure is that no time is spent loading the DOS from the first disk, which

will then be overlayed by the version from the second disk in any event.

If you hit BREAK instead of loading a different DOS disk in the above procedure, the machine will come up with the Cass? question from BASIC. Hit ENTER again, and the Memory Size? question will come up. Answer appropriately and you will be in Mod III BASIC.

Of course you are limited, because this mode has no DOS, and because the 4P machine has no cassette port hardware, you can't load a tape either. However, it is Mod III BASIC, which may occasionaly be useful by itself.

At RESET, pressing letter N is supposed to prevent the machine from loading the Mod III ROM image, even if the internal logic test indicates it needs to be loaded. This might be useful if you have loaded a non-standard version of the ROM image and don't want it disturbed. This doesn't seem to work on my machine.

Conversely, pressing L after a Reset will force the loading of a fresh ROM image even if the internal logic test indicates a valid copy is in RAM. This allows you to insure a good (or known) ROM image is loaded. This one works OK for me.

The (Right SHIFT) key is supposed to cause the machine to boot from the RS-232, but no one I know knows how to make this work. My machine comes up with "Not Ready".

It probably involves use of the special internal 300 baud modem available for the 4P. You are on your own with this one. Anyone care to analyze it and write up your results? Should make an interesting article.

As a clue to the above and as general information, memory byte 4055H holds a value which defines the type of boot taking place

.

The values are as follows:

1 Floppy Disk
2 Hard Disk
3 ARCNET
4 RS-232C
5 Reserved
6 Reserved
7 Reserved

Location 4057H contains an indication of the baud rate if the RS-232C boot is in use.

My sources of information include the Mod 4P Service Manual 26-1080, an article by Paul F. Snively in issue #19 of The Alternate Source Programmer's Journal, and my disassembled listing of the ROM from my 4P.

By the way, Montezuma Micro's version of CP/M 2.2 does not require the presence of the MOD III ROM image in the 4P in order to load. Jesse Bob took advantage of the ROM features to make the CP/M self-booting on both the 4 and the 4P.

COPYCAT 4.1 by Omnisoft also boots without the Model III ROM image.

As I mentioned before, the boot ROM disappears after it has served its purpose. DEBUG can be used to execute a little machine code routine to make the ROM accessible. A further manipulation can transfer an image of the ROM to higher RAM, from where it can be dumped to a disk file and disassembled at leisure. See Sniveley's article.

I personally took a different approach to accessing the ROM, because I didn't know enough to do it the way Snively did it. Not knowing the code to make the ROM visible, I simply pulled the ROM out of the machine and transferred it to my trusty Model I.

In the Model I is an old OMIKRON Mapper. I replaced the OMIKRON mapper's own ROM with the ROM from the 4P. I had previously revised OMIKRON's reset circuitry to keep the OMIKRON inactive at RESET which prevented it from attempting to take over the machine.

I then used RSM monitor in the Model I to take control of the machine; by shifting the OMIKRON's latches, I made the 4P ROM accessible and copied it into higher memory. I then dumped it to a NEWDOS 80 disk, from where I could use the NEWDOS disassembler.

Of course, Snively's method is much simpler, and is the way to go. I only explained my method to illustrate the old saying, that "there is more than one way to skin a cat", and to point out that a little imagination can solve a problem.

By the way, a couple of years ago the members of the SAGATUG club and some Australians wished to make NEWDOS/80 self-booting on the 4 and 4P.

To do this, they took advantage of the ROM features, and came up with a practical method of accomplishing it. The resulting NEWDOS/80 DOS disk is slightly peculiar in certain respects, but is completely functional.

Due to the unique layout of the disk, I believe it has to be backed up in a special way, (COPYCAT 4.1, for instance), but that is the only constraint on operation of the special disk. Most of this effort was reported in Northern Bytes. Some of it was probably only reported in the SAGATUG newsletter.

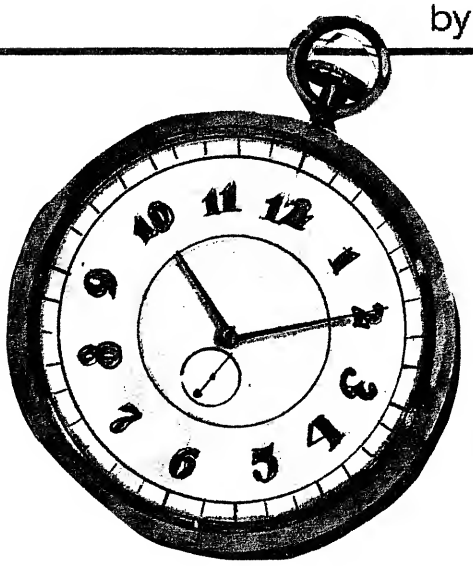
In conclusion, there is probably much more still hidden in the 4P ROM, awaiting careful excavation and analysis by us users. It is a sure bet Tandy will never tell us about it!

