

Until a couple of years ago your TI op/4A computer was nat considered when it came to desk top publishing. But now with some of the new software packages combined with TI Writer you can come up with a respectable document.

Asgard Software has produced "Font-Writer" and used in conjunction with TI-Writer you can combine text with graphics. Several of our members have purchased this program and the club has placed a copy in the hands of your newsletter editor. I have used it but need more time to fully explore its full potential.

When I review the various newsletters sent ta us from the different user groups I see a steadily improving quality in both content and appearance. This comes from the experience in designing these bulletins. We have in our grasp a powerful tool unavailable a few years ago.

In the next meeting or so we plan to have a workshop that will explore the features of some of this software so you can use it for your own needs.

This year we expect to see many changes in the TI environment. New software, the new computer and enhancements for the present console. It is great to see the efforts of all who participate in the workshops, programs, BBS and other activities that are making our group a real solid foundation for using the TI-99/4A.

Charles Ball
-WordPlay Editor - + -

## MFFILH WDFKSHOF

Two interesting workshops will take place at the March meeting. Keith Fast will continue his discussion on PR Base which began earlier this year. (see elsewhere in this issue a discussion of FF Base) Al kinney will review the use of Fast Term. There are many little features of Fast Term that may have escaped the user and you will benefit from this discussion.

## F'R <br> EFBE EMFLCIIPED:

Version 2.0 of Hilliat Harren's PRBASE 15 auch ieproved over the original yersion. Not that it was al! that bad. Just that soae littie quarks mere faxed up and the mole progran is euch easyer to understand and use.

We have had a nice denonstration of soue of the uses at a recent vorkshop by Keith fast and this article will follow up on soas of those technaques aiong wath sone other 5.

The nost laportant changes are in the Create portion of the prograle. When vou select this area you are greeted with a nenu of eight selections.

Option one is Seiect Data orive. With thas ontion you ran sikp oriye -5

Ciption two aliows you to foreat. a datá disk as eather single or doutle sided. Single sided will hold 350 recores and double sided will hole 710 records. In either case 10 sectors are required for dusk tanagenent.

Ontion 3 is your Desiọn Data Screer., The procedures to set up this screen are about the sage as the original yersion, When you have designed your screen you can prant out the data screen which will vou when you want to design your labels and reports. At the end of this option vou anput the data disk name and your output devace such as PIO it you have a paraliel arinter. Nake sure that you enter FCTK 3 (FFASE) before entering vour orinter name. Any characters not requared wall cause and output device error when ascessing your orinter.
ine next option is desioning Tabular Reports. Here's where the ieproveaents frow the oriqinal program are peally noticeable. You can desion five reports and the good news as that if one doesn't cone out right on the fipst try you can go back and dix it mithout redoing the entire reoort. After you select the report nuaber vou want to design, you can select
 lines in tre peoort, and the report title. Next you enter in ASCII the contral codes you anat, up to $b$. If you have a beanna for instance you could enter $152778 \quad 10$ te get condenser print for a 132 coluer report, Thas tode would als3 5 kip over the gaper perts if you had a lono report. After you have entered the control codes
you reach a screen titled Report Forat besign. Here you can see the location and stze of each field in the data screen. At the votton you enter the Log Device, again such as ple and you can print this screen if you wish. The next screen, titled Design Tabular Report, 15 where you actually design the reoort itself.

The first 16 fields are autonatically here when you arrive and you aust cove the around, delete soee and add others. You need to enter the screen location, nuaber of characters, report line, and colum dosition for each ites in the report. When you have done this you can also print out thas screen to check your work. When vou are flrally satisfied hith
 (PROCEEDi, and the data fields are initialized, Wnen this is done vou will see the nuber of lines used and the nunber of limes desired. Press enter and you reach a screen titied Enter Colum header . It shows the starting position of each faeldin the report mitn a caret 1) 50 you know where to place your headings. A caution here, as you only have 84 characters (12 sets of 7 ) available 50 use abtreviations as necessary. When you finish labeling your headings press enter and your report 15 saved on your data disk. To change it just qu through the process agan and ake your desared changes on the design sereen.
options 5 allows you to design your sailing labels. It 15 quite sinilar to the report design option but shorter. Here you choose the number of lines and 5et the locations for the data. Then the data fielos are initablized and the foreat is saved. Agasn you can go back and change it later if you want to.

