

Covering the TI99/4A and the Myarc 9640

# MICROpendium

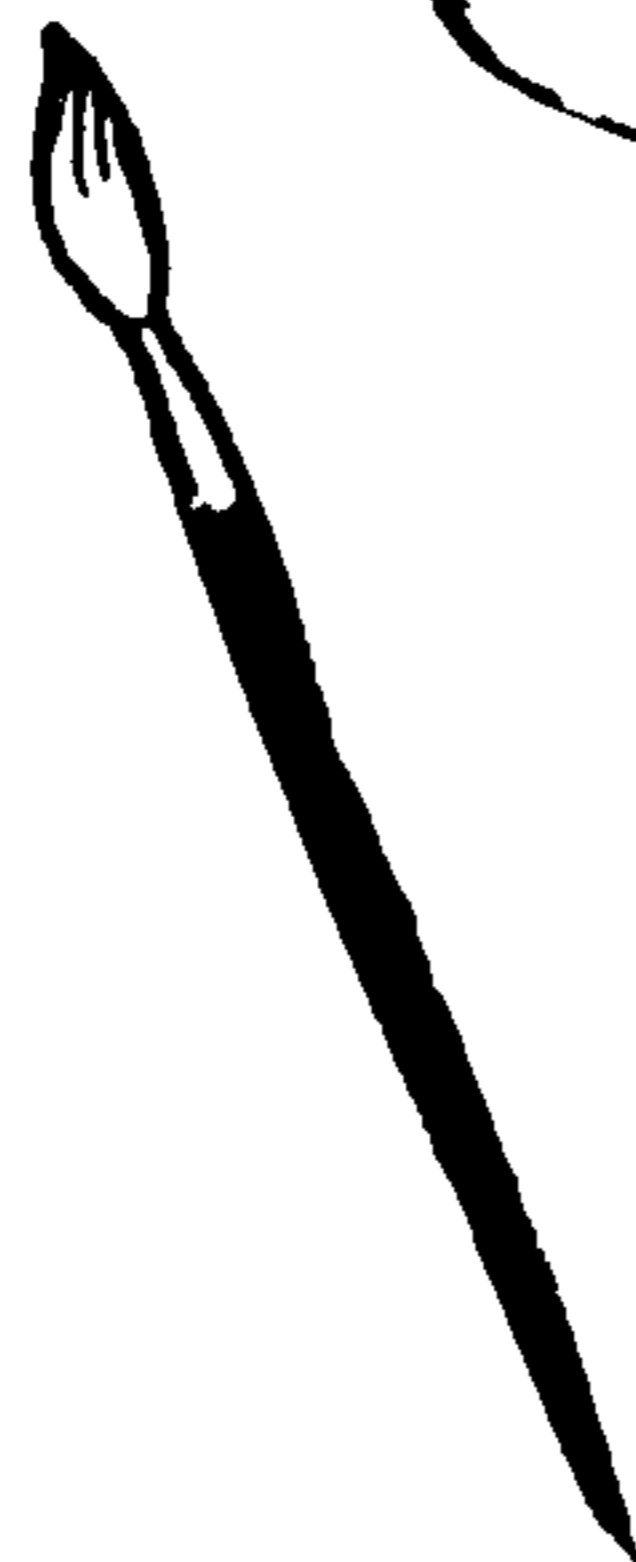
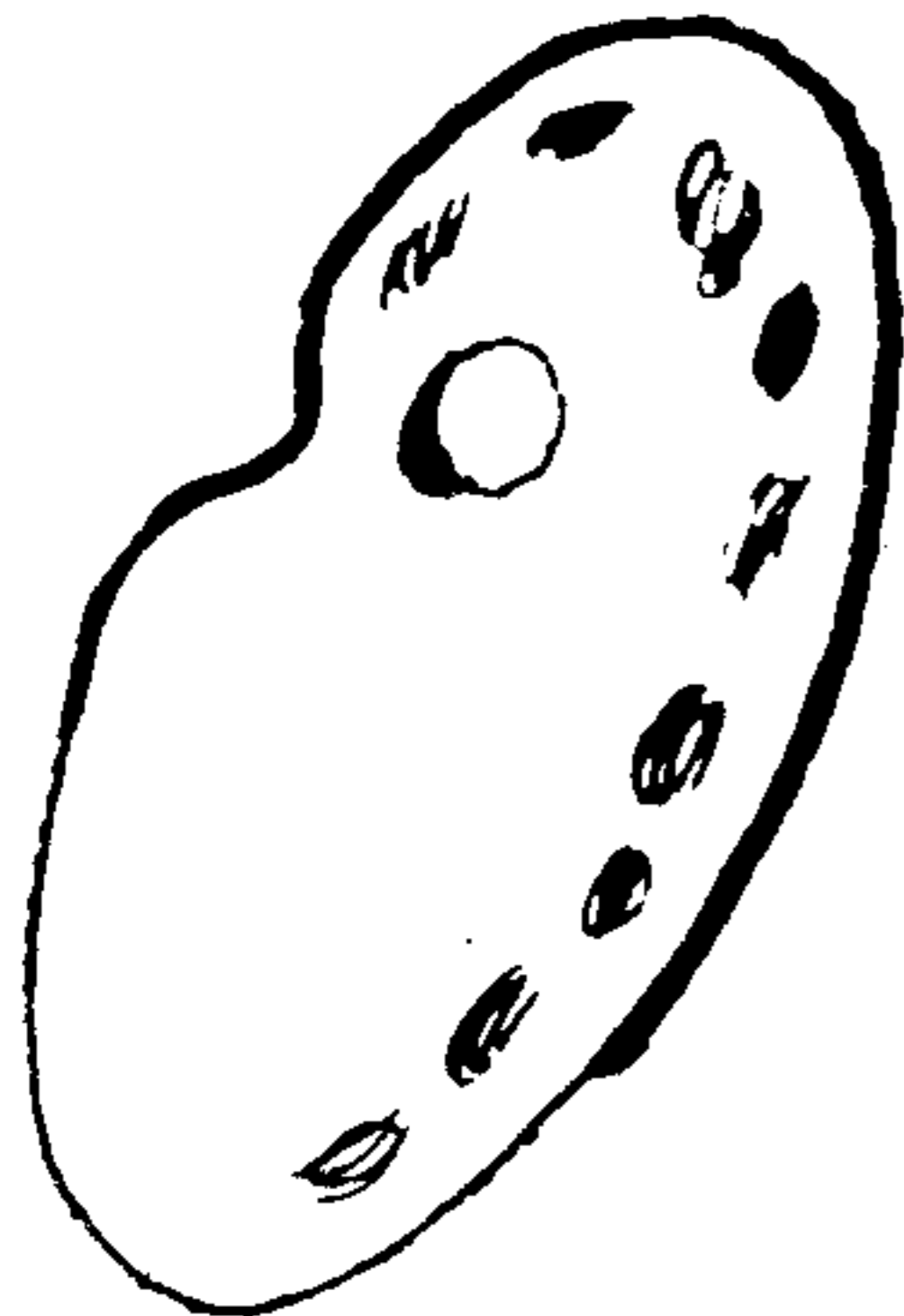
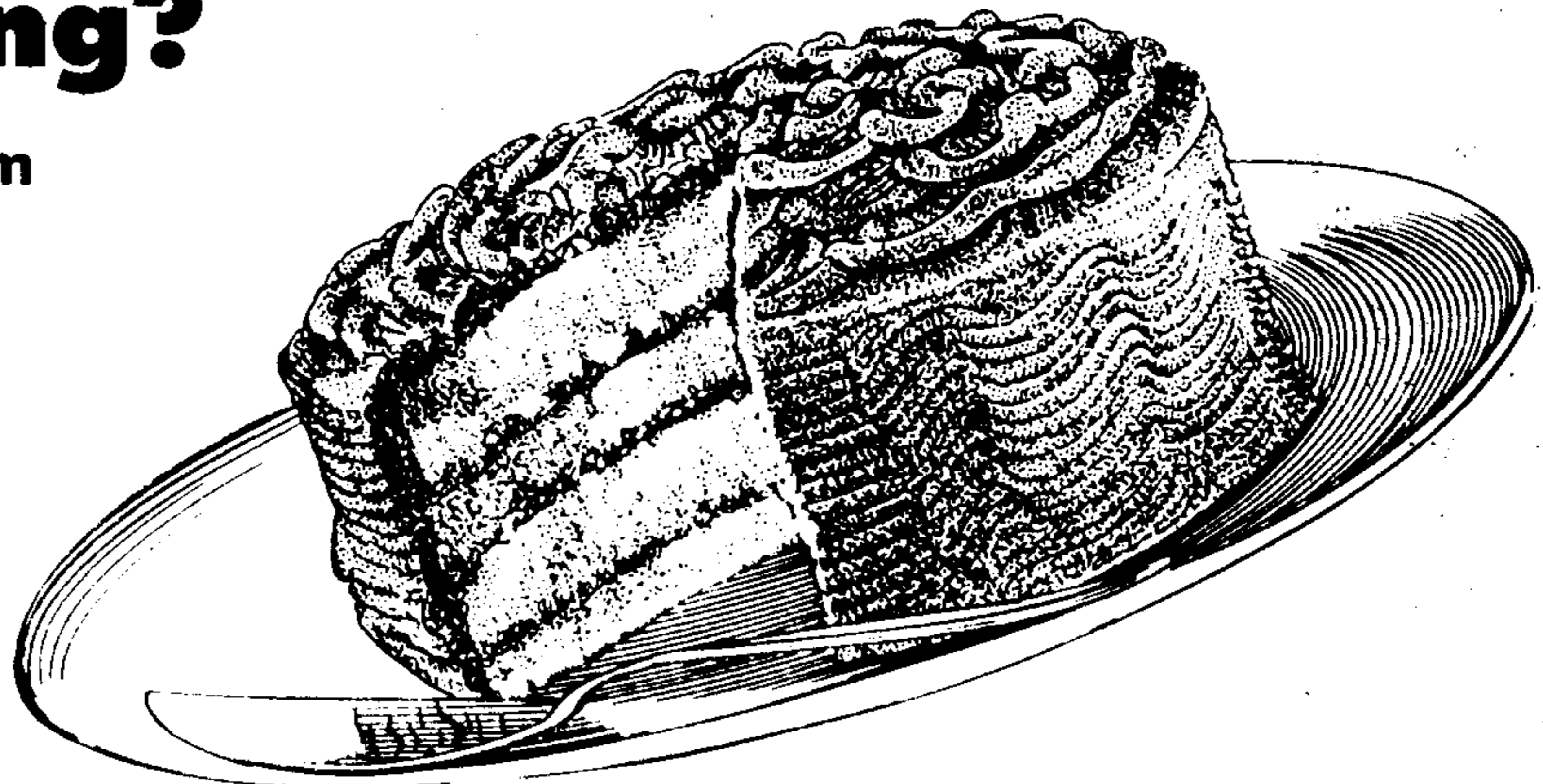
Volume 6 Number 1

February 1989

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## What's cooking?

Regena serves up a program  
in Extended BASIC



## Change your palette

This program lets Geneve owners  
use 512 colors to customize their  
Extended BASIC color selection

## REVIEWS

- Triad
- Superbasic
- PEB Prototype board
- Keyboard Overlays
- Computer Phonebook
- St. Valentine's Day Card
- 1989 Calendar

## HARDWARE PROJECTS

- Use Super Extended BASIC  
with the Widget cartridge expander
- PEB card extender makes it  
easier for hardware hackers

## INSIDE:

Columns on Extended BASIC and c99, programs to enhance menus and print disk labels, utilities for speech synthesizers and Myarc questions are answered



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#### Programming conventions

Here are some tips to help you when entering programs from MICROpendium:

1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.



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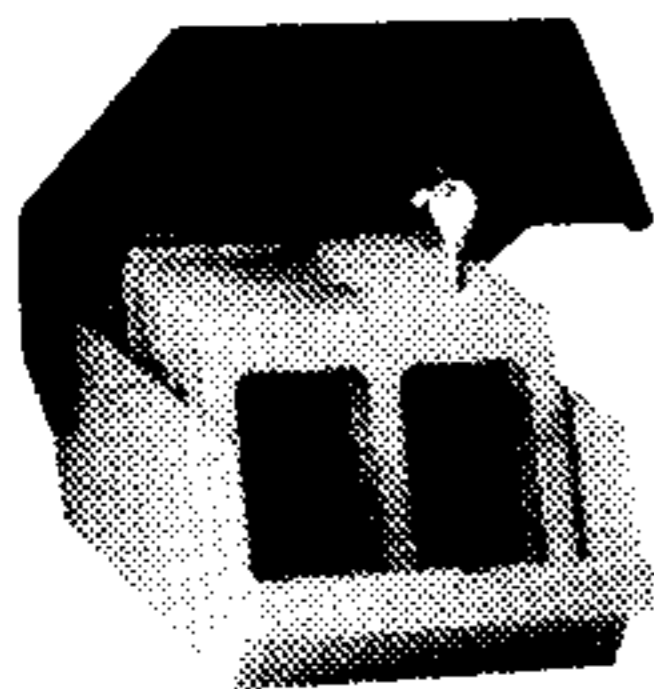
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# Comments

## No more release dates from Asgard or Myarc; we now accept credit cards

This will come as welcome news to many subscribers: MICROpendium now accepts credit cards. Visa and Mastercard only. The minimum charge is \$9 and we can take orders by mail or phone. Credit cards may be used for subscriptions, back issues or magazine holders.

### SOFTWARE DEADLINES

Myarc and Asgard are no longer offering release dates on major products. This includes the Press word processor from Asgard and all Geneve software.

This is probably a good policy to adopt and is becoming the norm for software developers regardless of the computer brand. Not even giant Microsoft has been able to make deadlines on its releases, not to mention Ashton-Tate. Myarc and Asgard are no different, and as Jack Riley of Myarc points out, software development simply doesn't avail itself of deadlines. "And it doesn't matter how much money or resources you put into it," Riley notes.

Software development basically starts with a programmer in front of a terminal and goes from there. The bigger the project the more time-consuming it becomes. Even when the project goes from one programmer to a dozen or more, evidence from throughout the computer industry suggests that software development always goes at its own pace.

I don't like the idea of not knowing when a program is going to be available, but then I don't like it when the deadline passes and the program still isn't ready. Which is more palatable? It depends on the person, but as we've all seen over the past several years, no matter who is doing the project, it never seems to get finished when originally believed. Knowing that something is under development is probably as much as we can expect in the future. At least it will give us something else to talk about besides how nothing is ready on time.

### UPDATES ON GENEVE SOFTWARE

Version 1.15 of MDOS is now finished, though it hasn't been released. The hard disk version of DOS, Advanced BASIC and Pascal are nearing completion. Again, once these programs are finished, they will be sent to registered Geneve owners. Version 1.29 of MDM5 is also ready. V1.27 was posted on bulletin boards earlier this year. Improvements in MDM5 principally have to do with backing up hard disks.

### LOOKING FOR GENEVE WRITER

Mike Dodd is taking a sabbatical from his Geneve column and we're looking for someone who'd like to carry on. Anyone who is interested is encouraged to write us with your thoughts on the direction the column should go as well as a sample column.

—JK

## 1989 Fairs

### FEBRUARY

**TI-Fest West '89**, Feb. 18-19, Clarion Hotel at Balboa Park, San Diego, California. For information, write TI-Fest West c/o Southern California Computer Group, P.O. Box 21181, El Cajon, CA 92021 or call the SCCG BBS, (619) 278-7155, and leave a private message to the sysop with your full name and address.

### MARCH

**West Coast Computer Fair**, March 17-19, Brooks Hall, San Francisco. San Francisco 99ers to be at Booth 733. For further information, write San Francisco 99ers, 24816 Mango St., Hayward CA 94545.

**TICOFF (TI Computer Owners Fun Faire)**, March 18, Roselle Park High School, Roselle Park, New Jersey. For information, write TICOFF'89 c/o Roselle Park High School, 185 West Webster Ave., Roselle Park, NJ 07204, or call Robert Guellnitz at (201) 241-4550 or (201) 382-5963 or the TICOFF

BBS, (201) 241-8902.

### APRIL

**Fourth Annual New England TI Fayuh**, 10 a.m.-5 p.m. April 1, Ramada Inn of IH95 in Woburn, Massachusetts. For information, contact the Boston Computer Society TI99/4A User Group, One Center Plaza, Boston MA 02108.

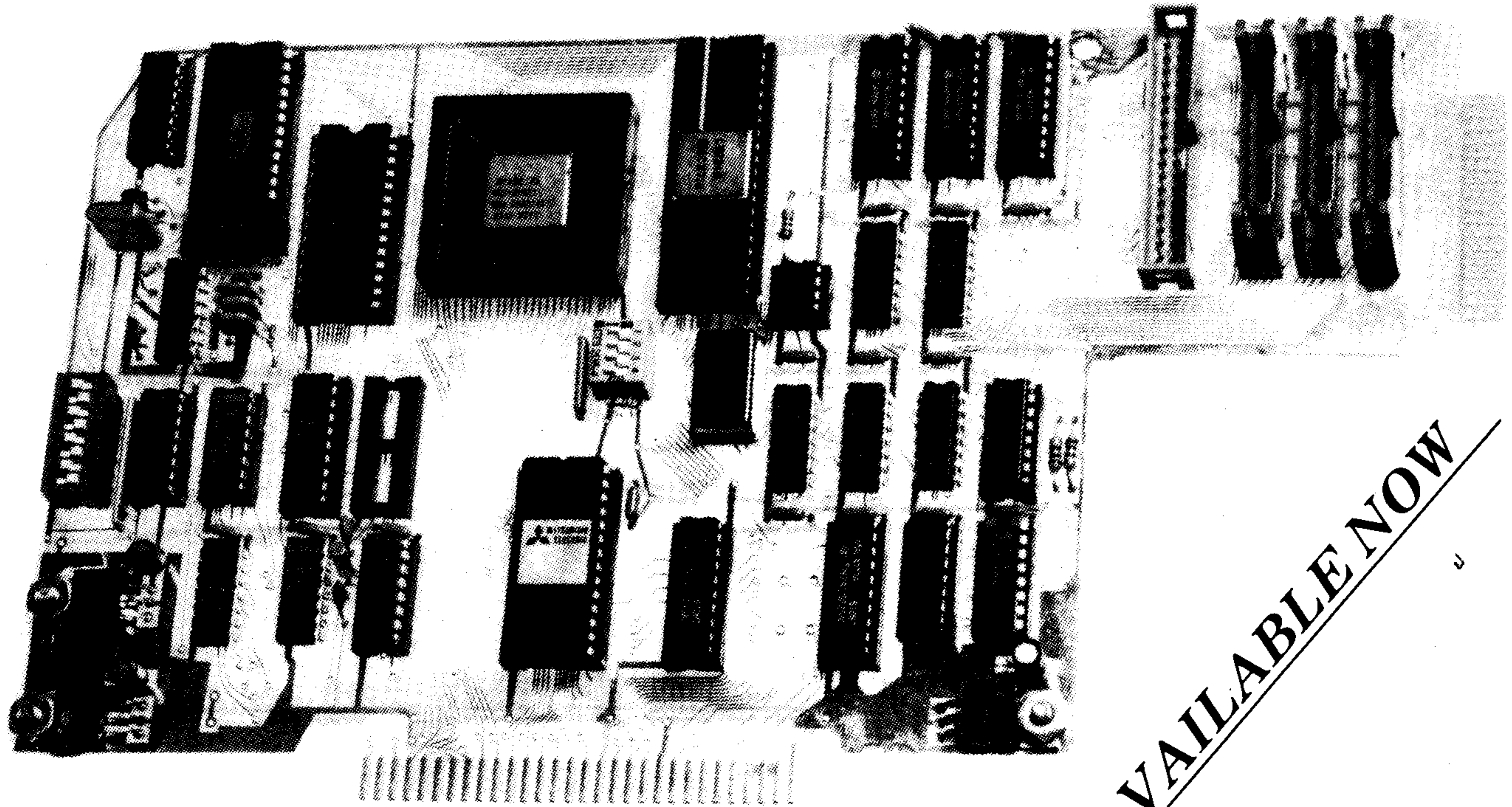
### MAY

**Multi User Group Conference** May 20, Reed Hall/Student Activities Building, Ohio State University, Lima, Ohio. For further information write Lima Users Group, P.O. Box 647, Venedocia, OH 45894, or call Dave Szippel evenings at (419) 228-7109.

This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Events will remain listed throughout the year.



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# Feedback

## Rocketman given 'flat tire' by Harry

Boy, Mr. Brashear, your review in the December 1988 MICROpendium left ol' Rocketman with a flat tire.

The only thing the little guy was trying to do is make life a little easier for those who get that sick feeling every month when the bank statement shows up in the mail. You know, the ones who never know quite how much money they have.

Fortunately, Rocketman is a turtle with a hard shell and a spare tire, so he'll be on the road toward his rocket soon. The program may not be written in assembly, but it is as professional as the docs you talked about in your review, because the package really does the job for those who sit down and take the time to use it. How long did it take you to learn TI-Writer? Well, you can learn Rocketman in about an hour and that's it — you have a tool that will make life easier when that bank statement comes every month.

Say, Harry, you aren't by chance one of those who doesn't balance to the penny are you? Or have you balanced lately?

**John W. Rowles**  
California Programs  
El Sobrante, California

## P-GRAM Card great

I usually buy programs and accessories based on favorable reviews in MICROpendium. This time I had a P-GRAM Card when Mr. Brashear's review was published. The P-GRAM is fully as good as (if not better than) Mr. Brashear says. I have not had one "lock up" since I started running Extended BASIC from the P-GRAM Card. I am not a technical person. I find the manuals very "friendly."

In the future, I hope you can publish some "how to" articles on changing cartridge programs that have been extracted with the P-GRAM Card.

**Tom Hall**  
Eules, Texas

## Comments on Documentation

I am going to make comment on the documentation or "docs" that accompany a

program. Some programs don't even have docs on the disk, and a lot of these programs are not very user friendly.

Some documentation is written to high level, and the average user is perplexed and bewildered. The person who created the program knows how to run it and what it will do, but leaves the user confused on its use. Programs should be user friendly and easy to use, too.

Some programs give the user a menu with selections. These are easy to run. Other programs have secret FCTN and CTRL and number combinations in order to make them do certain things. If a FCTN or CTRL is used, why not put that on the screen as a guide?

Some programs are in BASIC, while others are in Extended BASIC and others in Assembly. These are the most confusing to load and run. No matter what language a program is written in, simple instructions should be written in the docs on how to load and run, and what the program is used for.

**Harold Bingham**  
Ogden, Utah

## Agrees with Dodd

I am anxious to read Mike Dodd's article (December 1988) explaining how to set up an AUTOEXEC file. Since I have not yet mastered my Geneve which I got last summer, this is kind of down my alley. I'm not a whiz with the computer, but I do like to learn new things about it. For me to understand it, it has to be rather basic. Once I understand it, I can figure out how to solve my problems. I have come to the same conclusion that Mike Dodd suggests in his article in the December issue: that of joining a network such as Delphi or Genie. In fact, I ordered a Packard Bell modem from Tenex early last December, but I am still waiting for the modem cable, which they told me today is still on back order and they do not expect it for another two to three weeks.

It was interesting to hear the leadership of the Chicago User Group make the statement at last month's meeting that there are still new members joining the group, and they are not as advanced as the members who have been with the group since its inception. The speaker went on to say that

we should give demos on things like TI-Writer and Multiplan at our monthly meetings. A large number of people raised their hands when asked if they would be interested. It was well over half the members present. I think your magazine does some of this through User Notes and the like. Do you think it would be worthwhile to run an update on some of these old programs that are still around and still widely used? Although I have used these two programs quite a bit, I'm sure I could learn more about them. One thing I have not yet learned is how to reduce the "Top" margin default on TI-Writer.

**Edward Herdliska**  
Waukegan, Illinois

*We'll try to publish more about these programs. — Ed.*

## Code is original

We have written a letter directly to Tex-Comp with regards to their advertisement in the December issue on page 22 for DM1000, and we hope the matter can be resolved as soon as possible. The Ottawa user group has incorporated strict penalties within its constitution regarding piracy of another's work, and therefore, the connotation in the advertisement (if "rip off" does in fact mean "to steal") is against everything that the Ottawa group stands for.

May we beg your indulgence to notify the public that we are actively trying to resolve the problem with Tex-Comp, and assure them that DM1000 was written, and later updated, by several users within our group, from strictly ORIGINAL code. We admire CorComp and their contribution to the TI community, and do not wish them, or the user, to think that we would steal their work.

**Jane Laflamme**  
President  
Ottawa TI Users Group

## Needs mail-list hints

I am in need of some helpful hints on the mail-list option.

I have tried every way I could think of but to no avail. I start my "letter" with .FI and a cr in line 0001, then "M-L DSK2.NAME" in line 0002 or 0003 and

(See Page 11)



# Typewriter 99

***Typewriter 99* turns your TI-99/4A or Myarc Geneve 9640 into a modern, electronic typewriter.**

## Why would you want to do THAT?

Sometimes the newest way isn't always the best and most efficient way to do something. It's still easier to keep a rolodex than an electronic phone list. It's easier to balance your checkbook by hand than to do it on your computer. If you really thought about it, you could probably think of a dozen things you could do just as well or more easily by hand than with a computer.

