

# Tandy <sup>TM</sup> TRS-80 ELECTRONICS Microcomputer NEWS

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## TRS-80 At Top of Class

As part of an extensive campaign to satisfy the needs of schools, Tandy Electronics has established eight "computer classrooms" and is offering free classes in computer awareness and BASIC programming to teachers, principals and school council members.

Having achieved the status of the world's largest electronics retailer, Tandy recognized the needs to specifically assist in developing suitable applications for Australian schools and educators considering the use of the micro computer in the classroom.

Already, Tandy's recently established Educational Marketing Division has assisted Polding College, the N.S.W. Catholic Teacher's College, with the purchase of a complete 17-station network TRS-80 system. The heart of the system is a 48K twin-drive Model III microcomputer and Line Printer VI. Through the TRS-80 Network Controller, the 16 student stations, which are 16K Model III's, have access to the disk drives and printer without the expense of 16 additional printers and pairs of disk drives.

Tandy has also become involved in a "Direct Instruction" program being researched by Macquarie University with the help of a grant from the Federal Government, which aims to reinforce the company's commitment for suitability with the N.S.W. curriculum.

The need to instruct educators in areas of computer-assisted education became apparent soon after the release of microcomputers. Mr. Mike Lehman, Educational Marketing Manager for Tandy, says, "Initially, educators who were mathematically-oriented and with avid interests in computer programming, or the art of instructing the computer to do what you want, realised the immense opportunities for computers in the classroom.

However, it soon became apparent that the vast majority of teachers, and consequently their students, were not familiar with the intricacies of programming and were unable to exploit this powerful new educational tool without further assistance."

It was for this reason that Tandy entered the publishing business and began releasing field tested and well documented applications software that has aided educators such as Polding College to make the efficient transition to using computers in the classroom.

Tandy's "computer classrooms" also offer courses to the general public at very reasonable costs.

For the future, Tandy is enthusiastically awaiting feedback from Polding College and evaluation studies being conducted on TRS-80 products in Australian classrooms. "We hope", Mr. Lehman adds, "that Educational authorities will publish reports on their findings."

"Microcomputers -- especially our TRS-80 -- are here to stay, and everyone who understands their capabilities will be richer for it."

(Editors Note: If you have a similar application in mind, Turn to page 6 for details on how to use Scripsit on TRS-80 Network II systems)

## Customer Services News

Jeff Beaumont -

### Manager TRS-80 Customer Services

#### We're Back

For all our loyal customers who have patiently waited for another issue of TRS-80 Microcomputer NEWS, we're back, better than ever -- which certainly goes to prove that "all good things come to those who wait". We are excited about being back and, as you'll discover between these pages, we have made up for all lost time.

#### ...And Again...

More good news is that we will arrive in your letterbox again in two months' time, and every two months thereafter, regularly! We've made no secret of our commitment to provide you with the absolute best possible customer service and, to that end, we will be delivering all the user tips and information, product news and views every two months -- or our name isn't "the biggest name in little computers".

#### Bad News For Brand X

For some time we've been receiving calls from customers wanting us to service their Model III units that have non-Tandy parts installed (i.e. disk drives).

Our own Model III drive kits include a power supply, disk controller, shielding, support structure and disk drive. Any or all of these can cause a Model III to malfunction and, needless to say, we do not have repair information or parts to fix Brand X devices. Therefore, we will not service a Model III with Brand X controller, disk and power supply inside.

We are not being anti-free enterprise, mean or greedy -- just practical. When a disk controller is installed, it becomes an integral part of the entire computer and can effect its performance even in non-disk operations. Adding a disk controller is NOT like putting different tyres on a car -- its like replacing the entire manifold, carburettor and all. Do it incorrectly and you will burn valves (or worse). And since all our diagnostics for a disk system are disk-based, we would have no way of knowing what is creating the problem. So, if you feel you must buy Model IIIs (or any of our Models) with Brand X kits installed, be sure you can get service ... caveat emptor (let the buyer beware !).

#### Our First Computer Hotline

Perhaps the biggest thing to happen to Micros since disk expansion is the introduction of our TRS-80 Toll-Free Computer Hotline, allowing users / owners instant access to our Computer Customer Services operation here at Rydalmere for the cost of a local telephone call, even from the most remote areas of our country. By simply calling --

# 008 — 226366

from anywhere outside the Sydney metropolitan area you can speak with our dedicated staff regarding any problems you may have with TRS-80 hardware or software. Callers from Sydney and surrounding areas are invited to telephone 638-6633 and ask for the Computer Hotline.

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# Model I/III

## Product News

Some people are hard to convince! A lot of you seem to think that the Model III is just an repackaged Model I. As we stated in the last Newsletter, the Model III has many improvements over the Model I, we started looking at some of the advantages of the Model III and ran out of space. Here are a few special features of Model III in which you will be interested.

### DISK BASIC

Editing your programs is a snap with:

- Prints the previous program line on the screen.
- Prints the next line.
- Prints the current line.
- Edit the current line.
- Prints the first line.
- Prints the last line.
- List line xx.
- Edit line xx.
- Delete line xx.
- Auto insert beginning at line xx.

### Disk Operating System.

The DO file is a time saver and is also one of the most versatile tools that we have added for the applications programmer. You will find plenty of uses for this special file which is first created with the BUILD command. Put TRSDOS library commands or applications programs in the DO file in the order that you want them to execute. Then kick off the sequence with DO"filename" where "filename" is a DO file previously developed with BUILD. It's great for things like preparing a series of listings while you are at lunch, killing transaction files, initializing a communications channel before starting a session, beginning an application by setting FORMS for the printer, or initiating WP for protecting program files. Of course the major benefit of the feature is to insulate an operator from the processing procedures that would normally be required to use a business application. DO files also insure that the procedures are followed properly, cutting down on frustration and lost time. Here is an example of the way it would work:

First from TRSDOS Ready, type BUILD EXAMPLE. You will then be prompted to type in up to 63 characters on each line to describe commands, or to provide text that will be used for input to a running program. When you are finished exit with the <BREAK> key and the commands will be saved in a "DO file" (which in this case is called EXAMPLE). You could have next typed AUTO DO EXAMPLE- Now when you reset or power up, a DO activity will begin. The "DO file" EXAMPLE provides automatic command input and will execute each command shown without any intervention from the keyboard (other than stopping for your INPUT requests from BASIC). Note that BASIC applications can be run from a DO file including automatic input of information normally entered from the keyboard. In those cases, the responses to the BASIC applications questions thru use of BASIC INPUT statements are saved in the DO file along with the name of the applications to be run.

Take a look: (For clarity, we underlined the parts which you would enter from the keyboard.)

### BUILD EXAMPLE <ENTER>

Hit BREAK to exit  
Type in up to 63 Characters  
SETCOM (BAUD=1200, WAIT) <ENTER>  
Type in up to 63 Characters  
FORMS (WIDTH=80) <ENTER>  
Type in up to 63 Characters  
PAUSE INITIALIZING SERIAL INTERFACE AND PRINTER  
<ENTER>  
Type in up to 63 Characters

### BASIC <ENTER>

Type in up to 63 Characters  
<ENTER>  
Type in up to 63 Characters  
<ENTER>  
Type in up to 63 Characters  
RUN"HISTOGRA/BAS" <ENTER>  
Type in up to 63 Characters  
<BREAK>  
TRSDOS Ready

Now, to see how it works type:

### DO EXAMPLE <ENTER>

SETCOM (BAUD=1200, WAIT)  
TRSDOS Ready  
BAUD = 1200, WORD = 8, STOP = 1, PARITY = NONE,  
WAIT MODE  
TRSDOS Ready  
FORMS (WIDTH=80)  
TRSDOS Ready  
PAUSE INITIALIZING SERIAL INTERFACE AND PRINTER  
Press <ENTER> to continue  
<ENTER>  
TRSDOS Ready

### BASIC

How Many Files?  
Memory Size?  
TRS-80 Model III Disk BASIC Rev 1.2  
(c)(p) 1980 by Tandy Corp. All Rights Reserved.  
Created 5-Jul-80  
21706 Free Bytes 3 Files  
READY  
>RUN"HISTOGRA/BAS"

### H I S T O G R A M

...(The program would continue from here, with inputs from the keyboard as usual.)