Option 6 is used to set printer control codes. You can set five sets of control codes for your printer up to six ASCIl characters long. You select nubber between 1 and 5 , enter the text for the
 enter that code. you then rave the option of saving it to disk. These are accessed through the $c$ Comand in the data earapesent part of the progras.

Option'7 is Setup Options. Here you can set the data disk nane, printer name, single or doutle sided dist, ant set the left and right tabs for two-across labels.

A zero for the raght tab will print sincle labels. Finally, Opion 8 is exit and that should need no explanation.

There are only a few changes on the a a nagenent sade of the progran. The farst is that it you can't renenoer the asa of your date disk, you can enter $[\because m$ ? $n$ being the drive your data disk 1510 , and it will read the data repardless of the disk name. If vou enter $N$ iros the senu for recard nubber, the hiohest record number mall apoear as a detault value. When Edjting vou no lonoer have to keep pressing enter to get the cursor enrough the entare screen. When you are done editing , ust enter FCTN 6. (PROCEEDI, and the edited record will be saved to disk.
 columns. Malling labels can be pranted one across or two across, and $C$ on the nenu now lets you select the control coces for your pranter. So, af you want to print a report in condenseo print and it. noreally does not, you can do it be selecting condensed prant here, you have the five selections you get up earlaer or you can enter one sanually at thas tiae.

A selective search has nom been added which you can deplement by entering y at the prompt in the Options area. Fere you can snoex by nate, for example and a string if another fieid. You could tor instance Index oy nase and then selett nother fielo such as a lip code and list ail persons mitti a darticular code.

This new version of FRBASE has a set of UTILITIES included that were writter of John A. Johnsen and they are excellent. They contan a enu with the following ontions: Copy latabase Header lsectors 1-91. COPY a broup of Fiecords, Copy a Single Kecors. Search and Select kecords, Sorf and kewrite to Copy, confiqure Draves, and Exit Progran. Host of these are selt-explanatory and all are covered In the DOCs tha: coee with the progran. These utalitase and therr DOCs are now


EDITOFS NOEE: 1 use this proarab 10 preparing the print out labels for the bulletin and al. 59 for the letters that ge out advising those meobers men the:r mues are due. Dur previous oulietir editor, Duane boodean wrote the desigr, showed en how to use it ant i have notnaty but prase for it. cebl

## ELBE PUEME B MEWE

Terr, Fraest is your new femserstio
 an uF-to-date menterghiz roster anic wll? send out a letter to members remandang them when their dues are due.

It was decided at the Fetruary Eoard meetrag that the clut woulc pursue a ミtud: of holding a TI Fair tris sumne Er:ctett Fiaboern will head uf the committee but will certainl; need the rele of man, otners to encure a sucessfui event.
Don Earker Qur Secretary was taken to the hoEnital with, at tie time of this writung, an unalagnosed riget fever. We wish
han weyl and hope he wil: recover yoon

 from the clut software intrar, aion with prompt parment of dues rielde keex gur flnances in good shape.

This manth the Editar riac ar, ewiellert inout fromi members that aided in producing the newsletter. He remurds you that vou are most welcome to contribute article: erograms and other information trat would te of lnterest to the membership.



