Telegraphics

T E L E G R A P H I C S

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WAIT JUST ONE MINUTE!
Make a Backup of the program disk and then continue with your copy!

CUSTOMIZING THE SCREEN PRINT FEATURE
Included on the TG diskette are two machine language programs that are used for generating hardcopies of the hi-res display. This section must be completed to assure you'll be able to obtain hardcopies and interface your displays with Telewriter-64 or your own basic programs. You will need to refer to the section on printing graphics in your printer manual to obtain the needed information used in customizing the screen print routine. You'll have to do this only once!

A LITTLE BACKGROUND INFORMATION ON GRAPHICS
When a printer is used in the graphics mode, codes received are translated into a vertical dot pattern. Any combination of a vertical design of these dot can be produced by sending out the proper code. This is where variation are found between different printers. Some printers can produce combinations of 8 dots in the column where as others can produce only 7. Added to this is the fact that even though two different printers can produce the same number of dots, they may require different codes to produce the same design. These tow variables, the number of dots that can be produced and the type of codes needed, is what you must define.

Figure 1				Figure2		
DOT		**CODE**		**DOT**		**CODE**
----------------				----------------		
1	O -	1		1	O -	128
2	O -	2		2	O -	64
3	O -	4		3	O -	32
4	O -	16		4	O -	16
5	O -	32		5	O -	8
6	O -	64		6	O -	4
7	O -	128		7	O -	2
8	O -	128		8	O -	1
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Program: SP1/BIN				Program SP2/BIN		

Figures 1 and 2 illustrate how these codes can be different from printer to printer to printer. For 8 dot printers, figure 1 shows that to have the top dot printed would require that code 1 be sent to the printer, while figure 2 shows that code 128 is required for the same pattern. For 7 dot printers, the top 7 dots in figure 1 would be used as a reference while figure 2 would use the bottom 7. In either case, you will notice that figure 1 and 2 are just the opposite of each other.

MAKING THE CHANGES
Place the TG diskette in drive 0 and LOAD "TG".

LIST line 50 – If the codes for your printer match figure 1 then you can leave this line as is.

If your codes match figure 2 then change this line to read:
50 LOADM "SP2/BIN"

LIST line 60 – Okidata users should change this line to read:
60 OK=1

LIST line 70 – If your printer can only produce a column of 7 dots then leave this line as is. If your printer can produce a column od 8 dots than change this line to read:
70 BI=8

LIST line 80 – Some 7 dot printers actually use codes 128 to 255 for producing graphics. If your printer uses these higher codes and it only produces a 7 dot column then change this line to read:
80 AV=128

LIST line 90 – This line contains the variable(s) needed to set your printer in the graphics mode. A table of these codes can be found in your printer's manual. (see listing below)

LIST line 100 – This line contains the variable(s) needed to have your printer exit the graphics mode. A table of these codes can be found in your printer's manual. (see listing below)

LIST line 110 – This line contains a preset tab setting for having your graphics print at any horizontal tab. This value can be changed here or entered from the keyboard whenever a hardcopy is printed.

TG comes ready to run on most Radio Shack dot matrix printers. The following are suggestions for other printers:

```
  EPSON:   50 LOADM "SP2/BIN"
           60 OK=0
           70 BI=8
           80 AV=0
           90 GM$=CHR$(27)+CHR$(65)+CHR$(8)+CHR$(27)
              +CHR$(75)+CHR$(0)+CHR$(1)
           100 EG$=CHR$(27)+CHR$(64)


C. ITOH:   50 LOADM "SP1/BIN"
           60 OK=0
           70 BI=8
           80 AV=0
           90 GM$=CHR$(27)+CHR$(83)+CHR$(8)+"0256"
           100 EG$=CHR$(27)+CHR$(99)+CHR$(27)+CHR$(84)
               +"16"


OKIDATA:   50 LOADM "SP1/BIN"
           60 OK=1
           70 BI=7
           80 AV=0
           90 GM$=CHR$(3)
           100 EG$=CHR$(3)+CHR$(2)


 GEMINI:   50 LOADM "SP2/BIN"
           60 OK=0
           70 BI=7
           80 AV=0
           90 GM$=CHR$(27)+CHR$(51)+CHR$(13)+CHR$(27)
              +CHR$(76)+CHR$(0)+CHR$(1)
           100 EG$=CHR$(27)+CHR$(64)
```

*Gemini printers should be set in the uni-direction mode by performing: PRINT#-2,CHR$(27);CHR$(60)
This should be done before you start the program.

Make the necessary changes and then save the program by typing:

                SAVE "TG/BAS" [ENTER]

Check these settings when the program is first used to make sure it's working properly.. If you need to make changes, press [BREAK] while the program is running and then do so. TG is written in BASIC, so after making changes just type in RUN and press [ENTER]. Once the

correct settings have been made for your printer, SAVE the program
using the command: SAVE "TG/BAS" [ENTER]
These same variables will be indicated in another routine so once you
get them right, write them down or LLIST them.

