QB MONITOR

QB-99'ERS U.G. NEWSLETTER

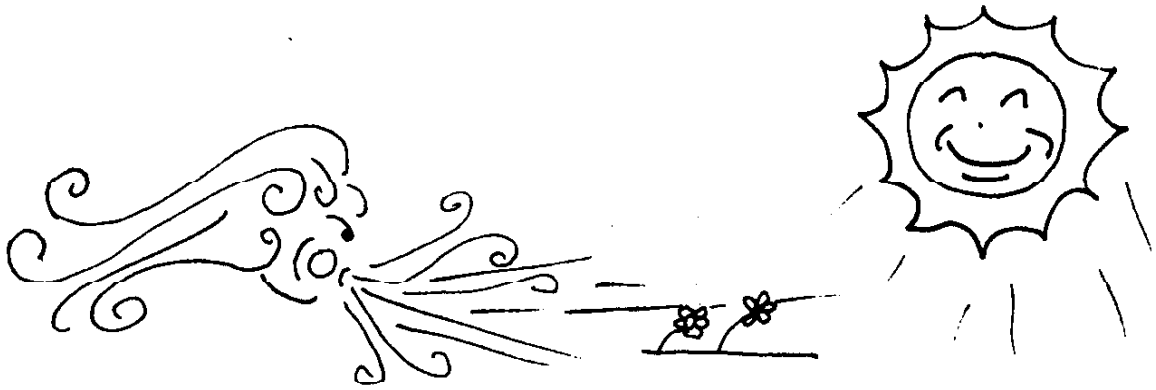
SPECIAL T.I.C.O.F.F. EDITION

The QB MONITOR is the Newsletter of the QB-99'ers User Group, is printed Sept. thru June and sent in exchange for other User Group Newsletters. Send Exchange Newsletter to Frank Cotty, Queensborough Community College, Bayside, NY 11364. Credit original sources.

The QB MONITOR is published monthly Sept thru June by the QB 99'ers Users Group. Newsletter exchange is through Frank Cotty, Editor, Queensborough Community College, Bayside New York, 11364-1497. Credit original sources.

ATTENTION:
QB 99'ers Juniors Users Group now forming. See application form in this newsletter.

NOTE:
Is your User Group exchanging newsletters with the QB 99'ers? Check last page to find out. New exchanges are encouraged, Send your Users Group newsletter to our QB 99'ers editor to start newsletter exchange.



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QB 99'ers meet the second Saturday of each month.
For more info call: Frank Cotty
(516)759-9328.

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TI FOR KIDS!

THE QB 99'ERS will be having special meetings starting in March to meet the special needs of children. These will be before the start of our regularly scheduled meetings.
These special meetings will be free to children of QB 99'ers members.
Children under the age of 10 (ten) MUST be accompanied by an adult.
Please fill out the form below and bring it with you to:
Room S 225 (science building) at Queensborough Community College
-- 1 PM Saturday March 14 --if you are interested in attending..

the CHILDREN'S QB 99'ERS GROUP REGISTRATION FORM

MEMBERS NAME _____ CHILDREN NAMES _____

TELEPHONE # _____ AGES _____

Do you have TI Logo? (Y/N) Bring the manual with you if you have it!

****

If you are not a member and would like to join our group for your children, simply become a member by coming in with your child on March 14 at 1 PM room S 225 Queensborough Community College, Bayside,New York. There you will learn about our group and its requirements.

****

Improved directions to TICOFF Roselle Park, N J This route saves twenty two miles from Queens County and $5 each way!

**Grand Central Parkway to Brooklyn Queens Expressway (BQE) to Williamsburg Bridge.
**Take Delancy Street to end and follow signs to Holland Tunnel.
**Holland Tunnel stay left and go straight to Rt. 1-9 (toward Pulaski Skyway and Newark Airport)
**When airport is on your left start getting to your right to look for Rt. 22 West exit (ON RIGHT)
**Take Rt. 22 West one exit to Frelinghuysen Avenue (toward Elizabeth)
NOTE: Frelinghuysen changes names but keep on going on it till you reach Elizabeth
**In Elizabeth you will see POST OFFICE and ELK's Club. There make Right onto Westfield Avenue
**Take Westfield Avenue to Locust Street. Go under RR underpass to Roselle Park H.S.(Two blocks in on Webster Avenue.)

T.I.C.O.F.F. is held at:
Roselle Park H.S.
185 Webster Avenue
Roselle Park, N.J.
(201) 241-4550

Directions courtesy of: Phyllis Pastuzyn

USING MULTIPRINT

by Ed Machonis

Several people have asked how I go about preparing articles printed in our newsletter, particularly with respect to printing of multiple columns on one page. I will try to answer some of those questions in this article. If sometimes I seem too elementary, remember not all of us have the same amount of experience. If I get too technical, forgive me and ask me to explain.

First let us resolve a problem in semantics. The word "column" as used herein can mean two different things; it can refer to the number of characters on a line, as in 80 column text, and it can refer to the vertical rows of lines of text, as in 3 columns per page. In this article, when I refer to the columns per line, "column" will be written in lower case; when referring to the COLUMNS per page, upper case will be used. One way to remember this is that the lower case column will generally refer to fewer words that the upper case COLUMN.