This months game is a puzzle called 4COLORS．The program demonstrates the use of stationary sprites and a one－dimensional array to hold the color of the sprites．

When the program is first RUN，it will scramble the starting position．The objective is to put all four colors－－red， white，blue，and green－－in each of the first four rows．The $J$ and $K$ keys are used to select the column for changes，and the $S$ ， D，$E$ ，and $X$ keys move colors within a column． Press 0 to quit at any time，although your position will not be saved．

At the end of each of the first four rows is the number of different colors in that row．When all four numbers are 4＇s．you will have found the salution．It can be done．

## ＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊ <br> TI SYSTEM FOF SALE \＄250．00 <br> Expansion box，two SS，SD disk drives， controller and manager，memorv，232， and P－card．TI Writer，Multiplan，TÉ II，Mini－memory，Personal Record Keeping，Extended Basic，Household Budget，Touch Typing．Farsec， Alpiner，TI Invaders．Modem，extra key board and power supply，Home Computer Magazines and books． Oris Nussbaum <br> ```620-238% or 627-7529``` <br> ＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊＊

100 REM 4－COLORS
110 CEM TI－4A EXTENDED BASIC
120 ：$: . \times$ WESLEY R RICHARDSON
130 REM BLUEGRASS COMPUTER S OCIETY
140 REM VARIABLES C（I），$K, L \$, P$
b ${ }^{5}$ T？

170 CAL CHAR 193, ＂ 3030303030
$303030^{\circ} 1$
180 CALL CHAR（94，＇ 3030303030 $303030^{\circ} 1$
190 CALL CHAR $195,{ }^{2} 00000000 \mathrm{FF}$ FF0000＇）
200 CALL CHAR $196,483 C 7 F 1818$ 1818＂）
210 CALL CHAR（100，＂FFFFFFFFF FFFFFFFFFFFFFFFO0000000FOFOF OFOFOFOFOF OFOFOFOFOOOOOOOOO＂ ）
220 CALL CLFAR
${ }_{230}$ CALL SC： $5 E$ 12
240 CALL MACAIF：（4）
250 RANDOMILE
260 FOR $\theta=1$ T0 24
270 READ C（ B$)$
280 NEXT Q
290 FOR P＝0 TO 18 STEF 6
300 FOR $Q=1$ TO 6
310 CALL SPRITE（ $(Q+P), 100, \mathrm{C}$
II $\quad(\theta+P) \quad 32(\theta-1)+1,32+P / 6+91)$
320 NEXT 日
330 NEXT P
340 CALL VCHAR $(1,19,94,24)$
350 CALL VCHAR（16，2，95，17）
360 CALL HCHAR $19,20,95,11)$

400 FDR $\mathrm{G}=1$ TO 11
410 READ Is
420 DISPLAY AT（2t日，18）： $1 \$$
430 NEXT $\quad$－
440 T＝0
$450 \mathrm{P}=0$
460 REM MAIN LOOP
470 60SUB 1330
480 IF T$<26$ THEN 520
490 535118 1380
500 GEM GET INPUT
510 IF T＞25 THEN 570

|  |
| :---: |

$520 \mathrm{IF} \mathrm{T}=21 \mathrm{INT}(\mathrm{T} / 2)$ THEN L $\$="$
$5:-\operatorname{DISPLAY}$ AT $(22,18): L \$$
$540 \mathrm{~T}=\mathrm{T}+1$
550 IF T＜26 THEN 1170
560 Ls＝＂YOUR ROVE：
570 DISPLAY AT $(22,18): L$
590 IF $5=0$ THEN 580
600 IF $(K=83)+(K=115)$ THEN 68 0
610 IF $(K=68)+(K=100)$ THEN 76
620 IF $(K=69)+(K=101)$ THEN 84 0
630 IF $(K=88)+(K=120)$ THEN 92
640 IF $(K=74)+(K=106)$ THEN 10
00
650 IF $(K=75)+(K=107)$ THEN 10
66
00
670
680 REM 5 LEFT
$700 C(0)=C(2+P)$
$710 C(2+P)=C(6+P)$
$720 C(6+P)=C(4+p)$
$730 C(4+P)=C(5+P)$
$70 \mathrm{C}(\mathrm{S}+\mathrm{P})=\mathrm{C}(0)$
750 GOTD 460
170 1 $=$＝＂D
$790 C(5+P)=C(4+P)$
$800 C(4+p)=C(6+p)$
$810 C(6+p)=C(2+p)$
P？$[(2+F)=C(0)$
$840^{\circ}$ REM $E$ UF
850 L $\$=$＇E UP＇
670 （ $(1+P)=C(2+p)$
$880 C(2+P)=C(3+P)$
$890 C(3+p)=C(4+p)$
$900 C(4+P)=C(0)$
910 60ro 460
920 REM X DOUN
$940 \subset(0)=C(4+P)$
$960 C(3+P)=C(2+P)$