---

# HUNTING FOR BURIED TREASURE

## Still more PEEKING and POKING Model 4.

by Lance Wolstrup



We will begin this installment of Peeking and Poking Model 4 with a quick refresher course on the DOS command that handles the real time clock: TIME.

Opening the TRSDOS 6.2. manual to page 1-127, we find the following description:

**TIME [hh:mm:ss][(parameter)]**

You can use TIME to see the current time.
You can also use it to reset the time.

If you specify hh:mm:ss TRSDOS resets the time.
If you do not specify it, TRSDOS displays the current time.

The parameter is: CLOCK=YES/NO
turns the clock display on or off.
YES is the default.

The real time clock turns off while TRSDOS does some of its disk I/O functions, such as BACKUP and FORMAT, so do not depend on the clock for constantly accurate time and date information.

You can enable and disable the prompt for time on power-up or reset with the SYSTEM (TIME=) command.

Examples:

**TIME** (ENTER)
displays the real time of the system.

The clock is reset to 00:00:00 every time you power up.

**TIME (CLOCK=YES)** (ENTER)
displays the real time clock in the upper right corner of the screen.
Note: CLOCK will print over whatever TRSDOS attempts to print at the location occupied by the clock display.

**TIME 12:29:34** (ENTER)
sets the clock to 12:29:34 p.m. The latest acceptable time is 23:59:59 as the clock runs in the 24-hour mode. When the clock reaches 23:59:59, the date is automatically updated.

The time lag between pressing (ENTER) and the time set on the clock is approximately 2 seconds. So, when setting the clock with the correct time, remember to adjust for the 2-second time lag.

---

## DO IT FROM BASIC

This is all very nice, but the TIME command can be executed only from the 'TRSDOS Ready' prompt. We need to find a way to manipulate the command from within BASIC.

Fortunately BASIC has a command that will 'hook' in to the DOS library commands. This command is called SYSTEM and it allows us to execute all the library commands, except DEBUG, and returning to BASIC (note: do not confuse this with the DOS command with the same name).

Examples:

**SYSTEM"TIME"** will display the current clock time. (PRINT TIME$ will also display the current clock time.)

**SYSTEM"TIME 12:34:29"** will set the clock to 12:34:29.

**SYSTEM"TIME (CLOCK=YES)"** will display the clock constantly at the top right hand corner of the screen.

**SYSTEM"TIME (CLOCK=NO)"** will turn off the clock display.

**SYSTEM"SYSTEM (TIME=YES)"** will prompt for time at power-up or reset.

**SYSTEM"SYSTEM (TIME=NO)"** will skip the time prompt at power-up or reset.

The SYSTEM command can be used to do many other useful things. It is very powerful. Unfortunately, it is also very slow as it has to load in an overlay before it can execute the desired library command. (for a more detailed discussion of SYSTEM, see FUN27/DOC in Issue #5 of TRSLINK.)

## THE FAST WAY

Now, if you paid attention to the January 1988 chapter of PPM4, you know that we can set the time and turn the clock display on or off by PEEKing and POKEing instead of using the SYSTEM command.

Here is how we did it:

Clock display on:
**POKE &H7F,PEEK(&H7F) OR 16**

Clock display off:
**POKE &H7F,PEEK(&H7F) AND 239**

Set time:
**POKE &H2F,hours: POKE &H2E,minutes: POKE &H2D,seconds**

Much faster, isn't it?

## HAVE CLOCK - WILL TRAVEL

At this point we will finally get down to the reason for the above tutorial. Remember, the manual stated that 'the real time clock is displayed in the upper right corner of the screen'?

That's right! Every time you turn the clock display on, there it is: on line 0, column 69 through column 77. That is boring. Also it is downright irritating, as I can visualize several applications where it would be handy to have a running clock displayed somewhere on the screen other than where LSI chose to make it appear.

Rather than complain about this lack of ability, let's put on our surgical gloves and perform some strategic incisions on TRSDOS 6.2. By PEEKing and POKEing, we can jazz up the clock display to appear on the screen wherever we wish.

**The addresses containing the screen location of the clock are 078BH and 078CH.**

PRINT PEEK(&H78B) returns 69 (45H)
PRINT PEEK(&H78C) returns 248. (F8H)

The screen address of the clock is F845H (63557 decimal). If we subtract 69 from this address we get F800H (63488 decimal).

