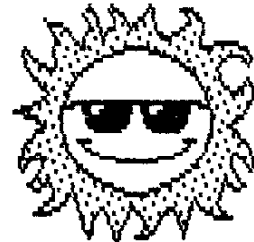


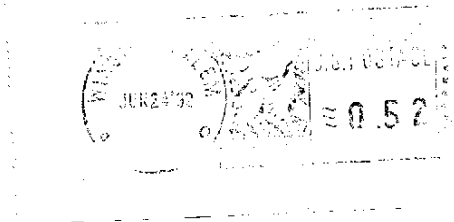
GUILFORD 99'ERS NEWSLETTER



SUPPORTING THE TEXAS INSTRUMENTS TI-99/4A COMPUTER



GUILFORD 99'ERS UG
3202 CANTERBURY DR
GREENSBORO NC
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TO:

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, Pres.
Tony Kleen, Sec/Treas (924-6344)
DDS: (919)621-2623 --ROS

Bob Carmany, Newsletter Ed (855-1538)
Bill Woodruff, Pgm/Library (228-1892)

+++++
The Guilford 99'er Users' Group Newsletter is free to dues paying members
(One copy per family, please). Dues are \$12.00 per family, per year. Send
check to: Tony Kleen c/o 3202 Canterbury Dr., Greensboro, NC 27408. The
Software Library is for dues paying members only. (Bob Carmany Ed)
+++++

NEXT THREE MEETINGS

DATE: July 7, 1992 Time: 7:30 PM. Place: Glenwood Recreation
August 4, 1992 Center, 2010 S.
September 1, 1992 Chapman Street

EDITOR'S NOTES

It is really amazing how much dis-information there still is going aound about our 'orphan'. I recently had a conversation with yet another 'expert' about the Extended BASIC cartridge. Actually, I was trying to locate one of those Super Extended BASIC cartridges. My investigations led me to an outfit called RAMcharged Computers in Cleveland, Ohio. As our conversation turned to the different variations of the XBASIC cartridge, he came up with one of the most 'off the wall' theories that I have ever heard! He maintained that it was a programming 'bug' that causes the XBASIC cartridge to act flaky from time to time. It was the first time that I ever heard of programming in code to cause dirty contacts or thermal faults! Then, he went on to hawk an upcoming version of XBASIC purportedly to be introduced by Asgard Software. It sure is strange but whenever my XBASIC cartridge starts acting up, a good cleaning with some of the Radio Shack Cleaner/Degreaser clears up the problem. Needless to say, after that conversation I have no desire to order any TI products from that outfit!

The beta-test version of the F'WEB 5.00 editor is out. As soon as I get a chance to give it a good run-through, I'll give you a report and put it in the UG library. Rather than try to explain what is in the new version, the beta note documentation will follow in the newsletter. The program itself, however, will NOT be released until I get the OK from Tony McGovern. At least the docs will show you what you have to look forward to in the near future.

F'WEB VN 5

BETA PHASE NOTES FOR FUNNELWEB EDITOR PACKAGE

Files : BETANOTE1 Initial Release Apr/24/92
First Update May/22/92

This document refers to the second set of files issued for test and comment only (no distribution of the Editor files themselves at all please) of the total rewrite of the Funnelweb editor. It retains as much compatibility with the original TI-Writer as can be managed. It will most likely form the major component of the Vn 5.00 revision of the Funnelweb system and is

labelled as such, but the current files execute from Vn 4.40 in the development phase. This file is being written with the new editor.

These beta phase documents will describe the current form of the program, and ignore any temporary alpha phase expedients. Since the alpha issue a number of bugs have come to light and been squashed. Reactions received have generally welcomed the TI Euro-Writer capability, but seem even more interested in the all-characters mode, so the interface has been updated to reflect this. Also all regular functions have now been squeezed into 128Kb VDP memory so that users of unmodified Geneve 9640 machines are not disadvantaged, and no Geneve-hostile code is knowingly included. As in Vn 4.40 the 80-column version is dual mode and will serve as a superior 40-column editor. There is no guarantee that the features included in this issue will not change before final release.