Why multiple COLUMNS? For several reasons. First, it is difficult for the eye to follow a long line of text across the page. You will find that most periodicals are printed in a multi COLUMN format. Your eye can generally take in the entire line in one, or at most two, glances.

Second, it solves a problem peculiar to TI Newsletters. We have to try to keep paper, reproduction and mailing cost to a minimum and so want to get the most information into the smallest space (present author notwithstanding). Much of our newsletter is devoted to program listings. For the TI, a program listing is best presented in 28 column format as this tends to reduce errors in typing in the programs. What you see on the page, is what you should see on the screen. It is only necessary to check the last character on each line to see if any characters were omitted or added. If the rest of your text is in 80 column format, the 28 column listing is going to leave a lot of white space on the right side of the page. That is why, except for some early issues, Tips from the Tigercub were printed in 28 column format. Jim Peterson conveyed the maximum amount of information on the minimum amount of paper.

Last, and probably of least importance, a multi COLUMN newsletter seems to look better. I should mention one drawback to the multi COLUMN approach; right margin justification, multi syllable words and narrow COLUMNS don't mix very well and leave lots of white space between words. Wider COLUMNS are best able to absorb those long words. Everything has its price.

So much for rationale. The steps I use in preparing copy for the newsletter are as follows:

1. Prepare copy in 40 column format using TI-Writer.
2. Justify the right margin by printing the file TO DISK using the Formatter.
3. Strip off the control characters added by the Formatter by printing TO DISK using the Editor.
4. Divide up the text into page length portions and save as separate files.
5. Print out each page using MULTIPRINT.

I didn't say it was easy! If you're not a perfectionist, there is always the scissors and paste method, or roll back the paper and reset the printer margins. It sounds complicated, but once you've done it a couple of times, you'll find that the computer is doing all the work, and rather quickly at that.

The hard part is at the beginning, writing the copy. That's when YOU do the work. Of course TI-Writer makes it easier. I can hear the moans now. It really is easy to use, you just have to learn to use it. The more you use it, the easier it gets.

I like to both write and print my copy in 40 column format, and these instructions will be so based. First load in the Editor and you will find yourself on the command line. Type T for Tabs. Your cursor will be at the left end of the line at 0 tab. Type L for left margin, space over 3 spaces and type I for indent (all paragraphs will be indented 3 spaces as you type), space over until the cursor is over the 4 and type R for right margin. Now press enter and you will be sitting at the beginning of Line 1. At this point, we couldn't care less about the line numbers, so press Function/0 and the line numbers will disappear. Now your text will be displayed in 40 columns pretty close to what it will look like when printed.

We will use the first line to leave some commands for the Formatter. Type in .LM 0;RM 39 and press Enter. You have instructed the formatter to print your text 40 columns wide. Why right margin 39 in the Formatter and 40 in the Editor? Because TI designed it that way!

Type in your Headline on the next line and your byline on the following line. Press ENTER to leave a blank line between the byline and the text. On the line following that, type .IN +3;FI;AD (We are instructing the Formatter to INdent each paragraph 3 spaces; to FIll each line with the maximum amount of words and to ADjust the right margin at the 40th column by inserting additional spaces between words as required.

Write your article, typing in two spaces after every period because this is what the formatter will do. We want to keep the text looking like what it will appear in print. Resist the temptation to hyphenate to help adjust right margins. It will get you into trouble if you later make additions or changes in the preceding lines.

If you like to keep things on an even keel, type in two carets, Shift/6, after each question mark and exclamation point making the Formatter insert two spaces at the end of these sentences as it does for those ending with a period.

Try to avoid using ampersands (&) and asterisks (*). Unless you use some precautions, they will disappear and the disappearing asterisk will take the next two characters with it. If you must use them, as in program statement lines, type each one twice and follow the second asterisk with two dummy characters, except if the asterisk is enclosed in parenthesis as above. (This asterisk tip comes from Jim Peterson and saves transliteration. Many Thanks, Jim)

As you write, SAVE, SAVE, SAVE. If you don't, you'll be SORRY, SORRY, SORRY! Just enter the command mode with Function/9 and type SF. The first time you'll be asked for a filename. Pick one that will enable you to recognize it 6 months from now. Try to use no more than 8 characters, even though 10 are permitted. Don't forget to add DSK1. or DSK2. at the beginning. Following times when you type SF, the name will appear as a default and you only need to press Enter. Be careful that you do not type in LF when you mean SF or the computer will load in your previous save, losing all you typed in since then. RE, Recover Edit will not help as you have loaded a new file (your previous save) into the text buffer.

When you have finished your article, save it, then go back to the beginning. A quick way is to enter the command mode and type S for Show line. When asked for a line number, type 1. Similarly, if you want to go to the End of a file, type E instead of 1. Now read your prose looking for typing or spelling errors. Page down using Function/6 (Page up with Function/4). Save the corrected copy.