## Sometimes it's easier to use a typewriter than a word processor.

Ever try to use a word processor to type up a quick label? How about address an envelope? Ever fill out a form with a word processor? How many people use a word processor to dash off a 3 line note to a friend? For many small, every-day jobs (and most writing is just that), a word processor is too much. It's like using a jet plane to go to the grocery store. Plus, word processors are awfully intimidating to the non-computer user. Do you have a spouse or relative who won't use the computer because it's "too complicated", but is perhaps a wiz with the computer controlled microwave or washer?

## This is where *Typewriter 99* comes in.

Even the most rabid computer-phobe will use a typewriter - even one of the new kinds with the little LCD screen. *Typewriter 99* turns your TI-99/4A into one of these sophisticated "electronic" typewriters. It will right-justify text, features word wrap, auto-centering of text, bold and underline text, margins that can be set at any time, tabs, a line at a time or character at a time printout, line spacing control, even an audible key-click. *Typewriter 99* is filled with little touches that make it easy to use - a bell goes off when you are near the end of a line, the previous 6 lines typed are displayed on the screen, a little graph shows you where you are on the line at all times, you can set margins up to 132 characters wide, the program shows you where your tab stops are at all times, and much more.

*Typewriter 99* is available in disk (requires TI-Writer or Editor/Assembler, 32K and a disk system), cassette (requires Mini-Memory) or cartridge forms. It will work with any printer. *Typewriter 99* is a simple to use program that recognizes that the best way to do something is not always the most modern way.

**Introductory Special**  
**Cassette or Disk versions - \$14.95**  
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**Asgard Software, P.O. Box 10306, Rockville, MD 20850**  
**(703) 255-3085**  
**(Mastercard, Visa, American Express accepted)**



## BASIC

# Bake a cake and print the recipes

By REGENA

Years ago, I published a program called "Cookie File," which contained recipes for cookies. It was quite popular, and I converted it to TI Extended BASIC and to BASIC on all the other computers I had. One of the main suggestions I have had over the years was to add the printing option so that the recipe could be sent to the printer for a copy.

This month I have resurrected that program and changed it slightly. For the VIC-20, I had written "Bake a Cake," which was the same idea but cake recipes instead of cookie recipes. So that I won't be repetitive, this month's program is "Bake a Cake" for the TI99/4A with the printing option. I have used TI Extended BASIC to make it easier to print, but you can change back to regular console BASIC without much effort.

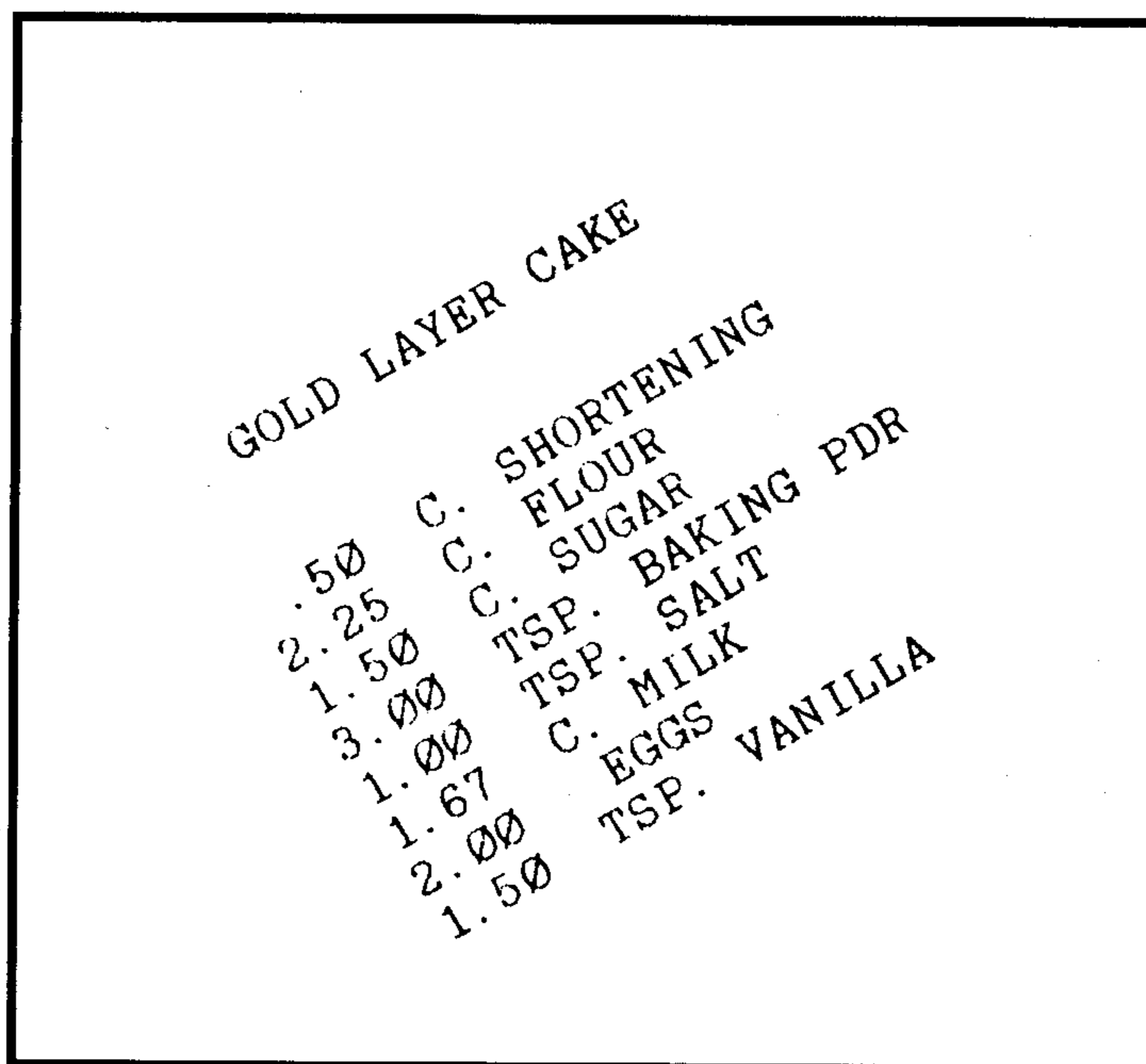
This program contains recipes for 12 different cakes. You can select the recipe, see it on the screen and print it on the printer. Then you may convert the recipe if you wish. For example, you may triple the recipe by entering the multiplier 3, or you may halve the recipe by entering the multiplier .5. The converted recipe will then appear on the screen, along with the option to print it. Keep in mind that some recipes don't work as well if they are multiplied or divided, but the computer will calculate the ingredients anyway.

Suppose you don't know what cake to make. Select the ingredient list. As the inventory is listed, press Y for yes if you have the ingredient, or N if you don't. (Please run this program with the ALPHA LOCK key in the down position.) After this inventory list is complete, the computer will tell you which recipes you can make with the ingredients you have indicated you have on hand.

For convenience in programming, the amounts in the recipes are given in decimals. For example,  $\frac{2}{3}$  cup sugar is written as .67 c. sugar. When you multiply by 3, the result will be shown as 1.01 c. sugar, when you should really use only 1 cup sugar.

DATA statements are used to keep track of ingredients, inventory and recipes. The DATA statements in Lines 150-180 contain the measure, then the ingredient for 25 ingredients. Line 140 reads A\$, the measure and B\$(N,0), the name of the ingredient, then assigns ING\$(N) equal to the measure plus a space plus the ingredient name. B\$ is used in the inventory list, and ING\$ is used in printing the recipe. Z is the number of ingredients minus one (because the subscripts start with the number zero).

As you are typing the DATA statements, you may notice two or more commas together with nothing between them (,,). Be sure to get the right number of commas as you are typing. The commas indicate a null string, or a string variable equal to "".



The recipes are in the DATA statements in Lines 950-1060. The first item is the name of the cake. The next items are the amounts of the ingredients in this order: cups shortening, cups flour, cups sugar, cups brown sugar, tsp. baking powder, tsp. salt, tsp. soda, cups cherry juice, number of cherries, cups bananas (mashed), cups sauerkraut, cups milk, cups buttermilk, number of eggs, number of egg whites, tsp. red food coloring, ounces chocolate, tbsp. cocoa, tsp. vanilla, tsp. cinnamon, tsp. nutmeg, tsp. vinegar, cups salad oil, cups water and cups oatmeal. The DATA will contain a null string if the cake does not contain that

ingredient.

An example is the DATA statement of Line 950. This data is for Banana Cake. The recipe is .67 cup ( $\frac{2}{3}$  cup) shortening, 2.5 cups flour, 1.67 cups sugar, 1 tsp. baking powder, 1 tsp. salt, 1 tsp. soda, 1 cup mashed bananas, .67 cup buttermilk and 2 eggs.

To print a particular recipe, Lines 340-460 RESTORE the data starting with a certain line, determined by the key pressed to choose a recipe. Line 470 READs and PRINTs the name of the cake. Line 500 READs the amount from the DATA statement. If the amount is a null or zero, that ingredient is not PRINTed. However, if there is a value, the value is printed, and the corresponding measure and name of the ingredient are printed from the ING\$ array.

Line 510 defines variables AMT(N) and INGR\$(N) for the measure and ingredient for only those ingredients in the particular recipe. These values are used in printing the converted recipe, line 660, and in printing the recipe on the printer, Line 1160. F is the multiplying factor.

For the inventory list, the computer keeps track of your Y or N answers in the B\$(N,1) array, where N varies from 0 to 24 for the ingredients. Line 810 checks to see if an N is stored as a "no" answer for flour or sugar. If you have no flour or sugar, no cakes can be baked. YS is a variable for the number of Y answers. If there are not enough ingredients with a Y answer, you cannot make a cake (Line 820).

Line 840 RESTOREs the data for the recipes. Lines 850-880 check through the recipe for each cake. If there is an amount listed for an ingredient, the corresponding B\$(N,1) value is checked. If it is "N", you are lacking one of the ingredients required for the cake. The rest of the ingredients are skipped over, and the computer goes to the next recipe. If each of the required ingredients also has a B\$ value of "Y" for yes, the cake can be made, and the name of the cake is printed.

(See Page 11)



# Feedback

(Continued from Page 8)

and a cr then compose my form letter with the usual \*n\* at the appropriate places, then after I finish the letter, I make up my M-L option value list with nothing in the lines before I PUT "1 name"

\* "1 name" etc. BUT it won't work. What am I doing wrong?

I am blind and have someone to read to me but so far we haven't made the right choices. I can run the form letter with the "N" at the mail-list prompt and type in what I need at the prompt.

I belong to the Wichita Users Group, but no one seems to use the TI-Writer in the mail-list option, so no help from them.

I am in the process of making a pedigree form for my geneology book, which has 1,750 names so far, and if I can get this function to work, I'll be able to print out pedigree sheets for other members of my clan.

Is there a limit to how many items I can include in my value list?

Will this mail-list prompt work with a ".na cr" in the form letter?

If it doesn't, I'll need to go back into the pedegree form and add exponential symbols to keep the form from being destroyed when I run it in Format mode.

**Robert W. Bryant**  
Wichita, Kansas

**If your letter is an accurate transcription of your use of the TI-Writer mailing list command, your error is obvious. It is not called by the command: M-L DSKx.FILENAME. Rather use this format:**

**.ML DSKx.FILENAME**

**Note the period before the "M." All formatter command lines begin with a period followed by the mnemonic.**

**If your letter incorrectly represented the .ML command, then write us again and include a printout or a disk with the formletter you are trying to use.**

## Asterisk problem

I have found the same problem in the word processor of Funnelweb 4.0 that Ralph Mills described in the January Feedback. Single asterisks followed by numbers do not print out, and wipe out some of the following characters as well, when run

through the formatter. Double asterisks followed by numbers print as single asterisks, and there are still some characters lost.

I do not know why this happens, but there is an easy fix to last until a newer version of the formatter corrects the problem. Use the transliterate command to convert another character to an asterisk.

Include this statement at the beginning of the file:

.TL 126:42 (and required carriage return)

Next, use the ~ (tilde) character (ASCII character number 126) wherever you need the asterisk to print. The transliterate command will print ASCII character 42 (\*) whenever it comes across the ~ character.

**Jerry Stern**  
Baltimore, Maryland

## Not a bug

In response to Ralph Mills' problem with \* followed by a number when using the TI-Writer formatter (Feedback, January 1989); this is not a bug, but rather a sometimes bothersome feature of the formatter. This IS documented starting on page 163 of the TI-Writer manual. An \* followed by a number is used to assign text when using the mail list feature of the formatter for producing form letters. Unfortunately, if nothing has been assigned to that variable, the formatter just throws away the \* and number.

There are several ways around this. You can put a space after the \*, or a required space (}), or anything else except a number. You may also transliterate the \* from some other character such as .TL 125:42. Then formatting C+(R}32)= POSITION would print correctly. Mr. Mills should not feel badly about not knowing about this feature. Many newsletter listings have been ruined because of this feature!

**Richard Lauhead**  
St. Paul, Minnesota

*Feedback is a forum for TI and Geneve users. We ask that writers limit themselves to one subject per letter. Excessively lengthy letters may be condensed by the editor. Send submissions to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.*

## REGENA—

(Continued from Page 10)

These are real recipes — some of my favorites. No baking instructions are given, but usually the person baking knows how to bake the cake and just needs to be reminded of the amount of each ingredient. In case you want to try these recipes, all of these recipes are for cakes to be baked in two 9-inch layers (although you may use a 9x13 rectangular pan). Mix the shortening with the sugars, add the dry ingredients alternately with the liquid, and then add the eggs and vanilla. Bake at 350 to 375 degrees.

In the cherry cake, cut up the cherries before adding to the mixture. For the oatmeal cake, first boil the water, and then add the oatmeal. Let that mixture cool while you mix everything else — add the oatmeal mixture last. The "wacky" cake you can mix all at once — just dump everything into one big bowl and mix it up. For the red velvet cake, combine the ingredients as usual, except for the vinegar and soda. Mix the vinegar and soda together and fold into the rest of the batter. The sauerkraut cake is a moist chocolate cake — just don't tell anyone what it is until AFTER it has been eaten. Rinse the sauerkraut well, then chop it into small pieces before combining it with the rest of the cake batter.

Yes, you may change the program to use your own recipes. Change some of the DATA statements in Lines 950-1060 to your own, and change the appropriate PRINT statements in Lines 280-310. Make sure all the ingredients are included (Lines 150-180).

To add recipes, add more DATA statements between Lines 1060 and 1070, add PRINTing in Lines 280-310, and add RESTORE statements in Lines 350-460. You will also need to change the KEY checking in Line 320 and the ON-GOTO statement in Line 340. If you use the existing ingredients you'll be okay without making changes. However, if you need to add ingredients, you'll need to add data in Lines 150-180 and change Line 130 to make Z the right number of ingredients. Line 120 will need to be changed so the DIMENSIONS of the first two items also have the right number of ingredients.

To PRINT the recipe on the printer, be  
(See Page 12)



## REGENA—

(Continued from Page 11)

sure to change Line 1130 to include your own printer configurations within the quotation marks.

Be sure you copy the DATA statements exactly for the correct ingredient list and recipes. There are no spaces except in the names of the cakes. If there are commas together, do not put spaces between the commas, and be sure you do not end a line with a comma. Lines 150-180 have a measurement (ending with a period), then an ingredient. Lines 950-1060 have lots of decimals and commas.

If you get any error messages when you run this program, the most likely cause is in the DATA statements.

And go ahead — try the sauerkraut cake!

If you prefer to save typing effort, you may have a copy of this program by sending \$4 to *REGENA, P.O. Box 1502, Cedar City, UT 84720*. Please be sure to specify the title, "Bake a Cake," that you need the TI Extended BASIC version, and whether you need cassette or diskette.

## BAKE A CAKE

```

100 REM BAKE A CAKE !098
110 REM TI EXTENDED BASIC !0
74
120 DIM INGS(24), BS(24,1), AM
T(15), INGR$(15) !098
130 Z=24 !072
140 FOR N=0 TO Z :: READ A$,
B$(N,0) :: INGS(N)=A$&" "&B$(
N,0) :: NEXT N !135
150 DATA C.,SHORTENING,C.,FL
OUR,C.,SUGAR,C.,BROWN SUGAR,
TSP.,BAKING PDR,TSP.,SALT,TS
P.,SODA,C.,CHERRY JUICE !038
160 DATA "",CHERRIES,C.,BANA
NAS,C.,SAUERKRAUT,C.,MILK,C.
,BUTTERMILK,,EGGS,,EGG WHITE
S,TSP.,RED COLORING !250
170 DATA OZ.,CHOCOLATE,TBSP.
,(XXX)A,TSP.,VANILLA,TSP.,CIN
NAMON,TSP.,NUTMEG,TSP.,VINEG
AR,C.,SALAD OIL !192
180 DATA C.,WATER,C.,OATMEAL
!068
190 CALL CLEAR !209
200 DISPLAY AT(4,3):"CHOOSE:
" !041
210 DISPLAY AT(8,3):"1 NEED
TO KNOW WHAT" :: DISPLAY AT
(9,6):"CAN BE MADE" !174
220 DISPLAY AT(13,3):"2 WAN
T TO SEE A" :: DISPLAY AT(14
,6):"CERTAIN RECIPE" !255
230 DISPLAY AT(18,3):"3 END
PROGRAM" !237
240 CALL KEY(0,KEY,S):: IF K
EY=51 THEN 1210 !109
250 IF KEY=49 THEN 710 !163
260 IF KEY<>50 THEN 240 !132
270 CALL CLEAR :: DISPLAY AT
(3,3):"CHOOSE:" !123
280 DISPLAY AT(5,3):"A BANA
NA CAKE": " B CHERRY CAKE":
" C CHOCOLATE CAKE" !243
290 DISPLAY AT(8,3):"D DEVI
L'S FOOD CAKE": " E GOLD LA
YER CAKE": " F OATMEAL CAKE
" !003
300 DISPLAY AT(11,3):"G RED
VELVET CAKE": " H SAUERKRA
UT CAKE": " I SPICE CAKE" !
131
310 DISPLAY AT(14,3):"J TWO
-EGG CAKE": " K WACKY CAKE"
: " L WHITE CAKE" !053
320 CALL KEY(0,KEY,S):: IF (
KEY<65)+(KEY>76) THEN 320 !11
3
330 CALL CLEAR !209
340 ON KEY-64 GOTO 350,360,3
70,380,390,400,410,420,430,4
40,450,460 !037
350 RESTORE 950 :: GOTO 470
!190
360 RESTORE 960 :: GOTO 470
!200
370 RESTORE 970 :: GOTO 470
!210
380 RESTORE 980 :: GOTO 470
!220
390 RESTORE 990 :: GOTO 470
!230
400 RESTORE 1000 :: GOTO 470
!240
410 RESTORE 1010 :: GOTO 470
!250
420 RESTORE 1020 :: GOTO 470
!004
430 RESTORE 1030 :: GOTO 470
!015
440 RESTORE 1040 :: GOTO 470
!025
450 RESTORE 1050 :: GOTO 470
!035
460 RESTORE 1060 !133
470 READ A$ :: DISPLAY AT(4,
1):A$;" CAKE" !245
480 N=0 :: F=1 !133
490 FOR J=0 TO Z !152
500 READ BS :: IF BS="" OR
BS="0" THEN 540 !033
510 AMT(N)=VAL(BS):: INGR$(
N)=INGS(J) !032
520 DISPLAY AT(6+N,1):USING
"##.##":AMT(N) !052
530 DISPLAY AT(6+N,7):INGR$(
N):: N=N+1 !027
540 NEXT J !224
550 GOSUB 1080 !140
560 DISPLAY AT(23,1):"WANT T
O CONVERT RECIPE?(Y/N)" !239
570 CALL KEY(0,KEY,S):: IF S
<1 THEN 570 !032
580 IF KEY=78 THEN 690 !145
590 IF KEY<>89 THEN 570 !220
600 PRINT:"MULTIPLY BY WHAT
NUMBER": "OR DECIMAL FRACTIO
N?" !156
610 ACCEPT AT(23,22)SIZE(6)V
ALIDATE(NUMERIC):F !182
620 IF F<=0 THEN PRINT "SORR
Y, F>0" :: DISPLAY AT(23,22)
:" " :: GOTO 610 !004
630 CALL CLEAR !209
640 IF F>5 THEN PRINT "REMEM
BER, MORE THAN DOUBLING A REC
IPE MAY CAUSE A MESS.": : : !
021
650 PRINT F;"TIMES ORIGINAL
RECIPE": : : : PRINT A$;" C
AKE": : !001
660 FOR K=0 TO N-1 :: PRINT
USING "###.##":F*AMT(K);: P
RINT " "&INGR$(K):: NEXT K :
: PRINT : : !191
670 GOSUB 1080 !140
680 PRINT:"CONVERT AGAIN? (
Y/N)" :: GOTO 570 !096
690 PRINT:"PRESS ANY KEY TO
CONTINUE." !070
700 CALL KEY(0,KEY,S):: IF S
=0 THEN 700 ELSE CALL CLEAR

```

(See Page 13)



## REGENA—

(Continued from Page 12)

```

:: GOTO 200 !139
710 CALL CLEAR :: DISPLAY AT
(14,1): "IN THE FOLLOWING LIS
T," !177
720 DISPLAY AT(15,1): "PRESS
""Y"" IF YOU HAVE": "THE INGR
EDIENT." !106
730 DISPLAY AT(17,1): "PRESS
""N"" IF YOU DO NOT." : "PRE
SS ""S"" TO START OVER." !24
7
740 CALL SOUND(150,1397,2)::
YS=0 !167
750 FOR K=0 TO 24 :: PRINT "
_";B$(K,0) !083
760 CALL KEY(0,KEY,S):: IF K
EY=83 THEN 710 !124
770 IF KEY=78 THEN 790 !246
780 IF KEY=89 THEN YS=YS+1 E
LSE 760 !043
790 CALL HCHAR(23,3,KEY):: B
$(K,1)=CHR$(KEY):: NEXT K !0
81
800 C=0 :: PRINT "YOU CAN M
AKE": : !114
810 IF B$(1,1)="N" OR B$(2,1
)="N" THEN 830 !149
820 IF YS>7 THEN 840 !180
830 PRINT "NOTHING TODAY.": "
YOU NEED MORE SUPPLIES." ::
GOTO 690 !190
840 RESTORE 950 :: READ A$ !
148
850 FOR J=0 TO 24 !110
860 READ H$ :: IF H$="" OR
H$="0" THEN 880 !118
870 IF B$(J,1)="N" THEN 900
!034
880 NEXT J !224
890 CALL SOUND(150,1397,2)::
PRINT A$; " CAKE" :: C=C+1 !
122
900 READ D$ :: IF D$="ZZZ" T
HEN 930 !033
910 IF LEN(D$)<5 THEN 900 !2
35
920 A$=D$ :: GOTO 850 !177
930 IF C=0 THEN 830 !056
940 PRINT "GO AHEAD AND BAK
E!" :: GOTO 690 !255
950 DATA BANANA,.67,2.5,1.67
,,1,1,1,,1,,.67,2,,,,,
,,0 !029
960 DATA CHERRY,.5,2.25,1.33
,,3,.5,,.25,16,,.5,,4,,,,
,,,0 !215
970 DATA CHOCOLATE,.67,2.5,1
.75,,.5,1,,,,,2,,2,,1,,
,,1.25,0 !112
980 DATA DEVIL'S FOOD,.67,2.
25,2,,1,1,1,,,,1.25,,3,,1,3
,,,,,0 !119
990 DATA GOLD LAYER,.5,2.25,
1.5,,3,1,,,,,1.67,,2,,,,1.
5,,,,,0 !163
1000 DATA OATMEAL,.5,1.5,1,1
,,.5,1,,,,,2,,,,1,.75,.25
,,1.25,1 !205
1010 DATA RED VELVET,.5,2.75
,1.5,,.5,1.5,,,,,1,2,,6,,2
,1,,1,,0 !061
1020 DATA SAUERKRAUT,.67,2.2
5,1.25,,1,.25,,,,.67,,3,,
,8,1,,,,,1.25,0 !180
1030 DATA SPICE,.75,2.25,1,,
1,1,1,,,,,1,3,,,,,1,.5,,,,
0 !069
1040 DATA TWO-EGG,.5,2.25,1.
5,,.25,1,,,,,1,2,,,,,1,,
,,0 !056
1050 DATA WACKY,.25,1.5,,1
,1,,,,,,6,1,,1.5,.75,1
.5,0 !034
1060 DATA WHITE,.75,2.25,1.5
,,3,1,,,,,1,,5,,,,1.5,,,,
,,0 !172
1070 DATA ZZZ !108
1080 DISPLAY AT(23,1): "WANT
A PRINTED COPY? (Y/N)" !035
1090 CALL KEY(0,KEY,S):: IF
KEY=78 THEN 1190 !098
1100 IF KEY<>89 THEN 1090 !2
30
1110 DATA ZZZ !108
1120 REM PRINTING !037
1130 OPEN #1: "RS232.BA=600"
!222
1140 PRINT #1: TAB(5); A$; " CA
KE": : !155
1150 FOR K=0 TO N-1 !073
1160 PRINT #1, USING "###.##
#####": F*AMT(K), I
NCR$(K) !082
1170 NEXT K !225
1180 CLOSE #1 !151
1190 CALL HCHAR(23,3,32,26)!
226
1200 RETURN !136
1210 CALL CLEAR :: END !222

```

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## Extended BASIC

## Reading numbers properly

By JERRY STERN

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Computers are pretty stupid. Our TI 99/4As and Geneves can't even count to twenty properly.

```
FOR L=1 TO 20::CALL SAY(STR$(L))
::NEXT L
```

This loop will make the Speech Synthesizer count to twenty very badly; the numbers past nine will sound like "one zero, one one, one two, one three" and so

on. Whatever happened to "ten?" The Synthesizer's habit of spelling out numbers digit by digit makes any number speaking program awkward, and some educational programs impractical. We need a way of teaching our computers to say numbers correctly.

