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Home Computer User Group of Nova Scotia

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THE FAYUH

Source

The following was found on the Source and uploaded
for interested people:

The New England Fayuh is the next event coming. Lou
Phillips is once again supposed to be introducing the
new computer - now on a card. Well, I think this one is
going to surprise a few people. I am so delighted with
the new Xbasic II, which we have up and running in New
England, that I really think he is going to do it. Mass
production may still be a month or two away, but the
problems are largely solved and the 86 version of the
new computer is just about ready. Most of the
"promises" have come from people putting words in Lou's
mouth to promote their own interests. At Chicago, Lou
said April for the new computer, not January or February
or March. Here comes April! Watch the New England Fayuh
and come if you can. Diamond Junior High School,
Lexington, MA on April 5th, 10am - 6pm.
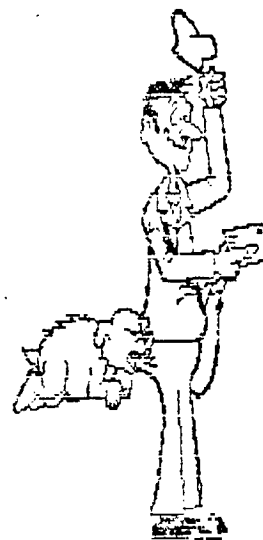
Battle of the Pixels

Warren Agee

Forward

For such a long time, 99ers have had a rather limited choice in software. That limit applied especially to graphics software. In the past year or so, however, that problem has disappeared and another dilemma has taken its place: from which graphics package to choose!

We currently have four software packages that all try to do the same thing: emulate MacPaint. Realistically achieving that status is very unlikely due to current memory limitations. Fortunately, these packages do represent the best graphics software around for our machine. I have not as of yet seen Joypaint or BITMAC, but I have worked extensively with both GRAPHX and TI ARTIST 2.0 . What I will try to do in this article is compare, blow-by-blow, both of these packages, pointing out the advantages and disadvantages of each, to hopefully aid a potential buyer in making a wise purchase. This is NOT going to be a full-length review of either TI ARTIST or GRAPHX, just a short "shopper's guide" to graphics software.

Methods of Operation

GRAPHX and TI ARTIST represent two entirely different approaches to computer drawing. Each uses a different technique used by the Macintosh.

GRAPHX uses pull-down menus to choose the various functions. Pressing one of the ten function keys either activates a function or summons a menu. Instead of a mouse, the user may use a joystick or trackball to select options from the menus. As the joystick moves, the options are highlighted in a different color, and hitting the fire button at the desired option activates it. This is an easy method to use, but one can get tired flipping through menu upon menu. For example, to save a screen to disk, you have to flip through 2 or 3 menus.

TI ARTIST, on the other hand, uses icons, or symbols representing the various function. But instead of the icons appearing directly on the screen as the picture, you must flip to a separate screen to view ALL the functions available to the user by hitting the space-bar . This "menu" screen is very nicely drawn, with each function contained in a 3-D box. To choose a function, just move the cursor to the box and hit the fire button. The box will turn yellow, indicating that the function

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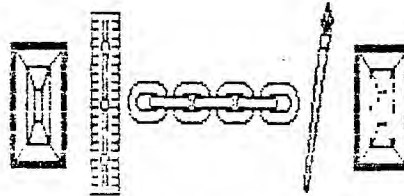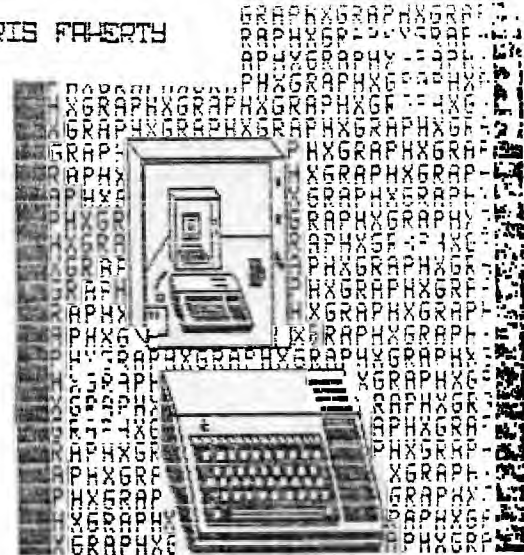
is active. You may also press the key indicated inside the box to choose an action. Since the program presents all major functions on one screen, and a simple keypress is all that is needed, the operation of choosing an action is much faster and more convenient.

Specific Functions

Now let's get down to the nitty gritty. Here is a list of all the functions BOTH packages have in common: Freehand lines, Plot points, Draw continuous lines, Fill, Circle, Clear picture, Text mode, Store/load from disk, Zoom, Redefine foreground/background colors, Draw/erase mode, Print pictures, Change cursor speed, "Clipboard" options and Copy/move commands.

Before continuing with the differences, a few of the functions above perform differently on each program.

FILL: In GRAPHX, the user has complete control over filling. Once in fill mode, the user must manually move the cursor to fill the area. Also, the cursor is not allowed out of an enclosed area once filling has begun. In TI ARTIST, the filling is automatic. This means that if a fill accidentally overflows an area, you can stop immediately with GRAPHX and patch up the area. This cannot be done with TI ARTIST.

CIRCLE: In GRAPHX, you can vary the shape of the circle, thus creating an infinite number of different-sized ellipses. This cannot be done with TI ARTIST. Only true circles can be drawn.

ZOOM: The magnification process takes longer in TI ARTIST than in GRAPHX. You have to wait a few seconds for the screen to be re-drawn for magnification, while the magnification in GRAPHX is virtually instananeous. However, the TI ARTIST zoom mode proves to be more flexible than in GRAPHX. You may draw circles, rectangles, fill, just about anything in zoom mode, while the only functions available with GRAPHX is plot and erase points and lines.