If you have a spell checker, now is the time to use it. Type all corrected words in upper case to make them easy to locate when editing the final copy, at which time restore to lower case. Don't forget to save the corrected copy.

The wise author now saves the file again to a back up disk. Some day you'll be glad you did, or worse, regret that you did not.

At this point, you can print a draft copy through either the Editor or Formatter to revise and edit as you see fit.

If you don't want right margin justification, you can skip the next two, or even three, steps. What we will do next is have the Formatter justify the right margins. It does this by inserting spaces between words, as required, so that all lines of text, except the last in each paragraph, end at the right margin.

Load in the Formatter and, at the prompt, enter the Drive and Filename used to save your file. When prompted for a print device name, enter the same information except add a valid character at the end of the filename. I use F to indicate a Formatted file. Press enter for each of the remaining queries.

The named drive will engage and the Formatter will read your file and print it back to disk in accordance with the formatting commands inserted in the text. When it is done, reload the Editor and the formatted file. (Don't forget that added suffix.)

First thing you will notice is 3 blank lines at the beginning of the file. You will find an additional 6 blank lines inserted after every 60 lines of text. These are inserted to provide top and bottom margins for printed text. We don't need or want them so delete all these extra blank lines, except for any required to separate paragraphs.

Notice that the right edge of the text is evenly lined up. If you window past it you will see a line feed symbol at the end of each line. These and all other control character need to be removed before the text is printed with MULTIPRINT. Although the version of MULTIPRINT to be presented here will remove all control characters automatically, there is an easier and surer way.

Enter Command mode and press Pf for Print File. The printer prompt will appear. Type right over it. Type C, space, DSK#.Filename with the suffix previously added to denote the formatted file. The file will now be printed to disk sans control characters.

When it is finished, reload the file and you will see that all the control characters have been removed. Any editing from this point on must be done with Word Wrap off, (hollow cursor) as a reformat (Control/2) will turn your pretty paragraphs into a mess.

Now we must break up the file into page length sections. Go to the end of the file (Function/9-S-E), display line numbers, and see how long the file is. When printing at 6 lines to the inch, you can have a maximum of 60 lines per COLUMN, but 58 is a better number to work with. Say your file is 118 lines long; an obvious choice is two COLUMNS of 59 lines each. A file 165 lines long will nicely fill 3 COLUMNS. A file 330 lines long can be printed on three pages, two COLUMNS each, or two pages, three COLUMNS each.

For our example, we will use a file of 343 lines, printed on three pages. This means each page contain about 115 lines printed in two COLUMNS. On each page, the number of lines must be the same in each COLUMN. You can adjust by adding blank lines. Take 116 as a trial length for page 1.

Enter command mode, type S, then 104 (yes 104) at the prompt. This will place Line 116 near the middle of the page. Look for a convenient page break. Say a paragraph ends with Line 114; that will be our page break. The 114 lines will make up into two 57 line COLUMNS. Make sure that line 58, the top of the second COLUMN, is not a blank line. If it is, Move it to follow line 114 by entering Command mode, typing M for Move, then 58 (start line) 58 (stop line) 114 (after line). You have moved the blank line from the top to the bottom of the second COLUMN on Page 1.

We must save those 114 lines as a separate file. Enter command mode and type SF. At the prompt, type 1, a space, 114, a space, then DSK#.Filename with P1 added as a suffix, dropping the previous format suffix.

When the Save is completed, enter Command mode, type D for delete and at the prompt type 1 (start line) then 114 (stop line). The first 114 lines will be deleted and your file will now contain 231 lines. Show Line 104 and again look for a page break around Line 116. Not finding any paragraph breaks, just save the first 116 lines with the suffix P2, first making sure that Line 59 is not a blank line.

Again delete these 116 lines, leaving us a file with 115 lines. Since we must have an even number of lines in each COLUMN, add a blank line at the end. Save this file with the suffix P3 after checking Line 59 for a blank line. If is is blank, just move it to the end. It is OK to have two blank lines at the end of the second COLUMN.

Which brings us to MULTIPRINT. This program was written by George Steffen of the LA 99ers in Oct. 1985 and published in MICROpendium in January 1986. The instructions described a method of removing the line feed control characters using the Replace String function of TI-Writer and required the separate removal of the carriage return and new page control characters

At the time, I was unaware of the method described above for removing all control characters by printing to disk from the Editor after prefixing the filename with C. Just a case of not reading (or remembering) the docs. It's all there on page 77 of the manual. I reasoned there must be an easier way than that described in MICROpendium and decided to have the program remove the control characters. The program was so revised and it will also remove any formatting commands in the text. These changes still remain in the version of MULTIPRINT I use even though I now strip off the control characters as previously described.

While I was making changes, the program was made more user friendly by changing INPUT statements to ACCEPT AT and displaying commonly used inputs as defaults. An option was added to print a second (insurance) copy and EPSON print controls are automatically sent depending on the line length chosen. 132=Compressed; 96=Elite; 80=Emphasized Pica. Double strike printing is an available option and recommended for printing in Elite or with old ribbons. An error trap keeps the program from crashing in the event a non-existent file name is typed in.

