Covering the TI99/4A, the Myarc 9640 and compatibles

MICROpendium

Volume 4 Number 11 | December 1987 | $2.00

Inside

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- Charles Kirkwood on c99
- Lutz Winkler on Forth

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♠ ♠ ♠ ♠ SEASONS GREETINGS ♠ ♠ ♠ ♠
♠ To:          ALL              ♠
♠      WITH  ♥ LOVE ♥  FROM     ♠
♠       THE ROUND ROCK GANG     ♠
♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠

☺ ☺ ☺ ☺    HAVE A HAPPY    ☺ ☺ ☺ ☺
☺ To:     GRANDSON           ☺
☺      WITH  ♥ LOVE ♥  FROM   ☺
☺        GRANDMA & GRANDPA    ☺
☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺

♪ ♪ ♪ ♪   HAPPY BIRTHDAY  ♪ ♪ ♪ ♪
♪ To:       JENNIE           ♪
♪      WITH  ♥ LOVE ♥  FROM   ♪
♪              CRAIG          ♪
♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪ ♪

⅄ ⅄ ⅄ ⅄      BON VOYAGE    ⅄ ⅄ ⅄ ⅄
⅄ To:         CHRIS          ⅄
⅄      WITH  ♥ LOVE ♥  FROM   ⅄
⅄              ISABELLA       ⅄
⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄

* * * *  MERRY CHRISTMAS  * * * *
* To:         RUDIE            *
*      WITH  ♥ LOVE ♥  FROM     *
*              NICK             *
* * * * * * * * * * * * * * * * *

♥ ♥ ♥ ♥  BE MY VALENTINE  ♥ ♥ ♥ ♥
♥ To:       FRANKIE          ♥
♥      WITH  ♥ LOVE ♥  FROM   ♥
♥              JOHNNIE        ♥
♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥

$ $ $ $ MANY HAPPY RETRNS $ $ $ $
$ To:        I.R.S.            $
$      WITH  ♥ LOVE ♥  FROM     $
$            BILL BRADLEY       $
$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
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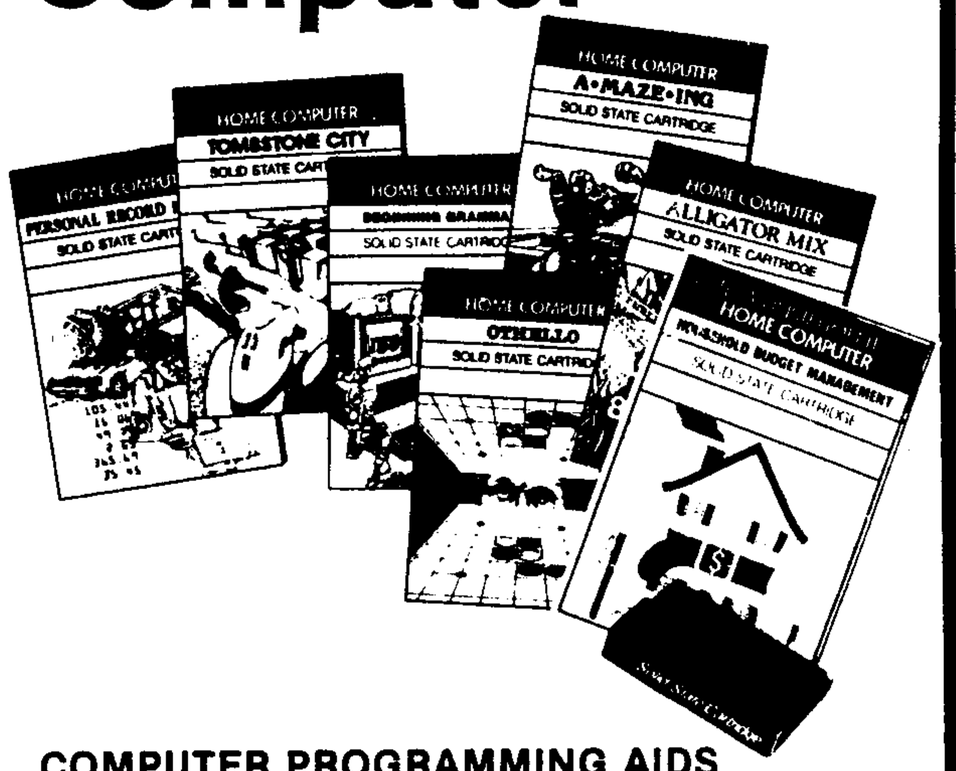
Texas Instruments TI-99/4A Home Computer



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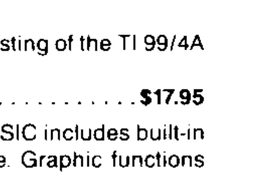

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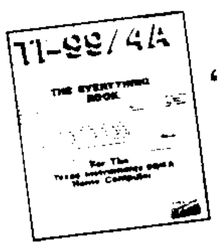

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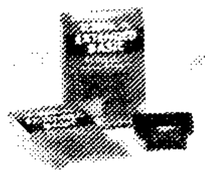

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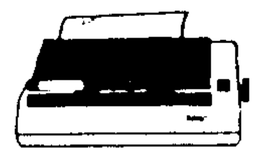

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Second-class mail arrives

This issue marks the first that is mailed via a second class permit. (Right, I said that last month. Well, we were premature with that announcement as complying with everything required by postal regulations wasn't possible in our time-frame.) We hope this issue got to you in a timely fashion. Second class isn't quite as fast as first class, but it's much faster than third class. It also stabilizes our postage costs on a monthly basis, which is something we couldn't do while mailing some 1,700 copies a month via first class mail. Ultimately, this will eliminate the weight of the magazine as a factor in calculating postage costs. With first class, the heavier the edition, the more expensive it is to mail.

We're down to 40 pages this month just so we could recover from November's 56-page edition. That one got to the printer late, Thanksgiving got in the way, and it got to the post office late. We regret it, but it happened.

WE NEED SOME ADVICE

We'll be starting our fifth year of publication in February and we'd like some specific advice from you about what you want to see in MICROpendium in 1988. What are you interested in, in terms of columns? On the back page, along with the subscription form, we've included a space where you may list your four favorite (or least favorite) items that appear in MICROpendium. We'd like you to jot them down in order of importance to you. If there's something we don't have that you'd like to see us cover, make a note of that, too. Fill it out when you renew your subscription and we'll use the data to better meet your needs.

GENEVE UPDATE

The final version of Multiplan and MDOS (Ver. 1.0) are finished. I've got both. Multiplan now loads everything except the help files into memory (you'll notice this most when you try to run a directory out of Multiplan), creates spreadsheets up to 41K in size and is very fast operating out of GPL speed No. 5. Version 1.0 of MDOS comes with Version .98 of the GPL interpreter. MDOS now supports autoexec files and batch commands. An addendum that comes with Version 1.0 lists only six modifications from the original MDOS documentation that was shipped with the Geneve. All are minor. The docs note that the Geneve will format 80-track disk drives for those who have them.

Production has begun on the Myarc floppy/hard disk controller. Work is also being completed on a version of Myarc's disk manager program that will operate with the hard disk controller. It will have the letter "H" appended to its version number.

The Pascal run-time program apparently won't be ready until early 1988. That doesn't appear to be a big deal at this point since there aren't any programs written in Pascal specifically for the Geneve.

The final version of MY-Word is also ready. This includes several minor modifications over Version 1.0, which was released in September.

Expected for release in January is a commercial implementation of c for the Geneve.

ANOTHER COMPANY TO WATCH OUT FOR

It's been a year since we've heard from New Day Computing, but we advise caution. The company is based in England and marketed cassette-based programs. We've had problems with the company for a long time.

We hear from some users that the former 99/4A National Assistance Group has been contacting them, so perhaps reported delays were because of reorganization. It is now called the International PC Group and is at 2269 South University Dr., Suite 118A, Fort Lauderdale FL 33324. A phone call to the group at (305) 962-9019 elicited information that they continue to offer 4A assistance.

LABELER IS A LITTLE LATE FOR THIS YEAR, BUT...

This issue carries a program and article about a label printing program. It may be a little late to use this year for Christmas, but it may come in handy for anyone who needs a custom-designed label for any occasion.

Also, we failed last issue to give Cynthia Becker credit, but she's the person who sent us the photos from Seattle we published.

—JK

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, Extended 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, Maxinem
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

☆ RAVE 99 INTRODUCES..... ☆

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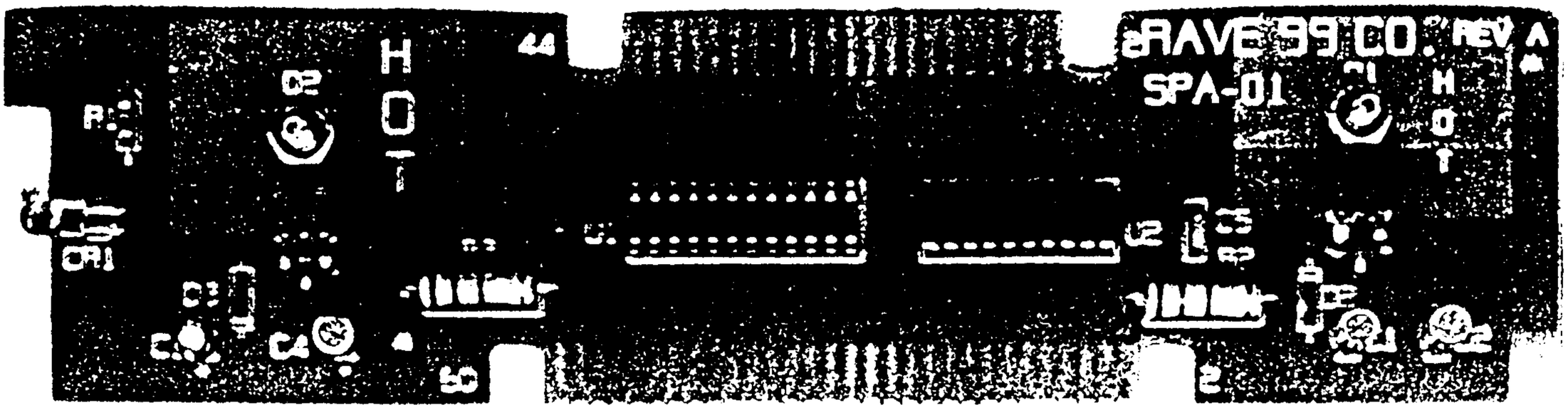

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Feedback

TI on People/Link

I noted with interest that the Source has put its TI SIG on probation, that is, either get additional usage or close it down. Even though I am not a member of that TI SIG, I feel the loss of any source of TI information exchanges is unfortunate. I am at present on three other national services, CompuServe, Delphi and American People/Link, which is the point of this letter.

I am the chairman of the Texas Instruments section of the Computer Club on People/Link. Not many TIers are even aware of the existence of People/Link (AKA Plink). Plink is the forgotten member of the TI community. It is there just waiting to be discovered. The connect rates are the lowest of the national services. They go from $3.95/hour (300 baud evening hours and weekends from 8 a.m. to 8 p.m.) to $4.95/hour (300 baud nights and all 1200 baud usage), except for higher prime time rates (weekdays 7 a.m. to 6 p.m.). And for "Frequent Plinkers" there is a 25 percent discount on connect time.

At the present time the download library has a number of programs available for downloading, but more uploads are wanted, especially for the Geneve. One benefit of a membership on Plink is that uploading is FREE. That's right, it doesn't cost a user one red cent to upload a program.