(1) Vn 4.40 features removed from Vn 5.00

Several features of the Vn 4.40 80-column Editor have been eliminated - and mostly replaced by superior facilities.

- (a) Changing/selecting editor type on loading to override the load-path setting was formerly done by pressing <W> or <P> as the program started to execute. Now <space-bar> brings up a multi-part selection screen.
- (b) SwapTabs has been replaced by a more comprehensive Tab setting process.
- (c) The use of <W> in SD for retaining pages of <V>iew for ready reference has been dropped.
- (d) Keys <ctrl-Q> and <ctrl-A> now do not force exit from command mode.
- (e) RecoverEdit has been omitted. The original function of this had mostly disappeared in Funnelweb as it overwrites the text buffer on exit, unlike the original module based TI-Writer, and the only remaining function was after Purge.

(2) Euro-Writer and All-Chars Capability

TI released in Europe in 1983 (in Germany at least) a multilingual Version 2.0 of TI-Writer which supported the range of languages implicit in the TI-Writer module selection screen. We will refer to it here as Euro-Writer or E/W. Unfortunately E/W writes Tab records to file which are fatally incompatible with the original USA issue of TI-Writer. It also had a whole range of auxiliary text and character files, and a new Formatter with special transliteration files for the new characters.

The new Funnelweb Editor supports both the original TI/Wr

and E/W with selection at load time, either preconfigured (see later) or from the selection screen. A new mode allows entry of all characters up to ASCII value 254 (>FE>). The file loader handles all existing tab record formats (TI-Wr, E/W, F'Web) transparently. The user selection screen is brought up by pressing <space> as the program starts. First choice is between Word Processor and Program Editor. The next choice is from 4 options.

<1> Default 7-bit, in which no further character or command files are loaded.

<2> National 7-bit, which is standard TI-Wr, but loads national command and character files. This will be useful in languages and applications which can coexist with a modified 7-bit character set.

<3> All Characters, which loads from a different set of character and command files, and allows keyboard entry of all characters >00 to >FE, for example the complete IBM character graphics set. All-Chars mode is toggled by <ctrl-,> and indicated by a hollow arrowhead for position indicator on the bottom ruler line. Currently it is cancelled by going to Command mode, but can be reset there. This mode sets the MSbit in any character entered. Internal buffer encoding is less efficient (reduced text buffer capacity) for Options 3 and 4 and extended E/W tab records are written out. It also means that character >FF (<f-V> in this mode) is not available and is replaced by a space in the text buffer. All-Chars in word processing mode writes E/W type tab records to the disk file.

<4> TI Euro-Writer, which apart from redefined normal characters, allows entry of various modified versions of vowels, using keys <fctn-.-> and <ctrl-->. These are encoded as ASCII 128 to 167 (>80 - >A7). LoadFile now has an extensive new routine to examine and validate potential tab records of any variety. The Euro-formatter and transliteration files will be needed to handle these E/W files correctly in printing if they contain modified vowel characters. It may be that E/W users will prefer to use All-Chars mode which will mesh more easily with standard printer fonts.

The next option box allows selection (1-6) of the various national languages. Option 1, Australia, is the base line option for use of all-chars mode.

These modes use various auxiliary files. E/W mode loads text/command files F8TX< to G>E, and the TI E/W files CHAR<A to G>1. All-Chars loads files F8TX< to G>A, and CHAR<1 to 8>. Some CHARx files, akin to Code Page 437 (all chars) on PC systems, are included, and others may become available with your help. I realize that 8x6 textmode character patterns will not be all that wonderful on screen but it does open a new dimension for TI-Writer editing. Loading an All-chars or E/W file into the 7-bit Editor modes may corrupt the file as the MSbit is stripped from all characters. If in doubt, load into All-chars

or E/W.

Whatever the character set, the characters >7F (<fctn-V> Del - normally blank) and >FF are redefined as the solid and hollow bottom line indicator characters. The >1F pattern (the edge char in Basic) is also always redefined as the solid mid-line for use as a distinctive screen divider in 40-column freeze mode. The cursor of the moment remains as the >1E pattern. One of the Help screens provided allows examination of and ready reference to the current character set.

The editor files must be loaded from Funnelweb under a 2 letter filename for character, language, and help files to be found.