USING MULTIPRINT PG 3

Elite is used for 2 40 column COLUMNS (Had to get that in!), or 3 28 column COLUMNS. Compressed type can be used for 3 40 column COLUMNS, or 4 28 column COLUMNS. To the extent possible, I have tried to retain intact the original line numbers and remarks. I thank Mr. George Steffen for doing all the hard work and giving us a great program. My additions do not make the program work any better, they only made it easier for me to use and are presented here for those who might similarly profit.

To use the program, select Extended Basic and RUN MULTIPRINT. At the prompt enter filename of the file saved with the suffix PI. The program will check that the file exists on the device named and let you know if an error has been made. (Added after a few trials of answering all prompts only to then have the program crash because the wrong disk was in place.)

You will be asked for the program line length, which in our case is 40. Accept the default by pressing enter. Name of printer defaults to PIO. Printer line length defaults to 132. We intend to print two 40 column COLUMNS which will occupy 80 columns, leaving 52 columns of white paper if we accept the default. Since space is available, let us select a larger type. Pica which is 80 columns per line would leave no room for margins or gutters (space between COLUMNS). Elite which affords 96 columns per line would be a good choice, so enter 96 instead of 132.

The next query is "Lines per inch? 6, 7 or 8?". This option is provided for those times when space is at a premium and you must get the maximum amount of text on each page. Compressed type is quite legible when printed 8 lines per inch and using this option enables printing up to 80 lines per COLUMN. For a more open look, use 7 lines per inch (up to 70 lines per COLUMN) when space permits. This spacing can also be used with Elite type. For our example, accept the default of 6.

You are next asked whether to print Double Strike. Unless your ribbon is very good, select this option for printing in Elite, which on the Epson seems to appear weak. It slows the printing down and is not recommended for other options unless the ribbon is old. As we selected Elite, change the default N to Y.

You are given the opportunity to change any of the previous inputs and then informed that "COLUMN separations will be calculated" and asked to input the number of columns for the left and right margins. A little thought is in order here. The two COLUMNS will use 80 of the available 96 Elite columns, leaving 16 for margins and COLUMN separation. By inputting 4 for our right and left margins, this will allow an 8 column gutter. Change the default 2 to 4. (2 is nice when printing three 40 column COLUMNS.)

Last you will be asked for the number of COLUMNS to print. Change the default 3 to 2. Defaults have all been designed for 3 COLUMN printing.

The designated drive will engage and the text file read into memory then printed as requested. When adjusting the paper, allow for a line feed at the beginning when printer codes are sent and allow for an additional line feed each if Double Strike or different line spacing is selected. These codes are not sent if a second copy is requested and printing starts at the point the paper is set. Printing starts as soon as Y is pressed so have paper ready before selecting Y.

RUN the program again to print pages 2 and 3. I find MULTIPRINT useful for printing compact copies of program documentation which is provided on disk in 40 column format.

PRINT CONTROL CODES

Several newletters have bemoaned the fact that printer control codes cannot be sent with MULTIPRINT. In the course of preparing this article, I decided to try sending printer codes imbedded in the text. I had originally modified MULTIPRINT to ignore printer control codes so that portion had to be revised.

I haven't had the time to fully test this method but preliminary results indicate that it can be done. The headline and byline at the beginning of the article were printed in Elite Double Strike and the header at the beginning of this section was printed in Compressed Double Strike all by means of imbedded print codes.

After all control codes have been stripped by printing to disk from the Editor with a C prefix, CONTROL/U was used to insert the print codes into the text. (See pages 98 and 146 in the TI Writer manual.)

To obtain the Escape code, CHR$(27), one presses CNTRL/U, FNCTN/R, CNTRL/U. Lets call this sequence ESC. The codes used in this example are for the Epson RX80 printer and should work with Epson compatibles.

To print "PRINT CONTROL CODES" in in Double Strike, you must type ESC6 PRINT CONTROL CODES ESC5. (We turn off the Double Strike after the word CODES so that the adjacent COLUMNS are not printed in Double Strike. Now comes the problem. (You knew there would be one, didn't you?) In printing this line the printer received 4 control characters but did not print them. The printer (at least mine does) appears to delete 4 from its column count, and the left margins of the following COLUMNS are displaced 4 spaces to the left.

The solution I found is to tab over four spaces using the code ESC;0CHR$(4). (Key in ESC;0 CNTRL/U SHIFT/D CNTRL/U) This unfortunately adds another 4 control characters which must also be compensated for. So instead of tabbing 4 spaces, we must tab 8 and instead of SHIFT/D, we must type SHIFT/H.

If you think this is confusing, wait till you try changing the type pitch as was done at the beginning of this article. The characters in the first COLUMN take up more space than the characters in the adjacent COLUMNS. I found it easiest to use the old cut and try method.

Type in the print codes for the headline and byline and save the first 18 lines of the text under a filename like TEST. Run TEST through MULTIPRINT and evaluate the results. Return to the Editor, load TEST and change the tab as you think required. A couple of trips between the Editor and MULTIPRINT should bring everything into alignment. Now load the original file into the Editor and merge in the new headline and byline from TEST.