Many TI programmers have dismissed the Speech Synthesizer as incapable of producing complex speech. The vocabulary available through TI Extended BASIC is

only a few hundred words, and generally not the words you really need. Actually, the Speech Synthesizer can say literally anything, if given a little help. Texas Instruments provided that help in the Terminal Emulator II cartridge. By comparison with Fast-Term or Telco, TE II is a primitive communications program. Its only redeeming feature is the capability to perform text-to-speech conversion, either

(See Page 14)



## EXTENDED BASIC

(Continued from Page 13)

by reading aloud incoming data from an information service, or by creating speech from console BASIC. Here is a little program that will say anything you care to type in, but will only work with the TE II cartridge in the computer.

```
100 OPEN #1:"SPEECH",OUTPUT
110 INPUT "SAY WHAT? ":S$
120 IF S$="" THEN 150
130 PRINT #1:S$
140 GOTO 110
150 CLOSE #1
```

The Speech Synthesizer will attempt to pronounce literally anything according to standard rules of English pronunciation. Because the English language has an ancient history of absorbing other cultures, there is an enormous group of English words which do not follow standard rules of pronunciation. The Synthesizer will have no trouble mispronouncing them, but experiment with phonetic spellings to change the pronunciation — that should keep you amused on a rainy evening. Try typing in foreign language sentences — the pronunciation will be hilariously terrible.

But TE II BASIC is not standard to most of our other applications, and so remains mostly a novelty. From Extended BASIC, the Speech Synthesizer has only a limited vocabulary of about 360 words, yet by combining these words, far more complex expressions become possible. A useful procedure would be to create grammatically correct speech from within Extended

BASIC. For now, we'll concentrate on saying numbers.

Using Call SAY to pronounce a number above nine will result in a telephone operator coming "on the line" and saying "one ni-un eight four" when what you probably wanted was "one thousand nine hundred eighty-four." The speech vocabulary does not include "thousand," so we're limited to "nineteen hundred eighty-four." The Synthesizer also cannot say "sixteen" through "nineteen," or understand that "10" means "ten" and not "one zero." However, "teen," "hundred," "point," "negative," "ten" through "fifteen," and "twenty" through "ninety" can be pronounced.

We need a program that will convert numbers to a form that the Speech Synthesizer will be able to say. "1984" will become "nine teen hundred eighty four." "-12.67" will become "negative twelve point six seven." Then these strings, or word groups, can be fed to the Speech Synthesizer through the Call SAY statement for normal pronunciation.

This procedure of building strings is reversed from what is done in adventure programs, where sentences typed in by each player are broken down into lists of commands for the program to check against a list of actions. This analysis is called parsing. The parsing routine of those programs uses input of English sentences, and breaks them down into lists of nouns and verbs. For example, "Drop the stone and take the

key. Then unlock the blue door and take the gold." becomes:

Noun	Adjective	Verb
Drop		stone
Take		key
Unlock	blue	door
Take		gold

By contrast, we need to take a number such as 819.5 and convert it into a sentence fragment, "eight hundred nine teen point five." Instead of breaking down sentence fragments, we will build up number phrases from plain boring numbers.

The most useful format for this procedure will be a subprogram. The use of a subprogram will allow us to add this routine to any Extended BASIC program without the need to check for compatibility. Subprograms are compatible with any main program, as long as the numbered lines of the subprogram are higher than the lines of the program. Duplicated variable names are fine, because Extended BASIC keeps variables for main programs and subprograms separate from each other.

The subprogram will have input of a number, and output will be the spoken number. The subprogram will end without saying anything if the number is outside its range.

Let's begin by writing a test routine for the subprogram.

```
100 DISPLAY AT(2,4)ERASE ALL:"Counting on my TI":
:DISPLAY AT(6,1):"PRESS ANY KEY FOR NEXT NUMBER,":
:"OR THE SPACE BAR TO QUIT":
:RANDOMIZE
110 CALL KEY(0,K,S)::IF S<=0 THEN 110 ELSE IF K=32 THEN 300
200 N=RND*2000-1000::CALL SAYNUM(N)::GOTO 110
300 STOP
```

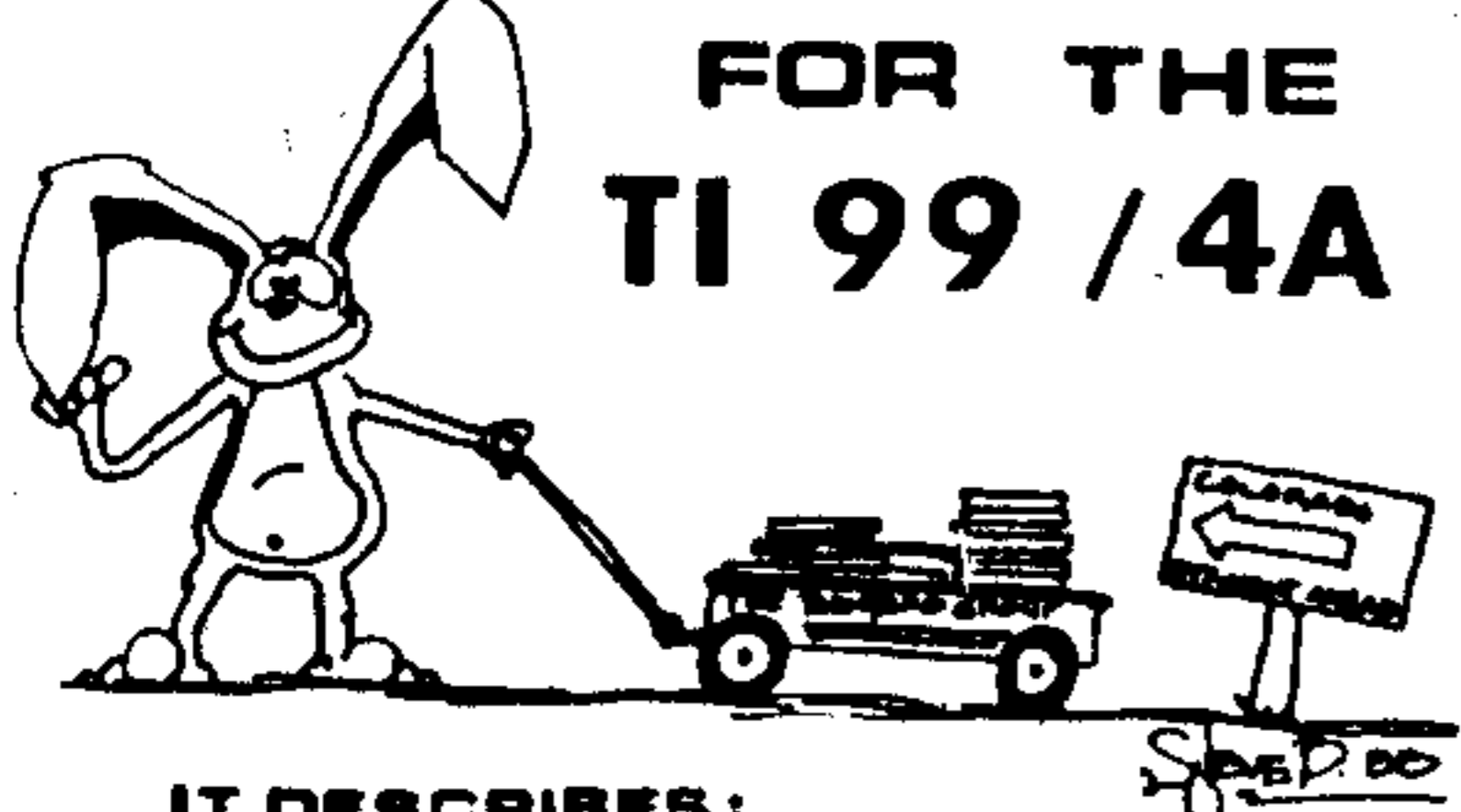
Line 100 sets up an instruction screen. Line 110 waits for a keypress before starting the next number; and line 200 chooses a random number to pronounce, sends the number to the subprogram, and branches back to the input line on completion.

Inside the subprogram, we must first test that the number sent for saying is in the range we've decided to use. The limit will be +/-9999. Any number of greater size would require the word "thousand," which is not easily available.

IF X >= 10000 OR X <= -10000 THEN

(See Page 15)

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## EXTENDED BASIC—

(Continued from Page 14)

## SUBEXIT

Next, decide if the number is negative.  
**IF X<0 THEN CALL SAY("NEGATIVE")**

Now, make the negative number positive to simplify the remaining steps.

**X = -X**

If the number is less than one, say "zero" and go to the decimal pronunciation routine.

At this point the number has been simplified. Negative numbers are no longer a problem. No number above four digits in length is still in the routine. The number is between 1 and 9999, possibly with a few digits past the decimal point. If the number is looked at as "abcd.ffff," then we must break this down to "ab hundred cd point ffff." The number will be pronounced as a pair of two digit numbers, separated by "hundred" and followed by "point" and any decimal portion.

There are two ways to code the next few steps. Since the number will be pronounced as a pair of two digit numbers, the same code could be used to pronounce both of these numbers; or the code could be repeated for each pair. Using the code twice by looping through it saves memory, but requires either that the code be placed in a subroutine or that an extra variable be used to control the loop. This would slow down the execution of the code. The time taken by the programming statements is important; any extra time would add to the length of the pauses between words. If more than one repetition of the code were required, the looping or subroutine techniques would be more practical, but in this case, repeating the code is simpler and faster both in writing and in execution. So, the next steps must be to skip over the first set of two digit speech code if the number is below one hundred, or for the larger numbers, execute the code for the first set, say the word "hundred," and execute the second set.

The duplicated code works by identifying three possible conditions. First, the two digit number could be between one and nine, and so can be pronounced in the Speech Synthesizer's standard way.

**CALL SAY(SEG\$(" ONE TWO THREEFOUR FIVE SIX SEVEN EIGHTNINE ", (INT(L\*5+1,5))**

Alternatively, the number could be in the range ten to nineteen, and will be read out of a long data string.

**CALL SAY(SEG\$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVENTEEN EIGHTEEN NINETEEN ", (INT(X/10)-2)\*10+1,10))**

Third, the number could be twenty or above, and will become a combination of "twenty," "thirty," etcetera, and the word for the second single digit of each pair.

**CALL SAY(SEG\$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTY EIGHTY NINETY ",(INT(X/10)-2)\*7+1,7))**

Finally, if the number has a decimal portion, say "point," and read the digits of the decimal. The subprogram then returns control to the main program.

After testing, the program should be stored without the test routine on lines 100-300. Save the file in merge format.

**SAVE DSK1.SAYNUM, MERGE**

The subprogram may now be mixed into another Extended BASIC application program. The result will be a useful speech utility that can be added to other projects as needs demand.

Now that our computers can count, maybe we can create some applications that would not have been practical without this subprogram. Maybe a program to create a talking title screen for VCR recordings, complete with broadcast time and channel, would be practical. Using SAYNUM in a project like this one would only require the addition of a title screen and a series of data statements of phrases to say. Oops, now I've gone and done it; maybe we shouldn't let one hobby talk about the other hobbies.

---

**SAYNUM**


---

```

30000 SUB SAYNUM(X)!017
30010 ! PRONOUNCES NUMBER FROM -10000 X<10000; JLS '89 !199
30020 IF X>=10000 OR X<=-10000 THEN SUBEXIT !126
30030 IF X<0 THEN CALL SAY("NEGATIVE"):: X=-X !218
30040 IF INT(X)=0 THEN CALL SAY("ZERO"):: GOTO 30160 !008
30050 IF X<100 THEN 30120 !1

```

41

```

30060 IF X>1999 THEN 30070 ELSE IF X>999 THEN 30100 ELSE 30080 !252

```

```

30070 CALL SAY(SEG$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTYEIGHTY NINETY ", (INT(X/100)-2)*7+1,7))!142

```

```

30080 L=INT(X/100):: L=L-INT(L/10)*10:: CALL SAY(SEG$(" ONE TWO THREEFOUR FIVE SIX SEVENEIGHTNINE ",L*5+1,5))!245

```

```

30090 CALL SAY(" HUNDRED"):: GOTO 30110 !159

```

```

30100 CALL SAY(SEG$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVEN+EIGHTEEN+NINETEEN ", (INT(X/100)-10)*10+1,10),, " +HUNDRED")

```

```

30110 X=X-INT(X/100)*100 !003

```

```

30120 IF X>19 THEN 30130 ELSE IF X>9 THEN 30150 ELSE 30140 !190

```

```

30130 CALL SAY(SEG$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTYEIGHTY NINETY ", (INT(X/10)-2)*7+1,7))!044

```

```

30140 L=INT(X)-INT(X/10)*10:: CALL SAY(SEG$(" ONE TWO THREEFOUR FIVE SIX SEVENEIGHTNINE ",L*5+1,5)):: GOTO 30160 !031

```

```

30150 CALL SAY(SEG$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVEN+EIGHTEEN+NINETEEN ", (INT(X)-10)*10+1,10))!047

```

```

30160 IF X=INT(X) THEN 30170 ELSE CALL SAY("POINT",,STR$(X-INT(X)))!235

```

```

30170 SUBEND !168

```

## Form software offered

Asgard Software offers Form Maker 99, by Ed Johnson, at \$19.95 plus 75 cents shipping. The assembly language program is designed to create forms, maps, charts and graphs and include pictures in the text and allows usage of different fonts. It requires TI Extended BASIC or Editor/Assembler, 32K, a disk drive and an Epson compatible printer. Contact Asgard Software, P.O. Box 10306, Rockville, MD 20850.



## Trial of a c99 beginner

# Modified file I/O program

By CHARLES E. KIRKWOOD JR.

This month I am indebted to Dr. Donald I. Mahler of Newton, Mass., for sending me his modification of the File I/O program which appeared in the April 1988 issue and also some excellent ideas. Dr. Mahler's articles on c99 appear regularly in the newsletter of the TI99/4A section of the Boston Computer Society. He also has a c99 tutorial diskette which can be obtained from the society (see MICROpendium, August 1988, page 44). His modification, along with my additional modifications to make the program more versatile, are included in this month's article.

There are some things that might have been confusing to the new programmer (and even the experienced one). When c99 first came out, some of the function library names contained more than six characters. The variable and function names can contain more than six characters, but they will be truncated when compiled to the first six characters. For example, the function library **STRINGFNS** will be truncated to **STRING** and this will not give an error if the function library is also called **STRING**.

Another example is **FLOAT;C**. This name will not give an error if the actual library name is **FLOAT;**. And there are other names that are too long.

These problems can be taken care of in more than one way. I just made shorter names by leaving off **FNS** and **;C** from all library names that end with **;C**. In running the c99 programs for the articles I used the shortened names. Then, after getting the program to work, tried to remember to use the original name in the article. If I forgot, the experienced c99 programmer would notice the error, make the correction, and go on. But the beginner could be confused.

There is another way that this can be handled. My thanks go to Dr. Mahler for this suggestion in his newsletter article. Leave the function library names as they were originally and use the following:

```
#include "DSK1.STRINGFNS"
```

or

```
#include "dsk1.stringfns"
```

Either upper or lower case characters can be used.

However, since I have already shortened my function library names, I will continue with my shortened names and reminding the reader once in a while.

The input function **scanf()** was used in the modified program where I had used **gets()**. The **gets()** and **getchar()** functions will input only one variable, whereas several can be input with **scanf()** and the input can also be formatted. It is referred to as a formatted input much like **printf()** is a formatted output. The general form is:

```
scanf("control",arg1,arg2,...)
```

You will notice that the arguments are similar to the arguments for **printf()**. However, there are some differences.

First, let us review the function **printf()**. The control string contains conversion specifications and may contain ordinary characters which are copied. Each conversion specification begins with the character **%**.

The conversion characters and their meanings are:

Char.	Meaning
d	The argument is converted to decimal notation (an integer).
o	The argument is converted to unsigned octal notation.
x	The argument is converted to unsigned hexadecimal notation.
u	The argument is converted to unsigned decimal notation.
c	The argument is taken to be a single character.
s	The argument is a string.

There is no conversion for floating-point.

The minimum field width can be specified by including a number between the **%** and the control character. The converted output will be printed in a field at least this wide. For example, the field width of **%4d** is four.

The function **scanf()** provides an input with controls similar to **printf()**, but in the opposite direction. Each variable argument must be a pointer to indicate where the corresponding converted input will be stored. A suppression character **\*** may be included between the **%** and the conversion specification which will allow this field to be skipped. Again, a number between the **%** and the conversion character is the field width. In this case, it is the exact field width and the data values do not have to be separated.

For example, if the input were:

```
scanf("%4s %3d %2d",a,&b,&c);
```

and the data were:

```
ABCD56789
```

**a** would be a character string **ABCD**, **b** would be the integer **567**, and **c** would be the integer **89**. The string **a** is already a pointer and is not preceded by the **&**. (It could also be written as **&a[0]**).

If the field width is not specified, at least one space is required between data items. For example:

```
scanf("%d %c %s %s",&a,&b,c,d);
```

and data:

```
15 E Lark Street
```

would assign the integer **15** to variable **a**, the character **E** to variable **b**, the string **Lark** to variable **c**, and the string **Street** to variable **d**.

Before I forget it, there is a typing error in the function **strlen(s)** in the April, 1988 c99 article. The statement **++s;** should be **++n;**.

The File I/O Program was also modified to use **printf()** instead of **puts()**. Further modification by me makes it possible to select a segment of the file to be copied, appended, or printed on the printer.

```
/*FILE I/O PROGRAM*/
#include DSK1.STDIO
extern fprintf(),scanf(),printf();
main()
{
    char buff[81],*mode;
    int in,out,col;
```

(See Page 17)



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Previous TI Base owners may obtain version 2.0 by returning their original disks (both the system and tutor disks) along with a small upgrade fee. If you purchased TI Base after November 1, 1988 send \$2.50 and a copy of your dated sales receipt, otherwise send \$7.95. Don't forget to include your original disks with your upgrade fee. A new and expanded 66 page manual will be sent with your upgrade.

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c99—

(Continued from Page 16)

```

char m,o[16];
int first,last,line;
int b;
col=80;
printf("FILE I/O PROGRAM by Charles Kirkwood\n\n");
printf("This utility program will copy a file\n");
printf("and also append one file to another.\n");
printf("The INPUT DISK AND FILE is the file\n");
printf("to be copied or appended.\n\n");
printf("Modified by dlm, further modification\n");
printf("by cek to copy or append a segment of\n");
printf("a file.\n\n");
printf("INPUT DISK and FILENAME:: ");
in=fopen(gets(buff),"r");
puts('\n');
/*same as putchar(10);*/
printf("OUTPUT DISK and FILE, OUTPUT MODE (w/a):\n");
scanf("%s %c ",o,&m);
while((m!='w')&(m!='a'))
{
printf("\nTRY AGAIN, must be lower case 'a' or 'w'\n");
scanf("%s %c ",o,&m);
}
if(m=='a')
mode="APPEND.";
else

```

```

mode="WRITE.";
printf("\nFile is %s and mode is %s\n",o,mode);
if(m=='a')
out=fopen(o,"a");
else
out=fopen(o,"w");
printf("\nline numbers of the FIRST and LAST LINE\n");
printf("to be copied or appended: ");
scanf("%d %d",&first,&last);
first=first-1;
last=last+1;
b=fgets(buff,col,in);
line=1;
while(b)
{
if((line>first)&(line<last))
fprintf(out,"%s\n",b);
b=fgets(buff,col,in);
++line;
}
fclose(out);
fclose(in);
}

```

This program will work only if you have two disk drives or if both files are on the same disk. If you have only one drive and you wish to copy or append a segment of a file from one disk to another, modify the program by saving the segment in a two dimensional array and then change disks. There is a memory limitation to the size of the segment that can be stored in the array. Fifty lines was chosen as the maximum number in this modification. You might experiment to determine the actual maximum. These modifications are outlined below:

```

add:
#include DSK1.STRING

add:
int i,n;
char r[50][81];
add just before printf("INPUT DISK and FILENAME: ");
printf("Insert MASTER disk, then type\n");
delete:
if(m=='a')
out=fopen(o,"a");
else
out=fopen(o,"w");

add just after line=1:
i=0;
replace fprintf(out,"%s\n",b); by:
{
strcpy(&r[i][o],b);
++i;
}
delete all after the while(b) block and add:
n=i-1;

```

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**CaDD Electronics**  
81 Prescott Road, Raymond, NH 03077  
(603) 895-0119

(See Page 19)



c99—

(Continued from Page 18)

```

fclose(in);
fprintf("\nInsert COPY disk, then press <ENTER>");
getchar();
if(m='a')
    out=fopen(o,"a");
else
    out=fopen(o,"w");
for(i=0;i<=n;++i)
    fprintf(out,"%s\n",&r[i][0]);
fclose(out);

```

Don't forget to also load SCANF when you load your object program, CSUP, CFIO, PRINTF, and FPRINTF.

Have you ever printed out documentation for some program received in order to put it in a notebook? After punching out the holes you find that some important information has been punched out. Rather than moving the paper guides on the printer, you can leave a left margin by changing the "control" in the @fprintf statement to:

```
    " %s\n"
```

Adjust your margin by changing the number of blanks. When the program calls for OUTPUT DISK and FILE, OUTPUT MODE (w/a):, type **PIO w**. If adding this left margin makes the line greater than 80 characters (counting the margin), the printout will spill over to the first column on the following line.

#### MORE ON CALENDAR PROGRAM

I want to say a little bit more about the calendar program written in FORTRAN, XBASIC and c99 in the c99 articles in May and June. The programs were based upon using two integer arithmetic FORTRAN single-statement functions which contained most of the arithmetic. The fact that so much arithmetic was done by a single statement was very interesting to me.

Extended BASIC is essentially a floating-point language and c99 is an integer language. The purpose of these programs was to bring out how the arithmetic of the two functions might be handled by XBASIC and c99. The XBASIC program handled the formulas almost as they were written, but with c99 the formula used in the calculation of the number of days in a month became more involved because floating-point functions were used since the size of integers in c99 is limited to 2 bytes and floating-point uses 4 bytes. This was a good place to introduce the floating-point functions.