ERASING: This is one area where TI ARTIST excels. To erase anything in

GRAPHX, all you do is draw single-pixel wide lines in erase mode. In TI ARTIST, you can vary the brush size and erase large portions of the screen in a short time. In addition, all TI ARTIST drawing functions operate in erase mode; draw a "disk" (filled circle) in erase mode, and it erases a circular area. Very handy indeed. [ED NOTE: Faster erasures can be accomplished with GRAPHX by going into the "typewriter" mode and spacing-out the portion to be erased.]

TI ARTIST Features

here is a brief list of functions found only in TI ARTIST: Rays, Draw a rectangle (box), Draw a _filled_ rectangle, Disc: draw a _filled_ circle, Horizontal vertical lines, Swap color in one area for another color, Invert the colors of your picture, Resets colors of picture to black on transparent, Mirror - draws in 4 quadrants, Fill with patterns, Different brush styles, Index pictures on disk and Flip - flip a portion of the screen either vertically and horizontally.

GRAPHX Features

Now, for the list of GRAPHX-specific features: Clear to grey boxes: draws a checker-board pattern -- excellent for planning colors (each box is 8x8 pixels), Remove grey boxes and Change color of backdrop cursor color.

The grey-box backdrop is very, very handy since colors are limited to one foregroud and one background in a 8-pixel row. This allows you to plan colors as you draw your creations.

CLIPBOARD FEATURES

When TI ARTIST first came out, it had no clipboard features at all, which made it somewhat limited compared to GRAPHX. But with the release of version 2.0, TI ARTIST now has in fact several different "clipboard" functions! Briefly, a clipboard is a storage place for objects. These objects can be symbols, pieces of a larger picture, or character fonts. GRAPHX has only one

clipboard, and it can contain many objects, depending on the size of each. TI ARTIST 2.0 has three distinct clipboard features: slides, instances, and fonts. A slide is a small 8x8 object; about 20-25 slides can remain in memory at one time, and when in use, they are displayed around the border of the screen; to use a slide, merely move the cursor to the edge of the screen where it sits, and move it to the desired place on the screen. Then you have instances. While you are limited to the size of a slide, you are in no way limited to the size of an instance. However, an instance contains only one object, not several. So, an instance file can only hold one object, or one part of the screen. For instance, if you drew a disk on the screen, then chose SAVE INSTANCE, you enclose the disk with a box, and it is saved out as one file. This proves to be flexible because there is no size limitation on an object.

Lastly, one can use fonts. In GRAPHX, a font is just a clipboard. If you want to place your name on the screen, you have to load in the file, flip through the clipboard to find the first letter, place it (with the joystick) on the screen, go back to get the second letter, etc. Rather cumbersome. The method of text entry is greatly simplified in TI ARTIST 2.0. Simply load in the font and, on a separate screen, type (with

the keyboard!) the words you want displayed. Hit enter, and you are brought back to the picture with a flashing box the size of the word you typed in. You can then move the box with the joystick to the desired position and hit the fire button, after which the text is finally drawn. This method is much easier to utilize than with GRAPHX. In addition, the flashing box is automatically centered on the screen when it initially appears. You can even choose to outline the text, which, with some fonts, really creates some attractive letters.

Conclusion

Well, there you have it. Two of the best graphics program on the market. But which to buy? Before version 2.0 of TI ARTIST, that question would have been simpler to answer. But now it is a hard decision. In certain areas, GRAPHX performs faster. Also note that GRAPHX is one complete program, while TI ARTIST is a series of programs: TI ARTIST I, Enhancement (which contains the copy/move/slides/instance/fonts functions, and Conversions. Moving from one program to the next takes a little time for the sections to load. With the last program, you may convert any picture drawn with Draw N Plot, Draw a Bit I II, or GRAPHX into TI ARTIST format. With this in mind, and if you don't mind spending the money, buy both!! You can have the best of both worlds since the graphics are transportable from program to program. Now that I have compared both packages, it is up to you to decide which is for you. I do not envy the job ahead of you, and I avoided making that choice...I own them all!!

JAX BRANCH

CENTIPEDE **JG100E** MICROSURGEON

DEFENDER **JG100E** POLE POSITION

SHAMUS STAR TREK PROTECTOR2 MS-PACMAN

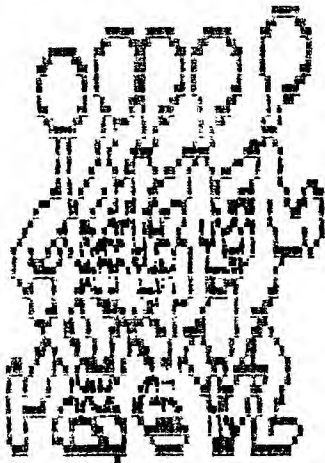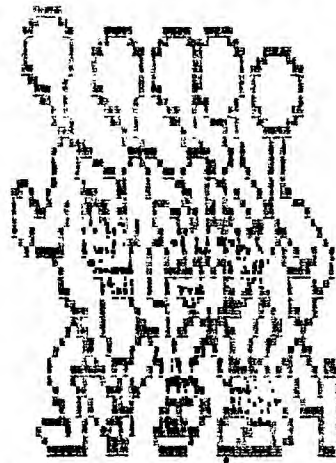SPIDERMAN BUCKAROO BANZI HULK ADVENTURE

SECTOR SOFTWARE

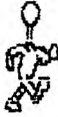HOME FINANCIAL DECISION/MANAGEMENT PKG

EDITOR ASSEMBLER SPEECH SYNTHESIZER

434 5278

RUN
DONT
WALK

CARTRIDGE EXPANDER AND MUCH MUCH MORE!

Mailbag

TI-99/4A National Users
Assn of Can.
c/o 830 Glen Pk. Dr.
Gloucester, Ont.
Canada, K1B 3Z1
613-837-1719

February 27, 1986

TINS
321 Iony Hill
Lr. Sackville. NS
B4E 1M6

Dear Fellow 99ers:

We would like to take this opportunity to inform you that on Apr 26th, the TI-99/4A National Users Assn. of Canada. in cooperation with the Ottawa TI-99/4A Users Group are sponsoring a TI-FEST here in Ottawa.