Using a type with a wider pitch, means fewer characters on that line. The original title of this article was PREPARING NEWSLETTER COPY but it would not fit on one line in Elite pitch. As stated above, time was not available to fully test this approach. I'm sure there is an easier and more elegant way waiting to be discovered.

Now that you know how to do it, try it. Write an article for your news letter and win your Editor's undying gratitude. Get some practice on that word processor, and who knows, The Great American Novel may be hiding behind that ENTER key.

30

MULTIPRINT (Revised)

```
100 REM MULTIPRINT - Geo. F.
Steffen, LA 99'ers Computer
Group, Oct.1985 - Revised by
Ed Machonis, QB99'ers User
Group, MAY 1986

110 REM TI EXTENDED BASIC AN
D MEMORY EXPANSION REQUIRED

120 REM WILL PRINT MULTIPLE
COLUMNS OF ANY TEXT FILE (CA
RRIAGE RETURNS, LINE FEEDS N
EW PAGE ETC NEED NOT BE DELE
TED)

130 DIM L$(320):: CALL CLEAR
 :: PRINT TAB(10);"MULTIPRIN
T"

135 ON ERROR 250

140 PRINT :: LINPUT "NAME OF
 DEVICE & INPUT FILE?
                    ":IF$ :
: OPEN #1:IF$,INPUT ,DISPLAY
 ,VARIABLE :: CLOSE #1

142 ON ERROR STOP

143 CALL CLEAR

144 DISPLAY AT(2,1)BEEP:"LEN
GTH OF FILE INPUT LINES?:40"
 :: ACCEPT AT(3,1)SIZE(-2):L
L

150 DISPLAY AT(5,1)BEEP:"NAM
E OF PRINTER?:          PIO
" :: ACCEPT AT(6,1)SIZE(-14)
:P$

152 DISPLAY AT(8,1)BEEP:"PRI
NTER LINE LENGTH?: 132" :: A
CCEPT AT(8,23)SIZE(-3):PL

154 DISPLAY AT(10,1)BEEP:"LI
NES PER INCH? 6,7 OR 8?:6" :
: ACCEPT AT(10,27)VALIDATE("
678")SIZE(-1):LPI

156 DISPLAY AT(12,1)BEEP:"PR
INT DOUBLE STRIKE? (Y/N):N"
:: ACCEPT AT(12,28)VALIDATE(
"YN")SIZE(-1):DS$

158 DISPLAY AT(14,1)BEEP:"AL
L ABOVE CORRECT?  (Y/N):Y"
:: ACCEPT AT(14,28)VALIDATE(
"YN")SIZE(-1):C$ :: IF C$="N
" THEN 144

160 DISPLAY AT(16,1)BEEP:"CO
LUMN SEPARATIONS WILL BE CA
LCULATED" :: DISPLAY AT(19,1
):"LEFT AND RIGHT MARGINS?:2
" :: ACCEPT AT(19,25)SIZE(-2
):M

162 DISPLAY AT(21,1)BEEP:"NU
MBER OF COLUMNS?:3" :: ACCEP
T AT(21,20)SIZE(-1):C

170 IF (2*(M+C-1)+C*LL)>PL T
HEN DISPLAY AT(21,1)BEEP:"WI
LL NOT FIT" :: GOTO 160

180 OPEN #1:IF$,INPUT ,DISPL
AY ,VARIABLE :: FOR I=1 TO 3
20 :: IF EOF(1)THEN 210

190 LINPUT #1:L$(I):: IF ASC
(L$(I))>127 THEN L$(I)="" ::
 GOTO 210 !DISREGARD TAB SET
TINGS

194 IF LEN(L$(I))<2 THEN 197
 ELSE IF SEG$(L$(I),LEN(L$(I
)),1)=CHR$(12)THEN L$(I)=SEG
$(L$(I),1,(LEN(L$(I)))-1)::
I=I+1 :: L$(I)=" " :: GOTO 2
00 !CHANGES END OF LINE FORM
 FEED TO EXTRA BLANK LINE

195 IF LEN(L$(I))<2 THEN 197
 ELSE IF SEG$(L$(I),LEN(L$(I
)),1)=CHR$(13)THEN L$(I)=SEG
$(L$(I),1,(LEN(L$(I)))-1)!DE
LETES END OF LINE CARRIAGE R
ETURN

196 IF LEN(L$(I))<2 THEN 197
 ELSE IF SEG$(L$(I),LEN(L$(I
)),1)=CHR$(10)THEN L$(I)=SEG
$(L$(I),1,(LEN(L$(I)))-1)::
GOTO 200 !DELETE END OF LINE
 LINE FEEDS

197 IF LEN(L$(I))>1 THEN 199
 ELSE IF L$(I)=CHR$(12)OR L$
(I)=CHR$(10)OR L$(I)=CHR$(13
)THEN L$(I)=" " :: GOTO 200
!CHANGES LINE WITH ONLY FORM
 OR LINE FEED OR CARRIAGE RE
TURN TO A BLANK LINE

199 IF ASC(L$(I))=12 OR ASC(
L$(I))=46 THEN L$(I)="" :: G
OTO 190 !INGNORES FORMAT COD
ES

200 NEXT I

210 CLOSE #1 :: S=INT((PL-(C
*LL+2*M))/(C-1))+LL :: M=M+1

212 OPEN #2:P$,DISPLAY ,VARI
ABLE PL+1,OUTPUT

215 IF PL=80 THEN PRINT #2:C
HR$(27);"@";CHR$(27);"E" ELS
E IF PL=96 THEN PRINT #2:CHR
$(27);"@";CHR$(27);"M" ELSE
IF PL=132 THEN PRINT #2:CHR$
(27);"@";CHR$(15)

216 IF DS$="Y" THEN PRINT #2
:CHR$(27);"G"

217 IF LPI=8 THEN PRINT #2:C
HR$(27);"0" ELSE IF LPI=7 TH
EN PRINT #2:CHR$(27);"A";CHR
$(10)

220 N=INT((I/1)/C):: FOR II=
1 TO N :: FOR J=0 TO C-1 ::
PRINT #2:TAB(J*S+M);L$(II+J*
N);:: IF II=1 AND LEN(L$(II)
)>LL THEN J=C

230 NEXT J :: NEXT II :: PRI
NT #2 :: PRINT :"PRINT ANOTH
ER COPY? (Y/N)"

234 CALL KEY(0,K,ST):: IF ST
=0 THEN 234 ELSE IF K=89 THE
N 220

236 PRINT #2:CHR$(27);"@" ::
 CLOSE #2

240 STOP

250 PRINT :IF$;" NOT ON DISK
": :"TRY AGAIN"

260 ON ERROR 250 :: RETURN 1
40
```