The number of days in a month can be determined (not calculated) by much simpler methods. Here are some changes that will result in some simplification of the program. Delete the following from the main program:

```

#include DSK1.FLOAT;C
float d[8],e[8],de[8];
a=y+i/12;
b=(i+1)%13+i/12;
/*remainder of (i+1)/13 added to i/12*/
jd(a,b,d);
jd(y,i,e);
fexp(d,"-",e,de); /*de=d-e*/
qm=ftoi(de); /*convert from real to integer*/

```

Insert between putchar(10); and /\*qm is the number of days in a month\*/:

```
qm=jd(i,y);
```

Change the declaration from:

```
int a,b,f,qm,qf,qe,qq;
```

to

```
int f,qm,qf,qe,qq;
```

Three methods are given to determine the number of days in a month. Substitute one of the three functions **jd(m,y)** for the function **jd(i,j,k)** in the program.

```

/*FIRST METHOD*/
jd(m,y)
int m,y;
{
    int d;
    if(m==2)
    {
        if(((y%4==0)&(y%100!=0))|(y%400==0))
            d=29;
        else
            d=28;
    }
    else if((m==4)|(m==6)|(m==9)|(m==11))
        d=30;
    else
        d=31;
    return(d);
}

```

```

/*SECOND METHOD*/
jd(m,y)
int m,y;
{
    int mo[13];
    int d;
    mo[1]=31;
    mo[2]=28;
    mo[3]=31;
    mo[4]=30;
    mo[5]=31;
    mo[6]=30;
    mo[7]=31;
    mo[8]=31;
    mo[9]=30;
    mo[10]=31;
    mo[11]=30;
    mo[12]=31;
    d=mo[m];
    if(m==2)
    {
        if(((y%4==0)&(y%100!=0))|(y%400==0))
            d=d+1;
    }
    return(d);
}

```

The third method initializes the array **mo** at compile time. Before **main()** insert the statement:

(See Page 24



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(continued)

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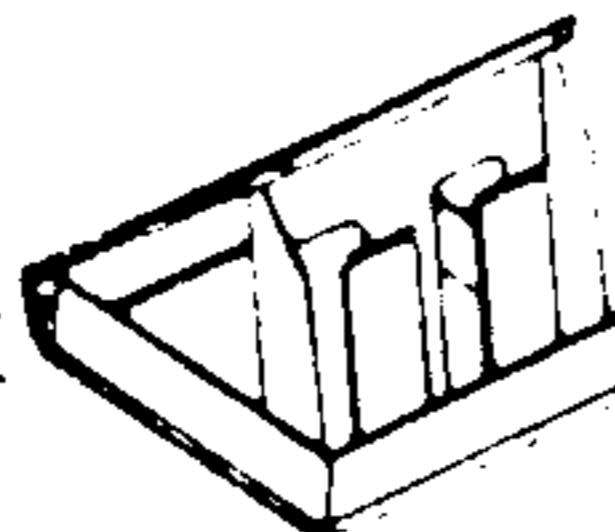
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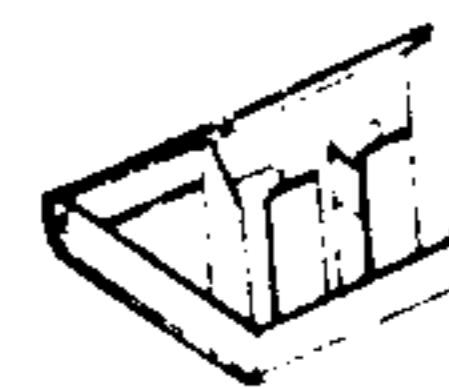
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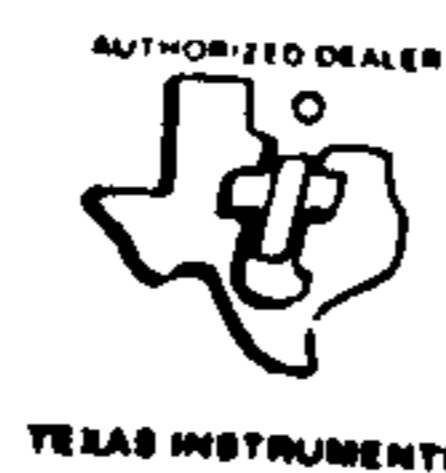
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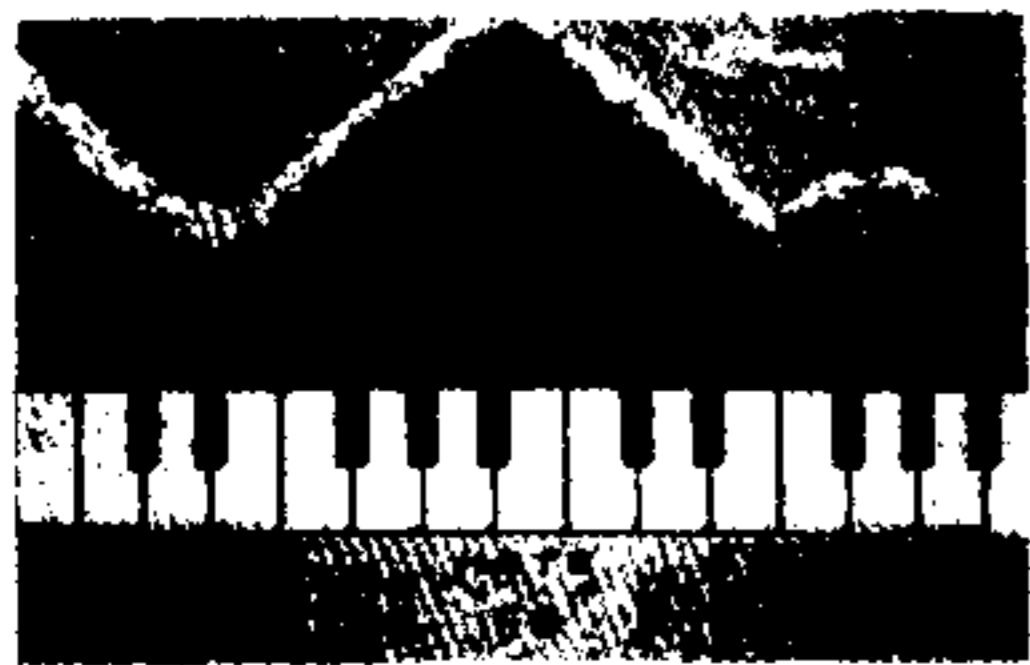


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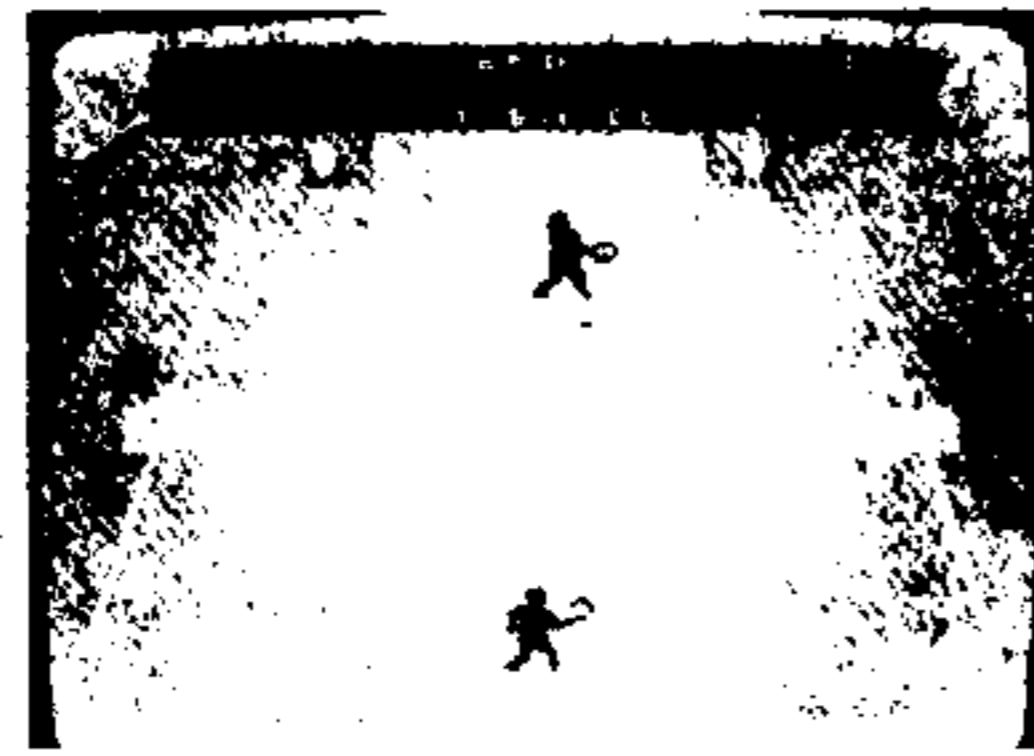
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c99—

(Continued from Page 19)

```
int mo[13]={0,31,28,31,30,31,30,31,31,30,31,30,31};
and rewrite the function jd() as:
```

```
/*THIRD METHOD*/
jd(m,y)
int m,y;
{
    int d;
    d=mo[m];
    if(m==2)
    {
```

```
if(((y%4==0)&(y%100!=0))|(y%400==0))
    d=d+1;
}
return(d);
}
```

For those who have had trouble loading c99 v4.0 equipped with a Horizon RAMdisk, Clint Pulley offered a suggestion in TI Forum, October 1988 Computer Shopper. Locate the first sector of C99C with a sector editor. At byte offset 7C (hex) is 0420 2120 0010. Replace 0420 with 1002. Make this change on a copy, do not attempt to make the change on the original disk.



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SCHEDULE1p2	(Page 2)
PRINT17	(Printer set-up routine)
REBATES	(Form to register for rebates)
FLOWCHART	(Hints for effective order of processing)
USER MANUAL	(Easy reading, covers Short forms)

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SCHEDULEDp2	(Page 2)
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SCHEDULEEp2	(Page 2)

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FORM4972p1	Tax on Lump-Sum Distributions (Page 1)
FORM4972p2	(Page 2)
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SCHEDULER	Credit for the Elderly or the Disabled
SCHEDULESE	Computation of Social Security Self-Employment Tax

**LONGFORM ---- \$10**

FORM1040p1	US Individual Income Tax Return (Page 1)
FORM1040p2	(Page 2)
(Incl Schems	(These Schedules are an
x,y,&z)	integral part of Form1040p2)
FLOWCHART	(Hints for effective order of processing)
INITIAL	(File for common data, avoids repeat entries)
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FORM2106p2	(Page 2)
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FORM4562p2	(Page 2)
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## Hardware project

# Making Super Extended BASIC work with the Widget cartridge expander

By JOHN GUION

Artwork by MIKE STANFILL

*AUTHOR'S NOTE: The modification described in this article should be attempted only by individuals with experience in soldering on printed circuit boards. The Super Extended BASIC module also contains static-sensitive components. To help guard against static damage, a sheet of aluminum foil may be used as a workspace. The author can assume no responsibility for misuse of this material.*

I purchased Super Extended BASIC (SEB) from Triton after reading several good reviews of the product. After putting a lot of miles on it, I would not trade it for any other module.

Even non-programmers have found that its additional cursor control routines, built-in functions (like the catalog) and other features make it an extremely useful tool. Since it's 100 percent compatible with TI Extended BASIC, it also avoids the compatibility problems of some of the other enhanced versions of Extended BASIC.

Several users have also discovered that, unfortunately, the module will not disable itself when used on the popular Widget Cartridge Expander. This has also been a problem for folks who have installed it inside the console and then found that it would not turn off like a regular TI Extended BASIC module. This problem occurs because the Widget and the XBASIC-in-console modification assume that the module is enabled and disabled like a regular GROM/ROM module.

Unlike a regular GROM/ROM module, SEB is a GROM emulator module. This is required to add the new commands of SEB. GROM emulators do not require a negative 5 volt supply like regular GROMs, so the GROM memory area cannot be disabled by turning off the negative 5 volt supply (which is how a Widget works). Since the GROM emulator can be turned off by forcing its chip select signal to +5 volts like ROM memory can, a method to add that kind of switching must be used and it must be controlled by the negative 5 volt supply

line that the Widget switches.

A technician friend of mine, John Creviston, suggested that I balance a control signal between the switched negative 5 volt supply and the unswitched positive 5 volt supply using a pair of equal-value resistors. I OR-gated this new signal with the EPROM chip select signal in the SEB module. Now, when the Widget turns off the negative 5 volt supply, the EPROM in the module is also disabled, thus turning off SEB completely and allowing other modules on the Widget to operate.

## PARTS NEEDED

To make the change, you will need one 74LS32 quad OR gate chip, two 2.7K- $\frac{1}{4}$  watt resistors (the color code is red-violet-red-gold), and about eight inches of thin wire (30 gauge wire-wrap wire works great). The resistors and wire are available from Radio Shack, and the 74LS32 should be available at any electronic store carrying computer components. The total cost should be under \$1 for parts. You will also need soldering equipment, a medium-sized flatblade screwdriver and a hobby knife that will be used to cut one circuit trace.

Begin by opening the module case and removing the board. To do this, turn the module upside-down and insert the screwdriver tip into one of the outer slots near the corner of the case. Gently pry the tab outward as you use your fingers to pull the two halves of the case apart. Once this corner is freed, repeat the procedure with the tab on the other corner. When both corners are released, use the screwdriver to push the tab located near the center of the case toward the label. Once this is freed, the module will open up and the circuit board may be lifted out.

Lay the board on the foil with the components downward and the plug connector facing you. The connector is numbered from left to right with the odd-numbered connections on the upward side and the even-numbered connections on the downward side. From the left, the pins are numbered 1, 3, 5, 7, ..., 33, 35. Near the lower right corner of the board, there will

be a 14-pin 74HCT74 chip. Pin 14 of the 74HCT74 is the one located nearest the corner of the board on the notched end of the chip. Immediately across from pin 14 is pin 1. The pins are numbered starting with the pin to the right of the notch, down the side of the chip and up the other side. The EPROM used for the GROM memory is a 28-pin chip located diagonally opposite the 74HCT74. Its pin numbering follows the same convention. Near (almost between) pin 21 and pin 22 of this EPROM you should find a circuit trace about one-eighth of an inch long that is not connected to any other traces on that side of the circuit board. These are the areas of the board you will be dealing with.

Start by taking the two 2.7K resistors and soldering them together at one end in a D shape. Also solder a two-inch wire to the junction. Clip the leads on the other end of the resistors to about one-quarter of an inch. Locate connections 19 and 29 on the plug connector. (See lower diagram.) Solder the end of one resistor to each connector (some bending of the leads will be required to make the resistors lie flat against the circuit board).

Next, remove the following pins from the new 74LS32 since they will not be used: 1, 2, 3, 8, 9, 10, 11, 12 and 13. These may be broken off by repeated bending near the chip body. Bend pins 4, 5 and 6 straight out. CAREFULLY bend pins 7 and 14 upward. (See upper diagrams.) This is required since the 74LS32 must be added to the bottom side of the board. Because of the thinness of the case, chips near the connector cannot be socketed or stacked without interfering with the case. Do not over-bend these pins or they will break off. The pins should now extend above the top of the chip. Clip these pins so they are flush with the top of the chip body. You should now be able to place the chip on the bottom side of the board under the 74 HCT74 with the notched ends pointing the same way and have pins 7 and 14 line up with each other. Solder pins 7 and 14 of the

(See Page 28)



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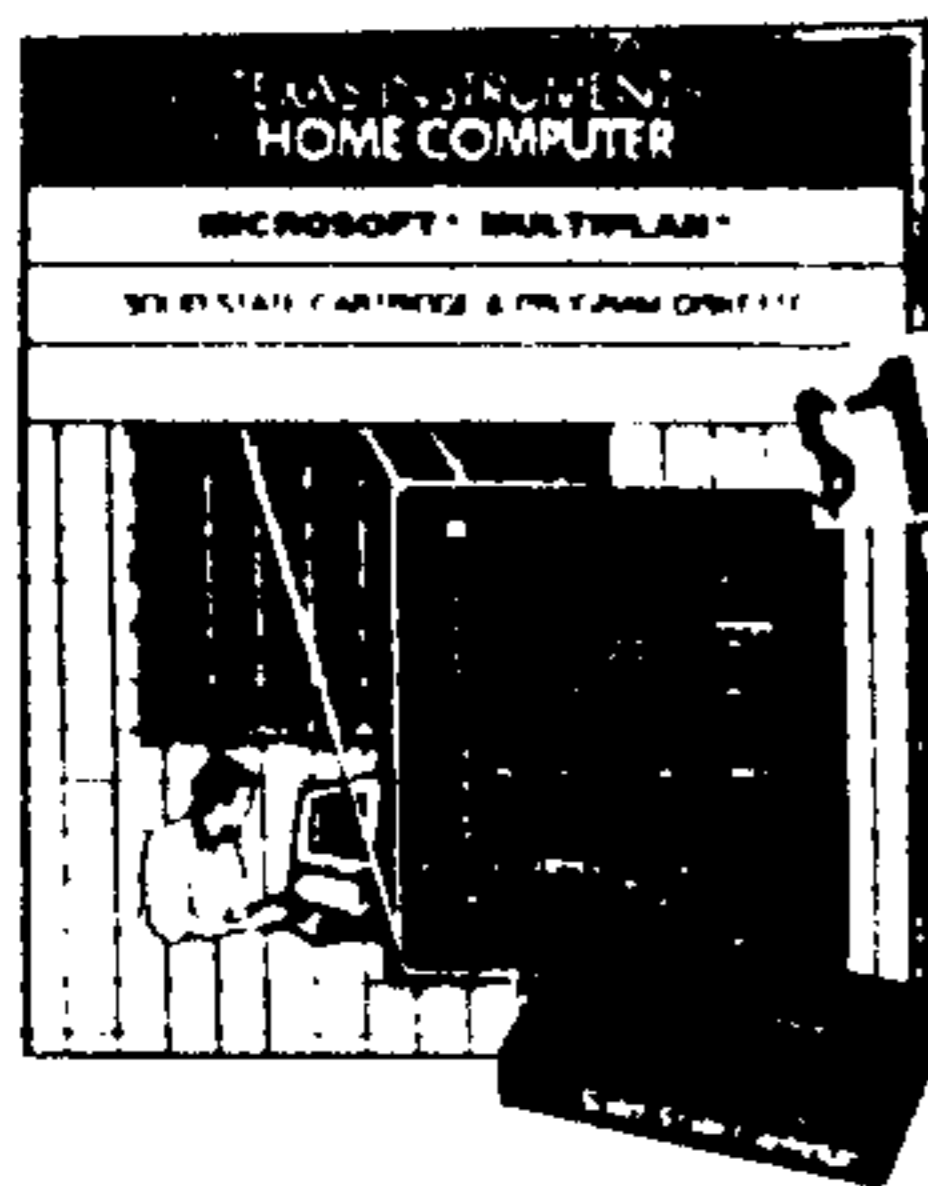
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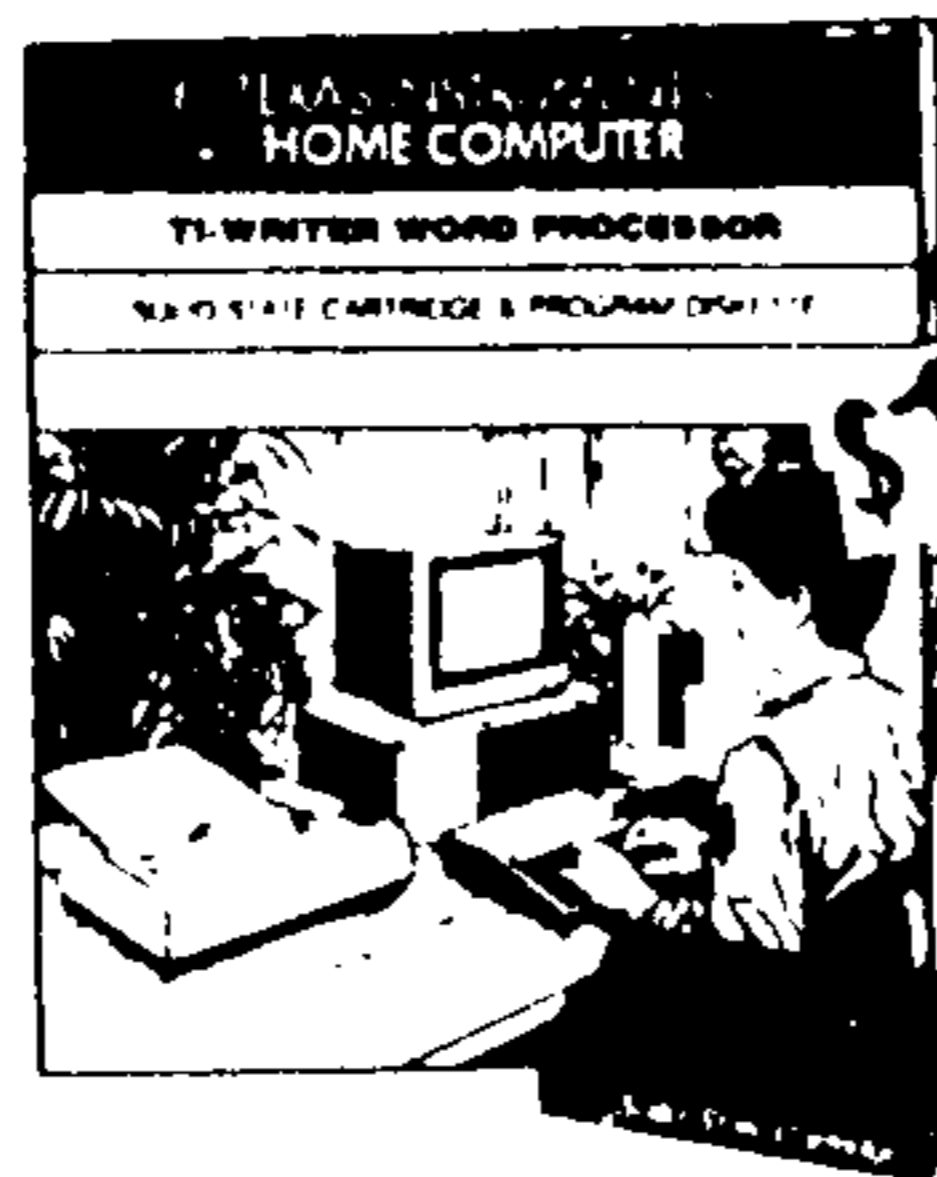
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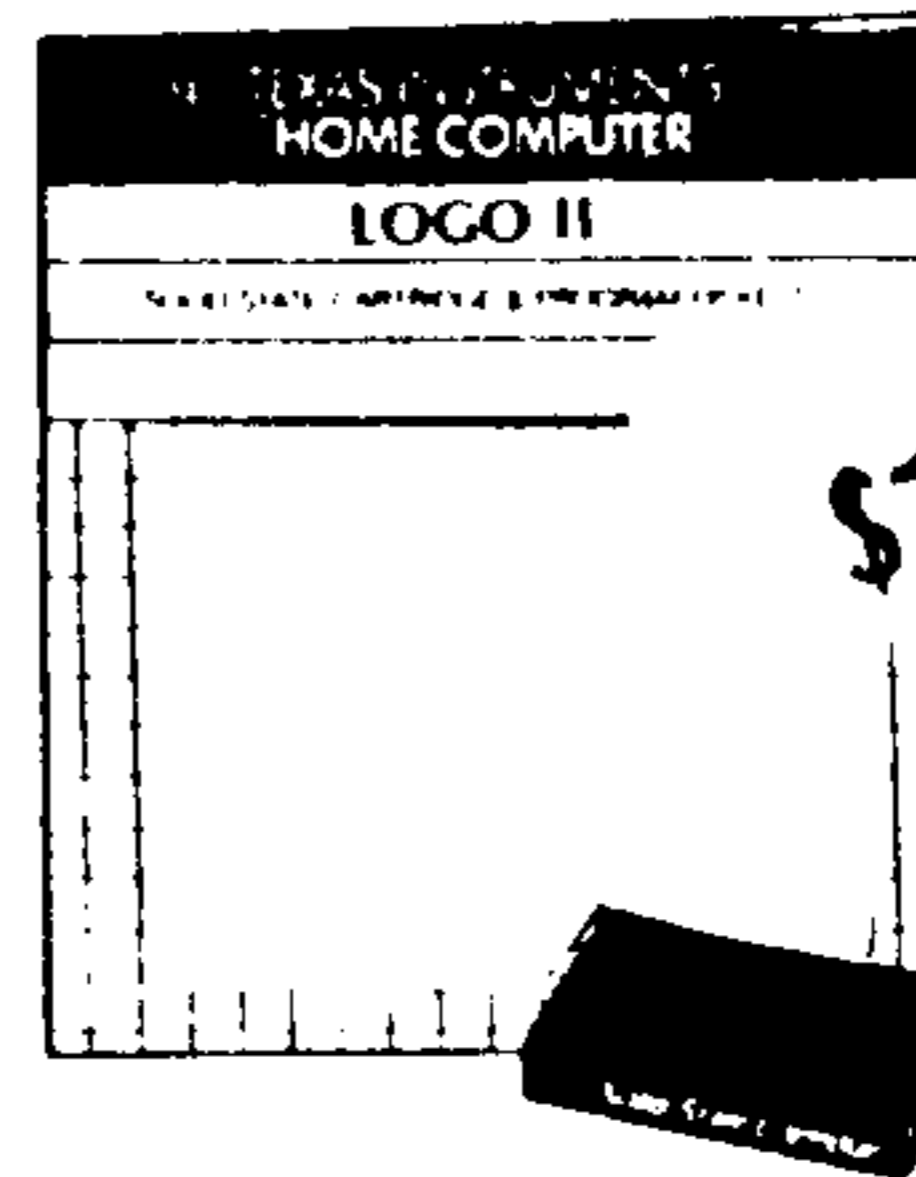
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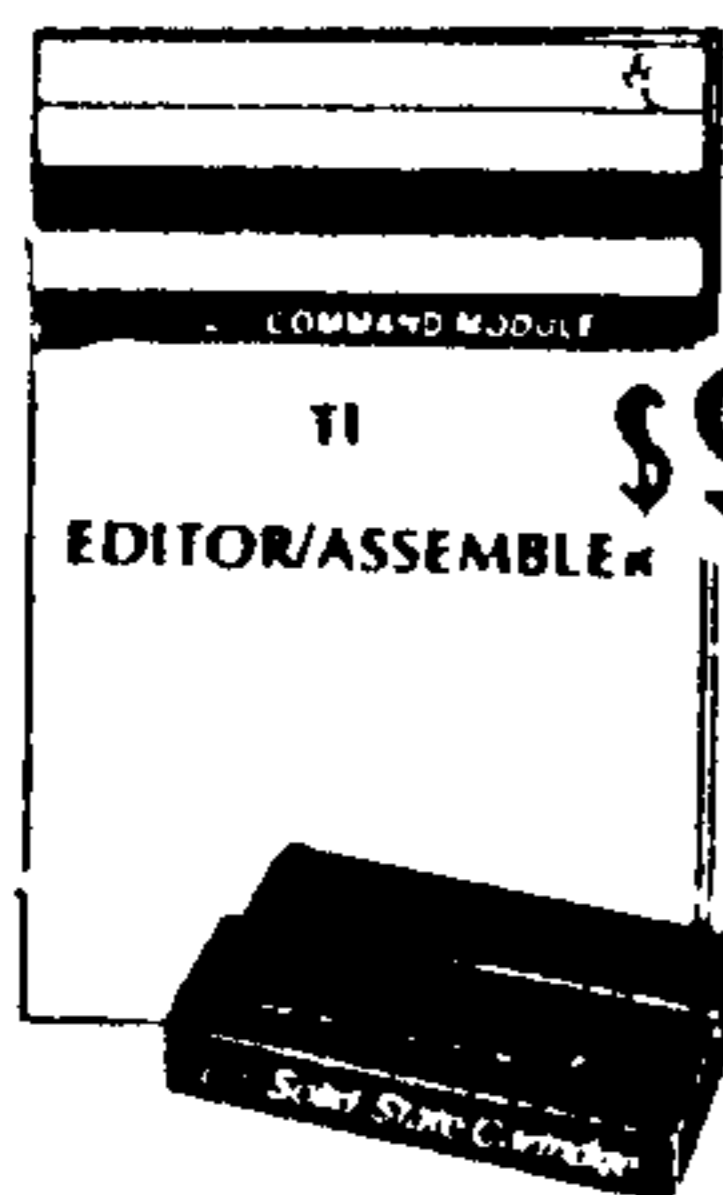
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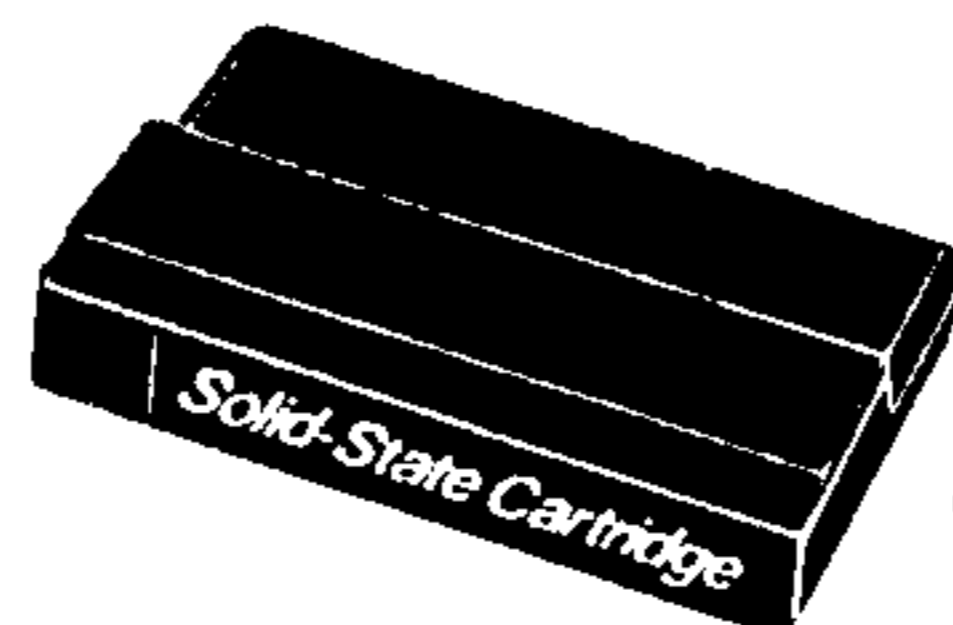
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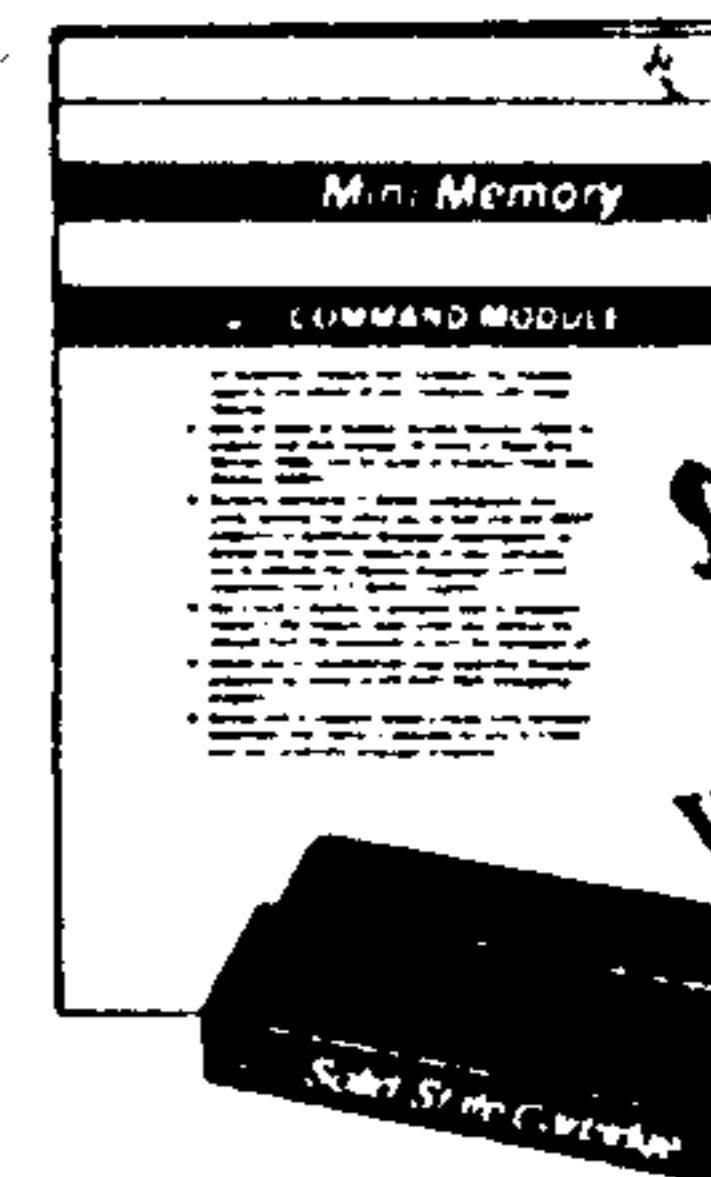