Please contact us if you have problems. We would also appreciate
hearing from you on how you interfaced TG with your particular
printer – either special adaptations or successful settings for
printers not listed in the manual.

         *

The screen print routines used in TG were developed using COLOR
COMPILER from COMPUTERWARE. We highly recommend this software
development tool for serious programming.

INTRODUCTION
Normally, to obtain a hardcopy of a hi-res display requires that it
be loaded in the graphics area and then have a machine language
program produce a hardcopy on a dot matrix printer. TG will take any
hi-res display and store it in a special file that can be read back
in and sent straight to a printer without having to load the entire
display at one time. Any hi-res display that has been saved on disk
can be read in by TG and then stored in a special file for future
use.

Two utility programs will let you interface this feature with your
own programs or be called from Telewriter-64 while working on a
document.

USING TG
If you've just completed the customizing and have saved the program
to disk, type RUN and then press [ENTER]. If you have a customized
copy on disk and have turned on your computer, type RUN "TG" [ENTER]

There are 8 selections that can be made from the master menu:

                 1. LOAD HI-RES GRAPHIC
                 2. DEFINE AREA TO USE
                 3. CHANGE GRAPHICS MODE
                 4. SEND CODES TO PRINTER
                 5. OBTAIN HARDCOPY
                 6. SAVE HI-RES GRAPHIC
                 7. CHECK ADDRESS UTILITY
                 8. EXIT

[8] Will exit back to BASIC

CHECK ADDRESS UTILITY
Graphic displays that have been saved to disk using a graphics editor
may or may not load at the same memory location each time. This stems
from the FILES command which indicates where in memory the graphics
will start. TG has to have the hi-res display LOAD at HEX E00. You
should check this address before you load the display into the
computer using this selection. To check the load address of the hi-
res graphic, select [7] and then type the filename of the graphic.
You must include the extension!

                    – FILENAME: GRAPHIC/BINExample

TG will then display the LOAD, END addresses and LENGTH of the file
in hexadecimal. If the LOAD address is E00, then everything is Okay
and you can return to the main menu. If the address is not E00, you
will be prompted to approve the changing by pressing [Y] or exiting
by pressing [N]. [Y] will have TG change the address of the hi-res
graphic and then return to the main menu. You can now use that hi-res
graphic.

THE PROCEDURE

LOAD HI-RES GRAPHIC
To load a graphic, select [1] and then enter the filename of your hi-
res graphic. The extension can be left off if it is BIN. The graphic
mode will be entered and your hi-res graphic is loaded. After
loading, press [X] to return to the main menu.

DEFINE AREA TO USE
Select [2]. Your graphic will be displayed and you will notice a
flashing bar across the screen. This bar is moved up and down the
screen by pressing the [UP] and [DOWN] arrow keys. Position the bar
on the screen to indicate the bottom of the area you want to use. You
can use the entire screen or just a selected section. The entire
display from left to right is used automatically. Press [X] after
doing this to return to the main menu.

CHANGE GRAPHICS MODE
Select [3]. The current PMODE (0-4) will be indicated and a ? will be
out beside it. Type the PMODE that you want to use and press [ENTER]
or simply press [ENTER] without typing anything to leave it as is.
The page number (1-8) that the graphics is starting on is then
displayed with a ? out beside it. Type the page number that you want
to have the display start on and then press [ENTER] or simply press
[ENTER] without typing anything to leave it as is. You will be
returned to the main menu.

SEND CODES TO PRINTER

Select [4]. This selection is to send out additional codes to your printer for experimentation. You may have indicated the start and end graphics codes when you customized the program, so this selection lets you send out codes for condensed, elongated or whatever your printer is capable of doing. Type in the decimal code (0 to 255) that you want sent to the printer and then press [ENTER]. You can repeat this as many times as necessary or key in an [X] to exit. You may want to write down the codes you send so that you can go back and customize the program again. This selection is optional.

OBTAIN HARD COPY

Select [5]. This allows you to see exactly how your display will appear when it's printed from the special file. A prompt will appear:

CURRENT TAB:
NEW TAB?

Enter a TAB setting or press [ENTER] to leave it set as is. Another prompt will appear:

0 - REVERSE
1 - NORMAL

Key in 0 if you want the display reversed (black is white, white is black), or key in 1 if you want the printout to be exactly how it appears. You can exit the printing by pressing [X] at anytime.

SAVE LETTER HEAD

Select [6]. This selection will store your graphic design in a special file so that it can be used later by one of the sub-routines included with TG. A prompt will appear:

FILENAME:

Type in the filename (with or without an extension) that you want it filed under and then press [ENTER]. The default extension is DAT. If you type in a filename that already exists, you will be prompted:

NEW APPEND OR Exit

Pressing [A] and then [ENTER] will have the display appended to the end of the display that was previously stored. This allows any number of displays to be stored in one file for obtaining one long printout. For instance, you might save pages 1 to 4, change the page start to 5 and then have pages 5 to 8 appended to the end. This would in effect create a file of pages 1 to 8.