(3) New and Updated Editor Command Line Entries

The total rewrite has made it possible to introduce several new command line 2-letter entries in various categories. An important and the most obvious change to CMD mode is that text may be scrolled by line or page using the normal set of up/down scroll control keys. This allows the text to be inspected anywhere during command line entries. The new entries are specified here by their English language version.

<T > -- for Tabs now brings up a second command line which asks TABSETS (1-9)? and indicates the current setting as the default entry. The new editor allows 9 tabsets to be defined, of which the sets 1-3 are saved in document tab records. The current tab line is now always written into the ruler line when confirmed by <enter> and also when a new file is loaded and a tab record read in.

<V > -- for View of whatever file is currently in the scrolling view buffer in VRAM. Alternatively this can be reached from SD.

<H > -- for Help mode brings up a series of up to 4 help screens which were loaded initially, with paging between them by <Q,A> and exit by <ctrl-C>. A utility for preparing your own help files is included.

<ST> -- for STore stashes the current work file and all relevant data in VDP memory. This is to permit another file to be loaded, edited, and saved. Then you can do --

<RC> -- for ReCall of the STored document from storage and resume editing. This store/recall process is much faster for long files than using SF and LF and does not require any disk file space.

<QQ> -- for immediate Quit back to F'Web. The editor maintains a "file-edited" flag, and if any text entry has been done since loading or saving the current file, a reminder to save the current work first will be issued. This warning also operates before ReCall and Purge.

<LT> -- for LoadTemporary file. A secondary workfile name is maintained during the current edit session. This may be entered directly, or marked in SD as such. This allows for inserting all or part of external files into the current workfile without disturbing the current workfile name.

<DP> -- for set showDirectoryPrinter name. This allows the device name used by <c-P>rint directory in SD to be preset to something other than the PF name.

<MK> -- for MarK position in file. This sets a marker after line number entry, or else enter this with <ctrl-M> at the current top line, which may be scrolled to any line in the workfile while still in CMD mode.

<HD> -- for HardDisk pathname instructs SD to do a directory using the catalog file for the pathname, using an assembly version of the standard Basic disk catalog program. The pathname is presented for editing first.

< > -- a blank CMD line. On the main CMD line this returns to the Edit mode at the original exit point.

<number> -- from the main command line a number acts like a Show lines command. "E" for EoF is not recognized in this direct return as a letter may conflict with other commands.

Some control key presses now have new special functions in CMD mode, and mostly were of no function before.

<ctrl-M> now writes the current top of page line number at the cursor position on the command line in insert mode. If you must have <cr> on the command line use <ctrl-8> or special character mode.

<ctrl-1> exits from CMD mode to the departure point from Edit mode.

<ctrl-2> exits from CMD mode to the current top of page. It has the same effect as <c-M> followed by <enter>.

Some enhancements have been made to the Find and Replace string commands. Each now takes up to 3 numbers ahead of the string entry. If there are 2 numbers they are the start column and finish column for the search. For 3 numbers or 1 number the first or only number is the number of match occurrences to skip before stopping. This is similar to the E/A editor. In case you had not noticed, RS always worked like this and now FS does as well. Also when no more matches are found, BOTH FS and RS give an audible bloop and stop where they are. As a further enhancement any non-numeric character may be used as delimiter, so that /ABC/def/ or -ABC-def- or aABCadef as RS string entry will all search for string ABC to be replaced with string def.

(4) New Edit Mode Functions

Some minor changes have been made to improve safety in editing. <ctrl-N> in Edit mode now inserts a New line to avoid unintended deletions when NTSC/PAL toggle was intended. This also matches usage on PCs, as in Borland editors.

<ctrl-F> now Freezes the Edit screen below the cursor line, and normal editing and scrolling take place in the upper part of the screen. Entering command mode or pressing <c-F> again clears the frozen part to normal. In 80-column mode the color of the frozen part of the screen changes to the secondary color set. In 40-column mode a solid line is drawn across the screen on the line below the cursor and the screen below that remains frozen. Horizontal windowing does not shift the frozen part in 40-column mode.