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## Hardware project

(Continued from Page 26)

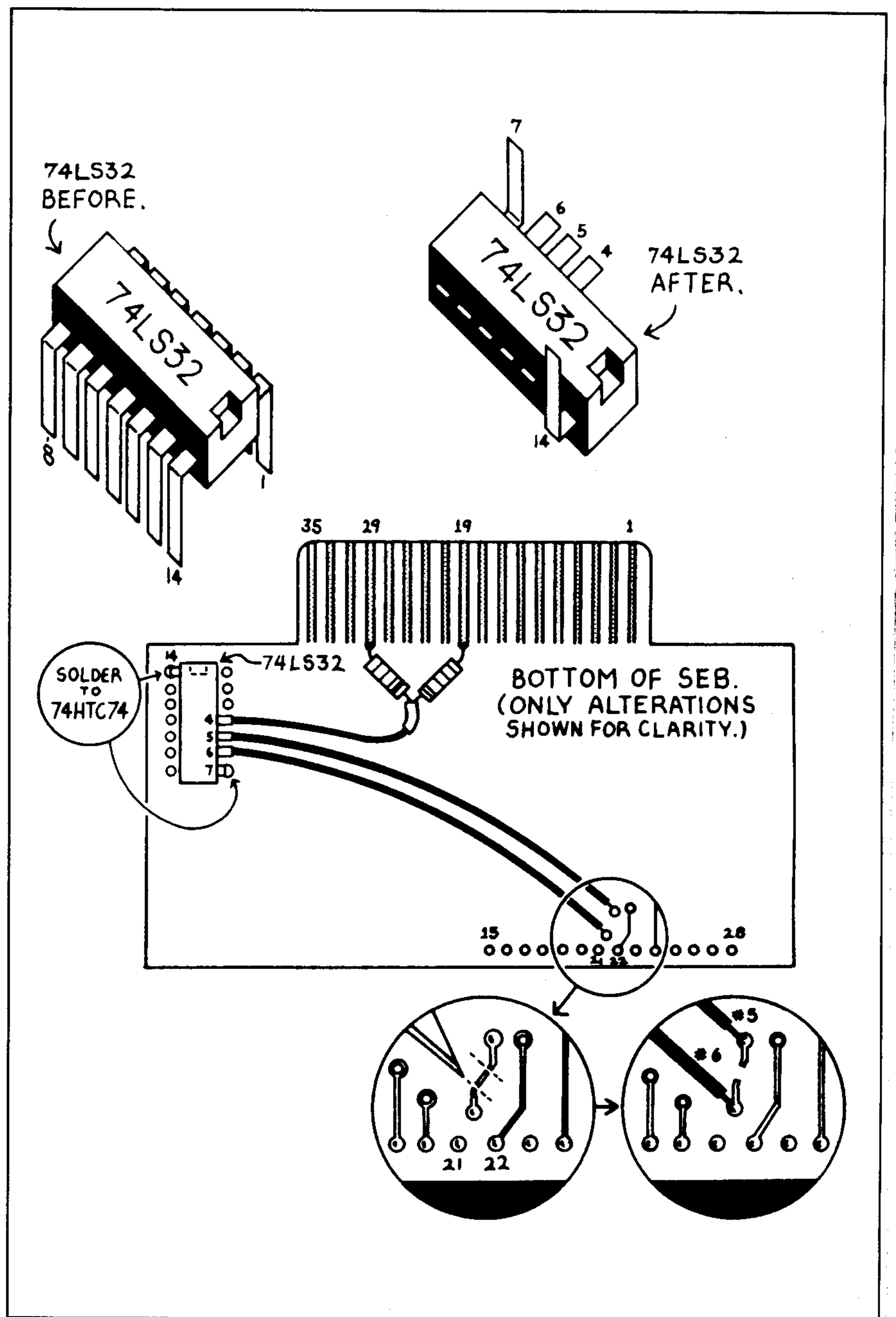
74LS32 to pins 7 and 14 of the 74HCT74 where they stick through the board. Then solder the wire from the two resistors to pin 4 of the 74LS32.

After locating the trace near pins 21 and 22 of the EPROM, use a hobby knife to make two cuts across this trace about 1/16 of an inch apart. (The insert on the lower diagram shows this both before and after cutting the trace.) Use the tip of the blade to remove the trace between the cuts. Next, carefully scrape the green coating from the holes where this trace passed through the circuit board on both sides of the cut. DO NOT remove the metal from these parts of the trace. From the cleaned hole nearest the plug connector, solder a wire to pin 5 of the 74LS32. From the other hole, solder a wire to pin 6 of the 74LS32. Recheck all your work. Be sure that no stray pieces of solder or wire are making connections anywhere on the board not described here.

Before you can reinstall the module in the case, you will notice that the resistors will interfere with part of the case. Simply use the knife to cut away a small amount of plastic here so that the board will fit snugly in the case. When the module is reassembled, this will be visible only when looking directly into the connector.

Although this same method should work on any Triton SEB module, I can only assume that the specific locations of chip and traces are the same in all SEB modules. Unless you can positively identify these traces, do not attempt this modification. Once reassembled, the module should function just as it did before, but it will now also allow proper use on the Widget. If any problem occurs that you are not capable of solving, the components you added may simply be removed and the trace that was cut can have a wire soldered across it to return the module to its original state.

*Guion and Stanfill are members of the Dallas TI Home Computer Group. — Ed.*



## Asgard offers Cassette Labeler, Typewriter 99

Asgard Software is offering Cassette Labeler and Typewriter 99.

Cassette Labeler, for audio or computer cassettes, is described by the manufacturer as a program which prints a detailed list of the contents of each tape, complete with lines to cut and fold. The program, by Tom Wynne, is available on disk or cassette and requires Extended BASIC and an Epson-compatible printer. Price is \$9.95.

Typewriter 99 is offered on the premise that a word processor is too difficult to use for many small tasks. The program, by Jim Reiss, is described as "turning your computer into a sophisticated electronic typewriter with centering, bold, underline, settable margins and tabs, pica, elite and even right justification and word wrap." The manufacturer says a window on the screen shows the six previous lines typed. The

program can be set up to print a line at a time or a character at a time.

The program is available on disk (requires 32K and Editor/Assembler or TI-Writer), cassette (requires Mini-Memory) or as a cartridge. The manufacturer says it will work with any printer. Price is \$9.95.

For information or to order, contact Asgard Software, P.O. Box 10306, Rockville, MD 20850. Shipping charge is 75 cents.



## Hardware project

# Card extender improves access when working on PEB cards

By TONY LEWIS

See Page 39 for a review of the Peripheral Expansion Box Prototype Board.—Ed.

One of the things that has always irritated me when working on PBox cards is the limited access to either side of the card after it is installed. It is always nice, and sometimes mandatory, to be able to check various pins on the cards with a voltmeter or pulse detector when you are troubleshooting problems. But with the PBox cards installed vertically, it is virtually impossible to reach and see where you want to get to with a probe. Here's a quick and easy way to build a "card extender," that will allow you to check the peripheral card outside the box while it is running.

DigiKey (701 Brooks Ave. South, P.O. Box 677, Thief River Falls, MN 56701, 1-800-344-4539) sells edgeboard connectors and plug-in lead edge connectors made by TI that work beautifully with the PBox and its cards.

For about \$15 (part numbers and prices are given in the chart at the end of this article), you can get a 60-pin plug connector, 60-pin edgeboard connector, five feet of 36-connector ribbon cable and a small section of bare perfboard. The card extender can be put together as follows:

1. Cut the ribbon cable into two 2½-foot lengths. Remove six wires from each section. This will leave you with two 30 connector cables.

2. Carefully solder both cables to the edgeboard connector (one 30-connector cable per side). Now mark the edgeboard connector on one end "F" for front, and "B" on the opposite end for back, to avoid problems when inserting the cards.

3. Solder the cables to the plug connector. Make sure the "left" cable of the edgeboard connector goes to the "left" side of the plug connector, and likewise for the "right" cable. Mark the plug connector "F" and "B" like you did the edgeboard connector to avoid orientation problems.

4. To avoid possible pull-out or electrical short problems, you can use the perfboard as a strain relief support. Cut the perfboard to fit around the soldering area on the plug connector, but leave room to allow for a small nut and bolt on both sides (it has holes for this purpose) to bolt the perfboard to the connector. Then glue, strap or clamp the two ribbon cables to the board. If you accidentally pull on the cables with this design, you won't pull the wires off the pin on the plug connector.

5. Use an ohmmeter to check continuity from pin to pin from the edgeboard connector to the plug connector on all 60 pins, making sure the Fs and Bs are aligned for both connectors. Also check to make sure none of the pins is shorted out against a neighboring pin.

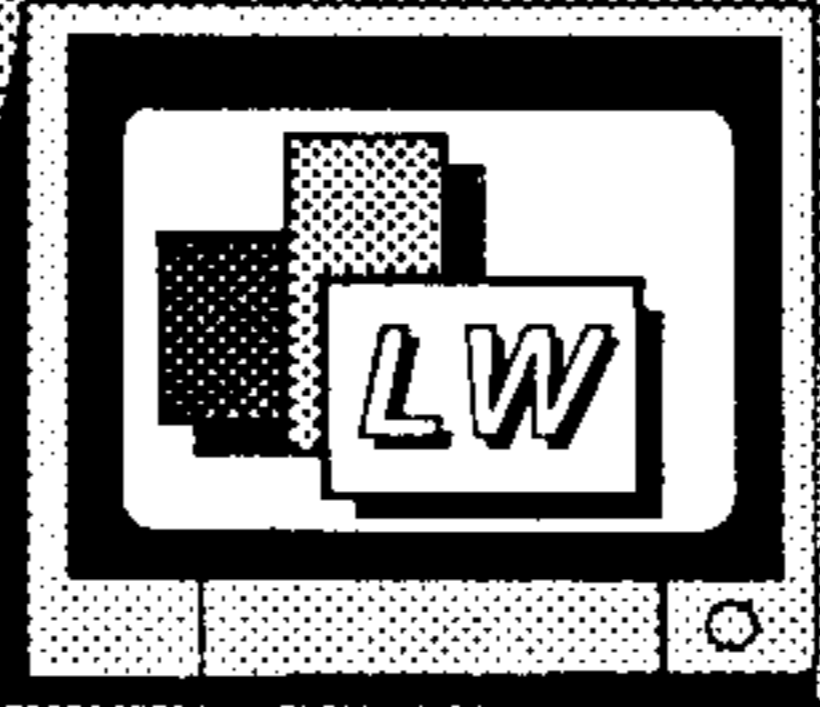
Now you should have an extension cable system that will allow you to operate a card approximately two feet from the back of the PBox, which should allow plenty of freedom in placing the card in a convenient work area. You could use longer cable lengths, but

I do not recommend it unless you use shielded cable, like the console-to-box interface cable. This is because the cable can pick up stray electronic magnetic interference, causing erroneous signals, and erratic card behavior. Because of this, you should not have items like transformers or fluorescent lights near your extension cable, or you may get some unwanted results.

You can also use wood blocks or other convenient material to fashion a base for the 60-pin edgeboard connector that will allow the PBox card to stand upright instead of lying on its side. This makes things much easier to get at either side of the card while in operation.

### CARD EXTENDER CABLE ITEMS

Part Number	Price	Item
C8-30	\$5.58	30/60 plug connector
C5-30	\$3.93	30/60 edgeboard connector
R026-ND	\$4.53	36 lead ribbon cable
3405K-ND	\$2.31	2x4½-inch perfboard



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## PALETTE MASTER—

```

(Continued from Page 30)
121 DISPLAY AT(9,14):" 7
7 7" !081
122 DISPLAY AT(10,14):" 6
6 6" !119
123 DISPLAY AT(11,14):" 5
G 5 5" !156
124 DISPLAY AT(12,14):"R 4
R 4 B 4" !249
125 DISPLAY AT(13,14):"E 3
E 3 L 3" !231
126 DISPLAY AT(14,14):"D 2
E 2 U 2" !237
127 DISPLAY AT(15,14):" 1
N 1 E 1" !192
128 DISPLAY AT(16,14):" 0
0 0" !107
130 RR=16-CODAT(CPOS,2):: GR
=16-CODAT(CPOS,1):: BR=16-CO
DAT(CPOS,3)!025
135 CALL HCHAR(RR,RC,62):: C
ALL HCHAR(GR,GC,62):: CALL H
CHAR(BR,BC,62)!248
140 CALL HCHAR(22,1,32,64)::
DISPLAY AT(22,4):"PRESS ENT
ER FOR OPTIONS" !081
500 !COLOR POSITION !151
510 CALL KEY(0,K,S):: IF S<1
THEN 510 !069
511 IF K=13 THEN 800 !087
515 IF K=82 OR K=69 THEN 600
!144
516 IF K=71 OR K=70 THEN 650
!184
517 IF K=66 OR K=86 THEN 700
!245
520 IF K=10 THEN CPOS=CPOS+1
:: GOTO 540 !058
530 IF K=11 THEN CPOS=CPOS-1
ELSE 510 !150
540 IF CPOS<2 THEN CPOS=16 !
071
545 IF CPOS>16 THEN CPOS=2 !
072
550 CALL SPRITE(#1,132,2,CPO
S*8+17,60)!234
555 CALL COLOR(14,2,CPOS)!02
7
556 DISPLAY AT(7,17):"COLOR"
;CPOS !205
560 CALL VCHAR(9,RC,32,8)::
CALL VCHAR(9,GC,32,8):: CALL
VCHAR(9,BC,32,8)!106
565 RR=16-CODAT(CPOS,2):: GR
=16-CODAT(CPOS,1):: BR=16-CO
DAT(CPOS,3)!025
570 CALL HCHAR(RR,RC,62):: C
ALL HCHAR(GR,GC,62):: CALL H
CHAR(BR,BC,62)!248
590 GOTO 510 !078
600 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
605 IF K=82 THEN RED=RED+1 !
160
610 IF K=69 THEN RED=RED-1 !
166
615 IF RED>7 THEN RED=0 !097
620 IF RED<0 THEN RED=7 !096
625 CALL VCHAR(9,17,32,8)::
CALL HCHAR(16-RED,RC,62)!130
630 CODAT(CPOS,2)=RED !084
635 CALL LINK("COLOR",CPOS-1
,RED,BLUE,GREEN)!128
(See Page 32)

```

## HORIZON 3000 RAMDISK

HORIZON 3000 RAMDISKS  
 Type Kit == cost/ea  
 Zero K=\$105. 96k=\$165.  
 192k=\$225. 384k=\$335.  
 512k=\$385. 1 MEG=\$695.  
 800k for Geneve = \$560.  
 90k boot " add \$ 90.

READY TO RUN ADD \$40.00 WE assemble  
 and provide Limited 90 Day Warrenty

KITS have the HORIZON 3000 Card,  
 Instructions, MENU-7.35, ROS and ALL  
 needed parts (using NEC 43256-LP12)  
 (The 128x8 static RAM's are scarce,  
 and allow up to 1.5 MEG w/o stacking)  
 32/16 Console Mem Mod =\$45.  
 Old 180k upgrade to 256k =\$80.  
 Bare HORIZON 3000 Cards  
 with manual and software =\$40.

RAMDISK PRICES Subject to CHANGE  
 Call 419 385 5946 for FIRM Quote.  
 These Prices GOOD TO MAR 15,1989  
 (Based on current Memory Prices)

SEND YOUR ORDER TO BUD MILLS SERVICES  
 166 Dartmouth Drive  
 Toledo Ohio 43614

Ohio Residents add 6% sales tax  
 Shipping and Handling included within U.S. and Canada  
 Shipping OverSeas ADD \$ 5 Surface or \$15 AirMail  
 Call TI-COMM BBS on 419 385 7484 for current prices or information  
 300 Baud,7bit,even / 1200 baud,8bit,no parity  
 GET Current Software Downloads SELECT MEG Info...M at sign on...  
 PHOENIX RAMDOS114 and MENU-7.35  
 Please include your Name, Address AND Phone # with order...  
 \*\*\* Visa, MC, AmEx add 10% Call 1-800-456-9272 (DISK ONLY SOFTWARE) \*\*\*

## P-GRAM CARD

by John Guion and Robert Jones

The P-GRAM card is a GROM Emulation Card for  
 use with the TI 99/4A Requires Periphial  
 Expansion Box, 32k and Disk Drive.

The P-GRAM will save and run MODULES and is  
 compatible with files saved by the  
 GRAM-KRACKER or Cart-Save.

A fully documented Source Code on disk and  
 USER Manual allow you to SAVE Modules, EDIT  
 as you wish, LOAD to card and RUN.

The P-GRAM card contains 72k of battery  
 backed RAM memory ( 1p CMOS ) 40k GRAM for  
 GROM emulating, 16k for Module RAM  
 bank-switched, and 16k of DSR RAM also bank  
 switched.

The Optional CLOCK is not required for proper  
 operation of the P-GRAM, but the price is  
 right.

P-GRAM KIT=\$150.00 +Clock +\$20.00

FULLY ASSEMBLED,TESTED  
 and READY TO RUN, P-GRAM=\$180.00  
 WARRENTED 6 Mo. with Clock=\$200.00

Please allow 2 to 4 weeks for delivery.

CALL or WRITE for additional information.

ASSISTANCE  
 OR REPAIR  
 AVAILABLE



# PALETTE MASTER—

```
(Continued from Page 31)
640 GOTO 500 !068
650 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
655 IF K=71 THEN GREEN=GREEN
+1 !202
660 IF K=70 THEN GREEN=GREEN
-1 !202
665 IF GREEN>7 THEN GREEN=0
!141
670 IF GREEN<0 THEN GREEN=7
!140
675 CALL VCHAR(9,22,32,8)::
CALL HCHAR(16-GREEN,GC,62)!0
09
680 CODAT(CPOS,1)=GREEN !233
685 CALL LINK("COLOR",CPOS-1
,RED,BLUE,GREEN)!128
690 GOTO 500 !068
700 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
705 IF K=66 THEN BLUE=BLUE+1
!060
710 IF K=86 THEN BLUE=BLUE-1
!063
715 IF BLUE>7 THEN BLUE=0 !2
51
720 IF BLUE<0 THEN BLUE=7 !2
50
725 CALL VCHAR(9,27,32,8)::
CALL HCHAR(16-BLUE,BC,62)!19
2
730 CODAT(CPOS,3)=BLUE !162
735 CALL LINK("COLOR",CPOS-1
```

```
,RED,BLUE,GREEN)!128
740 GOTO 500 !068
800 CALL HCHAR(22,1,32,64)::
DISPLAY AT(22,1):"L=Load P=
Print S=Save E=Exit" !019
810 DISPLAY AT(23,8):"Enter=
Edit Colors" !194
820 CALL KEY(0,K,S):: IF S<1
THEN 820 !125
830 IF K=13 THEN 140 !192
835 IF K=69 THEN 998 !040
837 IF K=76 THEN 950 !246
840 IF K=83 THEN 900 !194
845 IF K<>80 THEN 820 !048
846 CALL HCHAR(22,1,32,64)!2
25
847 DISPLAY AT(22,8):"Title=
";SEG$(FILE$,6,10)!144
848 ACCEPT AT(22,15)SIZE(-10
):T$ !132
849 FILE$=SEG$(FILE$,1,5)&T$
!025
850 OPEN #1:PRINTER$ !147
855 PRINT #1:"
Palette Mast
er" !086
860 PRINT #1:"
by Jeff Kitt
ka" !249
865 PRINT #1:"" !015
867 T$=SEG$(FILE$,6,10)!079
870 PRINT #1:"
&T$ !128
875 PRINT #1:"" !015
880 PRINT #1:"
RED GREE
```

```
N BLUE" !158
882 PRINT #1:" COL
OR LEVEL LEVE
L LEVEL" !050884
PRINT #1:"" !015
885 FOR I=2 TO 9 :: R=CODAT(
I,2):: G=CODAT(I,1):: B=CODA
T(I,3)!073
887 PRINT #1:" ";
I;" ";R;"
";G;" ";B !098
888 NEXT I !223
889 FOR I=10 TO 16 :: R=CODA
T(I,2):: G=CODAT(I,1):: B=CO
DAT(I,3)!168
890 PRINT #1:" ";I
;" ";R;"
";G;" ";B !065
895 NEXT I !223
896 CLOSE #1 !151
897 GOTO 800 !114
900 CALL HCHAR(22,1,32,64)!2
25
905 DISPLAY AT(22,4):"File N
ame=";FILE$ !218
910 ACCEPT AT(22,15)SIZE(-15
):FILE$ !085
920 OPEN #1:FILE$,RELATIVE 1
6,INTERNAL,FIXED 128 !034
925 FOR I=2 TO 16 :: G=CODAT
(I,1):: R=CODAT(I,2):: B=COD
AT(I,3)!120
930 PRINT #1,REC I:R;G;B !10
1
931 NEXT I !223
(See Page 33)
```

00146	A0000B0000B0000B0000B0000B0000A000AA002ABC80BC00007F36BF	0001
	A002EB02E0C000AB0300B0000B04C0B0201B0001B0420B200CB0420B20187F328F	0002
	A0044B12B8BC0A0B834AB0242B000FBC802C0008B0201B0002B0420B200C7F2E5F	0003
	A005AB0420B2018B12B8BC0A0B834AB0242B0007BC802C0002B0201B00037F2F5F	0004
	A0070B0420B200CB0420B2018B12B8BC0A0B834AB0242B0007BC802C00047F2EDF	0005
	A0086B0201B000480420B200CB0420B2018B12B8BC0A0B834AB0242B00077F301F	0006
	A009CBC802C0006BC060C0004BC0A0C0002B06C2B06C1B0A42BA042BC0207F2B5F	0007
	A00B2C0008BC0A0C0006B0260B1000B0420B2030BD801B8C04B06C2BD8027F2E1F	0008
	A00C3B8C04B0300B0002B02E0B83E0EC2E0C0000B04E0B837CB045BB00007F2B8F	0009
	A00DEB1106B3307B1701B2703B5101B2706B7101B7303B6106B6406B11047F310F	0010
	A00F4B6502B5505B7707BC80BC0000B02E0C000AB0300B0000B0201B01007F309F	0011
	A010AB0203B0000B0200B0010BD001B06C0B0420B2030BC0A3C00DCB08027F2F2F	0012
	A0120B8C04B06C2BD802B8C04B05C3B0221B0100B0281B1000B16EDB03007F2D8F	0013
	A0136B0002B02E0B83E0BC2E0C0000B04E0B837CB045B7F5F1F	0014
	5002ACOLOR 500FARESET 7FA63F	0015
:	99/4 AS	0016

Enter this code using the MY-Word Program Edit mode. Then load and save through E/A as a D/F80 file.