1
1430 If $C(Q)=C(12+Q)$ THEN $K=K$ $-1$
1440 If $C(Q)=C(18+\theta)$ THEN $K=K$
－1
1450 IF $C(6+Q)=C(12+\theta)$ THEN K
$=k-1$
1460 IF $C(6+\theta)=C(18+\theta)$ THEN K
$=k-1$
1470 IF $[(12+8)=C(18+日)$ THEN
$k=k-1$
1480 IF $K=1$ T4F．$K=2$
1490 If $k=-2$ irisid $k=1$
1500 CALL HCHAR $(400-2,18,48+$
K）
$1510 \mathrm{~S}=5+\mathrm{k}$
1520 NEXT Q
1530 IF S：16 THEN 1590
1540 DISFLAY AT（22，18）：＂SOLU
TION！！
1550 60SUB 1600
1560 DIE： 7 Y AT $(22,18): "$
15：6OSUB 1600
1580 60TO 1540
1590 RETURN
1600 FOR $Q=1$ TO 10
1610 CALL KEY（O， $\mathrm{K}, \mathrm{S})$
1620 IF $(K=81)+(K=113)$ THEN 1
100
1650 NEXT 日
1640 T $=T+1$ ：：IF T 740 THEN 1
650 ：：CALL SDUND $200,501 \mathrm{~T}, 1$
）
1650 RETUFR
1660 REM COLOR PATTERNS
1670 DATA $9,16,9,5,3,9$
1680 DATA $9,16,5,5,3,3$
1690 DATA $9,16,3,5,16,3$
1700 DATA $9,16,163,9$,
1710 EE INSTRUCTIONS
1720 SATA RCOLORS UR＂
1730 DATA＂FUT R＂
1740 DATA＂DIFFEPENT＂
1750 DATA＂CDLDRS IN＂
1760 DATA＂EACH OF THE＂
1770 DATA＂F＇r．$\because$ FOUF＂
1780 DATA＂PDIM：，USING＂
1790 DATA＂5DEA AND JK＂
1800 DATA＂ $6=$ GUIT＂
1810 DATA＂LAST MOVE＝＂
1820 DATA＂

## MFECH FROGEAM

At our meeting on March $\bar{z}$, Mr. Jim Smith will give a talk on "FRINTEFS". He will cover both the upkeep and the different types of printers. He said that he can tell you about the different cost of ribbons, etc.

If you have been thinking about picking up a printer, you will not want to miss this program.

Jim is the person in our club that has been reinking our ribbons. Some of the printers use ribbons that cannot be reinked or use a cheap ribbon that you cannot afford to reink. For some printers the price of the ribbons is high and you want to reink. Come and find about this.

I need to know what you would like to have as programs for FUNN. F'lease let me know at the meeting or call me up, the number is 2441587.
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## THE GENEFHL ELEGTFIG METMGFE FDF IMFDRMATIGM EGCHFPGE

Genie, The General Electric Network for Inforation Euchange is the newest kid on the block in regards to online information services. In addition to a Texas Instruments RoundTable there are several other manufacturer specific RoundTables available, GEnie also provides multiplayer game playing scenarios, Computing Today wagazine, EAASP Sabre, the Anerican Airlines reservation system, and more....all at the same low base ranprine rate of $\$ 5.00$ per hour for 300 or 1 nit baud access.

New products soon to appear include more Travel, Shopping, and new Financial related products. There are many more products planned for the future.

Genie is different from oost of the other boards available. The entire structure is unlike any around. Everything in GEnie can be done from Menus or Pages. Each page is nuabered and you Can navigate easily and fairly fast. GEnie also allows you to go to a sperific page and submenu directly fron Logon.

Your Texas Instruents RoundTable includes a Bulletin Board, Real Tine Conference roons and a Software-Textfile library.