<fctn==> effectively does a Show Line with the currently Marked line at top of screen. It is reasonably intelligent in the face of changing workfile contents, and if confused reverts to line 1.

<ctrl-O> returns to the original line after some operations such as <fctn==>, RS, and FS.

<ctrl-,> has effect only in All-Chars mode. To show highbit setting is toggled in, the baseline moving marker changes to a hollow arrowhead. In this mode the MSbit of character entries is set. As the <ctrl-U> special character function allows regular control character (ASCII code below 32) entry, any character value can now be entered into the text buffer. Patterns so displayed depend on the character set currently loaded.

<fctn-,> in Euro-Writer mode only, modifies the normal vowel under the cursor to one with a circumflex accent. Vowels so modified must be retyped to normal form for changing the accent. Some of the modified forms may already be available in some national character files as alternative versions of regular 7-bit ASCII codes.

<fctn-.,>,<fctn-->,<ctrl--> similarly apply umlaut, grave, and acute accents respectively.

(5) New Load/Save Functions

The Load/Save module now has code which performs extensive validation tests on incoming tab records from any mode into any mode. Loading and saving of text records now bypasses DSR search and goes directly to the opened DSR for improved speed. Changes under user selection are in the option codes for PrintFile.

M -- sets PF to output the file in DisFix/128 TI file format with MS-DOS end of line <cr><lf> separators and <ctrl-Z> end of text marker.

U -- does similarly for Unix format with <lf> separators

and <ctrl-D> at end of text. M and U both cancel the L option for line numbers.

P -- if a printer start-up control code sequence has been installed this will be sent to the print device before any text records.

Q -- if a printer reset control code sequence has been installed this will send it to the print device after all text records have been output.

A -- opens the DV/80 output file in Append mode.

There is no provision for external files in the M/U formats to be read in directly, and external conversion programs will be needed to produce DV/80 files first for loading by the Editor.

(6) New Show Directory Functions

The transition to SD display has been speeded up further. Three filename buffers are now displayed, showing the current workfile, the temporary loadfile, and the file in the view buffer. Print Directory now uses <ctrl-P> and goes to the device previously entered as DP device. This is initialized to the PF device. <P>rotect and <U>nprotect of files now use these more obvious keys. Pressing <T> marks the file under the cursor bar in the directory as the LoadTemp file.

Entering 0 for the disk number now reads the Internal, Relative 38 catalog pseudo-file for the pathname as configured or as last entered by HD from the command line. A directory so obtained does not indicate fractured files. File protection is indicated, but nothing can be done about it, as only DSR file level operations are available in this mode. Marking, deleting, and viewing function normally.

A fully scrolling file view function similar to that in DiskReview has been added, using <V> or <c-V> for auto-scroll. The previous one way scroll is now on <W>. The key functions have been simplified by not having auto-scroll on <c-Q> and <c-A>. This change may well be made in DR too. The <space-bar> in View mode now serves only to pause autoscrolling.

The buffer structure in VRAM matches that of DR <V>iew except that it allows for 80 character lines only. The Editor entry code checks VRAM for a data structure compatible with this limited case, and if it finds any signals it by the name Buffer Recovery, but position markers are not restored. Existing View buffer contents may be reviewed by pressing <enter> at any time. Pressing <V> (or <ctrl-V> for autoscroll) replaces the current buffer contents with the Display/80 file currently under the directory cursor bar.

As a last little addition the SD screen also shows the number of bytes remaining in the text buffer. This includes the effects of buffer encoding and E/W and All-Chars will give a

lower figure than 7-bit modes on the same file. The empty buffer value may change with future revisions.

(7) Configuration of ED

The program INSTALL/ED (object file - FW option 4 Load Run) allows a range of initial options to be installed in ED from a DV/80 text file. CONFIG/ED is such a file, and is its own documentation. Keep for reference, but a cut down version such as CON/ED will do just as well.

(8) Auxiliary files

The European character files are the same as for the TI Euro-Writer. Some All-chars files CHARx have been included. These have TI type characters for control characters, but otherwise match the full character sets found on PCs. All these files have a dummy 6 byte E/A program header.