### MODEL I/III Potpourri

A few comments .....In answer to some of the predominant questions coming in about VisiCalc. You can use the Model III CONVERT utility on a Model I VisiCalc disk to transfer VisiCalc data files that were originally set up on your Model I. But transfer them to a Model III VisiCalc disk ..... The LPC printer driver is now on the Model III TRSDOS disk ..... A recent comment was made that Tandy software packages include instructions on user changes to make them run on Model III's. Not so -- We have an exchange program available if you get a package without a III compatible tape or disk (if it is needed). In fact we will rework our stock to include these tapes and disks so you won't need to get involved in any "user" changes. We do include a pamphlet with your Model III entitled "Instructions for Converting Specified Model I Programs for use on TRS-80 Model III". The changes in that pamphlet are "optional", since disks are available (with the changes already made) for those programs which are shown. The changes are given for your convenience since many of you already own our most popular cassette software and may prefer to modify these yourselves.....If you have used the SAVE command with the ASCII option to save a BASIC program -SAVE filespec, A ---- rather than the compressed format then you may have gotten the error message "DIRECT STATEMENT IN FILE ". This is caused by lines which exceed 255 bytes. Make sure you save your program first without the ,A option as you are liable to lose your program otherwise. To avoid the problem remember that the 255 byte maximum includes the line number digits and the space following the line number, all the characters and spaces in the line itself and 2 bytes for each line feed.

## Model I/III Bugs, Errors and Fixes

### Inventory Control 269-1553

If you suspect that the index in your Model I version 1.1 ICS program has "crashed" (you are receiving ERROR 64's or other indications), the following procedure may help IF the problem is only in the index itself:

1. Place both program and data disks in the computer.

2. At DOS Ready type in BASIC <ENTER> and answer both of the power-up questions Memory Size? and How many files? with <ENTER>.

3. Type in LOAD "DATASORT" <ENTER>

4. Change line 80 to read:

```
80 FOR X=1TON:V(X)=X:NEXT:CLOSE1
```

5. Type in SAVE "DATASORT" <ENTER>

6. Type in RUN "ICS" <ENTER>

7. At the ICS main menu, choose the first option to add an item. Now add a fictitious item (for example, put everything in as zeros).

8. Now go back to the main menu. At this point the computer will be forced to re-sort your data.

9. At the main menu, after the sort has been completed, choose the last option to exit the program.

10. Type in LOAD "DATASORT" <ENTER>

11. Change line 80 back to its original form:

```
80 FOR X=1TON:INPUT#1,V(X):NEXT:CLOSE1
```

12. Type in SAVE "DATASORT" <ENTER>

13. Now type RUN "ICS" <ENTER> and delete the fictitious item that was added to force the sort.

14. This completes the changes, and everything should work correctly now.

If you are using Inventory Control (ICS) with a Model III, data is lost after you have added 600 items to ICS. To avoid the loss, use this procedure BEFORE you lose information.

When there are about 500 items in the Model III ICS system:

1. Place a copy of Model III TRSDOS in drive 0 and a backup of the ICS data disk in drive 1.

2. At TRSDOS Ready, type:

```
COPY DATAFILE.pw:1 TO DATAFILE.pw:0 <ENTER>
```

```
COPY STOCKNUM.pw:1 TO STOCKNUM.pw:0 <ENTER>
```

(where "pw" is the password you assigned to the ICS system)

3. After these copy procedures have been completed, type:

```
KILL DATAFILE.pw:1 <ENTER>
```

```
KILL STOCKNUM.pw:1 <ENTER>
```

4. When this procedure is complete, type:

```
COPY DATAFILE.pw:0 TO DATAFILE.pw:1 <ENTER>
```

```
COPY STOCKNUM.pw:0 TO STOCKNUM.pw:1 <ENTER>
```

This procedure will decrease the number of extents used by DATAFILE and STOCKNUM. Reducing the number of extents will allow you to enter as many as 1000 items.

Note: The above procedure must be done before the problem occurs or must be done on a backup on which the STOCKNUM file is still intact, otherwise the file cannot be reconstructed.

### Profile 269-1562

Model III version 3.0 Profile may "hang-up" during a sort. To correct this problem, use the following procedure:

1. Make a BACKUP of the Profile diskette.

2. At TRSDOS Ready, enter the following patch:

```
PATCH SORT (ADD=781A,FIND=FS,CHG=C9)
```

3. Make a BACKUP copy of the corrections.

4. This patch should be made to all of your Model III version 3.0 Profile diskettes, even if the problem has not occurred.

### Surveying 269-1577

Errors will occur in the Model I/III version 1.0 Surveying program if bearings are used in the Traverse Closure function rather than angles. One of the errors which has been experienced is an FC ERROR IN 12040.

To correct the problem, make the following changes to the Traverse Tape:

1. CLOAD the Traverse Tape.

2. Change lines 5600, 5610, 5630, and 5670 to read:

```
5600 PRINT F$"DO YOU WISH TO CHANGE A BEARING?"
      GOSUB8:IFWFTHEN120ELSEIFIN$="N"THEN
PRINT: GOTO4820 ELSEIFIN$<"Y"THEN
PRINTCHR$(27);:GOTO5600
```

```
5610 PRINT@64,F$:C%=64:FORK=0TOU-1
```

```
5630 C%=C%+64:Q%=T%(K):X=A8(K):GOSUB6000:
GOSUB13000:PRINTTAB(19)"BEARING"K+1"IS"
TAB(35)A$:NEXT
```

```
5670 X=A8(K):GOSUB6000:GOSUB13000:PRINT
TAB(27)A$ TAB(38);:FL=8:GOSUB10: IF WF
THEN 4820ELSEA$=IN$:GOSUB12000:PRINT:
IFITHEM 5650ELSEGOSUB690:A6(K)=D
:T%(K)=Q%:GOSUB700: A8(K)=X:GOTO5650
```

3. After you have completed and verified the corrections, type in CSAVE "TF" <ENTER>

### Haunted House

We have had quite a few enquiries as to loading HAUNTED HOUSE into a Model III. The correct method of loading Haunted House in a Model III is:

1. Adjust the volume on your tape recorder to a higher than normal setting (we used 8 here).

2. Turn on your Model III. If you have a disk system, hold the <BREAK> key during power-up.

3. When the CASS? prompt appears on power-up, press <L> for low speed.

4. Press <ENTER> for Memory Size?

5. Make sure the Haunted House tape has been rewound to the beginning. Depress the PLAY button on the recorder.

6. When the Ready prompt and cursor appear on your Model III, type SYSTEM <ENTER>.

7. When the \*? prompt appears, type HAUNT <ENTER>

8. When the \*? prompt reappears, type / <ENTER>

9. The following message should appear on the video:

```
CHECKSUM
READY CASSETTE
```

(Note: the word CHECKSUM is not to be confused with the C\* -- checksum error message -- which can appear while the cassette is loading. If you get a C\* error message while loading Haunted House, adjust your tape recorder to a higher volume setting and repeat the entire load process.)

10. At this point, rewind the Haunted House tape, depress the PLAY button on the recorder.

11. Press <ENTER> on the computer.

12. The recorder will turn on again, and shortly the words HAUNTED HOUSE will appear on the video. Press any key to begin the game.