Why subtract 69? Because the first character of the clock is displayed at PRINT@ location 69. Therefore, by subtracting 69, we find the beginning address of where the Model 4 stores the screen data **before** it is actually switched onto the screen, and it continues for 1920 bytes up to FF7FH.

Changing the clock location is now easily done by performing the following five steps:

1. Decide on the screen location of the clock.
2. Add the screen location to F800H.
3. Find the MSB and LSB of this new number.
4. POKE the MSB into 78CH.
5. POKE the LSB into 78BH.

Now turn on the clock by:
POKE &H7F,PEEK(&H7F) OR 16

For example:
1. Let's display the clock at the extreme left on the last screen line (line 23, column 0). The screen location is 1840 (23 x 80 + 0).
2. 1840 + F800H = 65328
3. MSB = 255. LSB = 48.
4. POKE &H78C,255
5. POKE &H78B,48

To further illustrate, here is a small program that prompts for the vertical and horizontal screen position, and then proceeds to display the clock at the desired location.

```
5 ' CLOCKMOV/BAS
6 ' Demo program - moves real time clock to
any screen location.
7 ' <c> 1988 Lance Wolstrup
10 CLS
20 PRINT"Type line position of clock (0-23) ";:
INPUT V
30 IF V<0 THEN V=0
40 IF V>23 THEN V=23
50 PRINT"Type column position of clock (0-79)";:
INPUT H
60 IF H<0 THEN H=0
70 IF H>79 THEN H=79
80 IF V=23 AND H>72 THEN H=72:
REM make sure that clock does not go off the
screen
90 CLS
100 VL=V*80+H+&HF800
110 IF VL<0 THEN VL=VL+65536
120 M2=INT(VL/256)
130 M1=VL - M2*256
140 POKE &H78C,M2
150 POKE &H78B,M1
160 POKE &H7F,PEEK(&H7F) OR 16
```

# TIM'S PD EXPRESS

# THE TEN COMMANDMENTS

by Timothy Sewell

So you've decided that the ol' TRS-80 needs a little something extra in it's computer life and you have raided your friend's software collection to the point where your COPYCAT disk has tread marks and that pirated copy of Donkey Kong has been played so much that you don't have to open your eyes and can win simply by playing by sound alone...

Is that what's troubling you cousin...?

Well break open that piggy bank and check behind the cushions of the couch for loose change and RUN, don't walk to your nearest computer store and get yourself that miracle of modern computing and get out there and **call**, **Call**, **CALL** all the BBS systems you can!!!

I am of course speaking of the MODEM. The modem is a wonderful device that opens up a whole new world to your and your computer and if used properly can bring you hours of enjoyment and entertainment.

The modem is not without it's problems though and I will make a point of warning you about some of them as I go along. There is much experience to draw upon and I hope I can share some of it with you.

The modem is addictive. When you "log on" to your first board, your heart starts racing in your chest and your fingers tremble a bit with excitement as you explore this new world of characters dashing accross your screen. After several hours of calling every local number you can get your hands on, you find yourself venturing into the forbidden "long distance zone". You think to yourself "Oh, a few minutes can't cost THAT much" and after several weeks of those "few minutes" you get the jolt of your life when your next phone bill is delivered to you via semi truck.

Actually, most of this can be avoided with a little discipline and self control and as we all know...TRS-80 owners have plenty of self control...don't we?

I thought so!

Bulletin Board systems are also wonderful things. Without them...what would you need a modem for? With a BBS program you can create a total fantasy world right in your computer that others can take an active role in, and play a crucial part in it's success. The fantasy can be as straight forward as a programmers-only environment, or as fictional as a wizard's castle, complete with demons and Dragons at every turn. The fantasy (and ALL BBS systems are fantasies) is limited only by your imagination.

Having once run a Bulletin Board System myself, I developed a set of guide lines that the caller should try to follow to make the experience more enjoyable for BOTH the User and the Sysop. I'd like to share it with you.

1. THOU SHALT NOT USE FOUL LANGUAGE.

When you are on a BBS, keep in mind that you are a GUEST on the Sysop's computer and a guest in that person's home/office. Conduct yourself like you would in a person's home. Be curtious and abstain from any and ALL foul language. Someone may be viewing your actions and could become quite offended causing a bad reflection on you and the Sysop. Unless there is a section of the board designated specifically for "adult" talk, gutter language is out.