The Euro command text files are prepared using the template form such as F8TXAE/S. Follow instructions in the file carefully. This is assembled, loaded as an object file from F'Web Option 4, followed by FWTXMAKE. Enter the disk number first and then the identifier letters. This saves the data back to disk as a program file. If the Editor does not find the indicated file, it ignores the error but then does not set E/W mode.

Help files are prepared as a 26 line DV/80 file and converted to program file format using HELPMAKE. The help file loader on the Editor starts with HELPED and works through to HELPEG for as many files as set by INSTALL/ED. If one of the series is not found the loading continues to the next. More than enough possible candidates are included. Also needed is a screen of Formatter information.

(9) Prognostications

Please report pronto any bugs found or suggestions. One addition that would be technically easy to do, but probably not worth the code space is switchable Global Search direction. An addition that looks obvious, but would be extremely expensive in code space in the main program, is to implement direct transfer from the View buffer to the text buffer.

The new Editor may well be issued in a cut down USA-mode only version as part of the main F'Web package, and the full version with all auxiliary and utility files as a supplementary disk. Some versions (German and Swedish) with non-English command text are included where the language files are in good shape. To use one of these you will need to have the appropriate 7-bit char files as C1 and C2 in your system.

No work has yet been done on interfacing the the E/W Formatter. For the moment change the word at >30 in the first sector of FORM1 from >130A to >100A so that you at least can use it with Funnelweb or E/A. Edit the drive # and language letter in the string DSK1.TXTFA in sector >0D, and at >20 of sector >0E change >D800 to >9800 to disable the language selection path from the TI/Wr module.

At this time English, German, and Swedish text files are included, and incomplete prototypes done in French (almost complete), Italian and Dutch. Spanish has not even been looked at yet. This reflects both my limited language abilities and level of interest in Funnelweb from these parts. Suggestions for improvements in all of these are welcome. In language files where I am uncertain of the words, the entry has been left in English, otherwise they are based on the existing TI E/W files. There may seem to be a lot of files, but any individual user would need only a subset.

A first pass at a pure 40-column version is included that implements the enhanced functions that do not depend on the 9938 VDP and lots of VDP memory. Euro-Writer and a Help function yes, but All-Chars mode and SD by pathname will require a separate version that will have to reload FW from disk (as MG/MH in earlier releases of F'Web did and still does). Whether this special version is done, if at all, will depend on the level of serious interest. Bi-directional fully scrolling <V>iew is definitely not on. Use INSTALL/ED here also. Help files HELP4A, B, etc are loaded successively from disk.

WARNING - it seems that the ROM based ROS for HRDs by J.P. Hoddie is incompatible with 80-column adapters because it ignores TI system guidelines. Use the Bud Mills/OPA Vn 8.14 ROS in RAM instead, which better respects TI system rules. Also the current QUEST RD ROS has a bug in program file loading which does not agree with 40-col Help file loading.

WARNING - English speakers fooling around with the Swedish model should remember that LF in Swedish means SaveFile!! Various other little traps may exist also.

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POWER SUPPLY

by Ken Hamai

This project requires some skills and knowledge in electronics assembly. Incorrect assembly could result in burning up your disk drive. If you are not sure how to connect the parts, contact me or somebody who can help. In any event, neither I or the ROM will cover you for any damages or losses resulting from the use of this power supply as suggested by this

article and you are using it solely at your own risk.

PARTS LIST

1. Radio Shack 277-1016 power supply chassis
2. Radio Shack 273-1511 12.6volt, 3amp transformer
3. 1/2 amp fuse and holder
4. SPST bat switch
5. 5 ft. of lamp cord and plug
6. Three 6 inch lengths of 20-22ga stranded wire, different colors
7. Male plug for disk drive power connector
8. Small piece of heat shrink tubing 1/16th inch size

All of the above items except for item 7 are available at Radio Shack stores. The disk drive connector plug is available from one of our advertisers, R and D Electronic Supply, 100 E. Orangethrope Ave. Anaheim, CA 92801.

When you purchase the power supply board, you will note that it comes with instructions on a suggested wiring scheme. These instructions also recommend the use of an 18volt transformer and 2amp fuse. The reason I recommend the other transformer is because the power supply does not have to work so hard to regulate the output voltages and the lower amperage fuse gives quicker response to an overload. An added plus is that the 12.6volt transformer costs less.