The Bulletin Board function is rather unique. It is based on Topics rather than direct erssages to a specific individual. This allows you to follow a specific itea or idea along its way.

Structurally, there are specific sections called Categories set up for RoundTable Business, Telecomanicating, Software, Hardware, Basic, Forth, Assert! !, Fairware, baming, Gram Kracker, Il-PRG, as well as a Newsletter category. These pretty much cover the ganut of things in the TI Horld. Under each of
these categories is where each of the Topics are entered and responded to. Anyone can start a topic, ask questions, and provide answers.

Most of you are used to your local Bulletin Board systeas in terns of what to expect and how to react to a message base. EErise's BBS format differs from your local EEE in certain ways, but you will learn to understand and appreciate the format once you sign up for the service.

The RoundTable conference is available every Sunday evening for the $4 A$ and the PRO. These are general sessions and and are always "free for alls". Whatever questions you ay bring with you will most likely be answered during the conferences. This is a great opportunity to weet and talk with your fellow If enthusiasts.

The Software Libraries are growing daily. At this tiae (January 1987) they have grown to over 630 files. A lat of the software is Public Domain: the biggest selections include Fairware and Krackerbox prograns. Just about every fairware progran can be found in the TI RoundTable library, including the latest versions. They also have virtually every Gram Kracker progran that has been written. Uploading is free in the non-prine time hours and this has encouraged a any to send in their favorite prograns. (Non Prime tiae hours are bpa to Ban and all days Saturday, Sunday and Holidays).

The file transfer process is also noticeably faster than most other systens. GEnie utilizes their local network nodes for file transfer which results in faster operation than that from the wainframe, Consequently, the input just seems to fly by. Nice, especially when you are charged
for connect time.
Now the best part about GEnie....the PRICE! There is a one time start up fee of $\$ 18.00$ to join GEnie. which includes a hardcopy user manual as well as the monthly Livellire newsletter. connect charges are $\$ 5.00$ per hour for both 300 and 1200 baud. 2400 baud is also available in over 65 cities at an hourly surcharge of $\$ 10.00$. EEnie is also arailable during the daytime at a cost of $\$ 5.00$ per hour for 300 and 1200 baud. The same 2400 baud surcharge also applies during prine time.

Sign up for GEnie is simple and fast. You do not have to order a starter kit. You siply sign up on line. Just set up your terainal program for 7 bit, even parity, one stop bit, or 8 bit, one stor bit, no parity: and either 300 or 1 noi baud. Also set your terninal to local echo(half duplex). To connect, have vour nodes dial 1-800/638-8369. After CONNET: type HHH and ENTER. At the US= proapt you see on your screen reply with XJM11999, GENIE followed by ENTER. After you are logged on, bEnie will ask you several questions about your systen. If you decide to sign up, EEnie will lead you through the electronic signup process, and will ask you for pertinent information. EEnie accepts Visa, Mastercharge, and CheckFree lautomatic payment from your checking account). Within two business days following the sucessful coapletion of the Sign up process, a GEnie representative will call you with your new GEnie User IDt. In a few days following this you will receive your GEnie manual. There is No anthly charge or minimua billing. You pay for only the time you use.

If you or someone you know is into electronics this project is for you. Of course you have to own an Avatex 1200! First thing, PUNN will assume no responsibility for any damage done to you or your modem. This project is done AT YOUR OWN RISK!

Now, to get down to business. First, remove the three Phillips screws from the back and pop open the cover. There are four pressure clips holding on the cover. If pressure is not applied just right they will break (I ought to know, I broke one!).

All components can be mounted on a small breadboard and wires run from the various points on the $D C$ board.

Set the modem so the LED's and buttons are facing you. Look to the left of the three control buttons; there will be 5 resistors side by side. The leftmost one is labeled 'R21'. This is the series resistor for the MC light. It will be used to switch the sound device. On the far end (rear) of R21 is an area of metallization (trace) which connects both R21 and its neighbor.
This, if measured with a voltmeter to ground is +5 volts.
From the front of R21 (opposite of just mentioned) run a wire to a 3.3 K resistor. This resistor connects to the base of a PNP transistor such as a $2 N 2907$ or 2 N 3906 . We will call this Q1. The emitter of Q1 will be connected to +5 volts from the back of R21 or from any $+5 v$ line from the regulators. (They are on heatsinks near the back on the right side.)