4A/TALK

DELETE FILE	TE-II					HELP				
PRINT ON	PRINT OFF	HALF/FULL DUP	BUFF ON/OFF	SAV/CLR BUFF	SEND ASCII	CATALOG	CONFIGURE	XMODEM XFER	AUTO-DIALER	QUIT

CORCOMP

MODEM BAUD	PRNT ON/OFF	MODEM PARITY	MODEM PORT	PRINT PARITY	PRINT PORT	PRINT BAUD			SCR'N WIDTH	QUIT
N,=SND FILE	B=DUMP BUFF	Y=CLEAR LOG	CANCEL	WINDOW RIGHT	K=SET TIMER	TEXT COLOR	SCREEN COLOR	,=LOG ON/OFF	FREEZE TOGL	QUIT

E-TERM

TOGGL PRNTR	LOAD BUFFER	XMIT NXT LINE	XMT X/ONOFF	RESET BUFFER	DUMP BUFFER	RESTRT PROG			QUIT	
E=TOGL ECHO						SCR'N COLOR				

TE-II

SPEAK	OUTPUT	CANCEL	TRANS	WRAP	CASE	PAGE			EXIT	
										QUIT

BASIC

DELETE	INSERT	ERASE	CLEAR	BEGIN	PROC'D	AID	REDO	BACK		QUIT

TI-WRITER

OOPS	REFORMAT	SCREEN COLOR	NEXT PARA	DUPE LINE	LAST PARA	WORD TAB	NEW PARA	NEW PAGE	WORD WRAP	
DELETE CHAR	INSERT CHAR	DELETE LINE	ROLL DOWN	NEXT WINDOW	ROLL UP	TAB	INSERT LINE	COMMAND/ESC	LINE #'S	QUIT

MULTIPLAN

HOME	TAB	NEXT UNL CELL	FORW'D CHAR	FORW'D WORD	CHNG WINDOW	REL/ABS REF				CANCEL
LOWER RIGHT			BACK CHAR	BACK WORD		HELP	RECALC	BACKSPACE	DEL FORWARD	

RAVE_KYBD

OOPS	REFORMAT	SCREEN COLOR	NEXT PARA	DUPE LINE	LAST PARA	WORD TAB	NEW PARA	NEW PAGE	WORD WRAP	LINE #'S
LOWER RIGHT	REL/ABS REF	FORWARD CHAR	BACK CHAR	BACK WORD	FORWARD WORD	HELP	RECALCULATE	NEXT WINDOW	NXT UNL CEL	RAVE 99/101

EDIT/ASM

DELETE CHAR	INSERT CHAR	DELETE LINE	ROLL UP	NEXT SCREEN	ROLL DOWN	TAB	INSERT LINE	ESCAPE		QUIT
DELETE	INSERT	ERASE	CLEAR	BEGIN	PROCEED	AID	REDO	BACK		QUIT

FORTH

							INSERT LINE			FORTH
DELETE	INSERT	ERASE	NEXT SCREEN	NEXT WINDOW	LAST SCREEN	DEL>ENDOLIN	COPY LINE	EXIT EDITOR		

DISKO

			FCTN E=UP	FCTN X=DOWN	FCTN S=LEFT	FCTN D=RGHT				DISKO
HEX DISPLAY	ASCII DISPL	LEAVE PROGRAM	BACK 1 SCTR	RSTRT SUBPRG	FRWRD 1 SCTR		REWRITE SCTR	RSTRT PROGRM		QUIT