Step 1. - Connect the transformer and the power supply as shown in the Radio Shack diagram that comes with the power supply.

Step 2. - Double check your connections and then plug in your supply to an outlet to test it out. Be sure to turn on the power supply switch located on the board (see fig. 3). Using a suitable volt meter and fig. 2, check that you get the indicated output voltages when you test the +5 and +12 pins and ground. The voltages MUST be pretty close. DO NOT use the power supply if you find it is off by 1/2 volt or more, especially on the +5 volt pin. If the voltages are way off, I suggest you return the board and get another one.

Step 3. - Disconnect the power to the supply and carefully bend the -5 volt pin out of the way or cut it completely off. Then solder one of the 6 inch lengths of 20-22ga wire to each of the remaining pins. Use a piece of heat shrink tubing over each soldered connection for insulation. Use yours or a friend's blow dryer at the High setting to shrink the tubing.

Step 4. - Referring to fig. 1, assemble the three wires you soldered to the pins into the power connector for the disk drive. Double check your wiring and test the connector with your voltmeter to be sure that you have the wires in the correct socket positions.

That's all there is to the wiring. If you connected up your disk drive now, it should work.

One more thing, I have not included plans for a cabinet for the disk drive and power supply. You will need to build one to hold your components together. For my demo model, I attached the transformer, fuse holder, off-on switch, and disk drive to a piece of plywood and covered the whole thing with a piece of cardboard to keep the fingers and dust out. Since various models of 5-1/4 inch floppy disk drives can be used, I suggest you

take your own measurements for the design of the cabinet.

Using the above and one of the low power demand disk drives you should be able to set up a double side double density drive AND this power supply for less than \$50.00, including the cardboard and nails.

TRAJECTORIES

Whenever you want to write programs that calculate the flight of objects (rockets, tennis balls, cars jumping ramps, etc.), you need to be able to calculate the trajectory of that object under variable conditions. In this issue, we cover the most common formulas used in calculating those trajectories.

The Mathematical Info

For those of us who remember our math lessons, the following formulas will act as a reminder, for the rest of us, they will probably act as an irritant. Still, we include the math formulas for the sake of completeness. If you don't really understand them, that's OK, the DEF statements will do all the work anyway!

Calculating the Trajectory

When calculating the trajectory of a moving object you have three measurements: 1) Altitude (the highest point reached while in flight; 2) Range (the distance covered while in flight; and 3) Duration (the length of the flight measured in time - usually seconds). These three measurements depend on two important variables: 1) angle of trajectory; and 2) speed of travel.

The three formulas are expressed in mathematical terms as follows:

O = Angle of trajectory
V = Speed of object (velocity)
g = acceleration due to gravity

Altitude:

$$A = \frac{V^2 \sin^2 O}{2g}$$

Range:

$$R = \frac{V^2 \sin 2O}{g}$$

Time of Flight

$$T = \frac{2V \sin O}{g}$$

Creating Nested DEF Statements

In our demo program at the end of this article we calculate the Altitude, Range and Travel Time of the object in either centimeters, feet,

kilometers, or miles. This means we need three DEFs for each measuring unit. We can however, use parts of the DEF statements interchangeably. And TI BASIC lets us "chain" DEFs together by referencing a "lower" DEF in our new "higher" DEF. This is how it works:

The calculation for the distance traveled can be expressed in BASIC as follows:

```
DEF RANGE=SIN(T*3.49E-02) where T=trajectory angle.
```

The calculation for the highest altitude reached can be expressed as follows:

```
DEF ALT=SIN(T*1.745E-02)
```

These two "primary" DEFs can then be used in the "secondary" DEFs as follows:

To calculate Range, Altitude and Duration in centimeters per second:

```
DEF CMSRANGE=RANGE*V*V*1.094E-03
DEF CMSALT=ALT*V*V*5.097E-04
DEF CMSTIME=SQR(ALT)*V*2.039E-03
```

Note in inclusion of the DEFs RANGE and ALT in the above DEFs.

This is a kind of "nested" DEF structure and can be very useful when constructing complex DEFs.