Plink does not (at this time at least) have a vendors section, but if any vendor would be interested, something could be done. Plinkers have access to all the normally expected electronic services, i.e., Email, messaging, conferencing, clubs, notice boards, etc.

Any and every source of TI information for dissemination by the TI/Geneve community is welcome. It is difficult to have "too much" information available for those of us who are true TIers. It is these sources of TI/Geneve information that have made our machine what it is today.

And for those who cannot afford the more expensive services, here is one for them. The number to call via modem for more information or to sign up is (800) 826-8855, or in Illinois, (312) 822-9712. For those who prefer a human voice for getting this information, call (800) 524-0100, or in Illinois, (312) 870-5200. The signup fee is a one-time $15 charge.

For any readers who log onto Plink and have any questions, all they have to do is leave me an Email letter and I will get them an answer. Or they can leave a question on the notice board for public discussion. My Plink ID is WIS*99ER. Hope to see some of the MICROpendium readers on People/Link soon.

Thomas A. Wills
Sheboygan, Wisconsin

Cursor too fast

I have been using TI-Artist, necessarily in limping fashion because of its incompatibility with the Seikosha/Axiom GP 550 TI printer, and I have encountered considerable trouble with the high cursor speed in zoom mood. In the midst of my efforts at control, I remembered Judy North's letter (Feedback, Nov. '86) where she corrected (Chris) Bobbitt's earlier statement ("Graphx vs. TI-Artist," Sept. '86) about the latters exorbitant cursor speed in zoom mode. Ms. North's experience was with version 2.0, but she said theat the cursor speed could be changed with "FCTN-,(comma)." Presumably she meant "function comma," although I suppose a number could be put in there instead of that dash.

I have TI-Artist version 2.01. In this version, function comma has no effect on the speed of the cursor in zoom mode, but it does change the color of the cursor and the pixels it writes to. ("FCTN-," has no effect different from "FCTN," with version 2.01.) No doubt this change is part of the alterations made in going from version 2.0 to 2.01. I can find no mention of "function comma" in the documentation to version 2.01.

Chris Faherty has done a superb job in the programming of TI-Artist (oh, that I could use my printer!), but that cursor speed IS excessive. I have every confidence that Mr. Faherty has not discontinued such a necessary part of the package; I am inclined to blame the fellow who wrote the manual, and who left out mention of this needed control.

Perhaps someone from Texaments or Inscebot will set us straight on this.

Elton Schooling
Sacramento, California

Module changes strain solder joints

Regarding the letter from Shirley Kulzick (November 1987), the symptoms described by her are sometimes caused by a faulty solder joint between the GROM connector and motherboard.

I experienced the same problems with my Extended BASIC module and cleaning the contacts of both the module and the GROM port connector did not improve the situation. After I re-soldered the GROM port connector at the motherboard, my problems disappeared. This was sort of a last-ditch effort, since — with all my other modules working perfectly — the solder connections were not really suspect.

Module changes put a strain on these solder joints. If one happens to be weak, it will eventually let go and cause intermittent contact.

Lutz Winkler
San Diego, California

DBM review lauded

Your review of database managers is the best review I have ever seen in your publication. Bill Gaskill must have spent a great deal of time on this project. I want to acknowledge that I am still working with the TI. I just set up a TI system with three drives to replace a Commodore with one drive. I used my favorite data base, PRBASE. The man runs a video store and needs to access this inventory fast. He could not believe the speed of the TI nor the speed of printing predefined reports.

I set up the system so fast I forgot to set the drives as doubled sided. A call to Woody Wilson led me to option 7 of the create program. This is where you can change the drive to double sided. The first thing I did was initialize a disk for double sided. I used the great fairware PRBASE Utility program by John Johnson. I must warn you to define your label outlline because option 7 will not let you out if you do not have labels defined. All you do is fill in the answers to the prompts. Woody suggests you use PIO.EC to prevent printer problems.

James Sleeth
El Cajon, California

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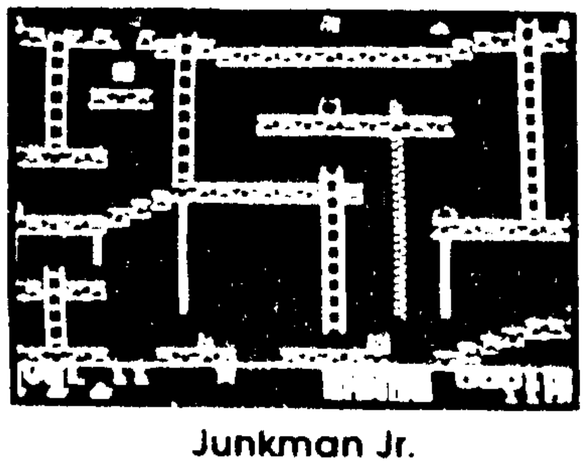

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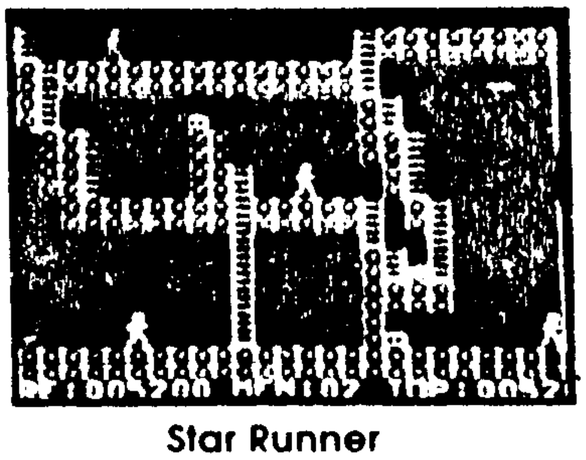

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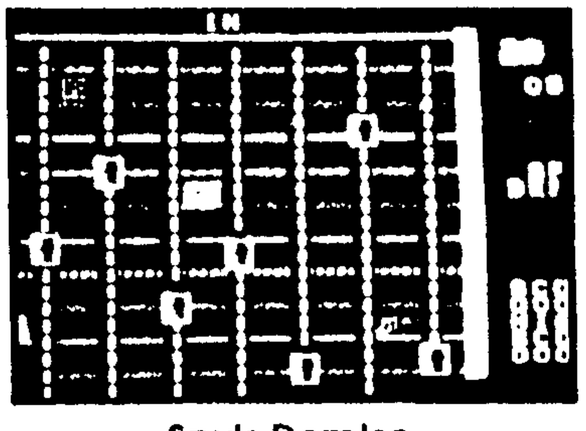

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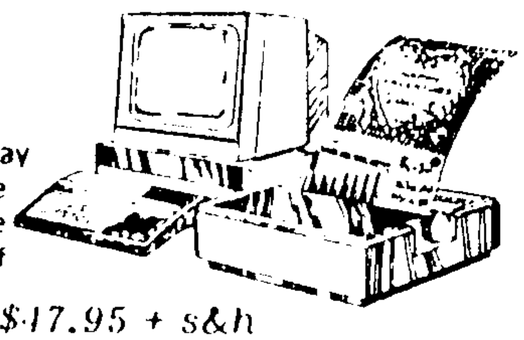

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BASIC

The DEFinition statement

By REGENA

TI BASIC has many built-in functions, both for numbers and for strings. However, if you need one that is not built-in, you may define your own with DEF near the beginning of the program. DEF can be thought of as DEFine or a DEFinition of a function. On other computer versions of BASIC, you may see DEF FN. One of the requirements is that the DEF statement be numbered lower than the statements later where it may be used, so I usually put DEF statements near the beginning of the program.

The DEF statement can save you time and memory if you use a function often in your programming or if a function involves a lot of typing and you want to use it in several places. Let's look at some examples of how it is used.

This first example is a simple formula. Let's say you have a homework assignment in which you need to find the areas of rectangles — lots of them — and you want to check your homework. Line 100 defines the function AREA to be LENGTH times WIDTH. Lines 120 and 130 ask for the length and width, and the user enters those numbers. Line 140 prints the area. Line 150 returns back to Line 110 to repeat the process. Press FCTN-4, CLEAR to end the program. This is just a simple example with no error checking, so I'll assume you'll use decent numbers in the INPUT.

```
100 DEF AREA=LENGTH*WIDTH
110 PRINT
120 INPUT "LENGTH: ":LENGTH
130 INPUT "WIDTH: ":WIDTH
140 PRINT "AREA: ":AREA
150 GOTO 110
160 END
```

Notice when you run the program that the two numbers you enter are multiplied and the result printed in Line 140. AREA is calculated according to the definition in Line 100.

Now let's say you have a project in a higher mathematic class where you want to tabulate values of SIN(X). This time the function to be defined depends on the parameter X, so it is used in parentheses. Line 100 defines a function F(X) to be SIN(X). Line 120 allows you to enter numbers for X, and Line 130 prints out the corresponding function F(X).

```
100 DEF F(X)=SIN(X)
110 PRINT
120 INPUT "X = ":X
130 PRINT "F(X) =";F(X)
140 GOTO 110
150 END
```

These two examples have been fairly simple to illustrate how DEF can be used. In fact, you would probably prefer not to use the extra DEF statement and just use the calculation you need in the PRINT statement. However, let's get a little more complex in the definition of the function. Perhaps after the second example program you have several functions to evaluate for different values of X. Instead of rewriting a whole program for each of your problems, you can simply change the DEF statement. For example, change Line 100 DEF F(X)=SIN(X) to the following:

```
100 DEF F(X)=SIN(X)+(SIN(X))*(SIN(X))/2+((SIN(X)^3)/3+
((SIN(X))^4)/4
```

then run the program. Try different functions of X in Line 100. All you need to do is change line 100 for each different problem you want to use.

Now let's take a look at an example where DEF can save you typing in programming. Line 100 defines the function R(X) to be a random number using the formula INT(X*RND+1). Now anywhere in the program that I use R( ) with a number in the parentheses, I will get a random number from 1 to that number. For example, Lines 130 and 140 use R(16), which would be a random number from 1 to 16. Lines 150 and 160 use several different random numbers. R(24) is a random number from 1 to 24, R(32) is a random number from 1 to 32, R(8) is a random number from 1 to 8, R(50) is a random number from 1 to 50, and R(100) is a random number from 1 to 100. Rather than use the long INT(X*RND+1) formula, I can use R(X). Try this program on your TI:

```
100 DEF R(X)=INT(X*RND+1)
110 FOR S=1 TO 16
120 RANDOMIZE
130 CALL SCREEN(R(16))
140 CALL COLOR(S,R,)16),R(16))
150 CALL HCHAR(R(24),R(32),(S-1)*8+R(8),R(100))
160 CALL VCHAR(R(24),R(32),(S-1)*8+R(8),R(50))
170 NEXT X
180 GOTO 110
190 END
```

Here's an example to try in TI Extended BASIC — a rather short program using sprites (show this to anyone who claims to have easy-to-use sprites on a different kind of computer).

```
90 REM TI EXTENDED BASIC
100 DEF R(X)=INT(X*RND+1)
110 CALL CLEAR::RANDOMIZE
120 FOR N=1 TO 26::CALL SPRITE(#N,64+N,R(15)+1,92,124,
    R(255)-128,R(255)-128)::NEXT N
130 GOTO 120
140 END
```