We've invited all known Canadian TI dealers and distributors to come and show their wares and a few big names from south of our borders. Its too early yet to guage their response but we're very hopeful we'll be abl to make it worth your while to attend.

We have booked a large cafeteria of a local highschool for the day, are arranging to have food made available and will be happy to arrange local accommodation for you as well should you require it. In addition to the main display area in the cafeteria, we have also reserved classrooms and plan to run seminars and workshops during the show from these locations.

We would also be happy to provide you with a display area for your user group at a cost of $20.00 (we are a non-profit organization and seek only to cover our expenses). We will also provide a working TI system in *any configuration* you specify for your use during the show should you require it. We want to give you every opportunity to show off your organization, its accomplishments and goals should you wish to do so.

We are especially eager to get as much group, commercial and "fairware" representation as possible because we feel its important to introduce as many services as possible to our home computer's users, and vica-versa.

We would very much appreciate an early response to this letter (hopefully positive...) as many ongoing stages of planning hinge on whether you and your group will attend .or not. We should be in a position to

supply more detailed information to interested parties by the time we receive your reply.

Please say you'll be there!

Sincerely yours,

TI-99/4A National Users'
Assn. of Canada

Jane Laflamme
TI-NUAC

PS: The show hours will be from 10 AM to 4 PM on Saturday the 26th of April.

Paul.A156E (Winnipeg)

A company in Brandon is trying to pass themselves off as the offical NUAC for the continent. Don't be fooled as certain people have. They say they are a user group and a computer store where the latter has been proved but the former is really sketchy. They say they have all TI equipment and corresponding equipment makers such as Corcomo/Myarc etc. We'll just leave it at that and report later.

Our newsletter editor is developing a Sargon I chess program for the 4A in 9900 assembly language.   Looks very good so far (nice graphics etc).

One of our members built the Ryte Data 32K add on for his Corcomo 9900 system and so far works perfectly.   He has also developed a 4 slot widget out of cables/edge connectors. Looks nice but a bit flimsy. He's putting it in his custom PEB. Also a 6 game module which dip switch selectable.

Another member has brought out his custom designed widget on a board. 4 slots, reset, and module selectable switch. He says he can produce them for $40 cdn if you are interested.

Finally developed a program in c99. Works fine as it took about 2 weeks. Wanna knowmore? see our april newsletter!

I bought the horizons ram disk card (bare board/software/manual) for $50 US. Looks very interesting after having looked at what can be done with it. I will be buying the parts kit next week and hopefully get this thing together soon and definitly before version 4.0 comes out!

TECH NOTE

Connexions

by Frank Geitzler
More Printer Connections

In the February, 1986 Newsletter we printed an article dealing with the construction of a parallel cable for an Epson printer, a TI impact printer, or a Riteman printer. A search through back issues of the Newsletter uncovered in the June 1985 issue another article, by Ivan Deroy, for a parallel cable for the Tandy DMP-105 printer, with a review of that printer. He found that connecting PIO connector pins 1 through 10 to the corresponding Centronics connector pins 1 through 10, and PIO pin 11 to Centronics pin 17 provided a working cable. We had the opportunity to try out that setup during the past month, and it worked just fine.

Another cable we had the opportunity to try out during the month was for the OKIDATA u82 printer. The Okidata is reportedly difficult to connect, because of timing differences between it and the TI. For this particular printer, however, the connections were PIO pins 1 through 9 to the corresponding pins on the Centronics connector, PIO pin 11 wired to both Centronics pin 16 and Centronics pin 30, and PIO pin 10 wired in series with a 270K resistor to Centronics pin 11. This connection worked perfectly.

A third cable we tested was a serial connection between the TI and the Tandy DMP-105, for those with no PIO port. The TI end of the cable uses a 25-pin D-shaped connector, called a DB-25M connector. The printer end of the cable uses a circular 4-pin DIN connector, with a keyway slot at the top. We found that wiring pin 20 of the DB-25M connector to pin 2 of the DIN connector (DTR/5SY), pin 7 of the DB-25M connector to pin 3 of the DIN (Ground), and pin 3 of the DB-25M to pin 4 of the DIN (Serial Data Out) was all that was needed. Pin 1 of the DIN, and all but 3, 7, and 20 of the DB-25M, were not connected. The OPEN options for the DMP-105 varied depending upon the DIP switch settings. If both DIP switches were on, the OPEN statement used "RS232.BA=600,PA=N,DA=8". If only DIP switch 1 was on, the OPEN statement used "RS232.BA=2400,PA=N,DA=8". For those of you who prefer to let someone else do the work, I am prepared to wire up a 5-foot PIO ribbon cable, connected for any of the above printers, for $25, plus $2.50 tax, (Serial cables are $20, plus $2, tax) together with $2.50 to cover postage and handling (if required). Please send your cheque or money order to Frank Geitzler, Dartmouth B3A 3K4.

TI PIO	Function
1	Handshake Out
2	Data, LSB
3	Data, 1
4	Data, 2
5	Data, 3
6	Data, 4
7	Data, 5
8	Data, 6
9	Data, MSB
10	Handshake IN
11	Logic Ground
12	10-ohm pull-up resistor to +5V
13	Spare Input Bit
14	Spare Output Bit
15	1k pull-up resistor to +5V
16	Logic Ground

Note that pin numbers are shown looking at the front, rather than the cable side, of each connector.

TI Connector layout

```
 2    1
 4    3
 6    5
 8    7 Key
10    9
12   11
14   13
16   15
```

Centronics connector layout

```
1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16 17 18

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
```

TI DB-25M Connector

```
1  2  3  4  5  6  7  8  9  10 11 12 13

14 15 16 17 18 19 20 21 22 23 24 25
```

4-pin DIN Connector

```
KEY
SLOT
```

GRAM KRACKER

TIBBS

Well, as you might imagine, there is quite a hullabaloo over Craig Miller's Gram-Kraker (GK). Guess the thing is more popular than the TI itself. I have assembled here, a few articles regrarding this magnificent device. Even if you don't have one now, keep the articles for future reference. They may come in handy.