Time to test. If you have gotten this far without any trouble you can now test the hookup. Turn on your modem and measure the voltage between the collector and ground (heatsink of regulator). You should get around +5 volts. If not, turn off everything and check your wiring. If all goes OK, call a computer. When you get the connect signal the voltage on the collector should drop to zero.

Great! Now to build the amplifier. If you are mounting everything on the breadboard it will make a neater package and give you less trouble. The amplifier consists of an L.M386, 10k trimmer pot, 100k resistor, 220uf electrolytic cap, voltage above 10 v , a .luf cap, and a small 8 ohm speaker (2"). Follow the schematic diagram provided in connecting everything. Placement on the breadboard is not critical but try to get everything in the smallest possible space.
For output from the modem, find U27, a small 8 pin IC just behind the board above the main PC board and about center. Pin $l$ is on the right rear of the chip (see picture). Be VERY careful in soldering a small wire to this lead. This will go to the input of the amp through the 100 k resistor then the pot for volume control.

As far as mounting the speaker, it should fit in just to the front of the rear mounting peg on the cover (the one near the rear of the cover). Determine the exact location for mounting that will not interfere with the modem circuitry or the amp board. Draw a circle around the speaker then drill a few holes in the cover to allow the sound to come through. Mount the speaker using Perma-bond or whatever you want to use. (Perma-bond works best). Connect one speaker wire to the negative side of the 220uf cap and the other to a ground point on the amp board. Run the ground lead of the amp to the right side of either cap on the modem board (behind the regulators) or to the center lead of either regulator (the former would be better and easier).
A good area to mount the amp circuit (if made small enough) is on three layers of double sided sticky foam tape. You can get it in most stationery sections. Mount it between the two IC's next to the power supply caps and between the hole for the cover mounting peg so it clears when the cover is closed. The speaker wires should be long enough to open the cover and fold it out to the right side so it lays flat.
So far, so good. If you don't have butterflies in your stomach yet you will soon. Now it is time to power up and see if it works. You should hear some noise from the speaker. If not, try adjusting the lok trimmer pot on the amp. Set it so the noise can be heard but not disturbing. You may want to turn it up or down later. Boot your terminal program and type in 'AT'. Your modem should respond 'OK'. Now type in 'ATO'. This will take your modem off-hook and give you dial tone. You should hear it now. Hit enter and you will get the NO CARRIER message. Now, dial up a BBS and listen to the tones, and the connect signal. When you get the connect message the MC light should go out and the amp should be silent.

If everything worked, CONGRATULATIONS! If not, shut it off, check your wiring and call for help.

Good luck and happy communicating!
PUNN--Portland User's of Ninety Nines
Walt Morey


## MFX-FLE FIGTIFES

***************
(This is a summary of the instructions on how to use MAX FLLE. This information has been available priviously, but it is summarized here by popular request.) ***************

RLE stands for Run Length Encoded. It is a program for preparing and viewing digitized pictures: both artwork and photographs, sent between computers over phone lines using a terminal emulator such as Fast Term. Many computers use this technique with the VIDTEX terminal emulator protocol, which permits viewing pictures on-line. For the TI-OOAA at present, pictures can be viewed off line only, but pictures can be eychanged with other brands of computers. The program supports four different formats both TI-ARTIST and GRAPHX formats, as well as Display-Fixed 128, the usual format used in other computers, and Display-Variable 80 format.

LOADING MAX-RLE. The program is loaded using the Editor-Assembler module or equivalent: Option 3 - Load and Run. The Filename is MAX-RiLE and the Frogram Name is STAFiT. The MAX-RLE title screen will then appear, asking for the name of the picture file you want to load.