Now, while you have TI Extended BASIC in, here's another sprite demonstration just for fun:

```
90 REM TI EXTENDED BASIC
100 CALL CLEAR
110 FOR N=1 TO 28
120 CALL SPRITE(#N,63+N,5,10,10,56-2*N,2*N)
130 NEXT N
140 FOR N=1 TO 28
150 CALL DELSPRITE(#N)
160 FOR D=1 TO 5::NEXT D
170 NEXT N
180 GOTO 110
```

Trying different velocities and/or starting points and using all the sprites can be fun. Try substituting the following line in the above program.

```
120 CALL SPRITE(#N,63+N,7,4*N+25,5*N+20,-2,2)
```

You might want to try writing a few sprite demonstrations using

(See Page 12)

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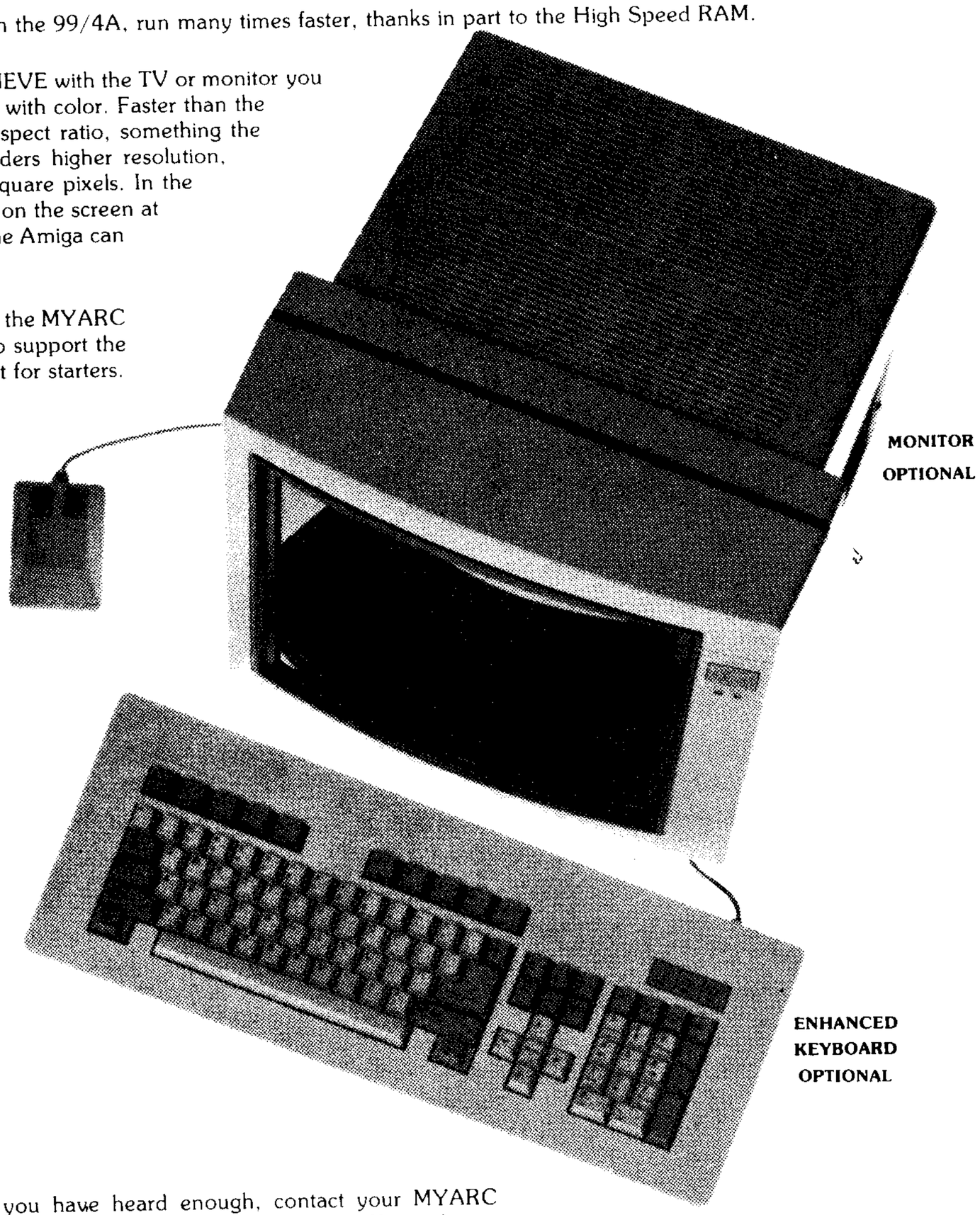

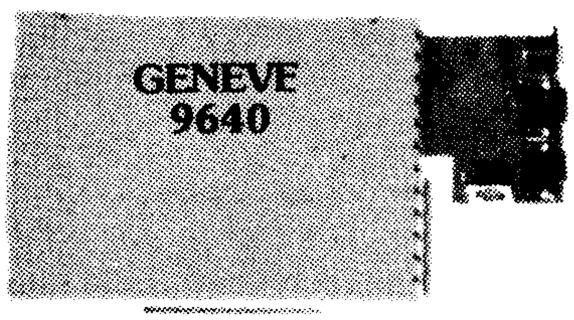

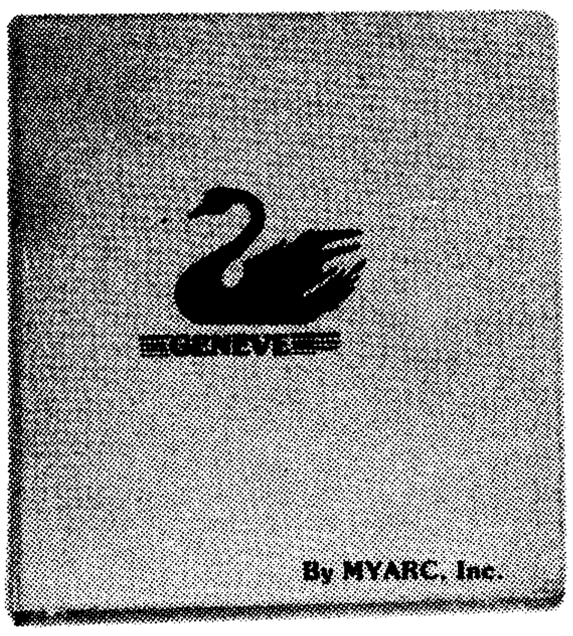

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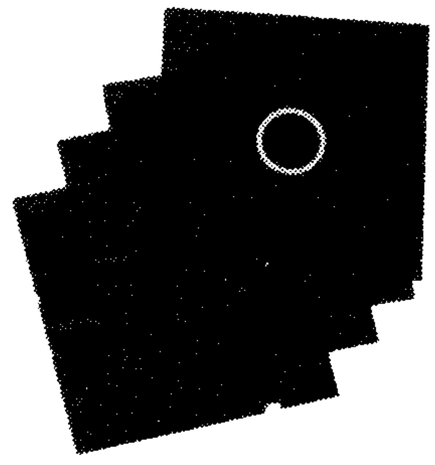

BASIC—

(Continued from Page 10)

as few lines as possible yet creating spirals, geometric designs, artistic patterns, or whatever. Then add the MAGNIFY command to get even more effects.

With this December column, I might just mention that it was exactly seven years ago that I got my first TI99/4 at Christmas. I was in that group of owners that paid about $600 and got three command modules with the computer. (The first wave of owners, the TI pioneers, paid about $1,000 and had to buy the monitor with the computer.) I still have that first TI of mine set up and have never had problems with it. My children still use it.

I started programming home computers and that next year wrote quite a few programs for the original *99'er Magazine*. My first article in *COMPUTE!* was published in December 1982, exactly five years ago, so that's another type of anniversary. I figure I've written more than 200 programs (mostly educational) for the TI — and still have fun doing it. Just because the computer was orphaned doesn't mean the computer is no longer good.

I noticed that the November issue of *Family Computing* announced they were no longer publishing TI programs. Although most of the national magazines that cover a variety of computers no longer mention TI, the computer lives on. I liked the theme of the recent Chicago TI Faire, "The Computer That Would Not Die." We still have some great users groups, and there are lots of annual TI conventions (Boston, Chicago, Seattle, Los Angeles, etc.). With my family commitments I cannot travel to groups as often as previously, but I am looking forward to going to the TI-xpo 88/TI Fest-West at the Palace Stadium in Las Vegas, Nevada, Feb. 27-28. (Contact S.N.U.G, P.O. Box 26301, Las Vegas, NV 89126 for more information.) You can meet or re-meet great TI friends at the conventions, plus it would surprise you how many vendors are making new things for the TI.

The trials of a c99 beginner

Functions and strings

By CHARLES E. KIRKWOOD JR.

All strings or integers are input as characters. Type the characters and end by pressing <ENTER>. The characters must then be converted to a string or an integer. It is necessary to setup a buffer array in which to input each individual character.

The maximum length of a character string is 80 characters. However, the buffer array must have 80 locations plus one additional. When <ENTER> is pressed at the end of a character string or after 80 characters have been stored a NULL 0 (zero) is stored to indicate the end of the string. This NULL 0 is not the same as the digit 0. It is necessary to declare or define the buffer as having 81 elements, such as **char buff[81]**.The buffer name can be any variable name, not just **buff**.

Example 1 is a short program to input one line and print it out:

```
/*EXAMPLE 1*/
main()
{
  char a[81]; /*a string buffer*/
  int b,c;
    /*print a character string*/
  puts("Input a character string, ");
  puts("terminate with <ENTER>.\n");
    /*character string input*/
  b=gets(a);
  c=putchar(10);
    /*character string output*/
  puts(b);
}
```

The statement **b=gets(a);** will input characters into an array **a** "sorta" like examples 4 and 5 in the c99 article in the October MICROpendium. When <ENTER> is pressed or 80 characters have been entered, a NULL 0 is stored in the next element. There are two differences, FCTN S can now be used to back up to correct errors and no flag is needed in the data, NULL 0 is automatic. The characters in the buffer array **a** are concatenated and stored into variable **b**. The function **puts(b);** will print the character string and this array can be used just like any other array. The output function **puts("...");** will print any characters between the quotation marks. The control character **n** within quotation marks will start a new line.