2. HONOR THY SYSOP.

Keep in mind that you are accessing the SYSOP'S equipment. The Sysop put many hours of work and great expense into providing a system for others to use. The system belongs to the SYSOP, not you. Please respect this. Most Sysops are always open minded about suggestions on how the BBS may better serve the users. Be specific and constructive with your suggestions. There is nothing more dissappointing then getting messages like "This system is terrible! Everything is wrong". The Sysop is left wondering WHY the system is terrible and WHAT is wrong.

3. THOU SHALT NOT LIE.

Respect the Sysop's posted rules for logging on. Most systems have time limits and limit the number of times you may access the system in a 24 hour period. This is done so as many users as possible have the chance to log on to the system and it only hurts everybody when you "hog" the board. Logging on under different names to gain more access time is VERY frowned upon and may result in loss of your privilges if discovered. Log on to the BBS using your REAL name unless you are prompted that it's allright to use a "handle".

4. THOU SHALT NOT DROP CARRIER.

When you are finished with your session, take the time to log off the board properly. It is rude and can possibly cause the computer to "hang up" by simply dropping carrier while in the system. Sysops

understand an occasional loss of carrier due to the poor phone lines, but constant carrier drops will eventually lead to having your acces limited.

5. GO FORTH AND PARTICIPATE.

Participate! Take an active roll in the community of users on the system. If there is an open forum or message base, take part in the conversation. Stimulate things a bit by adding your "two cents" to the conversation and you will find just how rewarding taking part can be. Most BBS's have special topic areas. If none of them interest you, don't be afraid to suggest a new topic to the Sysop. The idea could possibly evolve into one of the more popular areas of the board.

6. ASK THY SYSOP FOR GUIDANCE.

Don't be afraid to ask questions, especially if you are new to BBSing. Remember, every experienced user had to start at the beginning and most Sysops are more then happy to help a new user along to learn how to use the system properly. Don't be afraid to identify yourself as being new to the Sysop. Most BBS programs keep logs of user's actions while on the system and being a known as a new user can aid the sysop in determining if you are abusing the system or are just simply new to it all.

7. THOU SHALT GIVE AS WELL AS RECEIVE.

Don't be a DOWNLOAD junkie. There is nothing more aggravating to a Sysop then to have someone on line who constantly ignores all of the other features of the system and rushes head on to the file transfer area to grab every file available. What's worse is when this same person has the gall to leave you a message demanding to know why you are so slow in getting new software for the download area. That's the type of user who get's "nuked" out of the system as soon as they hang up. Sure, the files are made available so you can Download them, but don't forget to return the favor. UPLOADING is just as important and it assures a fresh supply of programs for everybody to enjoy.

8. THOU SHALT NOT 'PIRATE'.

It is unlawful to upload commercially available software and could possibly cause the Sysop legal headaches that would result in the loss of the BBS system and worse. "Pirate" boards are severely frowned upon in the BBS community and Sysops that allow the practice are only putting themselves AND their users in legal jeporady.

9. THOU SHALT NOT 'PHREAK'.

The posting of personal phone numbers without the person's permission, or worse, credit card information and long distance carrier access numbers is highly illegal and many a Sysop has had their equipment confiscated for such information that was discovered before it could be deleted. "Phreaking" is the #1 reason why home computerists with modems have such a bad reputation. The sysop is ultimatly responsible for the information contained on the BBS, and the last thing that is wanted is trouble with the law.

10. THOU SHALT BE TOLERANT.

Finally, respect the views of others. Everybody has their own view of how something should be done, and everybody has the right to express these views. It is these differences and the aid of the cloak of the computer that allows us to be a bit bolder in expressing such views. Everybody has a story and we all can learn by it.

---

Telecommunications is an enjoyable and educational hobby that is constantly being challenged in our nation's court rooms due to a few people who take such a wonderful concept and pervert it to the point where it's abuses become "news" and the general public get's a distorted view of the hobby. The "War Games" attitude of the public and the news media's tendency to blow everything out of proportion only adds fuel to this general fear of the computer "hacker".

It is up to us as users to police our own actions and help maintain a healthy environment where BBS systems are concerned. It is our hobby and we are going to lose it if we don't watch out.

---

New Public Domain software available:

**MASTRZAP** - Model 4 Disk zapping program by Mel Patrick.

**ICLE** - Interactive Command Line Editor that allows you to define your own "Shell" type environment for your Model 4.

**SUBMERGE** - Assembly language subroutines that can be merged with BASIC programs.

**80-WRITER** - Home grown word processor that is quite impressive.

**ANALYZER** - Tests the efficiency of your Hard Drive or Floppy Drives.

**DISKTOOL** - Allows you to organize and relocate files on your disks.

**DISKOP** - Hard disk optimizer program.

**DRAW (release 2)** - High resolution drawing program that allows the use of Dotwriter fonts on the High Resolution screen.