Some of you may be wondering what all the fuss is about over GRAM KRACKER. Of course you can save your modules to disk, but that's only the tip of the iceberg.

I suppose some technical talk is in order for many of you to fully appreciate what we have here.

The TI99/4A has a 16-bit address buss. If you convert 16 binary bits to the equivalent decimal number you will discover that the CPU (Central Processor Unit) which is the brain of the computer can access 65536 memory locations.

Much of this memory does not exist in the TI console but instead in the P-Box (32K) and the GROM port (8K). In fact, there is only 256 bytes of CPU addressable RAM in the console. The 16K that comes with the console is not directly accessable by the CPU, but is a memory mapped device. Most computers make use of mapping to expand the memory capabilities beyond the capability of CPU address space.

The mapped devices generally communicate with the CPU by having several common addresses. One (or several) addresses tell the mapped device what address in it's space you want to communicate with. Other common addresses are used to transport data back and forth. If a device is RAM, it can be both written to and read from. If a device is ROM it can only be read from.

The TI is sort of like an octopus with arms extended to devices in all directions. In particular is the concept of GROM which is one of the mapped devices in our machine that has had so much to do with the 99's history and unioueness in the computer world.

GROM is sequentially accessed memory which has some unique characteristics relative to other areas of the machine. First, the GROM chip itself is proprietary and was basically TI's method of keeping control of the software. The use of GROM in modules was intended to stop piracy and to control software for the machine.

The use of GROM in the console was a memory space saver, and enabled coding a large part of the operating system and console BASIC in GPL. Graphic Programming Language (GPL) is an assembly type language. It's characteristics are somewhat different from 9900 assembly in that it's a byte oriented language (8 bits = 1 byte) as opposed to 9900 code which has both byte and word (two byte) instructions. GPL seems to make widesoread use of macros (canned routines which can be CALLed in any program) and supposedly is easier to program in than 9900 code.

TI never came out with a GRAM version of GROM. You see, GRAM can be reprogrammed just like RAM, and GROM and ROM cannot.

What all this means is that the 99/4A has been described as having closed architecture. Architecture refers to the way the electronic building blocks (CPU, RAM, ROM) are interconnected to form a computer. A machine with open architecture with the same addressing capability as ours would have 64K of RAM that could be addressed by the CPU. Any ROM (such as the operating system code which is the wake-up routines in the machine) would be dumped to RAM on power-up. It would be simple to change this code. It would also be simple to download any module, so TI gave us a closed machine.

The GRAM KRACKER has opened it back up!!! It is now possible to change the operating system which resides in GROM 0 because GK has a GRAM 0. As more programmers become familiar with GPL code, you'll see more changes becoming available to the TI community.

The code is already there to byoass the color bar screen, auto-start a menu option, slash the zeroes in both console and Extended Basic. Similarly, GRAMs1 2 of GK can be used to modify console Basic. The remaining 56K in GRAM KRACKER simulate the GROM and ROM that the modules use.

The point is that not only can the modules be copied, but they can also be altered. Already a number of changes have been offered (most by Millers Graphics), but look for a major overhaul of Extended Basic. We already have such new commands as CALL CLOCK and CALL CAT, as well as the ability to change the default screen/text colors. The number of possibilities is almost endless. You can now customize the modules to YOUR liking and to adapt to specialized situations and applications.

Hopefully you can see that the GRAM KRACKER represents a major step in the evolution of our dear organ.

T I M E L I N E
++++++++++++++++

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Fun With Gram Kracker

Herman Geschwind

After having received the GRAM KRACKER from Millers Graphics, the first order of business was to save all those valuable cartridges to disk and patch Extended Basic with the new "Call" subroutines provided by Millers Graphics.

But there is more than that which the GK will do with its powerful memory editor and the ability to save the Operating System to disk and reload it as an editable GRAM.

One of the things that has irritated me for a long time is the character set provided with the 99/4A, particularly the lower case letters, which really are not lower case at all but rather a smaller version of the upper case set.

For use with TI Writer and FastTerm I had patched in a disk file with a much better looking character set which was developed by the Titan Users Group of Raleigh, NC.

The objective now was to load this character set in GRAM so that it would be available permanently, also for Basic, Extended Basic and other applications.

To locate the lower case character set table in GRAM proceed as follows:

From the GK main menu select 5) Edit Memory.

Press Function 1 to select Grom/Gram, then Function=
to toggle HEX display. Press Function 5, "Search" and
for Start and Finish key in 0000 and 1000 respectively.

Next press Function 9 and after disabling Write Protect key in the string 00003846484834. This is the Hex representation of the character "a" or ASCII 97. Move the cursor to the last "4" of the search string and press enter.

The Memory Editor should now show the start address of the LC character table. For my console this address was p0858. This was for a version 2.2 console. This address more likely than not will vary slightly from console to console.

Once having located the starting address, press Function 9 to place the cursor in the memory window at p0858 (or whatever your starting address may be) and carefully type in the following table of HEX values (without the addresses in HEX which are for reference

```
)0858 00003848484834
)085F 60203824242478
)0666 00003840404038
)086D 6C08384848463C
)0874 0000384470403C
)087B 18242070202020
)0882 00003C44302438
)0889 60202834242424
)0890 10007210101070
)0897 08001800064830
)089E 20202428302824
)08A5 301010101010170
)08AC 00006854545454
)08B3 00005824242424
)08BA 00003844444438
)08C1 00007824382020
)08C8 00003048380800
)08CF 00005824202020
)08D6 00003C40380478
)08DD 20207820202418
)08E4 00004848484834
)08EB 00004444282810
)08B3 00005824242424
)08BA 00003844444438
)08C1 00007824382020
)08C8 0000304838080C
)08CF 00005824202020
)08D6 00003C40380478
)08DD 20207820202418
)08E4 00004846484834
)08EB 00004444282810
)08F2 0000D454545428
)08F9 00004428102844
)0900 000044443C0478
)0907 00007C0810207C
```

A second change involves replacing the zero with a slashed zero (for this tip I am indebted to Millers Graphics). Following the search procedure described above, look for the string 003844444444438 which should be located at p0720.