Let us continue Example 1 to find the smallest letter, as in Example 4, c99 article, October MICROpendium. We need to know how many characters are in the string to get the last subscript of the buffer. So, change **int b,c;** to **int b,c,i,n,t;** and insert the program segment in Example 1A after **puts(b);** and before }.

```
/*EXAMPLE 1A*/
  /*string length*/
  i=0;
  while(a[i]!='\0')
    ++i;
    /*last subscript*/
  n=i-1;
```

The variable **i** counts the characters, **n** is the last subscript, and **NULL 0** is**'\0'**. Now complete the program to find the smallest letter by adding Example 1B.

```
/*EXAMPLE 1B*/
  /*smallest letter*/
t=a[0];
for(i=1;i<=n;++i)
{
  if(a[i]<t
    t=a[i];
}
  /*result output*/
c=putchar(10);
t=putchar(t);
```

(See Page 14)

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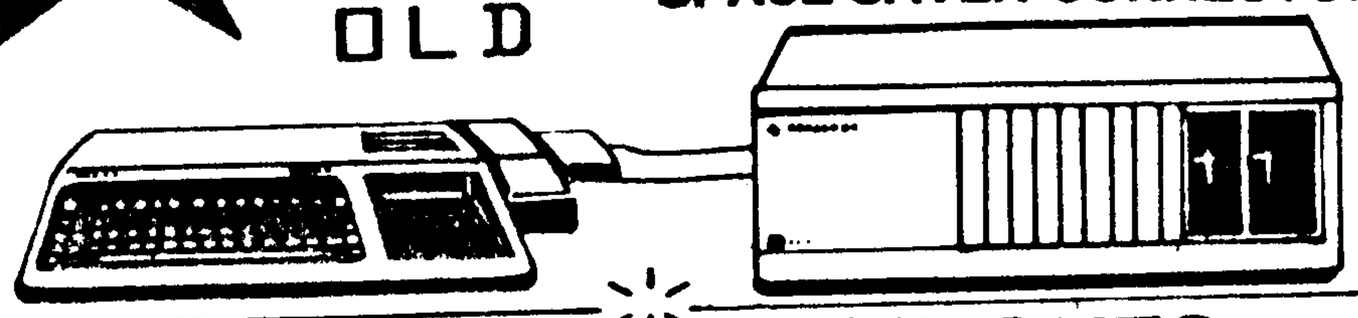

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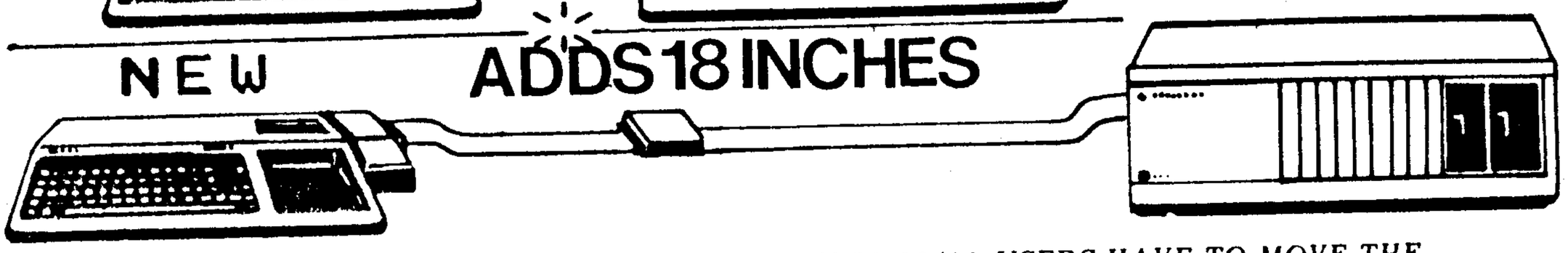

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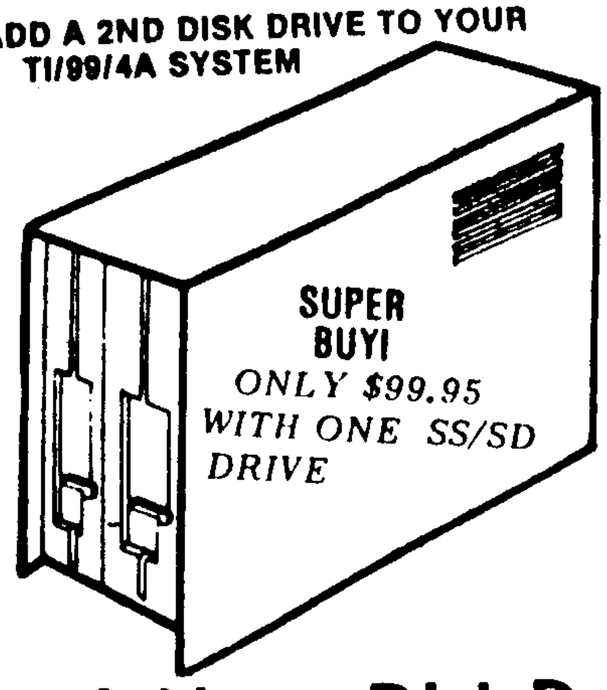

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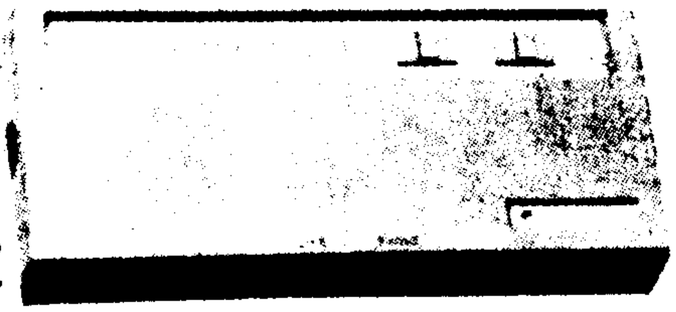

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c99—

(Continued from Page 12)

The c99 language is made up of functions to perform various operations. Some examples are input, **getchar()** and **gets()**, and output, **putchar()** and **puts()**. We can also write our own functions. Variables declared within the main block are known only in that block and those declared within a function are known only in the function. One of the methods of communications between **main()** and a function is by **arguments** and **parameters**. The general format for referencing a function is:

function name(arg1,arg2,...)

The arguments are separated by commas. If there are no arguments, the parentheses must follow the function name. Parameters will be within parentheses following the function heading. They must correspond one for one with an associated argument. Arguments and their associated parameters do not have to have the same name. When a single variable is used as an argument, the value in that location is passed to the parameter in the function. When an array is an argument, the location of the first element of the array is passed to the function. If you change the values stored in the parameter array in the function, you also change the values in the argument array in **main()**, since they are the same locations. However, if you change the value stored in a single parameter variable in a function, it will not affect the value stored in the argument in **main()**.

In the completed program (Examples 1+1A+1B+changes), replace the program segment **string length** statements by one statement:

```
i=strlen(b);
/*or i=strlen(a);*/
```

The name **strlen** is the name given to the function to find the string length. The argument is within the parentheses.The characters in the array **a** and the string **b** are in successive bytes, so they are alike in memory and either can be used as the argument. The difference in how they are used will depend upon how they are defined.

Since the string length segment has now been replaced by one statement, **i=strlen(b);**, it is necessary to include a **string length function** with the program. After the last } in **main()** in Examples 1+1A+1B+changes, write the following string length function, Example 1C.

```
/*EXAMPLE 1C*/
strlen(s) /*heading*/
char s[];
{
  int i;
  i=0;
  while(s[i]!='\0')
    ++i;
  return(i);
}
```

The statement **return(i);** in **strlen()** will return to **main()** and the value stored in **i** in the function will be stored into the variable **i** in **main()**. If no value is to be returned, only **return;** is used. There is no change in the rest of the program. A function can either be before or after **main()**.

Two additional equivalent functions are given to find the string length.

```
/*EXAMPLE 2*/
strlen(s)
char s[];
{
  int i;
  i=0;
  while(s[i])
    ++i;
  return(i);
}
```

```
/*EXAMPLE 3*/
strlen(s)
char *s;
{
  int i;
  i=0;
  while(*s++)
    ++i;
  return(i);
}
```

The * before a variable name defines that variable as a pointer. Example 3 uses a pointer and is the one most used in function libraries. A pointer points to a variable location. A detailed discussion of pointers can be found in any good C text. The pointer ***s** initially points to the first character of the string **s**. The pointer will be incremented in **while(*s++)** until NULL 0 is reached. The variable **i** counts the characters.

Pointers are declared either **char** or **int**. A character pointer steps by one byte, while an integer pointer steps by 2 bytes. The pointer in Example 3 must be declared **char** because each character in the string **b** occupies consecutive bytes.

Tom Wible has contributed a string function library **STRINGFNS**, written in c99, for use with c99 programs. Copy **STRINGFNS** and **CONIO** on your program disk. The file **CONIO** contains some necessary console I/O definitions.

Several function libraries, written in c99, are included with c99. A function library written in c99 can be included with your program by using the **#include** instruction. This instruction will place the file which follows **#include** with your program at that point. The instruction **#include DSK1.STRINGFNS** will place all functions in Wible's string function library with your program so that any one of the functions can be used. The file **CONIO** must be included before **STRINGFNS**.

Example 4 is the rewritten program to find the smallest letter using the string function library containing **strlen()**. Example 5 is the character sort program rewritten from the c99 article in October. The **sort** portion is written as a function called **chrsrt** and **strlen()** is in the string function library.

```
/*EXAMPLE 4*/
#include DSK1.CONIO
#include DSK1.STRINGFNS
main()
{
  char a[81];
  int b,c,i,t,n;
    /*input*/
  b=gets(a);
  c=putchar(10);
    /*print input str*/
  puts(b);
    /*last subscript*/
  n=strlen(b)-1;
    /*smallest letter*/
  t=a[0];
```

```
/*EXAMPLE 5*/
#include DSK1.CONIO
#include DSK1.STRINGFNS
main()
{
  char a[81];
  int b,c,n;
    /*input*/
  b=gets(a);
  c=putchar(10);
    /*print input string*/
  gets(b);
    /*last subscript*/
  n=strlen(b)-1;
    /*sort*/
  chrsrt(n,b);
```

(See Page 16)

EZ-KEYS

Introducing a new utility with a split personality. EZ-KEYS is the assembly program that helps programmers more easily write Extended BASIC programs, and is also a program that lets program users get much more out of any Extended BASIC program. How can it do both? EZ-KEYS is the one program that lets one key do the work of many keys - among other things.

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c99—

(Continued from Page 14)

```
  for(i=0,i<=n,++i)
  {
    if(a[i]<t)
      t=a[i];
  }
    /*output*/
  c=putchar(10);
  t=putchar(t);
}
```

```
    /*output*/
  c=putchar(10);
  puts(b);
}
    /*function chrsrt*/
chrsrt(n,a)
int n;
char a[];
{
  int i,j,k,t;
  for(i=0;i<n;++i)
  {
    t=a[i];
    k=i;
    for(j=i;j<=n;++j)
    {
      if(a[j]<t)
      {
        t=a[j];
        k=j;
      }
    }
    a[k]=a[i];
    a[i]=t;
  }
  return;
}
```

There are two arguments for **chrsrt()** in Example 5, the first one, **n**, is the last subscript, and the second one, the character string **b**, can also be thought of as an array. Since an argument of **chrsrt()** is the character string **b**, the stored values will be swapped in the parameter array **a** in the function, and the output can be simplified to **puts(b);**.

I stored the function **chrsrt()** in the string function library file, so that it will be unnecessary to type the statements in every time it is used. Additional functions can be added to any library as you need them.

No effort has been made in these c99 articles to give *the* method of solving a problem, but just *a* method or so. However, sometimes my curiosity gets the best of me and I like to try various methods, as in this article. My conclusions are based on actually running programs. The result of a function is an integer, even though it appears that either an integer or character variable will work in some of the examples. It is not always possible to explore every method. Ideally, I think, would be to have one of the several RAMdisks on the market today.

RAMdisk! We are an impatient generation and we want results immediately. We hate to wait, whether it is in line, in a car, or for the computer to write to or read from a disk. We forget the speed of some of the "small" computers of 25 years ago. Computers have certainly changed — smaller, more memory, cheaper, faster. The first computer at Clemson University in the early 1960s was a drum memory machine with paper tape and typewriter input and output. There was no disk drive or magnetic tape for storage. The computer was extremely slow compared to today's computers, but fast compared to what we had been using — the calculator. To compile a program, the object program was output to paper tape. Then the paper tape was read in to execute the program. I can remember one program in particular that we ran only during the Christmas holidays. We would start the program and then stop by daily to see if it had finished or had stopped for some reason "before its time."

Enough reminiscing about the "good ole days" and dreaming about the future. Let us wake up and be practical, with one disk drive we can compile and assemble some good programs.