These files, and more, are available on GEnie or in The File Cabinet's Public Domain Disk Library.

# GW-NORTH: a review.

by Eric Bagai

Very little notice has been given the high-level language, NORTH, and for good reason: it is merely a subset of the original and much more powerful GW-NORTH. The complete GW-NORTH instruction set is now available for machines other than the CRAY series. A demonstration program that comes on the Model 4 (III mode) disk is presented below.

```
10 SO RUN, EH: ON ERROR FLIPSTACK, EH,
LIKE error trap routine
20 DIM ALL%(EVERY), EH
30 FOR OPENERS% TO LOTSA, EH, LIKE univer-
sal loop statement
40 INPUT BEER%(SOME), EH, LIKE object-
oriented use of literals
50 ON BEER%(EMPTY,GONE) GODO
BEER%(RUN), OK, EH
60 WHEN GAS%(FULL) OR(UH%) WHEN BLAD-
DER%(FULL), EH
70 SHOULDA GOTTAGODO
EMPTIES%(OUT,LOTSA) OR(UH%) WHAT, EH
80 GO WAY, EH
90 SAY WHAT, OK, EH
100 CHECKITOUT, EH: IF NOPROBS THEN GET-
BACK, EH
```

This house-keeping utility (which maintains a small house), demonstrates some of the remarkable characteristics of GW-NORTH. Its resemblance to GW BASIC is apparent. However, note the requirement of an EH suffix for each statement, the liberal use of commas, and the use of LIKE rather than REM. The assembly-like command of FLIPSTACK is merely a fast way to interpret statements in reverse order.

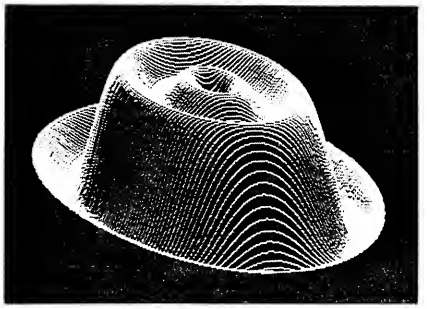
The Canadian system of "loose metrics" permits dynamic dimensioning of arrays (ALL), and freely uses variable dynamic variable assignment (EVERY). The use and syntax of loops takes getting used to as it also uses the Canadian system, and returns with an OK rather than the expected NEXT. (Note that in line 90, OK is used as RETURN from a conditional branch given in line 70.) Quite startling is the use of infinitely dimensioned OR statements, which unfortunately elicits something like garbage collection. The authors explain this as "angst on presentation of unlimited choice" or "waffling," which they claim is easily overcome by a procedure they call toque-snatching.

GOTO is replaced by three terms borrowed from the as yet poorly translated Quebecois System Teleologique. The first is the [MAYBE] GODO, often followed by SOME (another Canadian mathematical term denoting dynamic allocation of an indetermin- ate finite series). This is an object-oriented suggestion (not a command). More familiar is the imperative form: GOTTAGODO. The third form is the WHEN-SHOULDA, a conditional jump to an earlier (or if flipstacked, later) point in the program where the action 'should have' more reasonably occurred, but only 'when' such a jump is inevitable because without it the rest of the program makes no sense. The first and last terms are in considerable disrepute among advocates of Structured Programming, who complain that they were just getting used to GOTOs. On the other hand they are greatly admired by recursion aficionados.

Critics of GW-NORTH are in some disarray at this time because the astounding ambiguity of some routines are inextricably tied to the equally astounding power of others. We expect the controversy to be settled, as it usually is, by you the user.

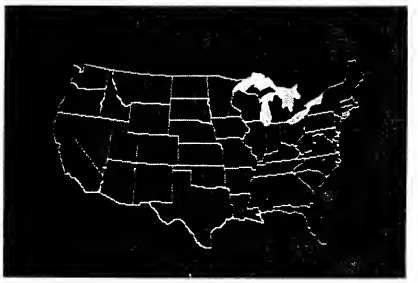
# Grafyx Solution™ Save $170.00

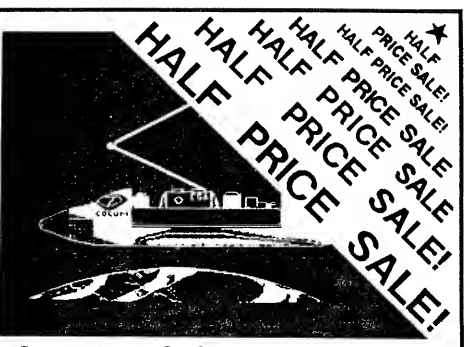
## Hi-Resolution Graphics for Mod 4/4D/4P/III



**Superior Hardware.** The Grafyx Solution provides 153,600 pixel elements which are arranged in a 640 × 240 or on the Model III a 512 × 192 matrix. Hundreds of new business, personal, engineering, and educational applications are now possible. The hi-res display can be shown on top of the standard display containing text, special characters, and block graphics. This simplifies program debugging, text labeling, and upgrading current programs to use graphics. The Grafyx Solution fits completely within any tape or disk based Model 4, 4D, 4P, or III. Installation is easy with the plug-in, clip-on Grafyx Solution board.