Once located, replace it with 00384454644438. Next look for 7C444444444447C which is the horrible looking squarish capital "0". Replace it GK UTILITIES

Craig has shipped out the final utility disk and final docs for GRAM KRACKER.

The documentation is superbly bound in a ring binder (of course Craig did (if they are longer or shorter than Texas Instruments, abbreviate or key in blanks to make it fit).

After having made all these changes, be sure to restore the GK write protect and return to the GK Main Menu and then to the title screen. If protect and return to the GK Main Menu and then to the title screen. If everything went fine, you should now have your personalized color bar title screen.

Select Extended Basic and key in

100 FOR I=97 TO 122::PRINT CHR$(I)::::NEXT I

This is test to see that your lower case character set is ok. As a last step use the GK so save your customized operating system to disk.

Auto-Load By

Are you tired of having to sit through the DSK1.LOAD search that Extended Basic does when you start? Here's how to get rid of it.

Use the SEARCH function of GK and type in >6302 and >6400 for start and finish addresses. Search for the string 86 A3 71. It should be at >63CD. Change the 86 A3 to 58 00.

Now change the window to >7800 and type in: 86 A3 71 03 D6 75 20 63 D3 43 D0 then restore write protection and resave the module.

Now when you select Extended Basic, just hit the spacebar and you're in command mode without waiting for the #1 drive to stop looking for LOAD.
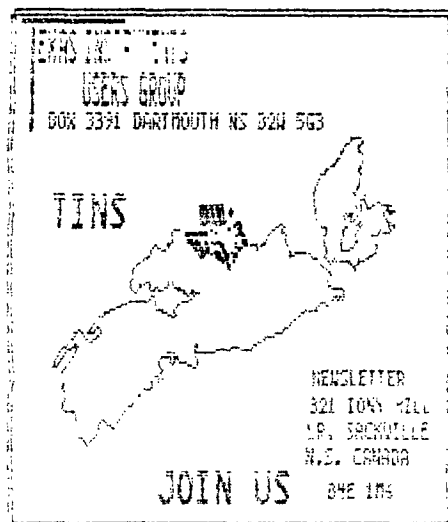
Tom Hall (Edmonton)

I've just discovered what I think is a bug in the utility file TIWGRAMDSK which comes with the Gram Kracker.

This utility is designed to load all the TI WRITER system files into the GK so the only disk access required is for text files to edit and/or print. After preparing the first in a series of articles for our newsletter several days ago, I decided to print out the first part I completed before starting work on the second installment.

I had already created the first file and decided to print it by means of an Include File procedure through the Formatter. I created a small DIS/VAR 80 file called PRINT which contained nothing more than a ".IF DSK1.GK1" command, plus a couple of printer codes.

When I called up the PRINT file from the Formatter, everything proceeded normally until the very last option, when you are asked if you wish to pause after each page. After responding to that last prompt, I then got the message CANNOT OPEN FILE.

I double-checked all statements in both the Include File and the original text file, and everything seemed okay. I then went back to the original hardware module and tried the same thing; it worked perfectly. I then loaded a copy of the module contents ONLY into the GK, and again the Formatter accessed the Include File as expected, and again the file was printed correctly. I then immediately ran the TIWGRAMDSK utility, installing the Editor and Formatter files directly into the Gram Kracker.

At this point the CANNOT OPEN FILE message returned, so I am tempted to assume that the utility itself does something to the Formatter file that isn't quite kosher.

Mind you, this isn't a terribly big deal, but I can't help but wonder if there isn't a similar obscure bug in the companion utility E/AGRAMDSK, which does the same job, only with the Editor/Assembler package!

TIBBS

Terry Atkinson

Well, the April issue of Computer Shopper has hit the newstands, and as noted earlier on TIBBS, Ron Albright Jonathan Zittrain (JZ for short), made their literary debut, and Randy Holcomb took his (more or less) final shot at writing on behalf of TI'ers. Predictably, Ron JZ elaborated on the pros cons of SYSOPing. Since they are both co-sysops of the FORUM (on CIS), I could have bet my shirt that they would include a blurb about it. I just hope (for all our sakes) that we have heard the last of BBSing, after all, it has been flogged to death in MicroPendium. But knowing these two (not personally), I doubt it. I can see them (more than periodically) throwing cudos at their "baby" (FORUM) giving credits (not undeservedly) to their many, many buddies on that system...while largely ignoring those "other" systems (STC DELPHI)...and, thereby ignoring those "whizzos"/"gurus" who frequent those systems for one reason or another. I predict, at this time, that the in-depth technical articles (courtesy of Randy H) we have come to appreciate enjoy will all but disappear from the pages of CS. Such is life.

Instead, look for a lot of general information, hopefully first-hand information, to grace the TI slot in CS. Also look for reviews of all types, much praise for Craig Miller, BYTEMASTER, the L.A. U.G. others within the "inner circle" of TI'ers.

Don't get me wrong, I know what these two gentlemen are capable of, appreciate their efforts, above all, respect them. As far as I am concerned, CS made the right decision to employ them as co-writers of the TI column. I'm just rendering my opinion as to what to expect. I hope I am wrong......it won't be the first time.

Both men are uniquely qualified for the position. Ron has written a very good book ("the Orphan Chronicles"), along with many great articles which he has unselfishly shared with all TI'ers. JZ has a great deal of experience with the TI computerese in general. I wish them well.

Randy, as stated on TIBBS, will continue to work for CS under the column headed 520ST, will keep abreast of the TI action by occasionally writing an article or two, lending technical/moral help to the new columnists. He states he is keeping his TI intends to remain as a driving force on Delphi, answering TI related questions. He also states rather pointedly, that the TI is "superior in many ways", in the same breath, points out the 520ST as being the system to consider if any TI'ers decide to "defect" to another machine.