Wish you all a *Very Merry Christmas* and a *Happy New Year*!

Music maker on disk

They said it couldn't be done, but he did it

By CHRIS SCHRAM

The Texas Instruments representative told me it couldn't be done.

Dr. Guy Romano of the Amnion Helpline explained to me why it couldn't be done.

Even Craig Miller couldn't figure out how it could be done.

Back in 1980 TI came out with the Music Maker cartridge (PHM 3020). For its time it was a pretty neat program. Being able to input musical notes through a graphic interface save the results to cassette (or even the prohibitively expensive) would surely turn us all into instant composers.

Okay, sure, I started out just copying other people's music into memory, but just wait, this was a serious composition tool. Someday ... Schram's First Concerto for Violin, Bagpipe, and TI99/4A! How innocent we all were. As it turned out Music Maker had enough limitations to discourage real creativity, but it was still a lot of fun to play with.

The biggest limitation, however, didn't rear its ugly head until I finally sprang for that disk system in early 1983. I merrily proceeded to convert all my cassette-based software to the much faster loading diskette format, but when I got around to my music files, I found that I consistently encountered the dreaded *ERROR DETECTED IN DATA* message before the tape had advanced a single millimeter. A call to Lubbock yielded a response delivered the kind of enthusiasm one would expect from a person who'd told the same story a thousand times a day: "It can't be done!" (I guess all the budding Mozart's purchased their disk systems at the same time.)

What the TI representative did *not* explain to me in great detail was that Music Maker was designed to utilize all the available VDP memory within its operating environment, which insures total

(See Page 18)

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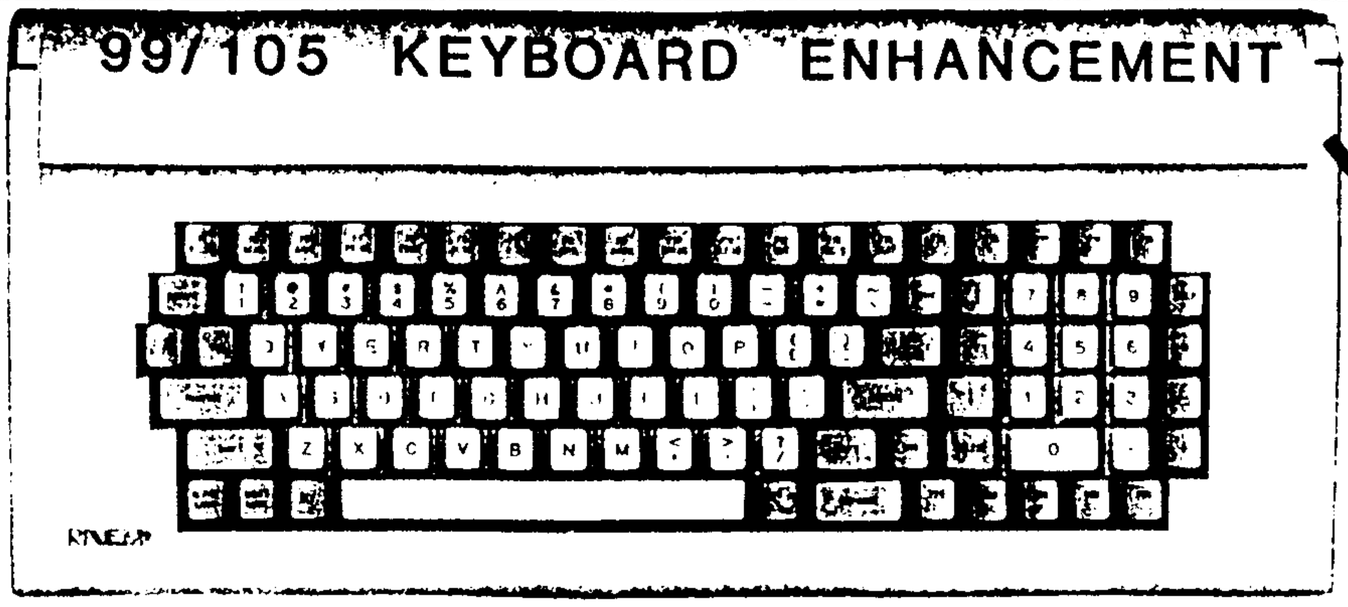

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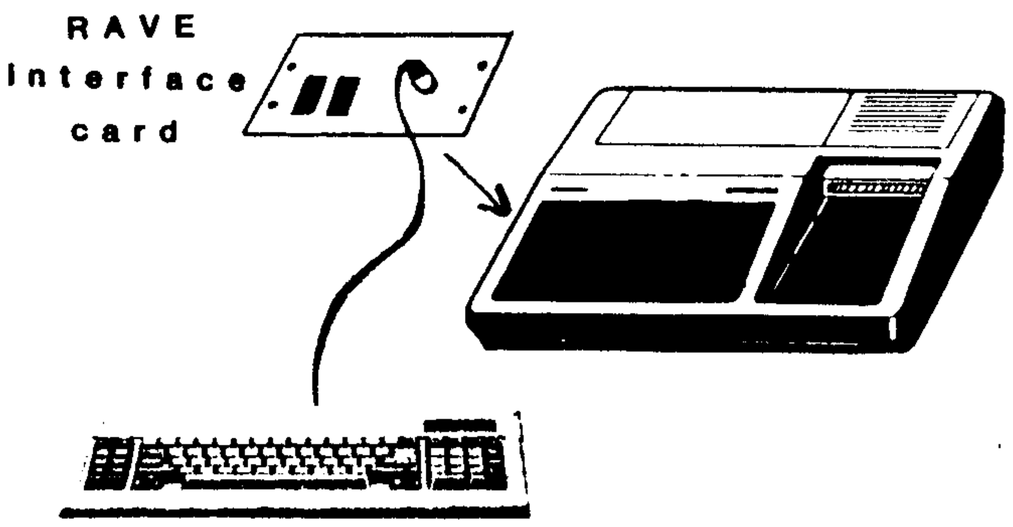

MUSIC MAKER—

(Continued from Page 16)

incompatibility between cassette and diskette-based music files. Recall that at power-up the console does a peripheral search and, if it finds a disk drive controller, it allocates enough space in VDP RAM for three disk buffers.

I eventually learned that a cassette-based music file is 1024 bytes longer than the same file created in a disk environment. Dr. Romano suggested that I shorten my music files and then try to load them, but the sad truth is that all music files are the same size, regardless of content. (I hereby nominate Music Maker as TI's most poorly designed software product!)

When the TI spokesman said the tape files couldn't be converted to disk, he wasn't lying. That pesky data can't even be transferred between differently configured systems through the serial interface, as someone suggested I try. As a result, the old cassettes got filed away under my computer desk. I couldn't bear to toss out all that work. Years passed.

This story does have a happy ending. Thanks to the creative minds within the Texas Orphanage, I recently added a piece of hardware to my system, and I got the notion that the tool I needed back in '83 had just taken up residence in my expansion box, and the impossible has become possible.

What to do? Beg, borrow or buy a Horizon RAMdisk. It works just like a physical disk drive with two big exceptions: First, the expansion box can be turned on *after* the console and it will still work; and second, it only eats 11 bytes of VDP memory! (Even 11 bytes causes a little annoyance. More on that later.) What this means is that you have access to "disk storage" in the incongruous (and impossible) CALL FILES(0) environment.

PROCEDURE

The following procedure has been tested on all my cassette-based music files. I have "over-killed" some aspects of it to make it as reliable as possible. Good luck.

Before proceeding to Step 1, be sure you thoroughly understand how to move around in the Music Maker environment. (When in doubt, read the manual.)

1. Initialize the Horizon RAMdisk and copy Disk Manager 1000 and CHARA1 onto it. Set the drive number of the RAMdisk to 1, 2 or 3.

2. Key in the following Extended BASIC program and save it to RAMdisk. Until you are positive that it is 100 percent correct, it might be a good idea to TAIL REM (!) out the ":DELETE" statement in the next to last line.

```
1 ! SAVE DSK1.PATCH !163
100 DIM H$(8),A(6)!196
110 X$=RPT$(CHR$(0),28):: Y$
="" !047
120 LINPUT "FILENAME: ":FN$
!131
130 OPEN #1:FN$,UPDATE,DISPL
AY ,FIXED 128,RELATIVE !189
140 FOR RR=122 TO 115 STEP -
1 !207
150 LINPUT #1,REC RR:A$ :: P
RINT RR :: H$(RR-114)=A$ !24
7
160 IF POS(A$,X$,1)>0 THEN 1
80 !241
170 NEXT RR :: RR=115 !128
180 A(6)=ASC(SEG$(H$(8),116,
1))6+ASC(SEG$(H$(8),117,1)):
: A(1)=4096 :: A(0)=(A(6)-A(
1))/5 !054
190 FOR X=5 TO 2 STEP -1 ::
A(X)=A(1)+A(0)*(X-1):: Y$=Y$
&CHR$(INT(A(X)/256))&CHR$((A
(X)-INT(A(X)/256))AND 254)::
 NEXT X !038
200 H$(8)=SEG$(H$(8),1,117)&
Y$&CHR$(16)&CHR$(0)&CHR$(0)&
CHR$(170)&CHR$(63)&CHR$(255)
&CHR$(17)&CHR$(1)&CHR$(0)!20
0
210 R1=RR-114 !008
220 H$(R1)=SEG$(H$(R1),29,10
0)!178
230 IF LEN(H$(R1))>1 AND SEG
$(H$(R1),1,1)=CHR$(0)THEN H$
(R1)=SEG$(H$(R1),2,100):: GO
TO 230 !107
240 LINPUT #1,REC RR-8:A$ ::
 H$(R1)=SEG$(A$,1,100-LEN(H$
(R1)))&H$(R1)!041
250 FOR X=RR-114 TO 7 !026
260 H$(X)=H$(X)&H$(X+1)!196
270 H$(X+1)=SEG$(H$(X),129,1
28)!083
280 H$(X)=SEG$(H$(X),1,128)!
043
290 NEXT X !238
300 FOR X=122 TO RR STEP -1
!197
310 PRINT #1,REC X-8:H$(X-11
4)!072
320 NEXT X !238
330 OF$=SEG$(FN$,1,13)&"$$"
!203
340 OPEN #2:OF$,OUTPUT,DISPL
AY FIXED 128,SEQUENTIAL !013
350 FOR RR=0 TO 114 !249
360 LINPUT #1,REC RR:A$ :: P
RINT #2:A$ :: PRINT RR !226
370 NEXT RR !058
380 CLOSE #2 :: CLOSE #1 ::
DELETE !204
390 RUN !169
```

3. Turn everything off.

4. Dust off your old cassette recorder, find the cable and try to remember how it all hooks up. Plug in your Music Maker cartridge. Leave the expansion box connected to the console.

5. Power-up the console, leaving the expansion box off. Select Music Maker. Turn the expansion box on. (Your "real" disk drives are now invisible to the console, but the RAMdisk is available for use.)

6. Follow the Music Maker menus to LOAD a file from CS1. Press FCTN 6 (PROC'D).

7. Select Edit from the menu. Start at the first available measure after your music and "Copy All" from measure 1. (Write down the number of the measure you are now on.) Press FCTN 6 to advance to the next measure and Copy All from measure 2. Continue until you have copied measures 1 through 5. (The RAMdisk operating system will eat the pointers to measures 1 through 5. What you just copied will be copied back to the beginning in Step 14.)