Pressing [N] and then [ENTER] will have the old file on the diskette killed and the new one put in its place.

Pressing [E] and then [ENTER] will exit the FILE SAVE and return you to the main menu. Another prompt will appear:

                         0 - REVERSE
                         1 - NORMAL

Key in 0 if you want the display reversed (black is white, white is black), or key in 1 if you want the printout to be exactly how it appears. You can exit the printing by pressing [X] at anytime.

That is the procedure for converting your hi-res displays to a file for later use in your own programs or in Telewriter-64. The sub-routines that follow will show you how to access these special files for either purpose. Don't worry if this isn't making total sense right now. You'll see how it all ties together once you've been through the whole process.

CUSTOMIZING THE SUB-ROUTINE PACKAGE
If you have just finished using the TG program then select [8] to exit back to BASIC.

Type: LOAD "SUB/BAS" [ENTER]

This sub-routine package can be merged with any BASIC program to generate hardcopies of your letter head. It contains the same variable names as mentioned at the beginning of this instruction guide. You must define these variables before using the sub-routine.

Type: LIST 9120 - 9200

```
9120 OK=  (Same as line 60 in TG)
9140 GM$= (Same as line 60 in TG)
9160 EG$= (Same as line 60 in TG)
9180 TB=  (Same as line 60 in TG)
9200 F$=""
```

Line 9200 can contain a default filename that you might use most
often or can be left equal to a null string. This filename will be
what you used to store the design with using TG only. In either case,
you will be able to change the filename when the sub-routine is used
by input from the keyboard.

Example: 9200 F$="DESIGN1/DAT"

After you've defined the variables, the program is saved back to the
disk using the ASCII option. Saving this sub-routine module with
the ,A option will allow it to be MERGEd with other BASIC programs
and accessed by inserting the command GOSUB 9000 anywhere within the
program.

Type: SAVE "SUB/MRG",A [ENTER]

TRYING OUT THE SUB/MRG ROUTINE
Try this little exercise to see how the sub-routine SUB/MRG can be
utilized.

1. Type: LOAD "TEST/BAS" [ENTER]
2. Type: LIST [ENTER]

Notice that it is only a small BASIC program that allows a keyboard
selection and contains the command GOSUB 9000. Now to merge the sub-
routine SUB/MRG with this one.

3. Type: MERGE "SUB/MRG" [ENTER]
4. Type: LIST [ENTER]
5. Type: RUN [ENTER]

Press [1] to print the letter head. If you entered a filename at line
9200 in the SUB/MRG program, it will be printed on the screen after
FILENAME. The black cursor can be backed up by pressing the [LEFT
ARROW] to allow a different filename to be entered. As in TG, a [?]
can be entered to have the disk directory displayed. After pressing
[ENTER], the TAB SETTING will be displayed and can be changed by
using the [LEFT ARROW] to erase and re-type. The graphic will be
printed after pressing [ENTER] on the TAB SETTING prompt. Try out
your SUB/MRG routine to make sure your codes have been entered
correctly and that it prints the way you want it to. If changes have
to be made, LOAD "SUB/MRG" and make your changes. Be sure it's SAVED
with the ,A option.

INTERFACING WITH TELEWRITER-64

This section will show you how to access your letter head while using Telewriter-64.

1. Place your copy of TG in drive 0
2. Type: LOAD "TW/BAS" [ENTER]
3. Type: MERGE "SUB/MRG" [ENTER]
4. Place a copy of Telewriter-64 in drive 0
5. Type: SAVE "PLH/BAS" [ENTER]

Now you must COPY your letter head display to the Telewriter-64 diskette.

FOR A 1 DRIVE COPY

1. Place the TG diskette in drive 0
2. Type: COPY "filename/ext"
   filename/ext = name used for saving the letter head
3. Prompt: LOAD DESTINATION DISK THEN ENTER
4. Load the Telewriter-64 diskette
5. [ENTER]

FOR A 2 DRIVE COPY

1. Place the TG diskette in drive 0
2. Place the Telewriter-64 diskette in drive 1
3. Type: COPY "filename/ext:0" to "filename/ext:1"
   filename/ext = name used for saving the letter head

CHANGING TELEWRITER-64
1. Place the Telewriter-64 diskette in drive 0
2. Type: LOAD "S/XXX" [ENTER]
3. Type: 38 IF A$="L" THEN RUN "PHL/BAS" [ENTER]
4. Type: SAVE "S/XXX" [ENTER]

ACCESSING THE LETTER HEAD FROM TELEWRITER-64
Printing your letter head from Telewriter-64 is accomplished by pressing [L] when the BINARY DISK I/O menu is displayed. This will access the "PLH" program that you created. Once the "PLH" program is loaded, you can print the letter head as many times as you need and then return to Telewriter-64 by pressing [2].