## Myarc Q&amp;A

# Geneve graphics capabilities aren't exploited by software

*Myarc Q&A is designed to answer questions about Myarc products. Answers are provided by Myarc spokesman Jack Riley. Readers are encouraged to submit questions to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.*

**Using the HFDC, will we be able to have hard disk-type directories on our floppies?**

You will be able to have three subdirectories on a floppy with the HFDC. MDM5 supports that now. If you're using "H" version of DOS, and you have the 80-track EPROM on a floppy disk controller — or you have the hard and floppy disk controller installed — you'll be able to support subdirectories from DOS.

**Why does GEME allow the running of only four programs (simultaneously)? I**

## MASTER PALETTE—

(Continued from Page 32)

```

935 CLOSE #1 !151
940 GOTO 800 !114
950 CALL HCHAR(22,1,32,64)!2
25
955 DISPLAY AT(22,4):"File Name=" ;FILE$ !218
960 ACCEPT AT(22,15)SIZE(-15):FILE$ !085
970 OPEN #1:FILE$,RELATIVE 16,INTERNAL,FIXED 128 !034
975 FOR I=2 TO 16 :: INPUT #1,REC I:R,G,B !075
980 CODAT(I,1)=G :: CODAT(I,2)=R :: CODAT(I,3)=B :: CALL LINK("COLOR",I-1,R,B,G)!003
981 NEXT I !223
982 CLOSE #1 !151
985 GOTO 800 !114
998 CALL CLEAR !209
999 END !139
1000 DATA 0,0,0,6,1,1,7,3,3,1,1,7,3,2,7,1,5,1,6,2,7,1,7,1,3,7,3,6,6,1,6,6,4,4,1,1,2,6,5 !154
1010 DATA 5,5,5,7,7,7 !012

```

**thought we would be able to run as many as we wanted, memory permitting.**

It's a matter of speed. The more programs that you run, the more CPU cycles it takes to keep them all working, and the slower it runs. So, what appears to be optimum ... in other words, you can run only four programs so that it appears that they are all running normally. More than that and you'd notice them slowing down.

**Will the 9640 operating system ever be modified to take advantage of the 16-bit addressed (32K-chipped) Horizon RAMdisk+?**

It is my understanding that that modification in MDOS V1.15, which hasn't been released, has been done. Not having fully tested it I can't speak with authority, but that's my understanding at this point.

**What RGB color monitors have been proven to take full advantage of the advanced graphics capabilities of the Geneve?**

Essentially a monitor that uses 640x400 resolution: 640 horizontal, 400 vertical. Of course, the 9640 is 512x424, but monitors will fall into a different range — 640x400. You can buy them as multisyncs, across the board. For example, the newest monitor from Commodore uses a 640x400 resolution, RGB analog interlace with audio. But that's essentially what you're looking for.

**How about monochrome monitors?**

Again, you're looking at resolution. And you're matching resolution to the maximum resolution output of the 9640. Currently there are no programs that put out or require that resolution. GEME (Graphics Enhanced Multi-Tasking Environment) has that as an option. You can go into the highest resolution, as will MY-Pro-Art or MY-Art II (whichever we end up naming it). As we speak, there's no software that requires higher than 512x212.

**What about bandwidth?**

If you are going to use interlace, bandwidth — as I understand it — can have an effect. Essentially, the output of the 9640 is 15.75 KHz, the same as the output on the /4A. But, if you're using monochrome ...

we're using a couple of monochrome monitors for word processing and we actually use them in composite mode, in 80-column mode and they are excellent. You can buy those for \$100 or less. Based on what I've seen, I don't know if I would recommend going to an expensive monochrome monitor.

**Do multisync monitors require a period to establish sync with the 9640? If so, how long?**

It is my understanding that it does ... generally we use a resistor in the cabling and that's the way it is done. It's a very technical question. The one thing I understand from several 9640 owners who have used them is that multisync monitors allow them to use the interlace mode without any flicker. That's been reported on a Magnavox monitor and several other brands. It is also my understanding that probably the best monitor in terms of image on the screen, the look, is the flat screen by Zenith. But you are talking about fairly expensive monitors — \$400 to \$800 monitors at street price, not the list price.

**Will the HFDC card support the 5¼-inch Kodak floppy drive or the 5¼-inch Amlyn drive? The Kodak is rated 3 megabytes at 160 tracks with 17 sectors per track. The Amlyn is rated at 2.3 or 2.6 megabytes with 154 tracks and 15 or 16 sectors per track.**

I would assume that if it works on an IBM-XT then it work with the HFDC. At 160 tracks and 17 tracks you're talking about the IBM format, and TI doesn't use the IBM format. The HFDC will use either 9, 16 or 18 sectors per track, 9 being single-density, 16 and 18 being double-density, and either 40 or 80 track per side. Obviously, 80 and 80 is 160, so you've got 80 per side for 160. So, if you're talking about an 80 track drive and it's IBM-XT compatible then it will probably will work. I say 'probably' because all drive manufacturers don't do their electronics exactly the same and you'll see some drives that won't work. The same thing with hard drives. Not every

(See Page 34)



# Making labels

## TINYGRAM lets the user customize his diskette labels

By ED MACHONIS

DISK LABEL was written to solve the problem of the missing disk labels which are not included with packages of bulk diskettes. This TINYGRAM prints an attractive disk label on an ordinary 15/16 x 3½-inch mailing label.

I have been using mailing labels as disk labels for several years without any problems. They are the preferred label for my disks; the "store bought" kind are only used as temporary labels until a permanent one can be printed. It is much easier to locate a disk in a storage case when the name is printed with an expanded type style. Colored ribbons add a nice touch.

The label displayed in Fig. 1 is an example of the labels generated by the program. The disk name appears on the first line in expanded, emphasized, underlined double-strike type and is limited to 17 characters. The second line is available for those disks with longer titles or where two titles are appropriate (great for flippies); the same type style is used. Centering of titles is done by the program. If not required, the second line is left blank to

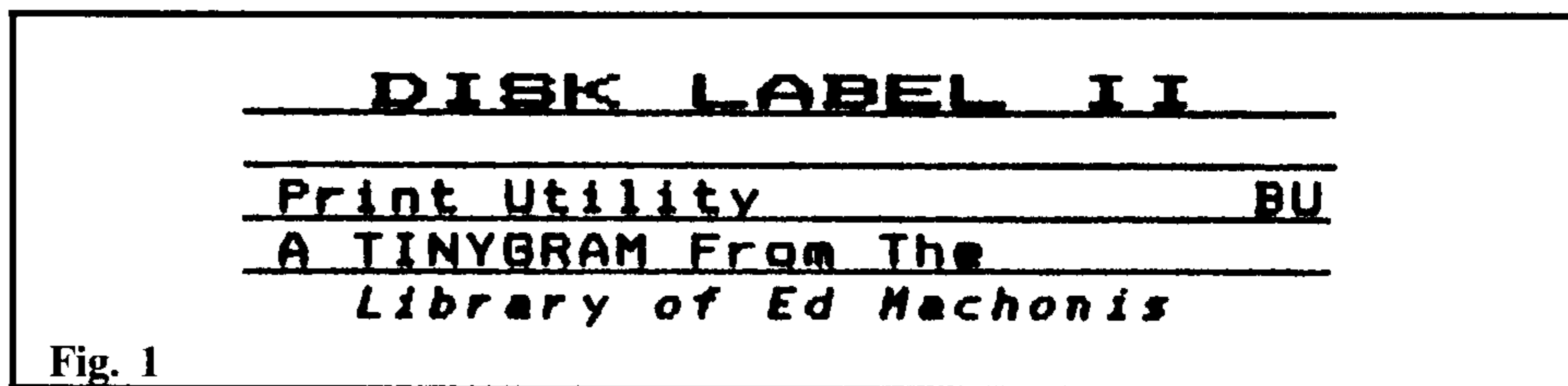


Fig. 1

enhance appearance and locatability.

The third, fourth and last lines are limited to 28 characters, are printed expanded, compressed, double-strike and, except for the last line, are underlined. The last line is also italicized.

The third line is used for describing the disk contents, such as GAMES, UTILITIES, MP DATA, etc. The end of the line can be used to identify back ups or disk format such as BU, DSDD, etc.

The fourth line is for remarks and can be used for language, loading information, program names, etc. When required, the third and even the fifth line can also be used for remarks.

The last line is used to identify the owner; handy for those user group demos, ensuring you go home with the disks you arrived with. It is also useful for identifying a user group's library copies. Centering is automatic.

Using the program is very simple, just respond to the prompts. The program automatically limits the number of characters for the various lines of the label so that you cannot type in too long a line. If you notice a typing error after pressing enter, not to worry. Just continue with the other entries and for "How Many?" enter zero. You will be returned to the first line and need only to accept the defaults until the error is displayed for correction.

I always enter 1 for a quantity at first and look over the label to see if it's as intended and then print the number of copies required. I often print a few extra copies for later use and either place them in the backup's jacket or in a label box. Saves reloading the blank labels at some future time just to print a label or two. If you trade many disks, the last line of the extra copies can be left blank.

Usage is not limited to disk labels. It has

been used to identify binders of our user group's newsletter library, name tags, place cards, bookplates, etc.

The print codes are for the Epson RX-80 printer. If your printer requires different codes, the cast of characters, in order of appearance, are as follows:

[ESC=ESC=CHR\$(27)]

ESC&"E"	Emphasized
ESC&"G"	Double Strike
ESC&"-1"	Underline
ESC&"W1"	Expanded
ESC&"F"	Cancel Emphasized
CHR\$(15)	Compressed
ESC&"-0"	Cancel Underline
ESC&"4"	Italics
ESC&"5"	Cancel Italics

The Epson compressed mode is 137 columns wide. Printers with other widths may change length of underlining. If so just change the TAB setting of the null strings for the respective lines. Epson's emphasized mode takes precedence over compressed and cancels it upon return to line 6. Your printer may require cancellation of compressed print at the end of line 7.

### DISKLABEL

```
1 ! *** DISK LABEL II ***
  A Tinygram by Ed Machonis
  QB-99ers, Bayside, NY !1
86
2 OPEN #1: "PIO" !253
3 DISPLAY AT(3,1)ERASE ALL: "
  DISK NAME?":D$ :: ACCEPT AT(
  4,1)SIZE(-17):D$ :: DISPLAY
  AT(7,1): "Continued?":C$ :: A
  CCEPT AT(8,1)SIZE(-17):C$ !1
84
4 DISPLAY AT(11,1): "TYPE?":T
  $ :: ACCEPT AT(12,1)SIZE(-28
  ):T$ :: DISPLAY AT(15,1): "RE
```

(See Page 35)

## MYARC Q&A—

(Continued from Page 33)

Not every one of the hundreds of possible combinations of hard drives will work with the HFDC. There are some that won't.

**So the farther you get away from the 'standard' drives, the more the user is taking a personal risk as to compatibility?**

Sure, obviously the popular drives are the ones we have seen and are the ones most of the users have so we know about those. We're talking about the TEACs, the Mitsubishis, the Sonys and what have you. But I would assume that if it works on the XT — and if you're talking about 160 track being an 80 track drive — that is probably will work.

Of course, the HFDC will also support with an upgraded EPROM is 80-track per side quad-density, or 36 sectors per track. That's how you reach a total of 1.44 megabytes per floppy. That's 5¼ or 3½.



## Reader to reader

Jonathan Luke Lester writes the following:

Does anyone know anything about the following items:

- 1) How to add a 16-bit bus to the TI.
- 2) My CorComp 9900 Micro-Expansion System keeps destroying its transformers. As far as I can tell, the transformer's core has melted down. Does anyone know why this happens?

Also, I need someone who can check some electronic schematics I have drawn. They include the following:

- 1) A stand-alone speech synthesizer that has built-in text-to-speech software.

2) A redesigned keyboard with a hex type keypad.

3) A parallel port splitter. That can divert the signal into one of three different ports.

4) A GROM port that can hold up to five cartridges and be able to call other cartridges by a pushbutton or by commands sent from the keyboard.

Anyone who can check Lester's schematics is asked to write for a copy of them to Jonathan Luke Lester, 61 Three Forks Rd., Jolo, WV 24850.

TSgt. Paul S. Hotchkiss has recently

been assigned to Kunsan Air Base in Korea and would like to contact other TI Users in that country or receive correspondence from U.S. TI users. Write him at PSC Box 3287, APO San Francisco 96264.

**Reader to Reader is a column designed to put readers in touch with each other. Anyone with a specific problem or question that may be answered by other readers is encouraged to submit an item. Be sure to address it to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

## Reviewed in MICROpendium

1984

**February:** B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beanstalk Adventure, Microsurgeon, On Gaming, Database 500.

**March:** Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Prowriter 8510 Printer.

**April:** Monthly Budget\$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh.

**May:** Companion Word Processor, Q\*Bert, Mad-Dog I & II, Programs for the TI Home Computer.

**June:** Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II.

**July:** Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position

**August:** TE-1200, Tower, Galactic Battle, Galaxy

**September:** Wycove Forth, 99/4 Auto Spell-Check, QUICKCOPYer, Wizard's Dominion, Anchor Automation Mk XII Modem

**October:** Killer Caterpillar, ZORK I, Defender

**November:** 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X

**December:** Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

1985

**January:** Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner

**February:** Super Extended BASIC, Beginning Assembly Language for the TI, ZORK II

**March:** Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor

**April:** 9900 Micro Expansion System, Disk+Aid, Gemini 10X-15X

**May:** Character Sets and Graphics Design, Draw 'N Plot

**June:** GRAPHX, DATA BASE I

**July:** Acorn 99, Advanced Diagnostics

**August:** Model Dow-4 Gazelle, TI-Artist, PC-KEYS, Not-Polyoptics' Bankroll

**September:** Midnite Mason, Myarc 32K/128K Card, GRAPHX Companion

**October:** 4A/TALK, Extende BASIC II Plus, XB Detective, Console Writer 2.a

**November:** Foundation Z80A/80-column cards, 9900BASIC, Adventure Editor

**December:** Display Enhancement Package, Triple

Tech

1986

**January:** BITMAC, Starcross

**February:** Night Mission, Peripheral Diagnostic Module, BA-Writer

**March:** Super Duper, Tunnels of Doom Editor, Business Graphs 99

**April:** U.S. Open Tennis, PRBASE

**May:** 4A Flyer, GRAM Kracker, Artist's Companion

**June:** Myarc Disk Controller Card, Maximem

**July:** Horizon RAMdisk, Old Dark Caves, Funlwriter, TI99/4A Macro Assembler

**August:** JOYPAINT 99, GPL Assembler, TI99/4A Intern, GPL Linker

**September:** Mechatronic 128K Card

**October:** TI-Forth Utilities, CorComp Memory Plus

**November:** Submarine Commander, PEP, MAX-RLE

**December:** GK Utility I and II and GRAM Packer, X-10 Powerhouse, RAVE 99/101.

1987

**January:** MG DISKASSEMBLER, Myarc XBII

**February:** TI-Tax, Mechatronic Mouse

**March:** Wycove Forth version 3.0, DIJIT Systems RGB Conversion Kit, Spad XIII Flight Simulator

**April:** Geneve 9640, Disk Utilities

**May:** QS-Solitaire, Geneve 9640 (Part 2), Technical Drive, Console Calc

**June:** Character Sets and Graphic Design III, Writerease Ver. 1.1, 4A DOS, Prescan\_It

**July:** Junkman Junior, Avatex 1200/1200hc modem, Bubble Plane

**August:** Prostick, The Brain, Rocketman, Menu Ver. 6.3

**September:** TI-IBM Connection, Super Extended BASIC

**October:** Fontwriter, Mechatronic 80-Column Card, Star NP-10 printer

**November:** Legends, Music Preprocessor, QS-Wheel, Spin-to-Win

**December:** Remind Me, Certificate 99, Myart-Art and Myarc Mouse

1988

**January:** Quik Font, EZ-Keys

**February:** Disk Utilities 4.0

**March:** Telco, String Master, Epson LX-800 printer

**April:** Super Space II, PC-Transfer, Calendar Maker, Archiver II

**May:** Plus!

**June:** Captain's Wheel 32K Memory Expansion, Desk Top Publisher Ver. 1.0, Texlink BBS

**July:** Artist Enlarger

**August:** Gramulator, Barrage

**September:** Myarc Hard & Floppy Disk Controller, Game Writers Pack I, Graphic Lister

**October:** Bunyard Hardware Manual, Writerease Update, M-Copy, Disk of Dinosaurs, Infocom Fast Loader

**November:** TI-Base, 3D-Maze, Macflix, Disk Labeler 99

**December:** P-GRAM Card, Epyx 500XJ Joystick, Enhanced Display Package, Starfleet Technical Drawings, Carfax Abbey, Rocketman

1989

**January:** First Base V1.0, Picture—It

## DISKLABEL—

(Continued from Page 34)

```
MARKS?" : R$ :: ACCEPT AT(16,1)
)SIZE(-28) : R$ :: E$=CHR$(27)
!057
```

```
5 DISPLAY AT(19,1) : "YOUR NAM
E?" : N$ :: ACCEPT AT(20,1)SIZ
E(-28) : N$ :: INPUT "HOW MANY
COPIES? " : Q :: FOR J=1 TO Q
!182
```

```
6 PRINT #1: E$&"E"; E$&"G"; E$&
"-1"; E$&"W1"; TAB((18-LEN(D$)
)/2); D$; TAB(18); ""; TAB((18-LE
N(C$))/2); C$; TAB(18); ""; E$&
"F"; CHR$(15); TAB(2); T$; !026
7 PRINT #1: TAB(30); ""; TAB(2)
; R$; TAB(30); ""; E$&"-0"; E$&"4
"; TAB((30-LEN(N$))/2); N$; E$&
"5" :: NEXT J :: GOTO 3 !070
```

**Support our advertisers**



## Triad

# One program that does a lot

By **BOB CARMANY**

Triad presents an interesting problem. How do you review a program that does things that are already done by other programs? Certainly, the idea of combining a text editor, disk manager and terminal (modem) program into a single package is hardly a new idea. One only has to look at the Funnelweb package to realize that! So, what's the big deal?

The fact that everything is neatly tied together in one memory-resident package was enough to warrant a close look and see exactly what it would do. The first title screen and the beginning of the documentation explain exactly what the program is like. Whether it is the "vanilla program" of the title screen or just one in a "plain brown wrapper" is a matter of your point of view. Everything is there, though, a terminal program, text editor and disk manager. They are all selectable with a simple keypress.

**Performance:** The program presents a neat little menu after the title screens are gone, so let's start with it:

- 1-Terminal emulator
- 2-Disk manager
- 3-Editor
- 4-Configure system
- 5-Load EAS file
- 6-QUIT to title screen

The terminal program has the basic functions you would expect in a simple terminal program (and one or two that are welcome surprises). You have to dial the number of your favorite BBS manually and then enter your log-on information. From that point, everything is simple and straightforward.

The only problem I encountered was one of the "operator malfunction" type and I'll pass it on to you lest you think the program is at fault. Some systems allow you to enter a default for file exchanges that may conflict with the XMODEM 128-byte transfer protocol. If such an option is available (it is on our ROS board) make sure you haven't selected 1K XMODEM (i.e. YMODEM).

Now, back to the program. The program uses function keys (all detailed in the docs) perform the various functions in the ter-

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## Review

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### Report Card

Performance .....	A
Ease of Use .....	A+
Documentation .....	A+
Value .....	B+
Final Grade .....	A

**Cost: \$20**

**Manufacturer: Wayne Stith; distributed by Genial Computerware, Box 183, Grafton, MA 01519**

**Requirements: Console, monitor or TV, disk system, 32K memory expansion, Extended BASIC, printer and modem**

terminal program. Everything worked fine. A disk directory is available by pressing FCTN-1, a buffer purge (yes, there is a buffer available) with FCTN-2 and a force buffer write to disk with FCTN-3. FCTN-4 aborts any file transfer. The file transfer protocols are all set with a single keypress after using FCTN-5 to get to the default screen. FCTN-6 activates the transfer protocol you have chosen. FCTN-7 allows you to reconfigure your RS232 defaults and FCTN-8 will allow you to page back in the buffer. There is even an automatic log (buffer dump) that can be selected in the configure portion of the program.

Selecting No. 2 gets you to the Disk Manager portion of the program, as close to a full-featured program as in the whole lot. You can copy, delete, unprotect, protect, rename and view a D/V 80 file simply by selecting the first letter, respectively, of each command. FCTN-6 will cause the chosen action to be executed.

The disk functions include format with subprompts for single or double-sided disks and single or double density. There is a copy disk function and a sweep disk function as well. Everything once again works just fine.

Select No. 3 and you are in the Editor portion of the program. Basically, it is an abbreviated text editor for producing notes or ASCII files to be used in conjunction

with the terminal portion of the program. The text is stored in the common buffer area and can be sent as an ASCII file from the terminal emulation program.

The fourth selection on the main menu gives you the configuration screens that allow the user to set screen colors, terminal defaults, log filenames, etc. They all work perfectly, but make sure you do your "playing" on a backup copy to be safe.

The fifth choice is an EAS loader that will load program image files without the E/A cartridge. It provides an elegant way to go to a "heavy-duty" program should the need arise.

What can I say? Everything worked as the documentation said it would and I encountered no problems with the program. It is very straightforward and the program execution is flawless. It has to be an "A" — it delivers what it promises without any problems.

**Ease of use:** Triad is one of the simplest programs to use that I have seen in quite some time. The program can be configured easily to fit into the parameters each user needs. Most selections are by a single keystroke. The function keys are easy to understand and the common keypresses are consistent throughout the program. For example, FCTN-6 executes the chosen action whether it is for a file transfer or to execute an operation in the disk manager section. The FCTN-9 keypress will always take you back to the main menu. It is simple to sit down and briefly scan the documentation and successfully use the program with a minimum of preparation.

**Documentation:** The program comes with a 21-page booklet that thoroughly explains all aspects of its use. Each of the three parts is explained in detail. The individual functions within each of the program segments are explained in a paragraph or more of text.

What might be the most intimidating part of the program — the configuration section — is explained at length. Each prompt is explained in detail and when you reach that point in the program and documentation, a table is provided with the hexadecimal

(See Page 41)



## Superbasic

# A superb tool for XBASIC programmers

By JOHN KOLOEN

Superbasic, by Steven Karasek, has been around since 1987, but for one reason or another it hasn't enjoyed wide distribution. Perhaps one of the reasons is that it includes a hardware protection device that prevents the 22-sector Superbasic program from being used without the device. A plug is attached to the joystick port prior to loading Superbasic. Without the plug, the program won't load.

This method of protection is used in the PC world, but such "keys," as Karasek refers to them, usually plug into a parallel or RS232 port. In any case, the keys are generally very effective at protecting the author's software distribution rights since the software is useless without the hardware protection device.

The most likely reason as to why Superbasic is such a well-kept secret is that it simply hasn't been exposed to the TI community. (It is scheduled to be shown at the Lima User Group fair in May.)

Superbasic isn't another version of Extended BASIC — no, there aren't any new graphics commands. In fact, it runs out of Extended BASIC. However, it does a nice job of enhancing Extended BASIC for programmers, regardless of their proficiency.

Superbasic adds several commands to Extended BASIC and supports 32 user-programmable keys. It resides in low memory after loading and all of its features may be accessed instantly at any time. Because of its memory location, it doesn't use any user-accessible RAM.