8. Press FCTN 9 (BACK). Edit measure 1. Erase All. Pad all available space in all three voices with sixteenth notes. PROC'D to measure 2. Erase All and Copy All from measure 1. Continue until you have copied measure 1 into measures 2 through 5. (This is to insure that measures 1 through 5 are all the same big size. The patch program will run more reliably that way.)

9. Press BACK. Save the contents of memory to whatever drive you designated the RAMdisk as. (That was a whole lot faster than the Load, wasn't it?)

(See Page 20)

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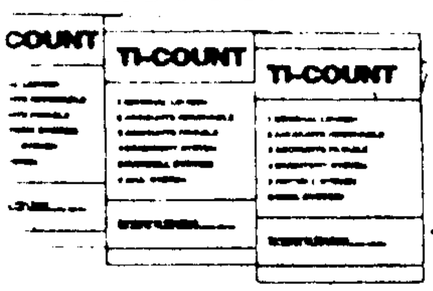

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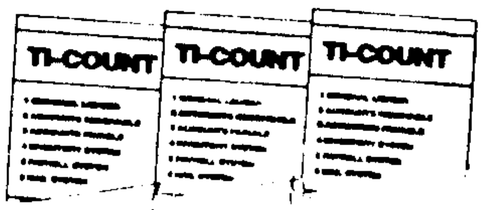

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MUSIC MAKER—

(Continued from Page 18)

10. If you have more cassette files to load, press BACK, answer the scary question with "Y" and proceed from Step 6. (It's a good idea not to try to load much more than one side of a C-60 cassette onto a double-sided RAMdisk.)

11. Exit Music Maker (FCTN =). Get into TI BASIC. CALL DM to enter the disk manager and copy the contents of the RAMdisk to a floppy disk. (The files on the RAMdisk will soon be messed with. The backup is insurance.) At this point, the RAMdisk should look something like this:

```
HRZN-EPROM Free  153 Used  583
Filename   Size Type/No. 12 P
---------- ---- ---------- -
CANON_IN_D   63 DIS/FIX 128 U
CHARA1        9 PROGRAM     P
DEAR_KATE    63 DIS/FIX 128 U
DORIMIFISO   63 DIS/FIX 128 U
FUR_ELISE    63 DIS/FIX 128 U
GOOD_VIBES   63 DIS/FIX 128 U
MG           33 PROGRAM     P
MH           29 PROGRAM     P
PATCH         6 PROGRAM     P
SMBDYCMNPL   63 DIS/FIX 128 U
SOLACE       63 DIS/FIX 128 U
TICONOFUBA   63 DIS/FIX 128 U
```

If there are less than 59 sectors available, delete something temporarily. It's on the backup, right?

12. Plug in Extended BASIC and run the patch program. It copies and shifts the measure pointers from the last few records (to 122) of your music file to where they need to be in order to operate with a disk system (to 114). Some dummy pointers are placed where the pointers to measures 1 through 5 were overwritten. A new file with a modified name is generated and the old file is deleted. (Deleting the old file releases disk space so the next file may be processed.) Notice that the new file is four sectors shorter than before. This program loops, prompting for a new filename, until you press FCTN 4 (CLEAR). (A lot of trial and error went into writing this program and procedure. My pain, your gain.)

```
HRZN-EPROM Free  185 Used  551
Filename   Size Type/No. 12 P
---------- ---- ---------- -
CANON_IN$$   59 DIS/FIX 128 U
CHARA1        9 PROGRAM     P
DEAR_KAT$$   59 DIS/FIX 128 U
DORIMIFI$$   59 DIS/FIX 128 U
FUR_ELIS$$   59 DIS/FIX 128 U
GOOD_VIB$$   59 DIS/FIX 128 U
MG           33 PROGRAM     P
MH           29 PROGRAM     P
PATCH         6 PROGRAM     P
SMBDYCMN$$   59 DIS/FIX 128 U
SOLACE$$     59 DIS/FIX 128 U
TICONOFU$$   59 DIS/FIX 128 U
```

13. Get into the disk manager and rename the files to what they were before.

```
HRZN-EPROM Free  185 Used  551
Filename   Size Type/No. 12 P
---------- ---- ---------- -
CANON_IN_D   59 DIS/FIX 128 U
CHARA1        9 PROGRAM     P
DEAR_KATE    59 DIS/FIX 128 U
DORIMIFISO   59 DIS/FIX 128 U
FUR_ELISE    59 DIS/FIX 128 U
GOOD_VIBES   59 DIS/FIX 128 U
MG           33 PROGRAM     P
MH           29 PROGRAM     P
PATCH         6 PROGRAM     P
SMBDYCMNPL   59 DIS/FIX 128 U
SOLACE       59 DIS/FIX 128 U
TICONOFUBA   59 DIS/FIX 128 U
```

14. Plug in Music Maker and LOAD a file from RAMdisk. Edit measure 1. Erase All, then Copy All from the first measure you created in Step 7. Press PROC'D. Repeat until measures 1 through 5 are restored. At times you may see nothing to erase. Erase it anyway. (You are forcing the computer to recalculate the measure pointers. Each PROC'D may take several seconds.)

15. Press PROC'D to peek into measure 6. If you see something there, everything is probably okay; go to the next step. If not, repeat Step 14, but edit the first 5 measures in 2 passes. First, Erase All and place a single note in measures 1 through 5. Then go back and Erase All and Copy All from the measures you created in Step 7.

16. Press BACK. (It may take several seconds to get a menu.) Select Play and follow the prompts. If it plays, okay. Save the contents of memory back to RAMdisk. If not, you may be in for a little trial and error. If it's any consolation, I tried to make this procedure as foolproof as possible.

17. Load and Edit and Save the rest of you files.

18. Get into the disk manager. Back up the RAMdisk to floppy. Throw away those *$%$#@! cassettes. You're home!

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Labels with impact

Label printer lets you express your thoughts

By ED MACHONIS

Take one sprightly grandmother, add a generous dash of Christmas Spirit, eight dashing grandchildren, several credit cards, and you'll find Grandpa reaching for the Christmas spirits whilst trying to wrap and label a small mountain of Christmas presents.

A couple of days later and hundreds of miles away, one finds those same dashing grandchildren trying to decipher Grandpa's spirited hieroglyphics while attempting to match presents with gift tags which have become detached enroute.

Grandma also does her thing on Valentine's Day, St. Patrick's Day, Easter, Halloween, Thanksgiving and a seemingly endless succession of birthdays; whilst a bespirited Grandpa valiantly struggles to keep up.

Truly, a problem in search of a program. Picture Grandpa one Christmas morn reaching into his stocking for the expected usual source of solace and finding instead an ancient manuscript written in a strange language. Entering the mysterious symbols into his trusty TI99/4A, Grandpa finds emerging from his printer a stream of decorative gift tags, suitable for every occasion and personalized for each grandchild.

This wondrous Extended Basic program, turns a nondescript ordinary 3½"x 15/16" mailing label into a gift tag much nicer than the "store boughten" kind, and one that will remain attached to its gift. A choice of eight different borders is offered. Colored ribbons (the printer kind) can be

(See Page 22)

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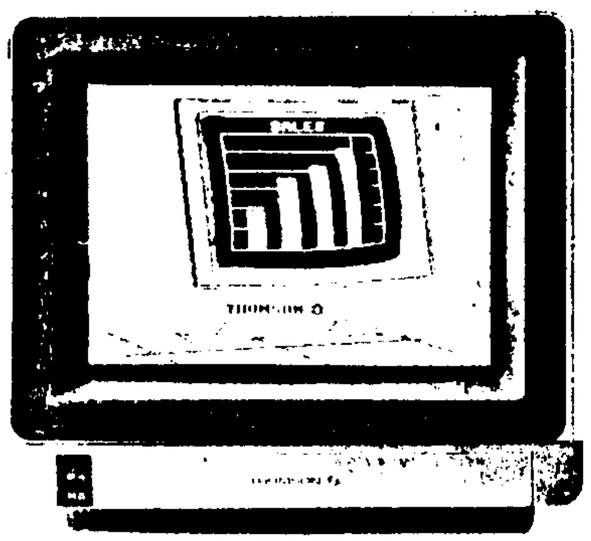

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LABELER—

(Continued from Page 20)

used for added effect.

As one might expect of a Santa production, the program is unusually user friendly. All entries become defaults for the next label, saving retyping of greetings and gift giver's names.

You can print a single test label and then repeat with the quantity desired; or you can change borders and greetings so that each label is different. The illustrated sample tags will give you an idea of the program's versatility.

The print codes are for Epson compatible printers and should work with most dot matrix printers capable of supporting double density graphics. Line 170 contains the print codes for placing the printer in this mode. Changes may be required for other printers.

In any event, borders 6 and 7 (dollar sign and asterisk) can be used with all dot matrix printers as they are standard ASCII characters and graphics mode is not used. Line 180 should be changed to read:

180 H$=" " :: B=1

There are two blank spaces between the quotes. Other ASCII characters may be substituted for different borders, just change lines 250 through 290 and 320 following the example of lines 300 and 310. Change line 220 to display the correct border.

Although not tested as such, it is believed that the program will work with borders 6 and 7 on daisy wheel printers if line 180 is changed as above and lines 340-350 are changed as follows:

340 RR$=RPT$(" ",12-(LEN(R$))/2+.5)&R$&RPT$(" ",13-(LEN(R$))/2)

350 N$=RR$

Change line 160 to have your printer print bold and delete any other print codes that confuse your printer. You can substitute any ASCII characters available on your daisy wheel for other borders as described above.

For dot matrix printers, border designs can also be changed by changing the graphic codes in lines 250 to 320. They are based on a 6x8 matrix expanded to 12x8 for double-density graphics.

When entering lines 220, 250, 260 and 320, type until you hear the beep, press Enter, then press REDO and finish typing the line.