**Superior Basic.** Over 20 commands are added to the Basic language. These commands will set, clear or complement points, lines, boxes, circles, ellipses, or arcs. The hi-res screen can be printed on any of 30 popular printers or saved or loaded to disk without leaving Basic. Areas may be filled in with any of 256 patterns. Sections of the screen may be saved and then put back using any of five logical functions. Labels can be printed in any direction. The viewing area can be changed. The entire screen can be complemented or cleared. Graphics Basic provides dot densities of 640 × 240, 320 × 240, 160 × 240, and 160 × 120, all of which can be used in the same display.






**Superior Software.** The board comes with over 40 programs and files which make it easier to use, serve as practical applications, demonstrate its capabilities, and serve as programming examples. The software works with TRSDOS 1.3, 6.1.2, 6.2, 6.3; Dosplus 3.4, 3.5, 4; LDOS; and Newdos80. The Grafyx Solution is also supported by 30 optional applications programs: Draw, Bizgraph, xT.CAD, 3D-Plot, Slideshow, Mathplot, Surface Plot, Chess, etc.

The Grafyx Solution package is shipped complete for $129.95 (reduced from $299.95). The manual only is $10. Payment may be by check, Visa/MC, or COD. Domestic shipping is free on pre-paid orders. Texas residents add 7% tax.

**MICRO-LABS, INC.** 214-235-0915
902 Pinecrest, Richardson, Texas 75080

# Graphics Solutions

## High-Resolution Software and Hardware

**GBASIC 3.0** - Radio Shack Model 4/4D/4P/III hi-res board owners take note of an enhanced graphics Basic: GBASIC 3.0 It not only provides an equivalent for each of the BASICG commands but adds a number of important new ones while using less memory. Without having to exit Basic, the hi-res screen can be saved to disk, loaded from disk, or printed on any of 30 popular printers: Epson, Star Micronics, Radio Shack, Okidata, C. Itoh, NEC, etc. The software works with TRSDOS 1.3, 6.1.2, 6.2, 6.3; Dosplus 3.4, 3.5, 4; LDOS; and NEWDOS80. The disk contains 40 graphics programs/files. Also included is a detailed manual with assembly language entry addresses. $39.95. (Specify Model 4 or III mode or add $10 for both.)

The following eleven programs run on a Model 4/4D/4P/III equipped with a Radio Shack graphics board and GBASIC 3.0 or a Micro-Labs Grafyx Solution board:

**DRAW** - A powerful full screen graphics drawing and editing program. $34.95.

**BIZGRAPH** - Create business graphs from hand-entered or VisiCalc data. $59.95.

**xT.CAD** - Professional drafting aid which outputs to a printer or plotter. $145.00.

**SURFACE PLOT** - Plot three-dimensional equations of the form Z=F(x,y). $39.95.

**3D-PLOT** - View three-dimensional data from any perspective or angle. $29.95.

**MATHPLOT** - Plot equations of the form Y=F(x) with auto scaling. $29.95.

**CHESS** - A very powerful program with 10 skill levels, 40 play options. $39.95.

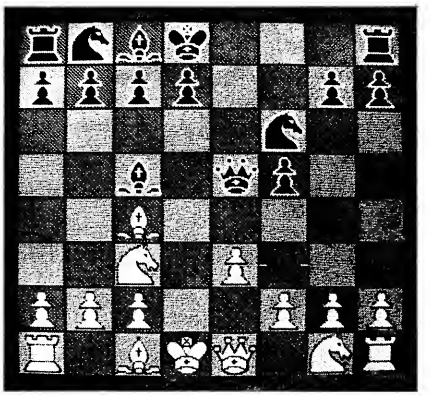
**REVERSI** - Play Othello with 10 skill levels, 20 execution options. $29.95.