Most of Superbasic's functions are accessed without interfering with Extended BASIC programs in memory. A command such as DIRectory can be issued at anytime without interfering with the program in memory. DIR 2, for example, results in a directory of DSK2 appearing on the screen. After the directory is finished, any key press returns the user to the point at which the directory call was initiated. One doesn't have to think long to discover how useful it is to call a directory without losing the program in memory.

As one would expect, commands such as DEL, RENUM, JOIN, ENTER and EDIT

## Review

### Report Card

Performance.....	A
Ease of Use.....	A
Documentation.....	B-
Value.....	A
Final Grade.....	A

Cost: \$25

Manufacturer: Steven Karasek, 855 Diversey, St. Louis, MO 63126

Requirements: Expansion memory, disk system, Extended BASIC

do have an effect on the program loaded into memory. If they didn't, these powerful commands would be useless.

```

.=RUN\
A=DATAb
B=ENTER "ISK1. BATCH"\
C=COFY "ISK1.
D=DISPLAY AT(
E=ENTER"ISK1.
F=FORb
G=GOTOb
H=CALL HCHAR(
I=INPUTb
J=CALL JOYST(
K=CALL KEY(
L=LIST "ISK1. CHECKOUT"\
M=CALL SOUND(
N=RENUM M, M, NEW, INCR
O=OLD ISK1.
P=PRINTb
Q=QOFF
R=RUN\
S=SAVE ISK1.
T=TYPE "ISK1. SOFTKEYS"
U=UPDATE
V=CALL VCHAR(
W=RUN"ISK1. LOAD"\
X=CALL LINK("INSKEY",64+A3C("
Y=TYPE"ISK1.
Z=LIST\
.= "PIO"
;=:
==CALL LINK("QOFF")\
8=DIRb
9=COFY"ISK1.

```

Fig. 1: Softkeys default file from Superbasic

Here is a list of the commands and their operations:

- DEL m-n deletes a range of line numbers between m and n;
- RENUM m,n,new,(increment) resequences part of an XBASIC program. RENUM 100,200,1000,5 moves lines 100 to 200 to a place starting at line 1000 and incremented by 5;
- JOIN n joins two XBASIC lines to save space;
- FIND allows the user to locate patterns in programs. It is initiated by the slash character. For example, /PRINT would locate all lines that include the word GOSUB;
- TEXT is similar to the FIND command but is used to locate text and is able to distinguish between THEN as used in an IF-THEN statement and "THEN" as used in a sentence;
- DIR n was explained above;
- TYPE "filename" displays a D/V80 file on screen;
- COPY "filename1" TO "filename2" copies a D/V80 file to another file or to a printer (if a disk drive isn't specified, it defaults to the last drive number used);
- APPEND "filename1" TO "filename2" adds the contents of a DV/80 file to a second file;
- RENAME "filename1" TO "filename2" renames a file on a disk and can be used with any file type, including programs;
- LOCK "filename",n turns on write protection for a file on drive n;
- UNLOCK "filename",n unprotects file;
- QOFF disables the FCTN-QUIT key;
- QON enables the FCTN-QUIT key;
- ENTER "filename" takes a DV/80 file merges it into program memory. The lines are added to the program already in memory and may be saved as a program. This powerful utility allows you to load text files and save them as programs;
- EDIT "filename" is used to edit a DV/80 file without leaving XBASIC. It loads the file into memory with each line preceded by a line number. This allows you

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## SUPERBASIC—

(Continued from Page 37)

to use X BASIC and Superbasic commands to edit a text file;

- WRITE "filename" is used to write the file you are EDITing to disk without the line numbers;
- KILL turns off Superbasic.
- INSKEY,n,string is used to replace a single softkey definition, where n is the ASCII code for the key and "string" is the new key definition.

Many of the above commands may be accessed from within programs using CALL LINK commands.

Each of the 32 user-programmable keys, called Softkeys, can include a string of up to 30 characters. The key definitions are written to a DV/80 file. (See Fig. 1 for a printout of a Softkey file.) In addition, there are six new function keys that perform the following:

FCTN-5: Backwards tab (one-half line)

FCTN-6: Tab (one-half line)

FCTN-7: Lists the names of the new commands to the screen

FCTN-9: Clear to beginning of line

FCTN-0: Clear to end of line

FCTN-.: Recalls the last file name used in conjunction with OLD or SAVE

CTRL-1-6: Directory of drives 1-6

Those who are keen on translating BASIC programs, say from a PC to the TI, will find the ENTER command useful. By saving the BASIC program as an ASCII file, the user can "import" the file into Superbasic with this command. Of course, when Superbasic outputs the file in TI program format, untranslatable lines won't run. Such commands as MID\$ will have

```
!FILE 'BATCH'
!FETCH PROGRAM
OLD DSK1.CHECKIN
!SAVE IN MERGE FORMAT
!TO BE USED BY CHECKSUM PROG
SAVE DSK1.CKSMINPUT,MERGE
!RUN CHECKSUM PROG, MODIFIED
!FOR FIXED INPUT/OUTPUT WITHOUT
!PROMPTS
RUN"DSK1.CHECKSUM"
!DO A 'NEW', MERGE CHECKSUM OUTPUT
!INTO EMPTY MEMORY
!CHECKSUMMED PROG NOW IN MEMORY
NEW
MERGE DSK1.CKSMOUTPUT
!PURGE UNNEEDED FILES FROM DISK
DELETE"DSK1.CKSMINPUT"
DELETE"DSK1.CKSMOUTPUT"
!OPERATOR INSTRUCTION: 'LIST' DOES
!NOT WORK RELIABLY IN BATCH
!PRESS <CTRL>L TO LIST TO DISK AS
!LIST "DSK1.CHECKOUT"
```

Fig 2: Batch file executed by Superbasic

to be converted manually into a TI equivalent before the program is saved. The same goes for graphic commands. The ENTER command works similarly to the MERGE command in that the file is merged into any existing program in memory. By typing NEW before using the ENTER command, however, the command works like OLD in TI BASIC.

The version of Superbasic that I've been using is being updated to include PEEKV and POKEV commands, as well as a FORMAT command to initialize disks.

As a bonus, Superbasic also comes with the capability of processing batch files. The

batch file is written in DV/80 format and run through Superbasic. (See Fig. 2 for an example).

**Ease of Use:** Superbasic takes a little work to learn but it's pleasant work. I found myself getting excited with each new "trick" I discovered, whether redefining Softkeys or playing around with the ENTER command. Everything works in a logical fashion.

**Documentation:** The documentation comes as a file on the distribution disk. It is thorough in terms of listing Superbasic's features and in most cases includes an example of how to use each command or function. The printout is six pages of single spaced text. It's definitely not fancy, and you have to read it thoroughly to make sure you don't miss anything. No mention is made of compatibility with the Geneve. It tried it, plugging the key into the 9640 joystick port, and then loaded the program. It worked fine for

awhile and then the keyboard locked up. As a result, I can't recommend it for use with the Geneve at this point.

**Value:** I highly recommend Superbasic to anyone who programs in Extended BASIC. It has a lot to offer, and the price of \$25 is hard to beat. Although I have a little hesitation regarding the hardware protection device, I understand full-well why it is necessary. If this thing weren't protected, it would be up on a lot of bulletin boards overnight, and the author probably would receive little for the effort he put into his program.

### USER GROUP UPDATES

*This list contains updates and additions to our user group list, published beginning in May of 1987.*

#### Colorado

**Rocky Mountain 99ers**, 232 West 4th Ave., Denver, CO 80233 (new address). Richard Gieseler, president. Meets second Tuesday each month at 2005 S. Milwaukee St., north of Evans Ave. Doors open at 7 p.m. with meeting at 7:30 p.m. Park in the lot on the west side of the street.

BBS (303) 277-1447 (24 hours).

#### Florida

**Miami Users Group**, 115 N.E. 151 St., Miami FL 33162 (new address). About 40 members. BBS (305) 386-8295.

#### Outside U.S.

#### United Kingdom

**East Anglia Region 99ers Group**, c/o SSGT Donald S. Copeland, 2164CS, PCS Box 3596 APO NY 09755-5371 (U.S. address); or Jufreve, Snape Rd., Knodishall, Saxmundham, UK IP17 1UT. Monthly newsletter.

**TIUG-TI99/4A Users Group UK**, c/o Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire, England SK4 5AH. International Reply Coupons (available at post office) or \$1 bill would be welcome with correspondence to help defray overseas costs. Quarterly newsletter (write for overseas rates) and software library, 186 members.



## PBox Prototype Board

# Hardware hackers will like this

By TONY LEWIS

If you have toyed with the idea of developing a new drop-in card for the Peripheral Expansion Box, your choices of media up until now have been perfboard or make-it-yourself printed circuit boards (PCBs).

Now the TI community has an exciting product available to assist hardware hackers when they are creating new cards and circuits for the PBox. Scott Coleman and John Willforth got together, along with a little design help from an original Texas Instruments prototype board, and have created the new PBox Prototype Board. This product promises not only to speed up the development process, but provides a convenient way for you to build circuits or kits designed by others.

**Performance:** The new PBox prototype card is a professionally designed printed circuit board, double-sided, with plated through holes and gold-plated edge connectors. As noted, it is patterned after the original TI prototype board used to develop cards for the PBOX, but has some enhancements. The card fits great into the box, and can be used either bare or with a clamshell cover. As noted in the drawing there is plenty of room for various chips. A "memory" section allows for up to 8 RAM/ROM chips, with individual chip selects; next to this is an area for about 15 20-pin general-purpose chips. In back are some staggered holes to allow one to bring various signals to the outside world via cables, or multiple position plugs.

The interface chip section is already laid out for use with '244 and '245 chips such that the address and data lines wind up neatly arranged toward the center of the board. This keeps things simple when trying

## Review

### Report Card

Performance .....	A
Ease of Use .....	A-
Documentation .....	C
Value .....	A-
Final Grade .....	B+

Cost: \$35

Available from L.L. Conner Enterprise,  
1521 Ferry St., Lafayette, IN 47904

Requirements: Peripheral Expansion Box

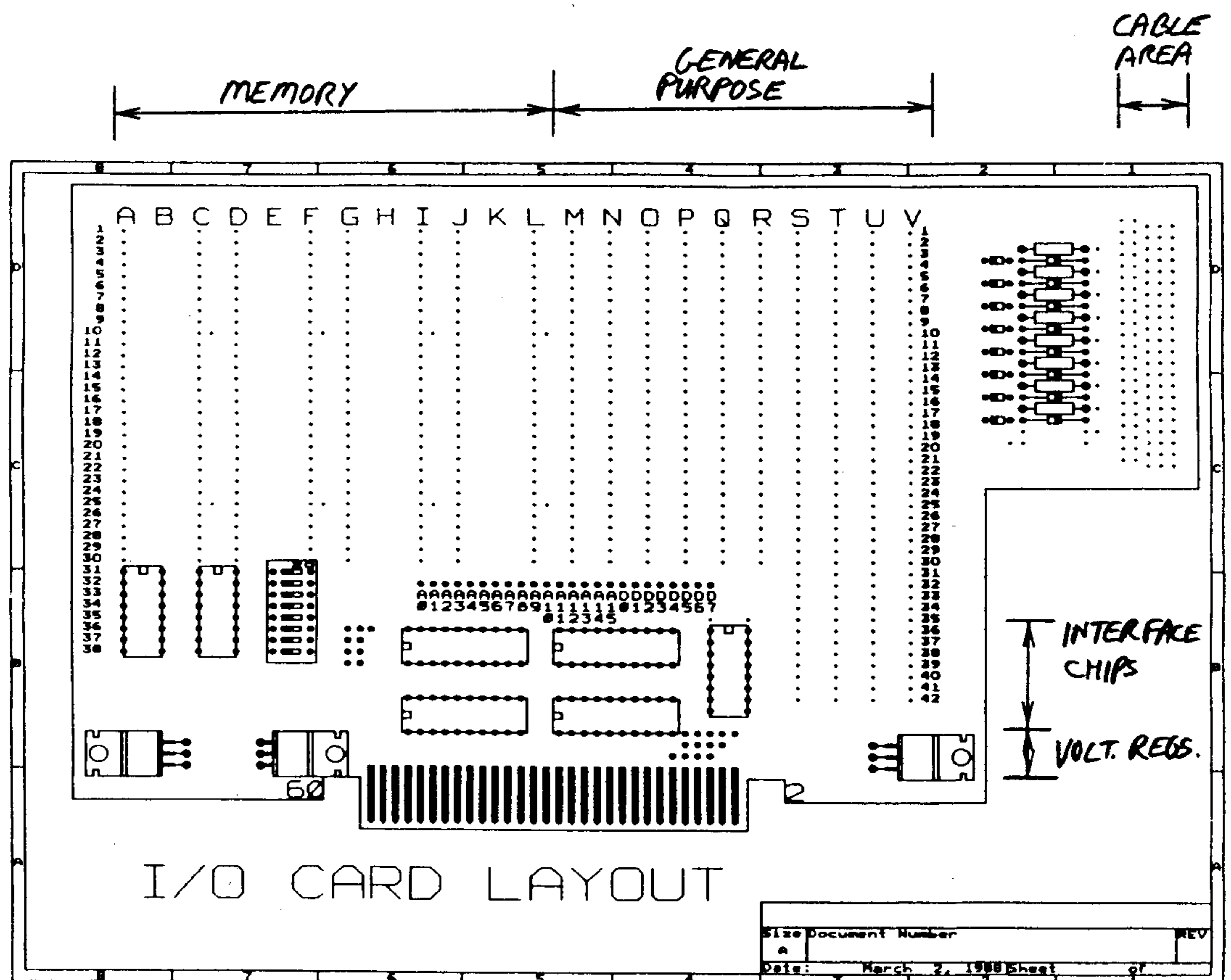
to route these signals elsewhere on the board. Positions are also already established for up to three voltage regulators (+5V, +12V and -12V), and for the LED used to indicate that the card is working. A nice feature is the marking of the vertical columns of holes with letters in the general

purpose area. This helps the builder track exactly which hole gets which signal, an important consideration when you switch from the "chip" side to the "wire" side in looking at the card. Less well defined on the card are the interfaces for some of the control signals, like -RDBENA.

**Ease of use:** You can put circuits on the board in two basic ways: wire wrap and soldering from point to point. Wire wrap is recommended for quite a few reasons. It is easier to undo wire wrap if mistakes are made. Some people think it is quicker to wire wrap (although I'll race anybody with my trusty soldering iron). And you are just about limited to wire wrapping for complex circuits, because there is only one hole per signal for address, data and control.

For example, what if your circuit needed to send A15 to three different spots, and you were soldering from point to point? You'd have to solder three wires to the same

(See Page 41)





## Micro-Reviews

# Overlays, 'phonebook' gain approval

By HARRY BRASHEAR

The following comments do not necessarily reflect the views of MICROpendium Magazine or its staff.

Ratings for the software reviewed in this column will be based on a star system as follows:

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

★★★★

### KEYBOARD OVERLAYS

The four-star rating on this item is based on product value, since it's NOT a program.

B.J. Mathis of the Southwest 99ers sent me this nifty keyboard overlay. I'm sure she didn't expect it to show up here, but I think it deserves recognition.

The overlay comprises the five most worn key-guides in your cartridge collection, TE-II, Editor Assembler, Multiplan, TI-Writer and General Console Overlay. It's "photographed" on a heavy-duty plastic sheet. The CTRL key functions are in red while the FCTN key functions are in black. You could cut them apart, but I decided to leave it as is. (Maybe I won't lose the parts again as I did so many years ago.) The price is just right — \$3 each or five for \$10. At that rate you can order a bunch of them for your group. Also, they seem like they would make a great item to sell at fairs.

Send money to the Southwest Ninety-Niners, P.O. Box 17831, Tucson, AZ 85730.

This is a great group folks, so let's all give 'em our support.

★★★

### THE COMPUTER PHONEBOOK

Yes, I know, there are a lot of mail list programs, but I think this one deserves a look anyway. It's super cheap (\$5), and has some nice features. As usual, you can edit names, change, delete, sort them, etc. You can find a single name and print it to a label, or the whole file can be printed at once. You can also view just the names on the screen if you forget a spelling.

The program has nice graphics, including inverse characters for the selected function, and one of the menus is done in neat little icons. Another thing I liked was the fact that the author, Brian Doornbos, gave a wide selection of printer types in the program, so it should work for just about anyone.

The program is done in Extended BASIC and seems to have enough error traps to keep it from crashing if you mess up on your I/Os.

The only thing I thought it might use was a pre-scan to speed the start-up along, it's quite a large program. A selection in label size might also be nice, but you may find this has already been done by the time you get it.

Send \$5 to: Brian Doornbos, 13055 Dahlia Circle Apt. 213, Edin Prairie, MN 55344. He will supply disk and return postage.

★★★★

### ST. VALENTINE'S DAY CARD

My own title would be: *Another Gift from Ray Kazmer to the TI Community*. Certain programs have become classics in our community, and, Ray's *Woodstock* Christmas card a couple of years ago is one of them. Now he's done it again ... same bird, different day.

Woodstock's girlfriend, Penelope, has been captured by Grog, a real nasty character looking to have fricassee of Penelope for dinner. You are intrusted to help him find and rescue her from Grog's maze of caves.

You can direct the search via keys or joystick, but it isn't just a matter of running around a maze. The little bird tends to loose energy and you are always looking for hamhocks and Perrier to build it up again. There are a few locked doors that require magic keys to open, and because of Woodstock's erratic flight, you keep bumping into things and getting whipped out. Walking is usually better than flying, but sometimes you *have* to fly to get across a chasm.

One of the neatest wrinkles is the use of space teleporters that pair up to get you from one point to another. I also found a

number of other little surprises as I went along. A couple of these turned the air around the computer a little blue, but all in fun.

There is a high score keeper in the game, and that will come in handy because the whole family is going to want to get in on the action. There's just nothing like Ray's super graphics to keep you interested.

Send \$7 to: Ray Kazmer, 13225 Azores Ave, Sylmar, CA 91342. If you send a disk and SASE you can get away with just \$5.

★★★

### THE 1989 KBGB GIRLIE CALENDAR

There I was, lamenting over the fact that it was the ninth of January, and I couldn't prove it ... NO calendar. I called a friend to see if he had a calendar program that I could use, and I could HEAR his eyes light up. "Boy, do I ever," he said.

We set up for downloading and he sent me 1200-1300 sectors of files. I read the short file of documentation and turned on my printer. I also checked to make sure there were at least 39 sheets of paper in the feed stack. (Each month requires three pages, plus the cover.)

I should point out that the pictures for the calendar are done in ANSI graphics. But, please, don't knock that unless you have seen it. In the hands of a master like Ken Gilliland, this type of art is as good as any.

I started my printer up and turned out a month at random first. (I believe it was Miss February) Verrry nice! You are allowed to print one month at a time or the whole thing, so after the sample, I let'er rip.

All of the artwork is really nice and Ken did most of it from scratch. There's a nice calendar under each picture that includes all the holidays we know and a bunch we never heard of. There is also a bit of philosophy here and there where space permits on the calendars. This is definitely my choice for wall hanging this year.

The only thing I didn't like about it was that the group name and fairware offer appears on each page. I think this should have been left to the cover only.

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## BOARD—

(Continued from Page 39)

hole, which is a lot harder and messier than you would think. (An alternative is to place wire wrap sockets in appropriate areas; with their long "legs," you can still solder a multitude of wires to the same "leg.")

In any case, once you have wired and debugged your board, you can transfer the design to a more permanent board or just leave it on the prototype board if it is a one-shot deal. If you are going to use the board over and over for various prototype circuits, you should avoid soldering as repeated heat will damage the copper traces and pads. The layout of the board accommodates static RAM/ROM/EPROM/EPROM with ease since the address, control and data lines are arranged in standard format. Having the hole columns marked with letters helps a lot, too, particularly if you are trying to build a kit or circuit from others' plans. As with all PBox cards, though, you cannot reach most of the card once it is installed in the PBox. (See the article on Page 29 to learn how to remedy this situation.—Ed.)

**Documentation:** This is the only area where this product really falls flat. The booklet I got with my card was a relatively skimpy affair, done in a small 5½x8-inch size with reduced size typing. Not much is here in the way of assisting novice or intermediate developers in designing their own cards. But a conversation with John Willforth and a note in the booklet confirm that the authors intentionally kept things brief instead of trying to be all things to all people. This is not to say that there is not good information in the booklet, because it certainly has some valuable stuff on the 4A, Geneve and /8 signals. But be advised that less experienced builders will have to have copies of the TI PBox Tech Manual and the Bunyard Manual (for starters). My main gripe is that there is not a full drawing of the whole cards to help the user plan how he or she is going to place the chips, a badly needed addition. (The card drawing shown here was provided separately.)

**Value:** For a full double-sided prototype card with dozens of plate-through holes, \$35 is not too bad a price. Standard PCBs with plate-through holes and gold-plated edge connectors cost a pretty penny, particularly in small runs. And your only other choices are perfboard from Radio Shack

or PCBs you make yourself (not an easy task).

**Conclusion:** I believe this card is just the ticket for people who want to develop prototype circuits for the TI PBox quickly and reliably. This is important to an "orphan" community because new hardware stimulates further interest and development from more members, thereby keeping our computer system alive and growing. With more details and a better format for the documentation, the PBox Prototyping Board could be considered a top-notch product.

## MICRO-REVIEWS—

(Continued from Page 42)

Oh yeah, by the way, the front cover is a joke. It's a stick figure with greatly enlarged ... err ... ah ... well I guess you'll have to see it to believe it. Send \$10 to: Ken Gilliland, 7647 McGroarty Street, Tujunga, CA 91042.

Just a couple of notes to finish up this month.

As a reminder, TI-BASE is now out in version 2.01 The time to buy if you have been waiting for bugs to be worked out is at hand.

After reviewing Rocketman (December, 1988), I went on a quest for the best program I could find for your checking account. I found it, I think, and it's called Checkbook Manager-III. The menu consists of 25 different selections and every one of them is practical. The docs are good, the graphics are fantastic (40-column), and it's about as professional as you can get. I intend to do a major review on this program in the next month or two. In the meantime, if you don't want to wait for that, the address is W. Irving Crowley, Lost Canyon Rd., Pine Level, AL 36065 The cost of this program is \$9 and you must designate your drive configuration.

## TRIAD—

(Continued from Page 36)

color codes right there in front of you.

In short, the documentation is thorough, simply written and easy to understand. A few minutes spent reading it will leave no doubt about how the program works. It is

the simplest and best I have seen lately.

**Value:** Now we come to the most difficult part of this review: how to determine the value of a program that isn't new or innovative in its function. In fact, more powerful programs of the same type are available. The difference is that nothing currently offered takes such a simple "plain vanilla" approach to the combination of an editor, disk manager and terminal emulator package. The program's main value would be for the novice who might be just a bit intimidated by the multiple keypresses of FASTTERM or isn't ready to step up to something more complicated. Then, there is the niche this particular program fills in my library for a "spur of the moment" terminal program.

To be quite honest, if you are looking for something with all the "bells and whistles" of a full-blown terminal program, you are going to be disappointed. By the same token, it does a passable job as a text editor and is more than adequate as a disk manager. So, if you are in the market for a simple combination program, Triad is for you.

On the other hand, if you want auto-dialers, YMODEM file transfers, log-on macros and all the features of a full text editor, you would be better off to consider something else. As always, try to match your programming needs with the characteristics of the software package. Remember, the choice is up to you.

**Final grade:** The program delivers exactly what it promises — a plain and simple disk manager/terminal/editor package that is entirely memory-resident. It is easy to use and the documentation is concise and well-written. The program performs well and there are no discernable problems with its operation. In essence, what you see is what you get. Remember that it is without frills and "extras" so make sure it is what you want before you choose to buy it.

Like the rest of Wayne Stith's programs, Triad is professionally done. Whether you buy it out of curiosity to see if all three of these options are really contained in 8K of memory, or if you are looking for a simple "quick and dirty" multifunction program, you will not be disappointed by sloppy programming. Everything about the program is professional and complete. I found a place in my library for it!



# Newsbytes

## New address for company

New address for the Bunyard Group is P.O. Box 62323, Colorado Springs, CO 80962-2323.

The company is the publisher of the Bunyard Hardware Manual, which was reviewed in the October 1988 MICROpendium.

## 'Unofficial' interface standard in works

Tony Lewis of Raleigh, North Carolina, says he is contacting "the top hardware and software people in the TI community" to assist in development of a new "unofficial" TI interface standard.

He says the purpose of the standard is to assemble as much useful information as possible in one document to assist persons interested in developing new peripheral products for the TI99/4A and its Peripheral Expansion Box.

He says he hopes to have the standard written and ready for release by the second quarter of 1989 as a manual to be sold "at a reasonable price." The manual is specifically geared toward the software and hardware design of new cards and add-on products.

Lewis says two parts are planned: a hardware section covering development of the electronic circuits commonly used in TI system products and a discussion of the various 9900 signals and interface requirements; and a software section covering writing code to access memory, CRU bits and development of Device Service Routines.

Persons interested in obtaining more information about the interface standard may contact Lewis at 409 Drolmond Dr., Raleigh, NC 27615; CompuServe 73357,1730; or Delphi TONYLEWIS.

## Faire to include San Francisco group

The San Francisco 99ers will provide a booth at the West Coast Computer Faire March 17-19 at Brooks Hall in San Francisco, California.

Neil Wood said the group would be at

Booth 733. He noted that the group's participation in the event last year received publicity in Britt Hume's computer column, published in the *Washington Post* and other newspapers.