One word of warning. The program contains hidden code; if you try to print more than 99 labels at one time, Grandma's credit cards will self-destruct!

```
10 ! ********** !025
20 ! *          * !151
30 ! * PRINT A TAG * !033
40 ! *          * !151
50 ! *    by    * !050
60 ! *          * !151
70 ! * Ed Machonis * !050
80 ! *          * !151
90 ! ********** !025
100 CALL CHAR(91,"2A542A542A542A54")! CHECKERED BLOCK !206
110 CALL CHAR(125,"10387C7CFE1038")! XMAS TREE !034
120 CALL CHAR(93,"00247E7E7E3C18")! HEART !226
130 CALL CHAR(96,"1018141434 7060")! MUSIC NOTE !2??
140 CALL CHAR(124,"10781410182C64")! WALKER !037
150 CALL CHAR(123,"3C42A581A599423C")! HAPPY FACE !178
160 OPEN #1:"PIO.CR" :: PRINT #1:CHR$(27);"E";CHR$(27);"G" !177
170 K$=CHR$(27)&"L"&CHR$(12)&CHR$(0)!139
180 H$=K$&RPT$(CHR$(56),2)&RPT$(CHR$(124),2)&RPT$(CHR$(62),4)&RPT$(CHR$(124),2)&RPT$(CHR$(56),2)&" " :: B=1 !234
190 DISPLAY AT(1,3)ERASE ALL:"***  PRINT A TAG  ***" !188
200 DISPLAY AT(3,2):"GREETING? (17 CHAR'S MAX)" :: DISPLAY AT(4,2):D$ :: ACCEPT AT(4,2)BEEP SIZE(-17):D$ !055
210 DD$=RPT$(" ",(17-LEN(D$))/2)&D$&RPT$(" ",(18-LEN(D$))/2)!169
220 DISPLAY AT(6,2):"CHOOSE BORDER:":" 1= [ [ [ [","  5= ! ! ! !"," 2= ) ) ) )","  6 = $ $ $ $"," 3= ] ] ] ]","  7= * * * *"," 4= \ \ \ \","  8= ( ( ( (" !177
230 DISPLAY AT(11,2):STR$(B) :: ACCEPT AT(11,2)BEEP SIZE(-1)VALIDATE("12345678"):B !076
240 ON B GOTO 250,260,270,280,290,300,310,320 !127
250 B$=K$&RPT$(CHR$(85),2)&RPT$(CHR$(170),2)&RPT$(CHR$(85),2)&RPT$(CHR$(170),2)&RPT$(CHR$(85),2)&RPT$(CHR$(170),2)&RPT$(CHR$(85),2)&RPT$(CHR$(170),2)&" " :: GOTO 330 !CHECK'D BLOCK !190
260 B$=K$&CHR$(4)&CHR$(12)&CHR$(28)&CHR$(60)&CHR$(125)&CHR$(255)&CHR$(125)&CHR$(60)&CHR$(28)&CHR$(12)&CHR$(4)&CHR$(0)&" " :: GOTO 330 ! XMAS TREE !129
270 B$=H$ :: GOTO 330 ! HEART !195
```

(See Page 24)

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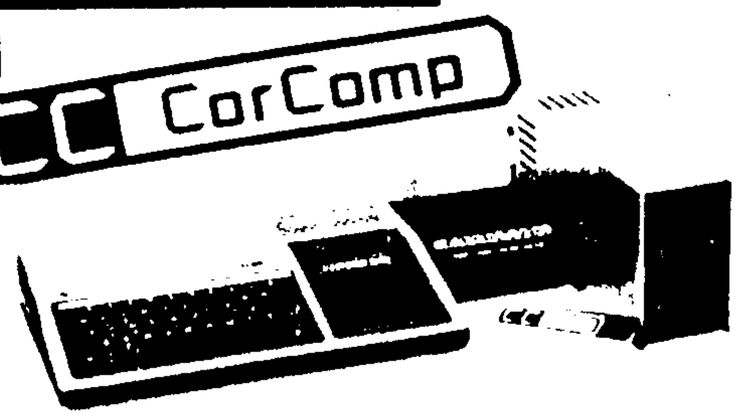

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LABELER—

(Continued from Page 22)

```
280 B$=K$&RPT$(CHR$(6),2)&RP
T$(CHR$(14),2)&RPT$(CHR$(252
),2)&RPT$(CHR$(64),2)&RPT$(C
HR$(56),2)&RPT$(CHR$(0),2)&"
 " :: GOTO 330 ! MUSIC NOTE
!135
290 B$=K$&RPT$(CHR$(66),2)&R
PT$(CHR$(70),2)&RPT$(CHR$(24
8),2)&RPT$(CHR$(76),2)&RPT$(
CHR$(38),2)&RPT$(CHR$(0),2)&
" " :: GOTO 330 ! WALKER !18
3
300 B$=CHR$(36)&" " :: GOTO
330 ! DOLLAR SIGN !008
310 B$=CHR$(42)&" " :: GOTO
330 ! ASTERISK !092
320 B$=K$&CHR$(60)&CHR$(66)&
CHR$(137)&CHR$(165)&CHR$(133
)&CHR$(133)&CHR$(133)&CHR$(1
33)&CHR$(165)&CHR$(137)&CHR$
(66)&CHR$(60)&" " :: GOTO 33
0 ! HAPPY FACE !085
330 DISPLAY AT(13,2):"RECIPI
ENT? (12 CHAR'S MAX)" :: DIS
PLAY AT(14,2):R$ :: ACCEPT A
T(14,2)BEEP SIZE(-12):R$ !04
6
340 RR$=RPT$(" ",(12-LEN(R$)
)/2)&R$&RPT$(" ",(13-LEN(R$)
)/2)!229
350 N$=CHR$(27)&"W1"&RR$&CHR
$(27)&"W0" !101
360 DISPLAY AT(16,2):"FROM?
(25 CHARACTERS MAX)" :: DISP
LAY AT(17,2):G$ :: ACCEPT AT
(17,2)BEEP SIZE(-25):G$ !001
370 GG$=RPT$(" ",(29-LEN(G$)
)/2)&G$&RPT$(" ",(30-LEN(G$)
)/2)!181
380 DISPLAY AT(19,2):"NUMBER
 OF LABELS TO PRINT?" :: DIS
PLAY AT(20,2):"1" :: ACCEPT
AT(20,2)BEEP SIZE(-2):Q !230
390 DISPLAY AT(22,2)BEEP:"AL
IGN LABEL":" PRESS ENTER TO
PRINT":" PRESS ""R"" TO REDO
" !133
400 FOR D=1 TO 50 :: NEXT D
!196
410 CALL KEY(0,K,S):: IF K=1
3 OR K=82 THEN 420 ELSE 410
!242
420 IF K=82 THEN 190 !248
430 FOR I=1 TO Q !143
440 PRINT #1:RPT$(B$,4);DD$;
RPT$(B$,4);CHR$(13);CHR$(10)
!107
450 PRINT #1:B$;"To:";N$;" "
;B$;CHR$(13);CHR$(10)!076
460 PRINT #1:B$;"    WITH "
;H$;"LOVE ";H$;" FROM     "
;B$;CHR$(13);CHR$(10)!064
470 PRINT #1:B$;GG$;B$;CHR$(
13);CHR$(10)!117
480 PRINT #1:RPT$(B$,10);RPT
$(B$,7);CHR$(13);CHR$(10)!06
0
490 PRINT #1:CHR$(13);CHR$(1
0):: NEXT I :: GOTO 190 !203
```

Video board for Geneve promises sophisticated editing capability

Videoflex and "frame grabber" cards for use with the Geneve 9640 are under development by Millers Communications of Seattle, Washington.

Dave Miller of the company says it hopes to begin manufacture of the cards in early 1988.

The videoflex card is a device which allows the user to superimpose or overlay graphics or text over a signal from a VCR or television (an NTSC video composite).

The frame grabber or frame storer samples a signal at 30 times per second. Any time the user wants to "grab an image" off the TV or VCR he can push a button, Miller explains, and it digitizes it in a form the Geneve can read. This can be brought back to the VCR and used.

"You could digitize an image of Johnny Carson, change the color of his eyes and put it with other graphics," he says. "You can simulate the crash of a 747 in Boston."

He anticipates the cost of the videoflex card to be between $700 and $1,000 and the frame grabber to be between $900 and $1,500. He notes that similar products for other computer systems cost approximately $25,000.

He says the cards are "not for your average full configuration system user, they're for somebody seriously interested in video or in graphics. It allows for the final editing of the product."

As a video production professional who "couldn't afford the $25,000 price," he decided to build the cards, he says.

He notes that the videoflex card provides a high-resolution RGB analog to composite conversion. This means that the user can use the high resolution RGB the Geneve offers on a composite screen.

For a handout with more detailed information and engineering specifications write Millers Communications, 8815 18th Avenue, S.W., Seattle, WA 98106.

IP changes business focus

Innovative Programming, Box 2737, Rohnert Park, CA 94928, is moving away from the TI market and focusing on localized desk-top publishing, according to Galen Read of the company.

Read says the company will fulfill outstanding TI orders and accept new ones. He says the company's 800 number will probably be disconnected in January.

The company no longer carries DataBioTics products or serves as their technical hotline, Read says. He notes that Innovative Programming is also no longer maintaining a bulletin board.

"We will maintain contacts with CorComp and Myarc and put out a catalog once a year if there is sufficient interest," Read said.

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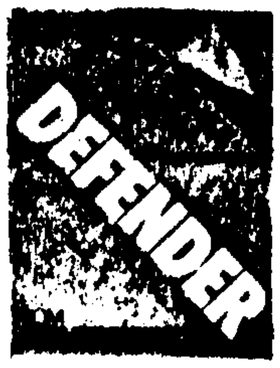

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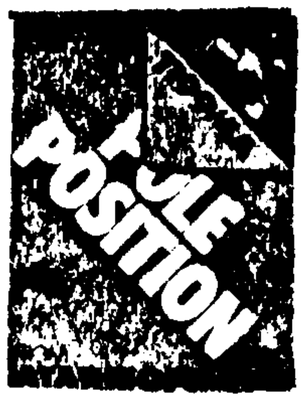

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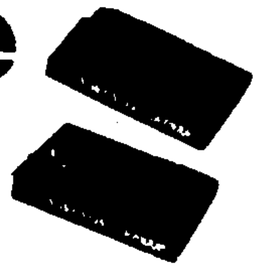

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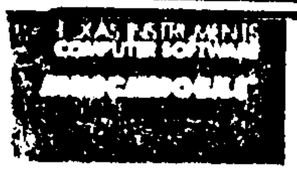

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Forth tips

Converting Forth screens to D/V80

By LUTZ WINKLER

Some time ago, there was a program floating about to convert Forth screens to DIS/VAR 80 files. If memory serves me correctly, it was 13 (!) screens long and required a lot of typing by the user including that ugly F-D" word.

Now, in the September issue of the LA "TopIcs" newsletter (with credit to the TINBS newsletter) I spotted a three-screener to do the same thing. Though 16-line screens are shown, the article states that the code is Wycove and I/O specific words would have to be replaced to make it work in TI-Forth. If you don't know what Wycove's I/O words mean (or do), this is a bit hard to do.

Here, for all the writers who wish to include Forth screens in text files but have no desire to enter them manually, is a two-screener that not only transfers screens to D/V80 files, but also does it in reverse. And it works in standard TI-Forth:

```
0  ( SCREENS>FILE ) BASE->R DECIMAL  0 CLOAD F>S   68 CLOAD STAT
1   HEX  0 VARIABLE BUF 4E ALLOT
2   PABS  2+ BUF 1400 FILE XF  XF
3   : FNAME ( -- cnt )  CR ." Filename: " PAD 40 20 FILL
4           PAD 1+ 30 OVER OVER EXPECT -TRAILING 2- -DUP ;
5   : SETFILE ( n-- ) IF XF  SET-PAB VRBL 50 REC-LEN DUP
6                      ROT 1- C! 1+ PAD  PAB-ADDR  9 + ROT VMBW
7                     ELSE DROP APPND THEN ;
8   : S>F  FNAME SETFILE OPN
9          CR  ." Start from screen: " QUERY INTERPRET
10         CR  ."   End with screen: " QUERY INTERPRET 1+ SWAP
11         DO I BLOCK 400 OVER + SWAP
12          DO I BUF 20 MOVE BUF 40 -TRAILING 1 MAX WRT DROP
13         40 +LOOP LOOP CLSE
14         CR CR ." S>F, F>S or FORGET BUF" CR ;
15  R->BASE -->

 0  ( FILE>SCREENS )
 1   BASE->R HEX
 2   : EOF  STAT 1 AND 0= ;
 3   : F>S  FNAME SETFILE OPN
 4          CR ." Destination screen: " QUERY INTERPRET
 5          CR ."  How many screens?: " QUERY INTERPRET
 6          OVER + SWAP
 7       DO EOF IF I BLOCK UPDATE 400 OVER OVER 20 FILL OVER + SWAP
 8        DO EOF IF RD BUF I ROT CMOVE ELSE LEAVE THEN
 9        40 +LOOP
10           THEN
11       LOOP CLSE FLUSH
12       CR CR ." F>S, S>F or FORGET BUF" CR ;
13  R->BASE
15  CLS CR ." Enter S>F for screens to DV80 file,"
16       CR ."     or F>S for DV80 file to screens." CR CR ;S
```

The original version of this routine comes from Michal Jaegermann of the Edmonton, Alberta, users group and is only one screen long. However, it works only with the enhancements he has incorporated in his file I/O load option. I adapted it to work with the normal -FILE load option and added some on-screen prompts which increased its size to two screens. Even though this is a step backwards — at least from Michal's version — it's still a considerable improvement over the 13-screener and a useful one if you don't happen to have Wycove. With the prompts it is self-explanatory and requires only one comment: If you have written a number of (consecutive) screens to a file and wish to add more to the same file, press ENTER instead of entering a new file name. For example, you have established a file named DSK2.SCREENS and transferred screens 32 through 45 to it. If you opt for S>F again and press ENTER at the "Filename:" prompt, the next entries, say from starting screen 60 to ending screen 66, are appended to the earlier transfer. Your "SCREENS" file will contain screens 39-45 and 60-66.