### Advanced Statistical Analysis 269-1705

Under certain conditions, a function call error can occur when you are doing Multiple Linear Regressions. What occurs is that a negative value is being raised to an improper value (e.g. -X^(2/3))

To prevent this problem from happening, change line 920 of the Multiple Linear Regression program to read:

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```
920 QL=ABS((1-QK)*((QZ*SGN(QZ))^(1/3))*  
SGN(QZ))-1+QJ)/SQR(QK*((QZ*SGN(QZ))  
^(2/3))*SGN(QZ))+QJ)
```

Be sure you save a copy of the corrected program.

### Model III TRSDOS 1.3 269-312

The recently released Model III TRSDOS 1.3 dated May 1 and May 2, 1981 contains some errors which need to be patched. Model III TRSDOS 1.3 diskettes with a July 1, 1981 date have already been modified.

The first error is in the line edit function of the BASIC Interpreter. When editing a BASIC program the up-arrow key is used to list the previous program line. Repeatedly pressing the up-arrow key at the top line of the program could cause the BASIC Interpreter to stop working.

The following patch will correct this error:

```
PATCH BASIC/CMD (ADD=58F8, FIND=F1, CHG=00)
```

A feature of BASIC is that when the KILL "filename" command is executed, all open files are closed before the file is killed. This is to avoid the directory being destroyed as can happen on the Model I. It is possible that your program application may require temporary files to be created and killed while leaving data files open, if so apply the following patch:

```
PATCH BASIC/CMD (ADD=60D0, FIND=CDE95C,  
CHG=000000)
```

WARNING: Make sure that the file you kill is closed, otherwise the directory will be destroyed.

A second error in Model III TRSDOS 1.3 dated May 1, 1981 is in the XFERSYS utility. Depending on the order of the system files in the directory, it is possible that the XFERSYS utility may not copy all of the system files. The only occurrence of this problem to date was that the XFERSYS utility did no copy itself, "XFERSYS/CMD", properly. On the destination disk, "XFERSYS/CMD" ended up as a null file with 0 records instead of the required 4.

The following patch will correct this error:

```
PATCH XFERSYS/CMD (ADD=548E, FIND=3500FD21,  
CHG=FD360001)
```

A third error has been found in the Model III TRSDOS 1.3. The error is in the FORMAT utility. At completion of FORMATTING a diskette in drive 0, a "0 NS" error is given in 32 character mode. This indicates that when a system file was searched for, it could not be found.

This is a non-fatal error which does not "undo" or affect the FORMATTING on the diskette in drive 0. The following patch will fix this:

```
PATCH *7 (ADD=579C, FIND=0955, CHG=3851)  
PATCH *7 (ADD=5135, FIND=20746865206,  
CHG=3F20033A7D4E)  
PATCH *7 (ADD=513B, FIND=69736B657474,  
CHG=FE81CA0D55C9)
```

If the LOAD command is used to load a program file which uses any address between 6280 and 62B1 (hexidecimal), then not all the file may load or the load command may terminate abnormally or not at all. The following patch will fix this:

```
PATCH *6 (ADD=5850, FIND=3A62, CHG=BF5F)  
PATCH *6 (ADD=5FBE, FIND=20697320616374,  
CHG=FE81CA0D55C9)
```

NOTE: The patch at 5FBE is part of the text;

"CAN'T CLEAR WHILE DO IS ACTIVE"

After the patch is done the message will read;

"CAN'T CLEAR WHILE DO"

The last patch fixes a problem with a TRSDOS I/O call (\$DSPDIR - 17433/X'4419'). This is the call to display all non-protected user files.

```
PATCH *10 (ADD=4E2E, FIND=CD3E4B,  
CHG=CD8A50)
```

```
PATCH *10 (ADD=508A, FIND=4469736B,  
CHG=4FC33E4B)
```

To change to master date of your TRSDOS diskette select one of the following sets of patches:

1. If your TRSDOS is dated Friday 1st May.

```
PATCH *0 (ADD=503A, FIND=20467269204D6179,  
CHG=57656420204A756C)
```

2. If your TRSDOS is dated Saturday 2nd May.

```
PATCH *0 (ADD=503A, FIND=20536174204D6179,  
CHG=57656420204A756C)
```

```
PATCH *0 (ADD=5044, FIND=32, CHG=31)
```

### Model III Accounting Packages

We have had quite a few enquiries on running the ARS, APS and General Ledger programs on the TRS-80 Model III. ALL of these programs MUST be run under TRSDOS version 1.2! You should be using the latest version of the programs (APS - 3.0, ARS - 3.0, GL - 1.1) and your data diskettes must have been formatted under TRSDOS 1.2.

### General Ledger (269-1552)

If you are using a Line Printer VI with the above program on the Model III, You may experience problems with printing if you have entered quite a few transactions in one session. To correct this make the following change to the program:

1. In Disk BASIC, type "LOAD GLTXPOST" and press <ENTER>.

2. Edit line 5000 to read:

```
5000 N=N+1:L=L2
```

3. Save the corrected version of the program by typing:

```
SAVE"GLTXPOST" <ENTER>
```

### Accounts Payable 269-1554

When you update an active account other than GL account #5, the GL report shows the account as a cash account, rather than an accrual. The following line changes must be made to the program "CHECKS":

In Model I/III version 3.0 of Accounts Payable, change line 201 to read:

```
201 IFCA$="C"ANDG=3 THEN205 ELSE IFCA$="A"  
ANDG>4THENG=GT:GOTO205 ELSEGOSUB79:  
IPCF=2THENGOSUB219:CF=1
```

There is also a problem with passwords. The setup program will allow you to enter a numeric character in a password, but will not recognize that password on any subsequent access. To correct this, do the following:

1. In disk BASIC, load the setup program by typing:

```
LOAD"SETUP" <ENTER>
```

2. Edit line 93 to read:

```
93 PE$=INKEY$: IFPE$=""THEN 93 ELSE IFPE$=  
CHR$(13) THEN X=8: PE$="":ELSE IFASC(PE$)  
<48ORASC(PE$)>90OR(ASC(PE$)>57AND  
ASC(PE$)<65)THEN 93
```

3. Save a copy of the corrected program.

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### Model II Bugs, Errors and Fixes

#### Model II TRSDOS Terminal Utility

Here is some information, and three patches which you may find useful if you are using the TRSDOS Terminal Utility

1. The Model II Terminal Utility will report parity errors by displaying a reverse video "P". To eliminate this display, make the following patch:

PATCH TERMINAL A=34C2 F=200C C=0000

2. The TRSDOS 2.0 Terminal Utility has a "video filter" option which screens out video control characters which may have undesirable effects on the displayed material. Many ASCII teletypes use special control codes which instruct the teletypes to perform certain functions which are unnecessary on a video display. When the video filter screens out a character, a "+" will be displayed instead. The purpose of this is to inform the user that some undisplacable code has been screened out. If you find it more desirable to have NO character displayed when a character is screened out, use the following patch:

PATCH TERMINAL A=36A7 F=7F C=00

3. To determine which characters are to be screened out, the Terminal Utility compares the current character to be displayed with a list of characters to be screened out. If the character to be displayed is in the list, it is screened out. If the character is not in the list, it is displayed as is. Here is a reproduction of the list:

```
377B: 01, 02, 03, 04, 05, 06, 07, 0B
378B: 0C, 0E, 0F, 10, 11, 12, 13, 14
378B: 15, 16, FF, FF, 1E, 1F, FF, FF
3793: FF, FF, FF
```

Any value other than FFH indicates that the matching character is to be screened out. A value of FFH is a place holder for future values to be added.

If, for instance, you do not want the screen to be cleared if an escape character (1BH) is received, then you need to add the escape character (1BH) to the list of screened out characters. To do this, find an unused position in the screen out list (a position with FFH in it), and patch this location to put the 1BH in place of the FFH. Notice that in the above list, the third position in the third row has an FFH. The numbers along the left side of the list indicate the Hexadecimal address where the first item in that row is. If the first item in the third row is in location 378B, then the third item is in what position? Remember to count in Hexadecimal! First position, 378B, Second position, 378C, third position 378D. Got it? The patch to screen out the 1BH character would look like this:

PATCH TERMINAL A=378D F=FF C=1B

#### General Ledger 269-4501

In version 1.2 of General Ledger, the batch total may not equal the Document total after you print the document, or during posting. To correct these problems, follow these steps:

1. BACKUP the diskette(s) which contains the "Txentry" and "Txpost" programs. Make your correction on the BACKUP copy.

2. To correct the print error, In BASIC type:

```
LOAD"Txentry" <ENTER>
```

3. Change lines 1450, 6730, and 6740 to read as shown below.