While I am on the subject of defections, Tim MacEachern, Barry Comer and Kevin Fleming (all former AVID TI'ers from the TINS U.G.) Dennis Denny (O.U.G) have all gone over to the 520ST. The former two have sold their system, lock-stock-and-barrel. I'm not sure what Dennis has done, but I suspect he has done the same. Perhaps the long awaited mythical computer is TOO long in coming for these guys. I wish them the best of luck.

O.K. Enough of my opinionated ramblings. What else did the TI columns in CS have to say. Randy, as advertised on TIBBS, does come down hard on "shoddy business practices" of an unnamed mail-order business. Although he didn't mention the name(s). I will! He was undoubtedly talking about Tex-Comp. Although my business dealings with that firm have been above board very reliable. Randy points out what many have been chastising them for all along. That is, the giving/selling of "fairware" packages along with various pieces of hard/software. Notably, the $25 they were charging for TI-FORTH, which is a public-domain package. Granted, it costs money to produce the manual, not to mention the cost of the disk, and somebody's time to copy it, but, as pointed out, $25 is kind of steep. He did not mention the DM1000 fiasco. TexComp is giving that program away as well, along with the purchase of "Explorer". This despite the intervention of the O.U.G. who have written them asking them to cease desist. Their plea is being ignored, or Jerry Price is blind deaf. Another program which is being given away is Danny Michaels' SDUMP along with the purchase of the "Load-interrupt switch" by CorComp. Another public-domain program which is being "off-loaded" on an unsuspecting buyer is the TE2 and TEIV+ software.

Before I go any further, recall I mentioned "Explorer" above? Well, this is not the M.G. EXPLORER. It is merely another in a long line of DISK-FIXERS. But that's another long story. Well, that's about all Randy talks about in his last official TI column.

Ron JZ debut with a short introduction, then move on to a few of the good things that COULD have happened with the TI, along with many of the things that DID happen. The rest of the article is dedicated to the aforementioned BBS banter. Hopefully, their future articles will pick-up the pace a bit.

✧ENHANCED BASIC✧
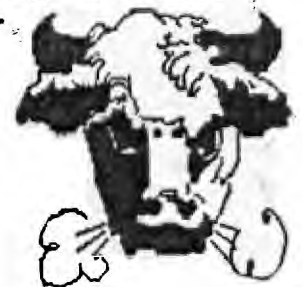
Peter Brooks (TI-LINES Oct 84)

In the Dec issue of TINS NL, I promised to go further into the articles provided by Peter Brooks of TI-Lines. The next article was to be concerning a hidden subroutine that is called from the single character which is represented by ASCII(3). Having fallen slightly behind, and given the limited application of that article, I have decided to jump right into the exciting meat of this subject and begin a series of articles entitled "Enhanced Basic".

These articles are serialized in TI-Lines and deal with the heretofore hidden routines in Personnal Record Keeping and Statistics modules. With the information gleened from these articles you will be able to write your own data case handling routines in BASIC that will link to these powerful ML subroutines.

References: TI Document ARCHIVE.PRK.DOC.SUBRL31
and personal comms between the author and
Paul W. Karis

If you own either the PERSONAL RECORD KEEPING or STATISTICS modules, then you also own a fairly powerful addition to TI BASICs facilities.

Information on what is now known as ENHANCED BASIC was first passed to TIHOME, former UK User Group, by Paul Karis, President of the Dutch User Group. He was responsible for bringing the facilities to light, before even Manton Lane had any information on the subject.

When either of the two modules mentioned above is present in the GROM port, and TI BASIC is selected, you have at least 7 additional CALLs or subprogrammes at your fingertips, two of which will be discussed here.

The 7 ("Magnificent Seven"?) are:

CALL A	ACCEPT AT
CALL D	DISPLAY AT
CALL G	GETPUT
CALL H	HEADER
CALL L	LOAD
CALL P	PREP
CALL S	SAVE

Table 1: Subprogrammes

The TI documentation to the above was prepared for the TI-99/4, but this series will cover both the /4 and /4A (the keypresses are different in most cases).

There are also up to 8 others, whose function and accessibility have yet to be fully ascertained. I am indebted to Richard Blanden for initial data on these. (....) I have written to Lubbock twice in an attempt to elicit further information, but have received the usual white-wash, so the field is open. The "Enigmatic Eight" will be discussed after this series.

We will begin by examining CALLs A and D, as they are simple, straight-forward, and of most immediate use.

CALL A

There are four basic formats for this subprogramme:

        CALL A(Y,X,W,C,V)
        CALL A(Y,X,W,C,V$)
        CALL A(Y,X,W,C,V,L,H)
        CALL A(Y,X,C,V,F)

where:
Y = screen row (1-24)
X = screen col (1-28)
W = width of field (1-28)
C = return code (1-7)(table 2)
V = return variable for entry of numbers
V$= return variable for entry of strings
L = low value limit for auto input validation
H = high value limit for auto input validation
F = field number (see note)

[Note: use of F is a very complex subject and will only be really discussed when CALLS G,H and P are understood.]

Although this might look fairly daunting, it becomes easier as you to along.

Let's begin with an example (all those without PRK or Statistics modules may now burst into tears). Switch on your computer, insert whichever module you possess into the GROM port, and select TI BASIC. In the so-called IMMEDIATE MODE, type in the following instruction and then press ENTER when you are sure that it is correct:

CALL A(10,1,2,C,V)

The result should be a cursor flashing at row 10, column 3 (which is column 1 on the PRINT screen — a PRINT lines starts at screen column 3, remember?). The "2" specifies the width of the input line — here it is set to 2, so that you can enter anything between -9 and 99 or so.

If you enter a number — say 31 — and press ENTER, the cursor will appear at the bottom of the screen. If you then type "PRINT C:V" and press ENTER, two values will be printed. The first, held in "C", is the keycode of

ENTER, which for Enhanced BASIC is 1. The second number is 31, held in "V".