## C-CAD acquired by rehabilitation group

The Center for Computer Assistance to the Disabled has been acquired by REACH (Rehabilitation, Education and Advocacy for Citizens with Handicaps).

Jack Kishpaugh, C-CAD executive director, said REACH would assume most of the administrative and fund-raising activities of C-CAD.

For further information, contact C-CAD, 2501 Ave. J, Suite 100, Arlington, TX 76006-6191 or call Cheryl Keifer at (817) 870-9082.

## Calgarian runs BBS

David Lovering of the TI-Runners users group in Calgary, Alberta, Canada, says he is running a Paradigm BBS at (403) 285-1024. The board operates at 300, 1200 and 2400 baud, 8N1.

He says the BBS has a 40-track drive and 80-track drives, plus a Myarc RAM card. He says he hopes to find a "personality card (cheap please) and then get a hard drive going."

He adds that the TI-Runners has a 9640 SIG, and says, "If there are any TIers in Calgary besides the Hard Core Few of us who have joined the TI-Runners, who are still using a TI and a modem who also get MICROpendium, *please note: we are still alive* in this neck of the woods.

## Tigercub offers public domain disks

Tigercub Software announces the availability of more than 200 single-sided, single-density disks of public domain software, "as full as possible," according to Jim Peterson of Tigercub.

He says the programs are selected by category, with all BASIC programs converted to run in Extended BASIC, instructions added when necessary and "all obvious bugs corrected." An autoloader by full program name is included on each disk, he

says. Disks are \$1.50 each, postpaid.

Peterson says no fairware will be offered without the permission of the author.

Send a self-addressed stamped envelope for the list, or \$1 for catalog listing all titles and authors, to TI-PD, 156 Collingwood Ave., Whitehall OH 43213.

## Rocky Mountain 99ers elect officers

New officers for the Rocky Mountain 99ers are Richard Gieseler, president; Keith Amann, vice president; Wendy Humphreys, secretary; and Bob Charlson, treasurer.

Address for the club is 232 West 4th Ave., Denver, CO 80223.

## John Guion relocates

New address for John Guion, manufacturer of the Multi-Mod, is P.O. Box 4628, Lubbock, TX 79409.

The Multi-Mod is a plug-in upgrade for Triton's Super Extended BASIC module.

Guion also markets TI RS232 and Disk Controller upgrade kits.

## MICROpendium will take credit cards

MICROpendium magazine will now take new or renewal subscriptions through Mastercard or Visa credit cards.

John Koloen, publisher, says a number of subscribers had requested this additional service, particularly those in foreign countries who had to deal with exchanging currencies.

Credit card subscriptions are available by writing or calling MICROpendium with your card type, number and expiration date, along with address information, or online on Delphi's TI-Net as a service of Disk Only Software.

*Newsbytes is a column of general information about products and services relating to TI users. The publisher does not necessarily endorse products listed in this column. Vendors, manufacturers and others are encouraged to submit items for consideration. Photos will be used when space permits. Materials cannot be returned.*



# User Notes

## Program uses arrow for selection

The following program, by Russ Stanton, of Alexandria, Louisiana, is a simple database whose most unique feature is the use of a moving arrow to make menu selections. The database program is used to demonstrate the arrow routine. The program requires Extended BASIC and a memory expansion. Documentation is included with the program.

```

1 DISPLAY AT(2,7)ERASE ALL:"
THE MOVING ARROW": : : : :
:"1) DOCUMENTATION": : "2) R
UN PROGRAM" !149
2 GOSUB 76 :: IF K=49 THEN 3
:: IF K=50 THEN 23 ELSE 2 !
120
3 CALL CLEAR :: PRINT " THIS
PROGRAM IS PRETTY": "SELF EX
PLANATORY. IT'S DESI-": "GNED
TO SAVE NAMES, ADDRESSES": "
AND PHONE NUMBERS. ": : !071
4 PRINT "THE WHOLE IDEA OF T
HIS PRO-": "GRAM IS TO SAVE P
ROGRAMMING": "SPACE, AND TO H
AVE A PROGRAM": "THAT YOU CAN
CORRECT AS YOU": "GO. ": : !18
1
5 PRINT "BY ENTERING <R>, YOU
CAN BACK": "UP AND FIX YOUR
MISTAKE AT": "ANYTIME DURING
DATA INPUT. ": : "BY PRESSING
<ENTER> IT WILL": "JUMP TO TH
E NEXT LINE" !218
6 PRINT "WITHOUT DISTURBING
THE DATA": "ALREADY INPUTTED
ON THAT": "LINE. ": : !122
7 INPUT "PRESS ENTER TO CONT
INUE": A$ :: CALL CLEAR !080
8 PRINT " I ALSO FIXED IT W
HERE YOU": "SAVE OR LOAD FROM
DISKETTE. ": : "I RECOMMEND T
HAT YOU <RES>": "THE PROGRAM
WHEN YOU'RE": "THROUGH. " !013
9 PRINT "<RES1,1> WILL SAVE
YOU SOME": "EXECUTION TIME. ":
:"NOW LET'S WALK THROUGH TH
E": "PROCEDURES. ": : !174
10 INPUT "PRESS ENTER TO CON
TINUE. ": A$ :: CALL CLEAR !12
7
11 PRINT "THE MENU SCREEN GI
VES YOU": "THREE CHOICES. ALL

```

```

OBLIVIOUS. ": : "OPTION 2 GETS
INTO THE HEART": "OF THINGS.
AFTER YOU HAVE": "FINISHED YO
U HAVE A CHOICE" !131
12 PRINT :: PRINT "OF CONTIN
UING OR GOING BACK": "TO FIX
SOMETHING. IF YOU": "JUST PRE
SS ENTER IT WILL PUT": "YOU I
NTO THE NEXT SELECTION" !070
13 PRINT "SCREEN, WHICH IS T
HE SAVE OR": "RETURN ROUTINE.
": : "IF YOU REMEMBER SOMETHI
NG ": "YOU SHOULD HAVE DONE,
OR": "YOU WANT TO CHECK ON" !
218
14 PRINT "SOMETHING PRESS OP
TION <3>. ": : !055
15 INPUT "PRESS ENTER TO CON
TINUE. ": A$ :: CALL CLEAR !12
7
16 PRINT "THIS LOOKS LIKE TH
E SCREEN": "YOU JUST CAME OUT
OF BUT IT'S": "NOT. IT'S A C
ALL SCREEN THAT" !128
17 PRINT "DISPLAYS WHAT YOU
HAVE DONE. ": : "THE NICE THIN
G ABOUT THIS": "ROUTINE IS IT
'S ABILITY TO": "MAKE CHANGES
TO WHATEVER IS": "ON DISKETT
E. " !075
18 PRINT :: PRINT "WELL HAPP
Y PROGRAMING. ": : "RUSS STANT
ON" :: INPUT "PRESS ENTER TO
CONTINUE. ": A$ :: CALL CLEAR
!131
19 PRINT "P.S. I JUST THOUGH
T OF SOME-": "THING ELSE. IF
FOR SOME ": "REASON YOU END U
P AT THE": "MAIN MENU SCREEN
BY ACCIDENT": : "PRESS OPTION
<2> TO GET" !197
20 PRINT "YOU BACK TO THE IN
PUT SCREEN. ": "THEN JUST PRES
S ENTER" !161
21 PRINT "UNTIL IT GOES": "TH
ROUGH ALL THE INPUTS. THEN":
"PRESS OPTION <3>. THE OLD":
"PROGRAM WILL RE-APPEAR AGAI
N. " !164
22 INPUT "PRESS ENTER TO CON
TINUE": A$ :: CALL CLEAR !080
23 ON ERROR 75 !084
24 GOTO 29 !108
25 S,K,A$,N$,AD$,C$,ST$,PH$,
I,X,Y !004
26 CALL KEY :: CALL SCREEN :

```

```

: CALL COLOR :: CALL CLEAR :
: FOR :: NEXT :: RETURN :: G
OSUB :: CALL HCHAR :: CALL C
HAR :: CALL LOAD !091
27 !@P- !064
28 CALL INIT :: CALL LOAD(-1
3806,16)!138
29 ! THE MOVING ARROW !031
30 ! BY RUSS STANTON !242
31 ! 5908 ORLEANS PL !105
32 ! ALEXANDRIA LA.71303 !08
5
33 ! VERSION 1 !026
34 CALL CLEAR !209
35 CALL SCREEN(12):: FOR I=1
TO 14 :: CALL COLOR(I,16,6)
:: NEXT I :: FOR I=0 TO 1 ::
CALL COLOR(I,16,6):: NEXT I
!157
36 DISPLAY AT(2,7)ERASE ALL:
"THE MOVING ARROW": : : : :
: "1) GOTO PROGRAM": : "2) L
OAD PROGRAM": : "3) END PROGR
AM" !033
37 GOSUB 76 :: IF K=49 THEN
40 :: IF K=50 THEN 69 :: IF
K=51 THEN 38 ELSE 37 !204
38 CALL CLEAR :: FOR I=1 TO
14 :: CALL COLOR(I,2,8):: NE
XT I :: FOR I=0 TO 1 :: CALL
COLOR(I,2,8):: NEXT I :: CA
LL SCREEN(8)!092
39 DISPLAY AT(10,1): "GOING T
O DISK MENU....." :: RU
N "DSK1.LOAD" !110
40 DISPLAY AT(2,6)ERASE ALL:
"THE MOVING ARROW": : "TO MOV
E ARROW UP ENTER {R}": "TO MO
VE ARROW DOWN PRESS": "{ENTER
}" !131
41 DISPLAY AT(10,1): "NAME----
---->": : "ADDRESS---->": : "C
ITY----->": : "STATE&ZIP-->
": : "PHONE #---->" :: GOTO 4
4 !117
42 DISPLAY AT(2,6)ERASE ALL:
"THE MOVING ARROW": : "TO MOV
E ARROW UP ENTER {R}": "TO MO
VE ARROW DOWN PRESS": "{ENTER
}" !131
43 DISPLAY AT(10,1): "NAME----
---->&N$: : "ADDRESS---->&A
D$: : "CITY----->&C$: : "ST
ATE&ZIP-->&S1$: : "PHONE #--
-->&PH$ !025

```

(See Page 44)







# User Notes

(Continued from Page 44)

```
100 CALL CLEAR :: OPEN #1:"RS23
2.BA=4800.DA=8",VARIABLE 136 :
: FOR C=1 TO 14 :: PRINT #1:CHR$(
(27);"A";CHR$(10);CHR$(VAL(SEG$(
("1527650627660327920127830113",2
*C-1,2)))):: NEXT C
110 X$=" Easy Grader by
Harold Hoyt 10/11/88" :: DISPLAY A
T(10,7):X$ :: FOR P=0 TO 2 :: PRIN
T #1:TAB(11);X$:TAB(65);"# of Probl
ems"
120 PRINT #1:TAB(11);" Wrong":: F
OR C=4+32*P TO 35+32*P :: C$=S
TR$(C) :: PRINT #1:RPT$(" ",3-LEN
(C$))&C$:: NEXT C :: PRINT #1:" W
rong" !Pr
```

## Enhancements for Index program

This comes from Robert W. Bryant, of Wichita, Kansas. He has provided a menu for use with the MICROpendium Index program written by Elton Schooling. He writes:

First type the LOAD program listed below in Extended BASIC.

Next, load and resave all index programs to correspond with lines 100, 110, 120, 130 in the load program, or change these lines to correspond to your programs.

Change line 360 END (or whatever your line number is) to:  
CALL LOAD(-31961,149)

In line 310, add PRINT for double-spacing in the screen printout for easier reading:  
310 FOR J=1 TO 210 :: PRINT N\$(J) ::  
PRINT :: FOR DELAY=1 TO 200 ::  
NEXT DELAY :: NEXT J

Change line 320 to delay erasing last few items in printout:  
320 PRINT "DATA AND PAGE NO. ARE  
LISTED TOGETHER. JAN 85 p. 16  
BECOMES 1/85/16." :: FOR DEL=1 TO  
300 :: NEXT DEL :: GOTO 360

If you wish to have a smaller LOAD program and without the "border," delete lines 1000-1070, and in line 20 delete GOSUB

1000.

Changing the years and page numbers to correspond with each year will enhance the printout.

```
10 CALL INIT !157
20 CALL LOAD(-31878,0):: CAL
L SCREEN(15):: CALL CLEAR ::
GOSUB 1000 :: DISPLAY AT(3,
5):"MENU FOR MP-INDEX" :: DI
SPLAY AT(5,3):"(1) 1984 !! (
2) 1985" !215
30 DISPLAY AT(7,3):"(3) 1986
!! (4) 1987" !112
40 DISPLAY AT(9,3):"(5) 1988
!! (6) 1989" !122
45 DISPLAY AT(16,2):"( ) MEN
U SELECT 1 THRU 7" !035
80 DISPLAY AT(13,3):"(7) E N
D P R O G R A M" !071
90 REPLY=1 :: DISPLAY AT(16,
3)SIZE(1):STR$(REPLY):: ACCE
PT AT(16,3)SIZE(-1)VALIDATE(
"1234567"):REPLY :: ON REPLY
GOSUB 100,110,120,130,140,1
50,160 !076
100 RUN "DSK1.MP84/INDEX" !1
12
110 RUN "DSK1.MP85/INDEX" !1
13
120 RUN "DSK1.MP86/INDEX" !1
14
130 RUN "DSK1.MP87/INDEX" !1
15
140 CALL CLEAR :: GOTO 160 !
066
150 CALL CLEAR :: GOTO 160 !
066
160 PRINT " THE END
": : : : : : : : : : : !158
170 END !139
1000 CALL COLOR(1,16,1)!225
1010 CALL HCHAR(1,1,88,64)!1
84
1020 CALL VCHAR(1,1,88,72)!1
97
1030 CALL VCHAR(1,30,88,72)!
248
1040 CALL HCHAR(23,1,88,64)!
237
1043 DISPLAY AT(9,9):"MP-IND
EX MENU" !214
1045 DISPLAY AT(16,4):"PRESS
ANY KEY TO START" !129
1050 CALL KEY(0,K,S)!187
1060 IF S=0 THEN 1050 !037
1070 RETURN !136
```

## Two utilities for speech synthesizer

This comes from Don Sawdai, of Cincinnati, Ohio. He writes:

The BASIC program below contains two tricks for use with the TI Speech Synthesizer. It requires either Extended BASIC, Editor/Assembler or Mini-Memory. A memory expansion is also required with XBASIC.

The program makes use of CALL LOAD and CALL PEEK to access the speech read (SPCHRD => 9000 = -28672) and write (SPCHWT => 9400 = -27648) addresses. Writing >4X to the synthesizer loads the nybble (4 bits) X as part of an address to it, sending the right-most nybbles first (all addresses must also end with an additional >40). The command >10 tells the synthesizer to read the byte at the loaded address to SPCHRD. The >50 command tells the synthesizer to say the word at the loaded address.

The first half of this program, lines 100-240, checks to see if the speech synthesizer is connected by reading at speech address >0000, which will contain >AA(170) if it is connected and >00 if it is not. It adjusts the variable SPEECH so that it can be used as IF SPEECH THEN ... to do something if the synthesizer is attached.

The second part of the program, lines 250-420, says a short message if the speech synthesizer is hooked up without using CALL SAY, yielding slighter faster results and BASIC access to the synthesizer. The subroutine, lines 1000-1080, says the word at the hexadecimal address given in the variable SPEAK\$.

The addresses of all resident speech words are given on pages 422-427 of the Editor/Assembler Owner's Manual. By defining SPEAK\$ to be any of these addresses, any resident word can be said. I hope that this brief program will enlighten a few programmers and enliven some speechless BASIC programs.

```
100 REM **TWO SPEECH UTILITI
ES BY DON SAWDAI** !165
110 REM TAKE THE "REM" OUT O
F LINE 130 IF USING XB !000
(See Page 46)
```



# User Notes

(Continued from Page 45)

```

120 REM NOTE: XB REQUIRES MEM
ORY EXPANSION !034
130 REM CALL INIT !042
140 REM DETERMINE IF SPEECH
IS HOOKED UP !057
150 FOR SP=1 TO 5 !150
160 CALL LOAD(-27648,64)!119
170 NEXT SP !057
180 CALL LOAD(-27648,16)!116
190 CALL PEEK(-28672,SP)!233
200 SPEECH=0 !111
210 IF SP<170 THEN 230 !104
220 SPEECH=-1 !050
230 REM END OF ROUTINE !140
240 REM USE "IF SPEECH THEN
..." TO DO SOMETHING ONLY IF
SPEECH UNIT IS CONNECTED !1
03
250 IF SPEECH THEN 260 ELSE
320 !069
260 REM SPEECH IS CONNECTED
!225
270 FOR Z=1 TO 7 !079
280 READ SPEAK$ !047
290 GOSUB 1000 !059
300 NEXT Z !240
310 GOTO 330 !154
320 PRINT "THE SPEECH SYNTHESIZER IS
NOT HOOKED UP TO
THE COMPUTER." !209
330 END !139
400 REM SPEECH ADDRESSES !04
8
410 DATA 69B6,6BA0,3A32,208B
!097
420 DATA 145C,69B6,2034 !234
1000 REM SPEAK WORD AT ADDRE
SS GIVEN IN SPEAK$ !109
1010 FOR SP=4 TO 1 STEP -1 !
003
1020 SP$=SEG$(SPEAK$,SP,1)!1
01
1030 SD=ASC(SP$)-48+7*(ASC(S
P$)>60)!078
1040 CALL LOAD(-27648,SD+64)
!207
1050 NEXT SP !057
1060 CALL LOAD(-27648,64)!11
9
1070 CALL LOAD(-27648,80)!11
7
1080 RETURN !136

```

## TI-Forth oversight

Mike McCann, of McCann Software,

writes:

Question of the month: 'Why won't my 80-column TI-Forth work even after I typed in Lutz Winkler's 80-column Forth screen editor from MICROpendium (June 1988)?'

The answer has to do with a small oversight in the design of the TI-Forth command line interface. TI-Forth runs in 40-column text mode. If you have ever tried to get the screen to scroll up or down for an application you usually set up a buffer to hold one line of screen contents. With TI-Forth, they proceeded to allocate 40 bytes for the buffer, finish the scrolling code, and on to the next task which was converting the screen start, screen end and screen width constants to user variables which will allow for the screen to be moved around in the VDP space and, yes, for different width screens.

Now, along comes the smart guys with their 80-column screens and the first time the screen is scrolled in the new modes it sends 80-byte hunks to a 40-byte buffer. The things it overwrites don't leave too many clues as to what causes later bad behavior and crashes so the user curses Forth as that bad and dangerous language and goes back to BASIC or one of those languages with the double equal and double plus signs (I hate to type symbols and a double ampersand is enough to ruin my whole day).

For those with TI-Forth source code, the offending code is in the utility driver at the end and is as follows:

```

LINBUF BSS 40
KEYCNT DATA -1
CURCHR BSS 2
GRMSAV BSS 2
INTACT DATA 0

```

As soon as you see this code you assembly hackers will know why you got the GPLLNK lockups and why the cursor disappeared after scrolling on the bottom line, right?

Luckily, LINBUF is only referenced once in the code (in the scrolling utility) a couple hundred bytes above the buffer itself.

If you make a patch on screen No. 3 to let LINBUF operate right below INTACT — this is above the return stack space — and unless you are doing some humongous

recursion it should be okay to use this space. The implementation is left to the reader.

McCann adds, "If you hear of anyone with MDOS Forth, please send them my way." He can be reached at P.O. Box 34160, Omaha, NE 68134.

## Converting consoles

This item appeared in the newsletter of the West Penn 99ers. It was written by John Drennen. Note that any hardware modifications are done at the risk of the user.

Getting around the Version 2.2 console has not been much of a problem with fully equipped systems. One could use the CorComp Disk Controller Card to bypass the V2.2 operating system and run non-TI cartridges. The GRAM Kracker by MG can also run non-TI cartridges by using a non-V2.2 operating system in its GRAM 0. Other GRAM cards may also be used. The CorComp GROM-Buster (\$30) has been the most attractive alternative for console-only users.

All of the above work, but why not get to the heart of the problem: GROM 0 (CD2155NL). By ordering the CD2155NL chip from TI, you can upgrade your V2.2 console to the standard console. On most of the consoles, this chip is in a socket, but I have come across a few in which this chip is soldered. Here is what needs to be done:

The part number is 1015960-1155. The cost from TI is \$3.80 plus tax and \$3 shipping. The phone number is 806-741-2265.

I have loaded the following modules and programs to confirm that this modification is complete and compatible with all software and hardware: Miner 2049er (a sideport module), Pacman, Donkey Kong, Word Writer, PDM 99, Junkman Jr., Super Duper, Plato, Tunnels of Doom, Adventure, Mini-Memory, Personal Record Keeping, Editor/Assembler, Microsoft Multiplan, TI-Writer, Extended BASIC, Paint 'n' Print, Big Foot, Home Control and Q\*Bert, among others.

I have been using my converted console with no software or hardware problems. Hardware I use with it include GRAM Kracker, X-10 Powerhouse, Axiom Parallax, cassette recorder, Mechatronic  
(See Page 47)



# Classified

## Software

### CHECKBOOK RECONCILE

Balance to the penny every month. Rocketman Checkbook Program. See our program review in August 1987 MICROpendium. California Programs, 4426 Appian Way, El Sobrante, Ca. 94803. 415-222-1626. v6n4

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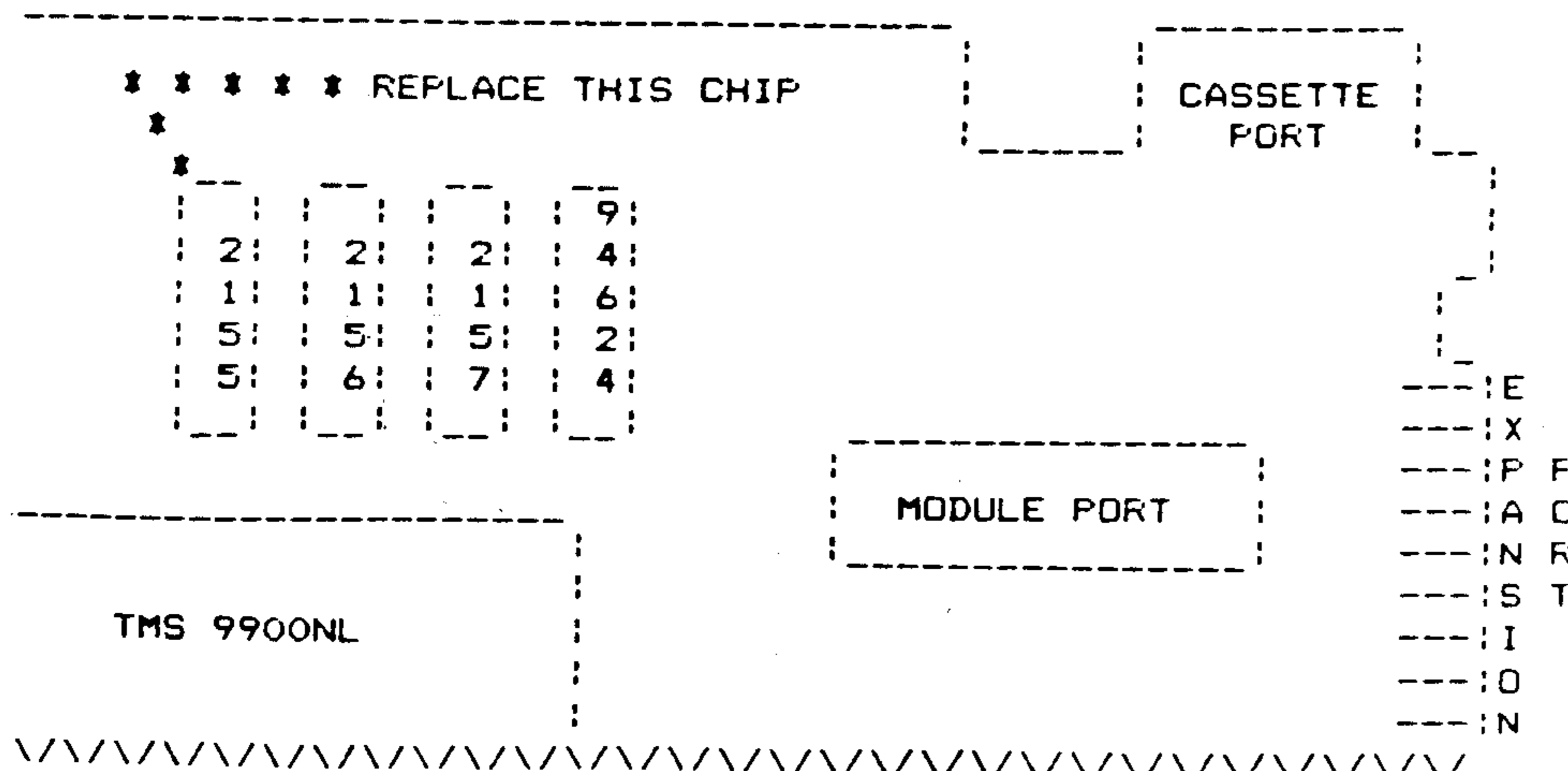
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## User Notes

(Continued from Page 46)

EPROMer, TI and CorComp disk controllers and TISpeech Synthesizer.

Use the accompanying diagram to replace the chip. The chip may be marked CD2155 8327 DCHY. The "8327" is the date code.



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