ADV/DIAG

E=PG/BUF UP	X=PG/BUF DN									ADV DIAGNOS
DELETE	INSERT	ERASE	NXT SCTR/TK	EXIT PROGRM	PREV SCTR/TK	HELP	RETES BADMEM	ESCAPE	SCREEN DUMP	ASCII/HEX

GRAPHX

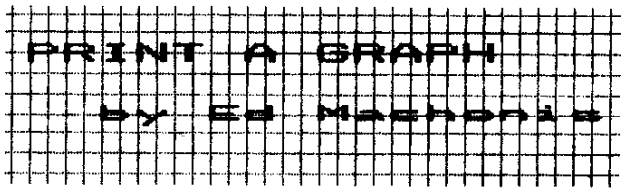
										GRAPHX
SLOWER	FASTER	DRAW	ERASE	NO HELP	ZOOM	COLORS	LINES	CIRCLES	COPY	MENU

CHESS

NO CONTROL	KEY PRESS	REQUIRED		!=MODE CHANG		<=HELP				CHESS
WITH FUNCTN	D=OFFR DRAW	J=TIME OUT	4=ERASE	E=RESIGN	P=ARANG POSN	S=SWITCH	8=REPLAY	I=BACK UP	X=SAVE GAME	==QUIT

CREDITS

COMPILED BY		ED MACHONIS								
PRINTED	USING	"PRINTSTRIP"	WRITTEN BY	MIKE	MACHONIS	AS	PUBLISHED IN	MICROPENDIUM	AUGUST 1986	



Recently I found myself searching the house for some suitable graph paper on which to print a GRAPHX design which could then be bit mapped for printing onto a mailing label through a Basic program. Graph paper ruled 10 to the inch was what I thought I needed.

Not finding any, I decided to try making my own using my RX-80 Epson printer. Among the special graphics character available on the Epson was one which consisted of two lines, crossing each other at right angles. Character 128. While it seemed usable, I thought it unfortunate that it would produce an unsymmetrical spacing, the character being 6 dots wide and 8 dots high.

As soon as I ran some tests, I realized it was exactly what I needed. When printed consecutively, it produced vertical lines every 6th dot (1/10th inch spacing) and horizontal lines every 8th dot, the height of my print head in graphics mode. This spacing was 1/9th of an inch. Single density graphics are printed 60 dots to the inch, exactly 10 horizontal spaces on my graph paper. By setting the line feed to 8/72nds of an inch, my horizontal ruling was exactly the height of my bit mapped printout. A graph paper more suited to my purpose could not be had at any price, and here it was rolling out of my printer gratis.

It never ceases to amaze me at how much work you can do with 10 lines of TI Basic code, and this program is no exception. It actually ran in 8 lines, so an option to select the size of the graph was added, which saves time and reduces ribbon wear. A worn out ribbon, by the way, makes the best graph paper, producing faint lines.

If you set the line feed to 7/72nds, the printout out will be very close to 10 lines to the inch. The horizontal lines will be off about 3/1000ths of an inch. Close enough for most purposes.

```
PRINT A GRAPH

1 OPEN #1:"PIO.CR"

2 PRINT #1:CHR$(27)&"A"&CHR$
(8);CHR$(27)&"U1";CHR$(27)&"
a"&CHR$(4)

3 INPUT "
        HOW MANY INCHES WID
E?~MAX 8~(VERTICAL LINES ARE
 LOCATED EVERY 6th DOT) ":W

4 INPUT "HOW MANY INCHES HIG
H?~MAX 10(HORIZO'L LINES ARE
 LOCATED EVERY 8th DOT) OLD
RIBBONS= FAINT LINES ":H

5 FOR HEIGHT=1 TO H*9

6 FOR WIDTH=1 TO W*10

7 PRINT #1:CHR$(128);

8 NEXT WIDTH

9 PRINT #1:CHR$(13);CHR$(10)

10 NEXT HEIGHT
```

The program is very simple and straight forward. The only lines which may seem strange to some are the printer controls.

Line 1 opens the parallel printer sans carriage return and line feed. Change accordingly for serial printers.

Line 2 sends three different controls to the printer. CHR$(27)&"A"&CHR$(8) sets the line feed to 8/72nds of an inch. Change the 8 to a 7 for 7/72nds line feeds and 10 by 10 to the inch ruling.

Print A Graph.....Continued Pg 2

CHR$(27)&"U1" places the printer in the unidirectional mode. It may slow the printer down a tiny bit (I could not measure it on a small sample), but it straightens out the vertical lines which would be wavy otherwise. In the bidirectional mode most printers sacrifice some accuracy in horizontal registration.

CHR$(27)&"a"&CHR$(4) accesses the special graphics character mode on the Epson RX-80.

Line 9 sends a carriage return and line feed at the end of each line of print.