**3D Tic-Tac-Toe** - Play the computer or a friend on a 4 × 4 × 4 matrix. $19.95.

**SLIDESHOW** - Create a sequence of hi-resolution picture displays. $19.95.

**Biorhythm/USA** - Plot your biorhythm or learn the states and capitols. $14.95.

**JOY-MOUSE** - Allows a Radio Shack Color Computer joystick, mouse, or touch pad to be connected to any Model 4/4D/4P/III. Hardware provides X, Y position values from 0 to 255. $119.95.



**GRAFYX SOLUTION** - A plug-in, clip-on board enhances any Model 4/4D 4P/III to provide 640 × 240 dot graphics. (512 × 192 on a Model III) The board comes with a 56 page manual and a disk containing both model 3 and 4 mode versions of over 40 programs and files including GBASIC 3.0 which adds over 20 graphics commands to Basic. $129.95.

Please specify your exact system configuration when ordering or requesting information. Payment may be by check, Visa, Mastercard, or COD. Domestic shipping is free on pre-paid orders. Texas residents add 7% sales tax.

**MICRO-LABS, INC.** 214-235-0915
902 Pinecrest, Richardson, Texas 75080

The Hacker's group is made up of dedicated TRS-80 enthusiasts from the Greater Los Angeles area. They come from varied backgrounds, have different skills, interests and even different ideas about what to do with their machines. But they have one important thing in common: They are willing and eager to share their knowledge.

So if you have a question about Model III or 4,

## Ask the Hackers.

**Q.** I have recently inherited a Model 4. I run it in Model III mode since the software that came with it is on TRSDOS 1.3. Is it possible to access the faster Model 4 clock speed while in Model III mode?

Michael Walsh
Hammond, IN.

**A.** It is, indeed, possible to speed up TRSDOS 1.3. when used on a Model 4 in the III mode. All you have to do is get into BASIC and type the following: **POKE &H4210, PEEK(&H4210) OR 64** <ENTER>

Now RUN your BASIC program as you would normally. If your program is a /CMD file, exit BASIC by typing CMD"S" and then execute the program in the usual fashion.

You are now using the fast Model 4 clock speed and TRSDOS 1.3. will remain in this mode until you slow it back down by either:

Press the <RESET> button, or from BASIC type:
**POKE &H4210,PEEK(&H4210) AND 191** <ENTER>

You can automate this procedure by creating two BASIC programs. The first looks like this:

```
10 CLS
20 POKE &4210,PEEK(&H4210) OR 64
30 PRINT"NOW IN FAST MODE"
40 END
```

Save this program by:
**SAVE"FAST/BAS"** <ENTER>

Enter the second program as follows:

```
10 CLS
20 POKE &H4210:PEEK(&H4210) AND 191
30 PRINT"NOW IN SLOW MODE"
40 END
```

Save this program by:
**SAVE"SLOW/BAS"** <ENTER>

You can now speed up or slow down the clock at will, simply by running the appropriate BASIC program.

If the program you wish to speed up or slow down is a /CMD file, change line 40 in both programs to: **40 CMD"S"** and SAVE them as described above. Then go back to 'TRSDOS Ready' and create two /BLD files as follows:

**BUILD FAST** <ENTER>
**BASIC *** <ENTER>
**RUN"FAST/BAS"** <ENTER>
<BREAK>

This creates a file called FAST/BLD. Now create the other one, called SLOW/BLD.

**BUILD SLOW** <ENTER>
**BASIC *** <ENTER>
**RUN"SLOW/BAS"** <ENTER>
<BREAK>

You may now speed up the system from TRSDOS Ready by typing:
**DO FAST** <ENTER>

To slow down the system, from TRSDOS Ready type:
**DO SLOW** <ENTER>

This works perfecly on a straight Model 4, but unfortunately it will cause disaster on a Model 4P if any disk I/O is performed. However, thanks to an article in the Alternate Source #19 by Jesse Bob Overholt, we are able to overcome this shortcoming by inserting line 35 in FAST/BAS to read:

```
35 FOR X=17408 TO 17415:POKE X,227:
NEXT
```

and by inserting lines 35 and 36 in SLOW/BAS:

```
35 FOR X=17408 TO 17414 STEP 2:
POKE X,245:NEXT

36 FOR X=17409 TO 17415 STEP 2:
POKE X,241:NEXT
```

## HELP - ANYONE?

**Q.** Please help my son and I. We moved the Big Five program METEOR2/CMD from Model I to Model III. The problem to be solved is this: The program asks for the name to be logged in as the winner at the end of the game, and at that time the Model 4, in III mode, freezes up. The only way to bring it out is to reboot. Any suggestions to logging the winners and to continue without rebooting?

Francis Favreau
Lake Worth, FL.