```
1450 IFHI<LOTHEN1405ELSEFORI=0TONA-1:S#(I)=Z#:
      NEXT:BT#=Z#
```

```
6730 IN#=0:FORQ=0TONA-1:IFS#(Q)>0THEN
      IN#=IN#+S#(Q)
```

```
6740 NEXT:LPRINTTAB(17)"BATCH TOTAL BY
      ACCOUNT" TAB(42);:GOSUB5100: LPRINT"
      ":L=L+1
```

4. Add the following lines to the program:

```
6345 IFIN#>0THENBT#=BT#+IN#
```

```
6745 IN#=BT#:LPRINTTAB(17)"BATCH TOTAL BY
      ENTRY" TAB(42);:GOSUB5100: LPRINT"
      ":L=L+1:RETURN
```

5. To save these changes, type :

```
SAVE"Txentry" <ENTER>
```

6. To correct the posting problem, in BASIC type:

```
LOAD"Txpost" <ENTER>
```

7. Change lines 420, 730, and 740 to read as follows.

```
420 FORJ=0TONA-1:S#(J)=Z#:NEXT:BT#=Z#:RETURN
```

```
730 IN#=0:FORQ=0TONA-1:IFS#(Q)>0THEN
      IN#=IN#+S#(Q)
```

```
740 NEXT:LPRINTTAB(17)"BATCH TOTAL BY
      ACCOUNT" TAB(42);:GOSUB5100: LPRINT"
      ":L=L+1
```

8. Add the following lines:

```
745 IN#=BT#:LPRINTTAB(17)"BATCH TOTAL BY
      ENTRY" TAB(42);:GOSUB5100:LPRINT"
      ":L=L+1:RETURN
```

```
3345 IFIN#>0THENBT#=BT#+IN#
```

9. To save these changes, Type in:

```
SAVE"Txpost" <ENTER>
```

10. Return to TRSDOS and make BACKUP copies of the diskette(s) which you just corrected.

#### VisiCalc " 269-4511

There have been some problems with VisiCalc printing reports in which a set of extra linefeeds may occur. This problems has been traced to the user setting the Printer to Top of Form manually. In order to set Top of Form on a printer from VisiCalc, use the / S E T <ENTER> <ENTER> sequence. The / S E lets you execute a TRSDOS command from VisiCalc. The T is the TRSDOS Top of form command. The first <ENTER> executes the Top of form, and the second <ENTER> returns you to VisiCalc. As soon as you have completed this sequence, physically move the paper so that it is aligned properly in your printer.

#### Profile II 269-4512

It is possible, when you initially set up your Profile II, that you will create more segments than you actually need. If this happens, the following procedure will allow you to reduce the number of segments:

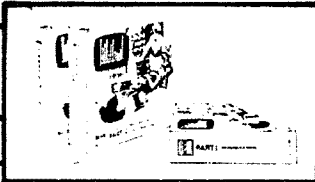
1. Make a BACKUP of your Profile II master diskette, and the diskette with too many segments. For clarity, we will call the BACKUP of the master Profile disk "A" and the BACKUP of the disk with too many segments "B".

2. Use the "A" diskette (BACKUP copy of the Master diskette) to create a new file with the data segments defined exactly as you want them.

3. After you have created the file on A, expand it to the same size as the original file on B.

4. Return to TRSDOS, execute a Command I. Now put the B diskette (BACKUP of the disk with too many segments) in the computer.

(continued on Page 8)



# Education

## Product News

### Using Scripsit with a Network 2 Controller to Teach Word Processing

Word processors are rapidly replacing typewriters as text-handling machines in offices throughout the world. Students in business schools and high school business classes need to learn word-processing skills if they are to survive in the modern office.

Scripsit is Tandy's word-processing program. It allows the user to enter and edit text on the video screen of the TRS-80, then to print the corrected copy on a printer. The typist can save the text in its edited form on a disk or tape (depending on the system) for later use.

Scripsit and Tandy's Network 2 Controller make a great team for teaching word processing. Up to 16 tape systems can be connected to a Model III disk system using the controller. This forms a versatile classroom setup that lets the teacher send the Scripsit program and sample text to the student stations. It also lets the students send their work to the teacher's disk system for evaluation, printing, and fast storage on a diskette.

The equipment and software required for this are as follows: a 32K or 48K Model III disk system, from one to sixteen 16K Model I or Model III tape systems, a Network 2 Controller, a cassette tape recorder, Model III Disk Scripsit, and Tape Scripsit. (Use Model I Tape Scripsit if the tape systems are Model I's and Model III Tape Scripsit if the tape systems are Model III's. The programs are different.) A line printer may also be used.

If you are using both Model I and Model III tape systems, you should make a BACKUP copy of the Disk SCRIPSIT diskette. Then do the following twelve steps twice: once with Model III Disk Scripsit and Model I Tape Scripsit, and once (on the second Disk Scripsit diskette) with Model III Tape Scripsit.

The first step is to load Tape Scripsit into the disk system so it can be saved on the diskette. You only need to do this once, since you can use the program from the disk after that. To load the program, follow this procedure:

1. Connect the tape recorder to the Model III disk system.
2. Place the Scripsit tape in the tape recorder. Rewind the tape and press the PLAY button on the recorder. Adjust the volume to between 5 and 7.
3. Turn on the Computer.
4. When the red light on the drive goes off, place the Scripsit diskette into the bottom drive of the Model III.
5. Press the orange RESET button.
6. Enter the Date and Time (if desired).
7. When "TRSDOS Ready" appears, type:

TAPE (S=T, D=D)

and press <ENTER>.

8. When "Cass?" appears, type:

L

9. When "Press ANY key to begin cassette" appears, press any key.

10. The computer will begin loading the program from the tape. This takes about five minutes. When the tape has been loaded, the disk drive will come on and Tape Scripsit will be stored on the diskette under the filename SCRIPS/CMD.

11. When TRSDOS Ready appears, type:

BUILD GETSET <ENTER>

12. When TRS-80 Displays: You should type:

Hit BREAK to exit

Type in up to

63 characters

BASIC <ENTER>

Type in up to

63 characters

<ENTER>

Type in up to

63 characters

<ENTER>

Type in up to

63 characters

POKE 16913,0 <ENTER>

Type in up to

63 characters

<ENTER>

Type in up to

63 characters

CMD"S" <ENTER>

Type in up to

63 characters

SCRIPSIT <ENTER>

Type in up to

63 characters

Press <BREAK>

At this point, TRSDOS Ready appears again, and you are ready to proceed. The next step is to load Tape Scripsit from the disk system through the controller to the tape systems. To prepare for this, you should plug the controller's power supply into the jack marked "PWR" on the back of the controller. The cable from the cassette port of the disk system should be plugged into the jack marked "CPU". The cable from the cassette ports of each of the tape systems should be plugged into one of the jacks marked "REMOTE UNITS I/O". The power switch on the controller should be on, the selector set at "MPLX" and the baud rate set at 500.

Turn on each of the tape systems. At each tape system, follow these steps:

1. (This step applies to Model III tape systems only.) When "Cass?" appears, type:

L

2. When "Memory Size?" appears, press <ENTER>.

3. When READY appears, type:

SYSTEM

and press <ENTER>.

4. When "???" appears, type:

SCRIPS

and press <ENTER>.

At the disk system, after you have completed the above steps for all the tape systems, follow these steps:

1. Be sure the diskette containing "SCRIPS/CMD" is in the bottom disk drive.

2. If "TRSDOS Ready" is not displayed on the screen, press the orange RESET button.

3. When "TRSDOS Ready" appears, type:

TAPE (S=D, D=T)

and press <ENTER>.

4. When "Cass?" appears, type:

L

5. When "Device = Disk to Tape - Filespec?" appears, type:

SCRIPS/CMD

and press <ENTER>.

6. When "Press ANY key when Cassette ready" appears, press any key.

Two stars (asterisks) should appear in the upper right corner of the screen, and the right star should blink. When the stars stop blinking, "??"

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## Tandy — The biggest name in little computers

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will appear on the video for each tape system. At each system, press the slash key / and <ENTER>. At this point, each tape system is ready for word processing with Tape Scriptsit, and the disk system returns to TRSDOS Ready.

As a teacher of a word-processing class, you may want to "send" each student at the tape machines a sample letter or some other text that you have prepared before hand. To prepare a document before hand, type in the text using Disk Scriptsit and save it on the diskette according to the instructions in the Disk Scriptsit package. When you have saved your text on the disk, the system can be turned off or used for any other purpose.

When you are ready to present the text to your students, use the following procedure:

1. Be sure each tape station has had Tape Scriptsit loaded in according to the steps above.
2. When Scriptsit's blinking cursor appears on the tape machines video display, press the <BREAK> key, type:

L

and press <ENTER> at each system that is to receive the text. The red light on the controller corresponding to each of the receiving tape systems will come on.

The remaining steps should be performed at the disk system:

3. Be sure the diskette containing Disk Scriptsit is in the bottom disk drive.
4. When "TRSDOS Ready" appears, type:  
DO GETSET  
and press <ENTER>.

(In this example, the filename "SAMPLE" is used. Be sure to use your own filename when loading in your text.)

5. When Scriptsit's blinking cursor appears, press the <BREAK> key, type:

L SAMPLE

and press <ENTER>.

This loads the text from disk.

6. When the blinking cursor returns, press the <BREAK> key, type:

S,T

and press <ENTER>.

7. The text from the disk system will now be transferred to each properly set tape system.

Isn't technology wonderful?

One more thing you can do with the Network 2 Controller is to send text from the students' tape systems to the teacher's disk system to be evaluated, printed, and saved on the disk. Here's how to do this:

1. At the disk system, load in Scriptsit as instructed in steps 3 and 4 immediately above.
2. Turn the "INPUT SELECT" knob on the controller to the number that corresponds with the tape system that will be sending the text.
3. When Scriptsit's blinking cursor appears on the disk system, press the <BREAK> key, type:

L,T

and press <ENTER>.

4. At the tape machine that will be sending the text, press <BREAK>, type:

S

and press <ENTER>.

5. When the blinking cursor reappears on the disk machine, you may save the text on the diskette. (The filename used in the following example is "STUDENT1"; you should use your own filenames.)

Press the <BREAK> key, type:

S STUDENT1

and press <ENTER>.

The text will be saved on the diskette under the filename you chose.

This system has enough flexibility so the teacher can individualize instruction by sending different projects to different students, or present the entire class with the same document. Student work is saved quickly on diskettes.

Business people might note that this very same system could be used in an office. What other system has sixteen word processors which can all be used for different jobs to be saved on a diskette, for about a thousand dollars per word processor?

## Level II PRINT Command

Mr. E. Bowen of Armidale N.S.W. has sent in the following hints on programming using the PRINT and PRINT USING commands.

"Many users do not appreciate the power of the USING instruction. One feature which is mentioned in the second but not the first edition of the Level II Basic Reference Manual is the possibility of including text other than the special purpose symbols #, !, ?, etc. in the instruction. One may also have several numbers in the same application. An example that a teacher might find useful is the following:

```
10 INPUT X, Y
20 PRINT USING "THE SUM OF ## AND ## IS ###"
;X,Y,X+Y
30 GOTO 10
```

When PRINTING consecutively numbers of strings terminated by signs like ",\$,%, etc. it is usually possible to omit the semi-colons that normally indicate that printing is to continue without a break. An example, producing essentially the same result is:

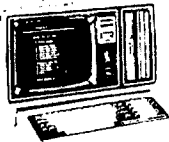
```
5 A$ = "AND"
10 INPUT X,Y
20 PRINT "THE SUM OF" X$A$Y"IS"X$+Y
```

When using semi-colons in the printing of a list of numbers, the display on the video screen can be confined to a specific number of columns on the left of the screen by POKEing into 16541 the required number. (By "column" I mean a vertical line of printing positions. There are 64 columns across the whole screen.) To see its effect, try an instruction like:

```
POKE 16541,32: FOR X = 1 TO 30: PRINT X; :NEXT
```

Except when at the extreme left, it causes a line-feed if the printing of the number would go beyond the specified boundary. POKEing into 16542 does the same sort of thing for a comma in place of the semi-colon, provided the number is less than that in 16541. POKE 16541,64 : POKE 16542,48 returns normal operation. There does not seem to be a similar way of modifying the printing of strings."

(Editors Note: These routines all work as described on a Model III under Level III BASIC).



# Model II

## Product News

### Profile II Users (Again)

We have received many letters from customers and from our Computer Centres asking for minor changes or enhancements to Profile-II.

Obviously, many of the changes can be made with patches, but most of the enhancements would require massive changes to the original source code and a complete re-assembly of several or most of the modules of Profile II.

The major enhancements have become a prime target for a future version of Profile, but we will try to keep you up to date on the changes that can be implemented in the current version with patches.

One of the more requested changes is the ability to change the sort from an "ascending" sort to a "descending" sort when printing a report. Ascending sorts are nice for alphabetizing, but not too good if you want to rank numbers from biggest to littlest.

To make sorting in either direction possible, you need to create two DO files as follows:

```
BUILD ASCEND
PATCH PRINT/EFC A=31E1 F=F2FB31 C=FAFB31
and
BUILD DESCEND
PATCH PRINT/EFC A=31E1 F=FAFB31 C=F2FB31
```

From TRSDOS, typing DO DESCEND will patch the print module for a "descending" sort. Typing DO ASCEND will return the print module to the original configuration. If you try to do the same patch twice, you will get a "String Not Found" error message. This message just tells you that the Print module is already patched for the sort you want. You can continue as usual.

The next patch is for use with the DAISY WHEEL printer (or any other single sheet printer). It will allow you to print a single page at a time. After each page, the printer will STOP to allow you to load another sheet of paper into the printer.

Installing a "MESSAGE" flag at the bottom of the screen would have been a major change, so there is no warning or indicator flashing at you. The printer just pages up, everything stops and waits for you to change paper and press any key.

There are three patches to make this happen. The first patch only needs to be made one time. It can be installed and left so there is no need for it to be in a DO file. Just make this patch:

```
PATCH PRINT/EFC A=5E48 F=00000000000000
C=3E04CFC2485EC9
```

The next two patches should be in DO files with the file names SINGLE and CFORMS. These DO files are created using:

```
BUILD SINGLE
PATCH PRINT/EFC A=5A1F F=C25F5A C=CD485E
and
BUILD CFORMS
PATCH PRINT/EFC A=5A1F F=CD485E C=C25F5A
```

From TRSDOS, typing DO SINGLE will install the patch for single sheet printing, and DO CFORMS will re-patch the print module back to its original form.

By the way, on all of these patches, you might want to include the command "M" as the last line of the DO file. If you do this, you will be taken to the Profile II menu as soon as the patch is complete.

If you are using the BASIC MENU from the September newsletter, make the last command line BASIC MENU instead of M. You could also make the DO files (especially the UP-DOWN sort options) some of your Menu select options. For example, SYSTEM"DO ASCEND" or SYSTEM"DO SINGLE".

Would you like to create segments 2, 3, or 4 with less than 256 bytes in each record? If you need, for example, more information than the 85 bytes of segment one, but you don't really need the complete 256 bytes available for segment two, install the following patch:

```
PATCH CREATE/EFC A=51C7 F=C3ED51 C=000000
```

This patch is on one of the "creation" modules of Profile II, so it will not have any effect on your existing Profile II data bases. You will see its effect the next time you start to create a new data base. After you have created segment 1 and start to create segment 2, you will be asked to input the file size (1 - 256 bytes). If you just press <ENTER>, you will get the default 256 bytes in each record of the new segment.

It is very difficult to document what the maximum number of records will be if you use this last patch. This opens the door to a lot of combinations. You will need to watch your FREE SPACE on the disk (At the bottom of each directory) very closely, or make some BACKUPS before you go searching for the upper limit to the number of records you can have, or you may find out the hard way!

If you are currently using multi-drives and only have a 2 segment file, you can now make use of your third drive.

The maximum number of records, even for a 2 segment file, has been limited to 1800 records on multi-drive systems. The limiting factor has been that 1800 256-byte records will fill a disk, and you can not span one segment over two drives. Split the 256 byte segment 2 into two segments of 128 bytes each, and place one segment on drive one, and the other on drive two. This should allow you over 3000 records in the file.

Again, watch the amount of free space on all disks, especially drive 0, as you expand the file. Drive 0 will fill up fast. Although it only handles one 85 byte record for each of the 128 byte records one drives one and two, it also contains the TRSDOS operating system and all of the Profile II program modules.

Those enhancements to Profile II that are beyond the scope of the PATCH command, have been incorporated in a new program called Profile Plus. This new version of Profile will allow all of the above changes, plus a maths package, user menus, multiple line reports and summaries, and the ability to add fields and segments.

You will be able to upgrade from Profile II to Profile Plus with a minimum of effort. All conversion is via a 'DO' file, with the exception of print and label formats, which must be loaded and then re-saved. Full details of Profile Plus will appear in a future Newsletter.

(Model II Bugs & Fixes - continued from page 5)

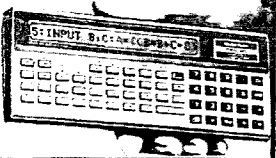
Use the TRSDOS KILL command to kill the segments on the B disk which you do not want. The segment names are:

```
First Segment - ***/KEY
Second Segment - ***/DAT
Third Segment - ***/DA2
Fourth Segment - ***/DA3
```

5. Now COPY the \*\*\*/MAP file (\*\*/ stands for your Profile file name padded on the right with enough zeros to make eight characters) from diskette A onto diskette B which contains the BACKUP copy of the file with too many segments.

6. COPY the files from disk A onto disk B which have the same names as the files you killed off of disk B in step 4.

7. Disk B should now contain all of your data which was in the segments you wanted to keep, and the number of segments should have been reduced. Verify that the information is intact, and make a BACKUP of this disk.



# Pocket Computer

## Product News

### Cassette Operation

Here is some "technical" information about cassette operations with the Pocket Computer that you may find interesting.

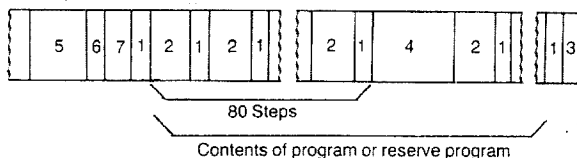
First, notes about proper tape recorders:

While Tandy's CTR-80A (269-1206) or our Miniset-9 (14-1812) are the intended recorders for use with the Pocket Computer, other recorders can be used. Here is some information that may help you choose a recorder:

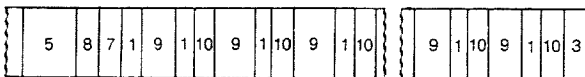
1. Cassettes or open-reel types can be used.
2. The Mic input jack must have an input impedance of 1K or less, with a sensitivity level of at least 3mV.
3. The Earphone output must have an output impedance of 10K or less and an output level of 1 volt or more.
4. Allowable distortion is +/- 15%, with a frequency response from 2k to 4kHz.

Second, if you have wondered how information is actually stored on tape, here are some of the details:

The recording format for programs (Regular or RESERVE) is:



For Data memory, the recording format is:



In the above diagrams, the numbers shown have the following meanings:

- 1 = Check sum code - after every 8 steps (8 bytes) for program/reserved program, or after one data (8 bytes) for data recording.
- 2 = 8 steps of program or reserve program
- 3 = Code for End of Recording
- 4 = This "gap" is composed of all ones (1), lasts approximately 4 seconds, and is inserted after recording 80 steps of program/reserved program. During the time that this gap is being recorded, the next block of 80 bytes of program or data to be output is being prepared in the I/O buffer.
- 5 = A "leader" of all ones (1) is recorded for a period of about 6 seconds in order to move past the leader at the beginning of a tape. This leader is also used to synchronize the computer with the tape on input.
- 6 = Code to indicate program or reserve program.
- 7 = File name
- 8 = Code to indicate data values rather than program
- 9 = Area for recording the contents of one data memory (8 bytes).
- 10 = All ones (1) gap of about 0.2 seconds.

The data is recorded on tape using a binary output. A binary zero "0" is indicated by a 2k Hertz tone, while a binary one "1" is indicated by a 4k Hertz tone.

### CPU Responsibilities

The Pocket Computer contains two separate CPUs, each with its own responsibilities and internal ROM.

CPU I functions to read keyed-in data or to read instructions which are to be executed from

RAM. CPU I also decides what is to be done for control of arithmetic operations (e.g. control of arithmetic sequence, storing data, and data readout). CPU I interprets the syntax of BASIC instructions, deciding what is to be executed, and selecting and preparing data for display. However, CPU I does not perform any execution itself. It only arranges the data and information in proper sequence and acts to provide instruction codes to CPU II via the buffer.

#### CPU I

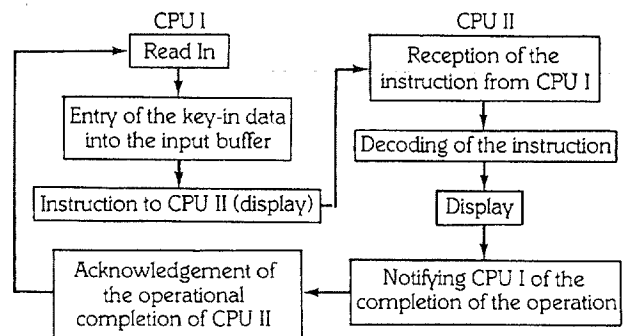
Key input routine  
Acknowledgement of the remaining program  
One instruction to one program step  
Additional incorporation  
Interpreter:  
Program execute statement  
Cassette control statement  
Command statement  
Printer Control  
Execution of Manual operations  
Power Shut-off control  
Clock Stop control

CPU II constantly receives execution instructions from CPU I via the transfer buffer and executes operations per each instruction or exchanges data, depending on the situation. Although CPU II shares execution functions and performs some auxiliary CPU roles, it does not perform any decision by itself.

#### CPU II

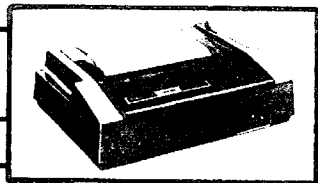
Display processing routine  
Input Buffer  
Computational Results  
Errors  
Arithmetic routines  
Character Generator  
Cassette routine  
Print routine  
Buzzer  
Printer recognition  
Power off  
Clock Stop

Example: Actions of CPU I and CPU II at the time of keyboard data entry



For manual operation of the Pocket Computer, the instruction code (key code) is written into the RAM in the display chip (input buffer) after the information is put through the keyboard and converted into the instruction code by CPU I. This instruction code (display) is transferred to CPU II via the transfer buffer. As CPU II receives the instruction, CPU II decodes the instruction (display) and executes display processing. Upon completion of this processing, CPU II notifies CPU I. CPU I confirms the completion of the task by CPU II before terminating their functions.

(Continued on page 12)



# Peripherals

## Product News

While the newest printer in our line, the Line Printer VIII, has been available for some time, we have not had the opportunity to mention much about it in the Newsletter. Here are some details of the Line Printer VIII and a discussion of standard printer response. One of the major concerns of Tandy has been to produce a standard which allowed for a multi-mode response in a printer. This means fairly simply, ensuring that all our printers behave in the same way for a particular control code. Line Printer VIII is indeed our first (note that word!) multi-mode printer.

Word processing has been historically done using a fully formed character printer best exemplified by our Daisy Wheel II (269-1158). While it does in fact give superior looking copy, it's slow speed and lack of flexibility does leave something to be desired. In addition, its code response is not compatible with many of its dot-matrix brothers. Data processing, traditionally done by matrix printers does not run efficiently on the Daisy; and Word processing software quite often, simply will not run on a matrix. Most matrix printers will not backspace, overstrike, and super- or sub-script.

We discovered that many users chose the Daisy Wheel as their single printer because the matrix character was hard to read: They simply put up with the slow speed of the printer as the lesser of two evils. The capabilities of the matrix machines have been improving over the years. By using smaller print wires and by laying down dots closer together the newer dot matrix printers can produce very clean looking copy. Not good enough to satisfy the chairman of the board (or managing director!) maybe, but certainly good enough to save the eyes of editors of drafts, readers of inter-company memos and the like.

The L.P. VIII IS code compatible with our Dot Matrix printers as well as the D.W. II. In addition, we threw in graphics, dot for dot compatible with L.P. VII (the little \$499 wonder.) Upon power-up, L.P. VIII responds just like our L.P. V and VI (269-1165 and 269-1166). By placing the unit in W.P. mode with "CHR\$(20)" the printer takes on the characteristics of the D.W. II.

We will not be able to describe all details of the features and enhancements of the L.P. VIII here. The manual which accompanies the machine is the longest and most detailed we have produced yet. The specification page and control code summary each occupy two pages!

To begin, the L.P. VIII character set contains, in addition to the now standard 96 ASCII alphanumeric set, the Radio Shack/Tandy standard international and block graphic characters present in L.P. V and VI. This special international set has been expanded to include the special characters present on the 124 character wheel of D.W. II which are missing on the other matrix printers. (More about this later.)

The machine also has an attractive, high density, proportionally spaced character set for "correspondence" use. In the high density mode the L.P. VIII prints 1600 dots in an eight inch line! Even in normal 10 c.p.i. there are eight horizontal dots instead of the usual seven. The end result is a marked improvement in print quality.

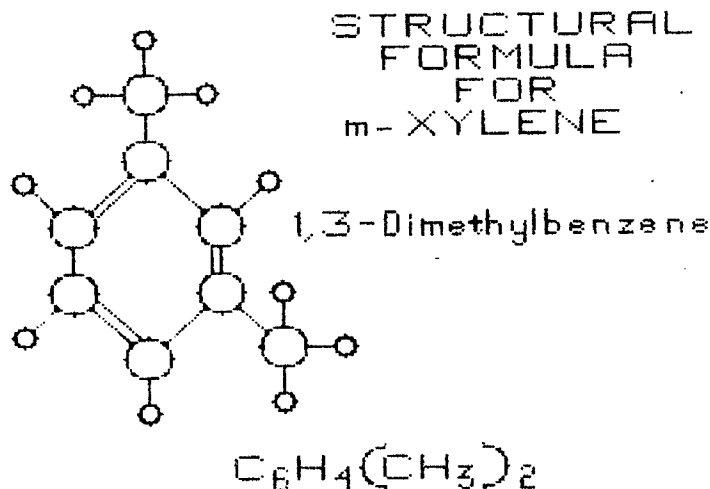
A word of caution: None of Tandy's Scriptit Word Processing software will allow you to fully utilize the special features of LP VIII. In particular, you can not use proportionally spaced characters and left/right line justification. Scriptit 2.0 (due in the new year) for the Model II WILL allow you to use all the features of the LP VIII, for instance you can enter and leave the proportional character mode, but automatic right/left justification will not work correctly while you are in the proportional mode.

The new printer retains the paper handling flexibility provided by its predecessor: fixed pin feed for standard fan-fold paper and friction feed

for handling roll or cut sheet plain paper. In the D.P. mode, line feed commands are handled like any normal matrix printer including the V and VI. In the W.P. mode, however, line feed codes are handled like the Daisy, allowing for super-, sub-scripts, backspace, overstrikes, etc.

Here is some really good news. The manuals for the V and VI describe "switchable code response options" (such as alternate character set and the response of the printer to CR/LF codes) which are available only by a trip to the service centre (or by a voided warranty). In the L.P. VIII, these options are completely user accessible. These switch options have been expanded to include serial or parallel interface and a 600 or 1200 baud rate in the serial mode.

As we mentioned before, the graphics mode is completely compatible with L.P. VII. There is one exception. You will note that L.P. VII has the character column addressing command (POS) which is not present in the VIII. You don't need it (you can address any thing by dot column number); avoid it and any code written for the VII will work in the VIII. You WILL notice a difference however! The VIII lays down a double "half-dot" for every single dot of L.P. VII. The resulting copy is much cleaner and crisper, as shown in the example below. (As a point of interest, this graphic printout is a screen 'dump' from a Colour Computer. We will include a few pages on the Colour Computer in the January/February Microcomputer NEWS.)



We have achieved a great deal of compatibility in all our printers, but that's with one special consideration. By nature of mechanical and font design considerations, each machine possessing proportional spacing uses different values for the actual character widths: D.W. II has one set and L.P. VIII (with its more dense dot density) another. You will also note that the code values for some of the special characters on the D.W. II are different in L.P. VIII. This actually poses no problem: the values for the character spacing and for the special character codes should be stored in a "look-up table" in any software which uses these special characters. Then you simply insert the proper values for the printer in use at the time of output. More about this in a later article.

The Line Printer VIII is available now from any Tandy store or Computer centre. We have included here as much of a detailed "spec" as room will allow (see the following page). The best feature of L.P. VIII is its price - \$899.00!

# Tandy — The biggest name in little computers

We have made mention several times of a standard printer response. The intention in setting up a standard is to ensure that any current Tandy printer will respond in the same manner, when they receive the same series of control codes.

The importance of this is obvious, especially if you write software for resale. You can now write a program to run on your Line Printer VIII and know what response somebody with a Daisy Wheel Printer will have.

Here is an set of charts describing the response standards now present in the current printer line.

Data Processing Control Code Standard - Explanations and Responses

HEX	DEC	SYMBOL	Explanation	V	VI	VII	VIII	DWII
0A	10	LF	Execute CR/LF	+	+	+	+	+
0D	13	CR	Execute CR/LF	+	+	+	+	+
1B 36	27 54	ESC 6	Select 6 LPI	+	+		+	
1B 38	27 56	ESC 8	Select 8 LPI	+	+		+	
1B 1C	27 28	ESC FS	Select 12 LPI	+	+		+	+
1B 0E	27 14	ESC S0	Start Condensed	+	+		*	
1B 0F	27 15	ESC S1	End Condensed	+	+		*	
1F	31		Start Elongated	+	+	+	@	
1E	30	RS	End Elongated	+	+	+	@	
12	18	DC2	Select Graphics			+	+	
13	19	DC3	Not Expected				(+)	
14	20	DC4	Select Word Proc.				+	

\* ESC DC4 to select condensed; ESC DC3 to select ordinary characters  
@ ESC S0 to select elongated; ESC S1 to end elongated

Word Processing Control Code Standard - Explanations and Responses

HEX	DEC	SYMBOL	Explanation LP	V	VI	VII	VIII	DWII
0A	10	LF	1/6" For. LF	+	+	+	+	+
1B 0A	27 10	ESC LF	1/6" Rev. LF				+	+
1B 38	27 56	ESC 8	1/8" For. LF	SEL	SEL		+	
1B 1C	27 28	ESC FS	1/12" For. LF	SEL	SEL		+	+
1B 1E	27 30	ESC RS	1/12" Rev. LF					+
0D	13	CR	Execute CR/LF	+	+	+	+	+
0B n	08 n	BS n	Backspace				+	+
1B n	27 n	ESC n	Incremental space				+	+
0F	15	SI	Start Underline	+			+	+
0E	14	S0	End Underline	+			+	+
1F	31	US	Start Elongated	+	+	+	@	
1E	30	RS	End Elongated	+	+	+	@	
1B 11	27 17	ESC DC1	SEL Prop. Char.				+	+
1B 13	27 19	ESC DC3	SEL Ordinary				+	
1B 14	27 20	ESC DC4	SEL Condensed				+	
12	18	DC2	Select Graphics			+	+	
13	19	DC3	Select DP Mode				+	
14	20	DC4	Not Expected				(+)	
1B 15	27 21		RESERVED					
1B 16	27 22		RESERVED					
1B 17	27 23		RESERVED					
1B 18	27 24		RESERVED					
1B 19	27 25		RESERVED					
1B 1A	27 26		RESERVED					

SEL - Line feed response is selected but not executed until printer receives 0A Hex LF.

@ ESC S0 to select elongated; ESC S1 to end elongated

Graphics Control Code Standard - Explanations and Responses

HEX	DEC	SYMBOL	Explanation LP	VII	VIII
0A	10	LF	Forward LF	+	+
0D	13	CR	Execute CR/LF	+	+
1E	30	RS	End Graphics	+	+
1B 0E	27 14	ESC S0	Start Elongation	+	+
1B 0F	27 15	ESC S1	End Elongation	+	+
1B 10	27 16	ESC POS	Positioning	+	+
1C	28	FS	Repeat Data	+	+

Here is an abbreviated specification list.

## Line Printer VIII Specifications:

### Printing Speeds:

Ordinary (10 cpi) .... 80 Characters / Second (CPS)  
55 Lines / Minute (LPM)  
(20 Character line)  
23 LPM (80 Character line)  
Condensed ..... 100 CPS (18 LPM 132 CPL)  
Elongated Ordinary ... 40 CPS  
Elongated Condensed .. 50 CPS  
Graphic ..... 480 dots per second  
Characters Per Line:  
Ordinary (10 cpi)..... 80 Characters Per Line (CPL)  
Elongated Ordinary ... 40 CPL  
Proportional ..... 69 - 177 CPL  
Elong. Proportional .. 34 - 88 CPL  
Condensed ..... 133 CPL  
Elongated Condensed .. 66 CPL

### Dots Per Character:

Proportional ..... 9 - 23 horizontal dots  
Ordinary or Condensed 12 horizontal dots

### Vertical Spacing:

6, 8, or 12 Lines per inch (program selectable  
Bi-directional paper feed available when 6  
or 12 lines per inch is selected)

### Dots Per Line:

Ordinary ..... 960 dots  
Elongated Ordinary ... 960 dots  
Proportional ..... 1600 dots  
Elong. Proportional .. 1500 dots  
Condensed ..... 1600 dots  
Elongated Condensed .. 1600 dots  
Graphic ..... 960 dots

### Character Sets:

Ordinary or Condensed ASCII or modified ASCII 94  
International Symbol 26 or  
Japanese Kana 64  
Block Graphics 30  
Proportional ..... ASCII or modified ASCII 94  
International Symbol 32

### Interface:

Parallel ..... 8-bit DATA and 4-bit Status  
Serial ..... 7-bit Unit or  
8-bit Unit (Switch Select.)  
600 Baud or  
1200 Baud (Switch Select.)

### Paper:

Fan Fold Paper ..... Continuous business paper  
(241mm wide) with feed holes  
Copies ..... 1 Original and 2 Copies  
(34 Kg non-carbon paper)  
Single Sheet Paper ... 40 - 60 Kg  
Roll Paper ..... 216mm wide, 25mm core and  
127mm diameter

Ribbon ..... Tandy Cat.No. 269-1418  
Size ..... 391mm x 119mm x 279mm  
Weight ..... 7.5 kgs.  
Power Requirement ..... 240V AC, 50 Hz

## Tandy — The biggest name in little computers

### Pocket Computer Carrying Case

A plush-lined soft case (269-3508) is being offered as an optional accessory for the TRS-80 Pocket Computer. This handy padded case features two inside pockets for storing pens, pencils, reference cards, spare ribbon and paper; and a convenient handle that doubles as a belt carry-loop.

The case has been designed to accommodate either the TRS-80 Pocket Computer nested in its printer/cassette interface, and a few accessories; or, alternately, the Tandy Minisette-9 cassette recorder and several cassettes and accessories. Thus, a complete TRS-80 Pocket Computer system can be readily contained and carried using just two of these handsome and convenient cases.

## Pocket Computer Bugs & Fixes

### Business Statistics (269-3516)

Two programs in this package, Multiple Regression (MR) and Forecasting (FC) will not accept negative numbers as variables. This is due to an error in the PC ROM algorithm which raises a number to a power ... it gives an error if you try to raise a letter variable containing a negative number to a power. If you try to raise a simple negative number (i.e. -2) to a power, it gives the wrong answer for all even powers, i.e. -2 raised to the second power gives -4.

In the MR program, change line 110 to read:

```
110 D=D+X*X:E=E+Y*Y:F=F+Z*Z
```

In the FC program, change line 150 to read:

```
150 G=G+X*A(J):F=F+X*X:I=I+A(J):NEXT K
```

After you make these changes, it is possible to re-record the changed program back onto your original program cassette without hurting the other programs. IF you are VERY CAREFUL! Proceed as follows:

- 1) Locate the desired program on tape.
- 2) Load it into the PC.
- 3) Rewind to the beginning of the program and verify it.
- 4) Rewind the tape to the beginning of the program again.
- 5) With the recorder in Play, use the Pause key to stop the recorder the moment you hear the first steady tone of the program.
- 6) Press Stop on the recorder. Release the Pause key.
- 7) Remove the tape cassette and using a pencil, back up the tape about 1 and 1/2 inches from where you stopped it using the Pause key. This will correctly position the tape to record over the original program.
- 8) Make the modifications to the program in the PRO mode as indicated above. Now double check them.
- 9) Place a piece of tape over the record protect notch on the cassette and put the cassette back in the recorder. Make sure the recorder is connected to the PC interface and set the controls for Record.
- 10) Type `CSAVE"(program name)", program name` being whichever program (MR or FC) you are working with and then press ENTER.
- 11) When the tape stops, it has re-recorded your corrected program back on you tape. Now rewind the tape to the beginning of the program and verify it the same as in step #3 above. You should now have a good corrected copy of the program. You can do the same to the program on the other side of the tape simply by locating the program and setting up the tape as in #7 above. Don't forget to remove the piece of tape.

(Model I/III Bugs, Fixes continued from page 4)

### Accounts Receivable (269-1555)

If you are having problems with aging of your customers accounts, check the following:

1. Run the SETUP program and use the M option (modification).
2. Make sure that the Minimum Payment option has at least 1 cent as the minimum payment. If you have already set a minimum payment of of greater than 1 cent, there is no need to change it.

If you do not specify this minimum payment, the customers account will never be aged. i.e. an aging status report will always show the account as category 1 - Current Balance Due.

### Corrections to previous Newsletters

In the last Microcomputer NEWS (Volume 2 Issue 3 - September 1981), the following errors have been noticed.

#### Scripts II (269-4530)

The patch for loss of text was incorrect, change the fifth patch to read:

```
PATCH SCRIPSIT A=C6D0 F=CDE4C6 C=C330DB
```

In the patch for 'Pause between pages?', change the first patch to read:

```
PATCH SCRIPSIT A=C40F F=FD210390 C=C380DB00
```

Change the third patch to read:

```
PATCH SCRIPSIT A=DB88 F=00000000000000  
C=FD210390C313C4
```

(Customer Services News continued from page 1)

We man the Hotline from 9 a.m. to 5 p.m. Eastern Standard Time - Monday through Friday, and ask only that callers be armed with the following information to assure them of the quickest service: Model of TRS-80, Memory Size, Number of Disk Drives, TRSDOS Version in use and program used together with any details of error messages you have had.

Tandy Computer Centres, Stores and Dealers remain your best bet for enquiries regarding prices, availability and technical details on TRS-80 hardware or software. So please assist us in assisting you by limiting use of the TRS-80 Hotline to Computer problems only!

### Last Word

I am constantly looking for material for the Microcomputer NEWS, and will try to publish any material we receive that pertains to "stock" TRS-80 equipment and using only Tandy approved modifications.

If you'd like to see your program or information in print, post it to us and please specify:

1. What machines (Model, level, memory required, etc.), the program was written for.
2. What hardware is required (e.g. Model I expansion interface, printer, etc.).
3. What it is that makes your program special or useful to you.

And since the next issue of Microcomputer News will be in your hands in February, 1982, please have a safe and happy Christmas and a prosperous New Year.