However, if you go through the same procedure above, but instead of pressing ENTER, press FCTN 7 (known as AID), then the subsequent PRINT will give you 3 instead of 1. and 0. Table 2 below gives most of the valid keys which you may press, together with their "names" and their codes. (NB: only "ENTER" will assign your entry to a variable.)

KEY PRESS		NAME	CODE
4	4A		
ENTER	ENTER	ENTER	1
SHIFT C	FCTN 4	EMPTY	2
SHIFT A	FCTN 7	AID	3
SHIFT R	FCTN 8	REDO	4
SHIFT V	FCTN 6	PROC'D	5
SHIFT W	FCTN 5	BEGIN	6
SHIFT Z	FCTN 9	BACK	7

Table 2: Return Codes for CALL A

The other valid keys can be used to access different parts of a programme through "ON C GOTO...." or "GOSUB..."; you will be familiar with this effect on both modules (and on others - for example, the DISK MANAGER).

The "EMPTY" designation needs a little further explanation. If you try to enter a "blank field" as it is called, either by typing spaces or by first clearing the field with FCTN 4 (SHIFT C on the /4), and then pressing ENTER, instead of returning a keycode of 1, it return 2. The "field" is the name given to the part of the line on which you are making your entry.

The "valid characters" which this form of CALL A will accept are the digits 0 to 9 inclusive, the decimal point ".", the signs "+,-", and the exponent "E". Anything else is regarded as invalid, and the 4s will not permit their entry. In fact, when attempting to enter a "blank field" with this form of CALL A you will need to use CLEAR (FCTN 4 or SHIFT C) in order to achieve it.

One thing to note about a blank field: if the variable V which has been used was first set to a value, any you then used CALL A and entered a blank field, the value held in V would have remained unchanged. That is most important.

So far we have looked at format (1), *entry of a number*. You can also enter strings by replacing the V with V$ (or a string variable of your choice, naturally). This is format (2). You will find that if you enter 'leading spaces' that they will be removed, but unlike INPUT you can enter commas (because they are not regarded as 'separators').

Format (3) is a very useful variation on format (1). Instead of having to check an entry to see if it lies within limits (let's say for the sake of argument that you wanted an entry to be between 1 and 99) by using "IF (V(1)+(V)99) THEN... " you can get CALL A to do it for you. All you do is specify the lower and upper limits after the numeric variable V (or whatever name you choose to use) thus:

CALL A(10,1,2,C,V,99)

There are certain limitations to this validation - for example, it can't distinguish between INTEGERS, FLOATING POINT, and REAL NUMBERS - but as far as it goes, it is very powerful.

Format (4), as has been said already, needs some knowledge of the other CALLs before it can be understood fully. However, a short introduction will help things along.

When you use PRK or STATS to set up a file, you are asked to specify the ATTRIBUTES of each field that you use - whether it is to contain a string (and if so, how many characters - up to 15), or a number (and if so, what type: Integer, Decimal, Floating point/Scientific notation, and so on). What format (4) does is permit you to compare an entry made with CALL A with a particular attribute already stored, and to validate the entry according to that. This is rather jumping the gun, though.

The "editing keys" can be used during execution of a CALL A - that is, INSERT, DELETE, CURSOR RIGHT, and LEFT, but the function of ERASE is taken by CLEAR (FCTN 4 or SHIFT C), and FCTN E and FCTN X do not act as entry keys as they do with INPUT.

One important thing which hasn't so far been mentioned: you can BREAK out of an INPUT with FCTN 4 (SHIFT C), but you cannot with CALL A. What you have to do instead is to make an entry (anything valid), and then press ENTER followed swiftly by FCTN 4 (SHIFT C) and try and catch the programme before it tries

executing another CALL A!

That is, in broad outline, CALL A. Now for CALL D.

CALL D

The DISPLAY subprogramme allows you to display a line of data (text or numerals) anywhere on the PRINT screen.

CALL D(Y,X,W,V)
CALL D(Y,X,W,V$)
CALL D(Y1,X1,W1,C1,Y2,X2,W2,V2$.........)

This time, to display data you need only specify a screen row, column, the width of the field (up to 28 columns), and the appropriate number, string, numeric variable, string variable, numeric expression, or string expression.

Note format (3). It is similar to the multiple data facility allowed in Extended BASIC for some commands (e.g., CALL CHAR). In this way you can display a screenful of text very quickly indeed, or set up the layout of a form, ready to use CALL A to accept entries.

There are two further important points to note about CALL D. Firstly, if you attempt to use a NULL STRING with CALL D, it will crash with an error report. This information is not given by the TI documentation.

Secondly, the field width value has a dual function. As well as operating a little like SEG$() in that it can be used to display only part of an item. If the width value is a positive number, the field over which the item is to be displayed will be cleared before the data is displayed. If, however, the width value is negative, the field will not be cleared.

CALL D thus replaces the cumbersome subroutines involving HCHAR, ASC and SEG$, and is much more powerful as well as much, much faster.

You could, for example, use a CALL D to place an option on the screen - say "CS1", and then use a CALL A over the same field (so that the word CS1 is not removed) so that a user could either simply press ENTER and make use of CS1 (a default) or type their own choice - perhaps DSK1.ZZ or whatever. You have probably seen this in use on some modules and in some of the more inteligent Extended BASIC programmes.