**A.** It sounds as if the source was the tape version which, more than likely, uses addresses that interferes with DOS. Unfortunately, as we do not own a copy of that particular game, we cannot give you a specific fix. Let us instead pass the ball to the readers:

**If anyone out there have a patch for this problem, please let us know.**

# CLOSE#3

In closing out this May chapter of TRSTimes, I would like to announce the addition to our TRS-80 family: TRSTimes-on-Disk.

This decision was made, not because I am particularly crazy about getting involved in yet another thing, but because the letters and phonecalls received since issue #1 strongly indicated many readers would prefer not to type in the programs themselves. Fair enough, so here is the scoop:

To keep things from getting completely out of hand here at the office, TRSTimes-on-Disk will be issued on a semi-annual basis: May and November.

The May disk will contain all the programs from TRSTimes #1,2 and 3. The November disk will cover all the major programs from issue #4,5 and 6. As a bonus, we will include programs, both for Model III and 4, that will not otherwise be part of TRSTimes because of length.

The May Model III bonus program is the machine language version of COPYAID for NEWDOS/80.

The Model 4 bonus is called DFIX89/CMD. This program will fix the date problem in TRSDOS 6.2. until 12/31/89. It will repair all your 6.2. disks to accept dates up 1990, display the dates of new and existing files correctly and repair data disks made with 6.2. to display all new and existing files correctly. It is an easy to use, menu driven program that can be used on any drive configuration, except a hard drive.

TRSTimes-on-Disk will come on a 35 track - single sided - single density diskette. This is the universal format that can be read by all the TRS-80 operating systems, either directly or by using a DOS supplied utility program.

TRSTimes-on-Disk can be read directly by all Model 4 disk operating systems with the exception of CP/M.

The following Model III DOS' will read the disk directly: LDOS, DOSPLUS and MULTIDOS.

Use the normal COPY command to transfer individual files over to any of the above systems.

To copy the desired files over to TRSDOS 1.3. you must use the DOS supplied CONVERT utility (consult the TRSDOS 1.3. manual on how to use this utility).

NEWDOS/80 is slightly more complicated. You must rewrite the PDRIVE specification for drive :1.

From DOS ready type:

**PDRIVE,0,1,TI=A,TD=A,TC=35,SPT=10,**
**TSR=3,GPL=2,DDSL=17,DDGA=2,A**
<ENTER>

Now use the normal copy command to transfer files from 35 track SS SD drive :1 to drive :0.

When done, be sure to set drive :1 back to normal. Type: **PDRIVE,0,1=0,A** <ENTER>

Though the good ol' U.S. Mail did their best to complicate matters by raising the postal rates in April, the originally proposed price of $5.00 (U.S.) per disk mailed in 1988 to U.S. and Canada will stand. To point outside of North America the price is $7.00 (U.S.) per disk for 1988.

---

I have just received vol. 10, no.4 of the British national user group newsletter, NATGUG News. It is of the same quality as the others I have seen: Very informative, good, and thorughly entertaining. Though it also covers MS-DOS, there is a bunch of good stuff about our TRS-80s. These guys (excuse me, make that 'chaps') are dedicated. Can you believe, twice a year they have a national meeting in a town called Swindon. TRS-80 users from all over the U.K. meet for an entire week-end to share knowledge and companionship, and in general enjoy the world of computers (maybe, even a pub or two). I don't know about you, but it sure sounds good to me. We, here in the U.S., should take a lesson in dedication and enthusiasm from the British.

NATGUG News is offering American subscriptions at $22.50 for 12 issues. That is very reasonable, less than $2.00 per issue. It can be charged to your MasterCard. Contact:

NATGUG c/o Roger Storrs
Oakfield Lodge - Ram Hill
Coalpit Heath
Bristol. BS 17 2TY England

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Since TRSTimes is now being read in England, Holland, West Germany, Denmark, Australia, South Africa, Panama, Canada and the U.S., we are proposing putting together an international issue. We need your help, so please submit your articles, programs and other items about the TRS-80. American readers, I am sure, will be very interested in what the rest of the world is doing with the machines.

Our submission policy is as follows: Any TRS-80 supported DOS format is acceptable, though LDOS, DOSPLUS, MULTIDOS or TRSDOS 6.X. format is preferred. Just make sure to specify which format is used. Also, please submit Basic programs and text as straight ASCII files. When submitting assembly language source files, please specify whether ASCII or EDTASM format.

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Next issue will feature the long promised utility to unprotect all files on a disk, more PEEKs and POKEs (this time concentrating on the III mode of the Model 4), a game, more on CP/M and public domain software, Hi-rez info and other interesting reading. So until we meet again in July.....

Keep those TRS-80's humming.
Lance W.