Incidentally, if you would like wider spacing for your graph paper, change the 8 in Line 2 to 15 and add the code for expanded printing (CHR$(27)&"W1" for the RX-80) at the end of Line 2. Your lines won't be continuous, but they will be at 5 to the inch spacing.

Don't own an RX-80? Not to worry! Many dot matrix printers have special graphics characters available. Open that printer manual and look for a graphics character with two lines intersecting at right angles. You need only change the code in Line 2 for accessing the graphic characters and the character number in Line 7

No special graphic characters? Still not to worry! Take a look at ASCII Character 43, the plus sign. Two lines intersecting at right angles, right? It will work fine, just change the 128 in Line 7 to 43. The lines will not be continuous, but in some applications this can be an advantage. The program should now even work for daisy wheel printers. If Line 2 confuses your printer, change or delete as necessary.

But you say you want continuous lines? If yours is a dot matrix printer, all is not lost. We can program our own special graphics character. First delete the access to the special character mode in Line 2 so that it reads:

```
2 PRINT #1;CHR$(27)&"A"&CHR$
(8);CHR$(27)&"U1"
```

Next change Line 7 to read

```
7 PRINT #1;CHR$(27)&"K"&CHR$
(6)&CHR$(0);CHR$(16);CHR$(16
);CHR$(255);CHR$(16);CHR$(16
);CHR$(16);
```

What we are doing is placing the printer in the graphics mode and bit mapping a graphics character which will look like graphics character 128 on the RX-80.

CHR$(27)&"K"&CHR$(6)&CHR$(0) places the printer in the single density graphics mode and alerts it we will be printing 6 dot columns.

CHR$(16) fires the 5th pin (counting from the bottom) and CHR$(255) fires all 8 pins.

(SPECIAL NOTE FOR OWNERS OF TI-99/4 PRINTERS AND OTHER 7 BIT PRINTERS: The TI-99/4 printer is shipped set up to print graphics 7 dots high. To utilize full 8 dot printing, the word length must be changed from 7 bits to 8 bits by placing switch SW2-1 in the OFF position. See pages 35 and 51 in the manual. If you do not wish to do this, or are unable to, the seven bit word length will work. Change 8 to 7 in Line 2 and change 255 to 127 in Line 7. Your graph paper will now be ruled for 7 bit bit mapping.)

The trouble with this solution is that it slows the print time by a factor of 10. A small price if it provides graph paper that could not otherwise be obtained. The problem is that the characters are dumped by the printer one at a time. Print time can be cut in half by storing 10 characters in the print buffer and printing them all at once.

Print a Graph.....Continued Pg 3

We do this by adding a loop and alerting the printer to reserve space for 60 dot columns instead of 6 (Line 7). This increases the program line count slightly, but the faster printout is worth it. (Where is it written that they ALL have to be 10 Liners?)

PRINT A GRAPH V3

```
1 OPEN #1:"PIO.CR"

2 PRINT #1:CHR$(27)&"A"&CHR$
(8);CHR$(27)&"U1"

3 INPUT "
        HOW MANY INCHES WID
E?~MAX 8~(VERTICAL LINES ARE
 LOCATED EVERY 6th DOT) ";W

4 INPUT "HOW MANY INCHES HIG
H?~MAX 10(HORIZO'L LINES ARE
 LOCATED EVERY 8th DOT) OLD
RIBBONS= FAINT LINES ";H

5 FOR HEIGHT=1 TO H*9

6 FOR WIDTH=1 TO W

7 PRINT #1:CHR$(27)&"K"&CHR$
(60)&CHR$(0)

8 FOR I=1 TO 10

9 PRINT #1:CHR$(16);CHR$(16)
;CHR$(255);CHR$(16);CHR$(16)
:CHR$(16);

10 NEXT I

11 NEXT WIDTH

12 PRINT #1:CHR$(13);CHR$(10
)

13 NEXT HEIGHT
```

By printing 10 characters at once we lose the ability to size our graph paper horizontally in fractional increments of an inch. (i.e., By entering say 3.5 in Line 3) We now have to print an extra fractional part of an inch; again a small price to pay. Vertical sizing ability remains unchanged.

BIT MAPPED PRINTING

Space does not permit a tutorial on bit mapped printing. For those who have tried it, or would like to, the following comments may be of some help.

A good way to use the graph paper is to create a design using one of the many graphics programs available. Size permitting, print several copies of the design on one page in SINGLE DENSITY graphics. Leave paper in printer and roll back to first copy. Load in PRINT A GRAPH and note position of the top of the design with respect to top of ribbon. Overprint design with PRINT A GRAPH, printing only the size needed to cover one copy.

Study the design and the horizontal ruling. The idea is, if possible, to have the fewest lines cover the design, thereby reducing the coding required. Adjust top of next copy with respect to top of ribbon as required and overprint with PRINT A GRAPH again. Two or three passes is usually enough and it can save an entire line of bit mapping.

A low power reading glass will readily indicate which pins to fire for each column. This is why the design was printed single density. If you would like the final print out in double density, merely double the number of dot columns reserved in the graphics open statement and print each column twice.