RUNNING MAX-FLE. At the title screen, you have two options - you can load a picture or you can catalog to disk.
** To load a picture, just type the filename, for example, DSKI.FICTURE, and press ENTEFi. Whatever format the picture is in, the program will recognize it and load it. NNOTE: For TI-ARTIST files omit the "P" and "C" at the end of the filename - the program provides these auto- matically.) You will then see a grey screen for a short while as the picture loads. It takes a short time. The picture will then appear all at once on

## the screen.

** To catalog a disk, just type DSKn.", where $n$ is the drive number. Be sure you include the period.
SCREEN. There are three options when the picture appears - you can return to the title screen, print the screen on your printer, or save the picture to disk.
** To return to the MAX-RLE title screen. press ENTER. (this removes the picture from memory) on your printer, press P. The default setting of FID.CR will appear. If you are using parallel interface, use this. If you are using a serial interface (RS232), enter your printer's description. Your printer must be compatible with the GEMINI-EPSON family in its handling of dot-graphics.
** To save to disk, press 5. The default setting of GRAFHX will appear on the screen. To save in a different format, press the space bar until the format you want appears. Then type the filename you wish to save to, for example, DSK1. MYPIC. to for example,
SENDING FICTURE FILES. Generally. pictures to be transmitted should be saved in the DF/128 format and uploaded with XMODEM transfers. This is the format used by other systems. Pictures can be sent in DF/80 format using ASCII (text) transfers, but they lack error checking in transmission and a noisy or weak connection can ruin the resulting picture.

FICTURES ON COMFUSERVE. Fictures readable by MAX-RLE can be found in the Compuserve in the TI Forum Data Libraries. the PICSIG, the ARTFORUM, and the CB simulator area. They are also starting to appear on many BBS. (Including our own PUNN BEG)

MAX-RLE is available from the PUNN Lilbrary if you do not already have it.

## FF:E—SG:FH IT - A F:E'MEM

What I an going to try and do in this revien is cover a new piece of software that is on the marlet. PRE-SCAN IT by $J$. Peter Hoddie, FRE-SCAN IT is being marketed by Asgard Software, P.O. Box 10306, Rockville, Maryland 20850 for the price of $\$ 10.00$.

Systen requirements are relatively normal. A console, monitor-TV, Extended Basic, and at least one disk drive are required. A second drive is a plus as is 32 K memory.

Pre-scanning is a technique by which the computer prepares a progran for execution after it is loaded into emory prior to execution. The paused between the time a progran is loaded and when the prograis starts to run is caused by several factors. Among the are scanning the coding, sptting up table areas, assigning menory locations and values, and numerous other functions. PSI does some of the prescanning for you so at execution time the 994A doesn't have to scan anything.

As far as ease of use goes, this has to be one of the easiest prograns to run that anyone could want. The first thing the user nust do is save the progran to be prescanned into a merge format. You then run the PSI program against the eerge format progran. the progran mill lead you through the few steps with no formal training needed.

You will be asked for the enviromment (16 K or 32 K etc.). Then it asks if your progran has externals. The next step 15 for menory allocation. In order to save menory, the progran will replace the numbers 0 thru 4 with special characters and remove REn statements if 50 desired. Using the special characters in place of the numbers 0 thru 4 mill save up to two-thirds of the memory they previously required. Removing the REM's naturally saves space. But be certain that your program does not branch to a deleted REM statement before you say YES to the KEM removal prompt.

I ran PSI against my CHECK RECONCILIATION progran (a rather large XBasic program) and was elated by the results. My progra loads up in about $1 / 3$ of the tine it took before and it runs noticably faster also.

The running time of PSI will vary of course with the size and requirements of the scanned progran. Hy progran took almost one hour to be scanned. But it was worth it.

As to the value of PSI, it is a bargain at almost any price. I have already seen pirated copies of the progran and a totally disbelieving of it. For $\$ 10.00$ a person can have the original with the documentation (8 pages of it) and the supportt of Asgard Software in the event of a problen. Also if an update cones out, then a person can easily obtain it. Asgard is very good with this feature.

All in all, I must give this program an A+ in every category. It is a must for every disk library: (By Ton Mills)

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