Please note that the two calls, discussed here, have not been covered in fine detail. Too much at this stage would tend to confuse the reader.

```
00010 REM  Enhanced BASIC programme, requires PRK or STATIST
            IC
00015 REM  module to run. Runs from TI-BASIC with module
00020 REM  in GROM port.
00030 REM  This pgm is a demo of CALL A and CALL D only!
00100 CALL CLEAR
00110 CALL SCREEN(15)
00120 DATA "Enhanced BASIC" , "Demonstration Programme" , "U
            nit One" , "CALL A" , "and" , "CALL D"
00130 DATA "TI-LINES and TINS" , (key)"
00140 DATA "Name:" , "Street:" , "City:" , "Prov:" , "Postal
            Code:" , "Membership:" , "Status:" , "Equip:" ,
            "Position:"
00150 DATA "Remarks:"
00160 FOR I = 1 TO 8
00170 READ V$(I)
00180 NEXT I
00190 CALL D(1 , 8 , 14 , V$(1) , 3 , 3 , 23 , V$(2) , 5 ,
            11 , 8 , V$(3) , 12 , 12 , 6 , V$(4) , 13 , 14 ,
            3 , V$(5) , 14 , 12 , 6 , V$(6) , 20 , 6 , 17 ,
            V$(7))
00200 CALL D(24 , 13 , 5 , V$(8))
00210 CALL KEY(0 , K , S)
00220 IF S = 0 THEN 210
00230 CALL CLEAR
00240 FOR I = 1 TO 10
00250 READ V2$(I)
00260 NEXT I
00270 CALL D(1 , 8 , 14 , V$(1) , 3 , 3 , 23 , V$(2) , 5 ,
            11 , 8 , V$(3))
00280 CALL D(7 , 2 , 5 , V2$(1) , 8 , 2 , 7 , V2$(2) , 9 , 2
            , 5 , V2$(3) , 10 , 2 , 5 , V2$(4) , 11 , 2 , 12
            , V2$(5) , 12 , 2 , 11 , V2$(6) , 13 , 2 , 7 ,
            V2$(7))
00290 CALL D(14 , 2 , 6 , V2$(8) , 15 , 2 , 9 , V2$(9) , 16
            , 2 , 8 , V2$(10))
00300 CALL D(23 , 1 , 28 , "------------------------------")
00310 CALL D(24 , 1 , 28 , " ")
00320 FOR Y = 7 TO 16
00330 CALL A(Y , 14 , 14 , C , V3$)
00340 IF C = 1 THEN 420
00350 IF C = 3 THEN 450
00360 IF C = 4 THEN 330
00370 IF C = 6 THEN 320
00380 IF C = 5 THEN 430
00390 IF C = 7 THEN 400
00400 Y = Y - 2
00410 GOTO 430
00420 CALL D(24 , 1 , 14 , V3$)
00430 NEXT Y
00440 GOTO 440
00450 CALL D(24 , 1 , 28 , "Sorry not pgm'd to help yet!")
00460 CALL SOUND(100 , 1100 , 5)
00470 FOR I = 1 TO 350
00480 NEXT I
00490 GOTO 310
00500 GOTO 520
```
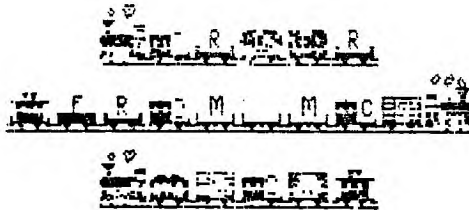
TI-ARTIST

VERSION 2.0
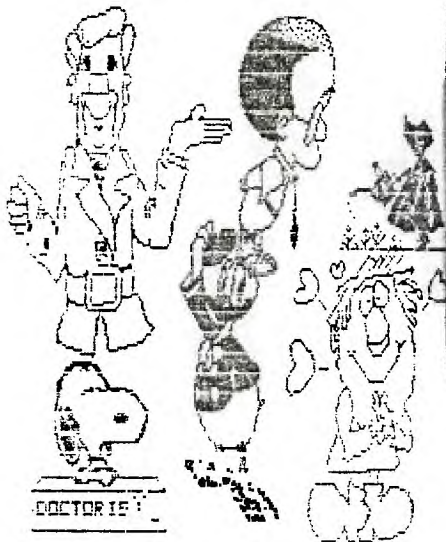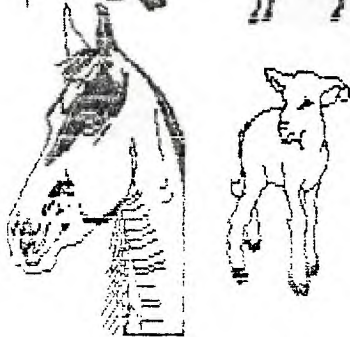
INSCEBOT, INC.
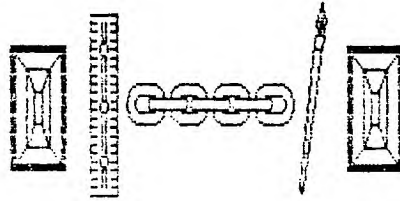
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TI-Artist   28.00
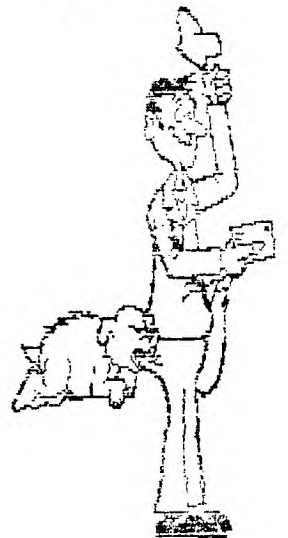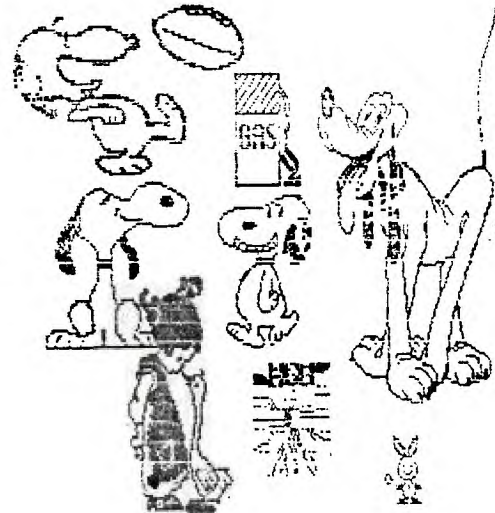Companion 1 25.00
Companion 2 14.00
   Extras   9.80

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