Please note that only the contents of each screen are written to the file. For use in an article, such as this one, you will have to insert some blank lines to separate the screens. For eye appeal you may also want to add line numbers as I have done here.

User groups

These are updates and additions to our listing of user groups worldwide, begun in our May 1987 issue.

California

San Fernando Valley 99ers, 2823 Sanborn Ave., La Crescenta, CA 91214 (new address). Contact: Jim Edwards, president (818) 248-9558. Meets at 7:30 p.m. the second Wednesday of each month in the Doctor's Conference Room, Sherman Oaks Community Hospital.

Texas

Pastors' User Group, Drawer O, Hempstead, TX 77445 (new address). No fee, but gifts or contributions no longer turned away. International group, about 60 percent of whom are clergy.

Outside U.S.

Australia

TiSHUG (Texas Instruments, Sydney Home User Group), P.O. Box 214, Redfern, New South Wales 2016. Contact: Terry Phillips, honorary secretary. Founded May 1981, approximately 300 members. Meets first Saturday of each month, with meetings generally on a set theme. At least two full-day meetings each year, generally tutorial programming workshops or technical workshops. Also, regional home groups meet in members' homes. TiSHUG New Digest published 11 times a year; BBS with member-written software; publications library with hundreds of newsletters and books; software library with more than 1,800 programs, shop with hardware, software and consumables available to members. Group has recently built 123 RAM cards and has been involved in installing 32K memory expansion into members' consoles. Overseas memberships available at $30 U.S., ensures air mail delivery of TiSHUG News Digest.

Canada

Channel 99 Users Group, 77 Lavina Crescent, Hamilton, Ontario L9C 5S8. Contact: Tom Arnold, president (416) 385-5576.

National E-Mail registry

A national E-Mail registry, The White Pages, is avalable to modem users. It lists thousands of subscribers, both individuals and companies. The directory operates through an automated search system. When the user makes a search for someone, he receives information on which commercial or public telecommunication system he can be found by E-Mail. Registration is free. Each search is the cost of the call to the service and 20 cents per search (no charge if not found). To register, set your terminal for 7 bits, even parity, 1 stop bit, 300, 1200 or 2400 baud and call 1-800-622-0505.

Geneve

Differences in systems described

By MIKE DODD

In the October issue of MICROpendium, Mack McCormick wrote a review of the Mechatronics 80-column card. Mack has always been a real asset to the 99/4A community, and it sure is nice to see him back writing again.

There are a few points that I would like to make about the review. The Geneve operating system mentioned was a very early version (essentially a command-line Editor/Assembler) that is no longer in use. Unfortunately, I don't believe that the current M-DOS will work with the Mechatronics 80-column card.

The Mechatronics card is centered around the MSX-9938 VDP chip, the same video chip used in the Geneve. The Geneve also has the equivalent of a Rave keyboard and a GRAM Kracker.

The Geneve, however, also includes many other features that the TI setup cannot. Here's a list of the features of both setups:

4A,GRAM,80-col, Rave keyboard	Geneve
GRAM emulation	GRAM emulation
IBM keyboard	IBM keyboard
MSX-9938 VDP chip	MSX-9938 VDP chip
32K CPU RAM (not bank-switchable)	512K CPU RAM (bank switchable)
CRU keyscan	IBM key-code keyscan 9640 mode, where memory mapped I/O is clustered around >F000 Clock chip RAM at >0000 mouse support M-DOS XOP calls, allowing use of many system calls from assembly programs.

(XOPs are routines allowing a program to access certain subroutines in another program — in this case, M-DOS).

Probably most Geneve programs will take advantage of the advanced memory bank-switching available, and I would think that many will use 9640 mode and

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M-DOS XOP calls. While mouse, clock, and 512K RAM support are available for the 99/4A, they are accessed in a radically different way than the Geneve. Therefore, the programs written to use those peripherals will not be interchangable between the 99/4A and 9640.

One of the new features of the Geneve is time and date stamping of your files. This information is available from Extended BASIC with an extension of a catalog disk program (commonly printed in manuals to disk controllers). Look for the INPUT statement that reads the file name, size, and file type. After the last variable, add a list of 12 variables.

The first six are the time and date of creation, and the last six are the time and date of the last update. The numbers are, in order, second, minute, hour, date, month, year. One other difference in the catalog is that, where before the record length (e.g. 80 for a Dis/Var 80 file) would be returned as 0 for Program files, it now contains the total length of the program in bytes. Here is a modified catalog program that uses these new features: (The listing uses Tom Freeman's checksum program, listed in the October 1987 MICROpendium.)

```
100 DIM E(11)!104
110 CALL CLEAR !209
120 INPUT "Drive number? ":A
 !095
130 B$="DSK"&STR$(A)!017
140 OPEN #1:B$&".",INPUT ,RE
LATIVE,INTERNAL !243
150 INPUT #1:A$,A,A,B !128
160 PRINT B$&" = "&A$:"Free
=";B;"used = ";A-B:" Filenam
e  Size    Type     P--------
-- ---- ---------- -" !165
170 FOR A=1 TO 127 !155
180 INPUT #1:A$,B,C,D,E(0),E
(1),E(2),E(3),E(4),E(5),E(6)
,E(7),E(8),E(9),E(10),E(11)!
127
190 IF LEN(A$)=0 THEN 380 !2
16
200 PRINT A$;TAB(12);C;TAB(1
7);SEG$("D/FD/VI/FI/VPrg",3*
ABS(B)-2,3);!163
210 PRINT SEG$("      ",1,6-L
EN(STR$(D)));D;!232
220 IF B>0 THEN 240 !232
230 PRINT TAB(28);"Y";!194
240 PRINT :"Created:  ";!231
250 FOR B=0 TO 7 STEP 6 !231
260 IF B=0 THEN 280 !015
270 PRINT "Updated:  ";!065
280 A$="" !234
290 B$="/" !027
300 FOR C=B+4 TO B STEP -1 !
238
310 A$=A$&SEG$("0",1,2-LEN(S
TR$(E(C)))&STR$(E(C))&B$ !0
44
320 IF C>B+3 THEN 340 !084
330 B$=":" !038
340 NEXT C !217
350 PRINT SEG$(A$,1,6)&STR$(
E(B+5))&" "&SEG$(A$,7,8)!193
360 NEXT B !216
370 NEXT A !215
380 END !139
```

Line 180 is the INPUT statement with the extra numbers appended. There is also an INPUT statement in line 150, but as this line reads the disk name, free, and used sectors, we do not need to append the time and date information onto it. Lines 240—360 print the time and date stamp. The program is written in console BASIC, but runs equally well in Extended BASIC.

QUESTIONS & ANSWERS

Richardo Czarski of Jones, Oklahoma, asks several questions about the 9640. Among them are:

How can you change the color of the MDOS screen?

Unfortunately, there is no DOS function currently available from the user level to change the color. Perhaps Myarc will decide to put one in — it would certainly be nice for all of us with monochrome monitors. In the meantime, John Johnson, SysOp on GEnie, has uploaded a program called MYCOLOR, which is very short program to change the color of the MDOS screen. If you are on GEnie, you can download it from there. The program is also available from some Users' Groups and private BBSes.

Why did my clock lose nine hours in two weeks?

This could happen for several reasons. It is important to decide if the clock did actually slowly lose the time over a two-week period, the way a slow clock would, or if it suddenly lost nine hours. If the former, you could have a defective (or dead) battery or clock crystal. If you think that that is the cause, you should contact Myarc. Having the clock suddenly lose time for no apparent reason could be the result of many causes. One would be a small power surge — the clock is a very delicate chip. Another would be a computer lockup — frequently when the computer locks up, the clock is changed or reset. You can reset the time and date with the TIME and DATE commands from MDOS.

Will I always have to enter GPL mode to load MY-Word? What about the other programs, e.g. Multiplan and MY-Art?

For now, MY-Word and Multiplan both run in 99/4A mode. With Multiplan, this is unlikely to change, since a large part of the program is written by TI and would require extensive changes to convert to 9640 mode. However, Myarc does have plans to convert MY-Word to run in 9640 mode, and thus load from the A> prompt of MDOS. Most new Geneve-specific products will run from MDOS. MY-Art is one such program.

Is anyone doing anything about the caps lock reversal when GPL is loaded?

This will probably be fixed, but it brings up an important point. Both the caps lock and num lock keys are sometimes reversed, showing the indicator light on when the internal status is off (or vice-versa). To fix this, simultaneously press CTRL and caps

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New phone number for Houston BBS

The Houston Users Group's BBS has a new telephone number.

Bill Knecht, the former sysop, had to resign as sysop because of ill health.

New phone number for the board is (713) 781-4844. Sysop for the board is Henry Schlereth.

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lock or num lock. This will cause the internal status of the key to reverse, while keeping the light the same.

How come the 9640 puts out RFI interference so bad, I can't use my rabbit ear's antenna on my TV two rooms away?

I personally have not found that the 9640 itself puts out much interference — less, in fact, than the 99/4A console. However, some monitor cables (not the monitor itself, but the cable), especially those running to a composite monitor, have been found to put out incredible amounts of RFI intererence. This is the case with my cable. To see if this is the case, try running the 9640 with the monitor cable unplugged, but the monitor on. If the problem goes away, it is probably the monitor cable. If that is not the cause, try turning off or removing various components of your system until you have isolated the culprit. For instance: turn off the monitor, remove the disk controller, remove the RS232, remove the Geneve. Do these one at a time. If indeed it is the 9640, you should contact Myarc for repair information. If it is in some other component of your system, contact the manufacturer of that product. If it is the monitor cable, I am not sure what to suggest. I have not yet been able to find a solution. Perhaps one of MICROpendium's readers can suggest a fix?

Steve Grob, of Dekalb, Illinois, asks if a VT220/VT100 terminal emulator program exists for the Geneve.

Unfortunately, I do not know of any existing program to emulate the VT220/100 series. There are several authors working on terminal emulators at the moment, though, so perhaps one of them will add that capability.

A note on the Geneve version of the Myarc Disk Manager III program: You should not exit the program by pressing CTRL-SHIFT-SHIFT to exit to the GPL loader screen. Rather, you should exit in the normal fashion, by choosing "Goodbye" from the main menu. The reason for this is that the Myarc DM3 uses some cartridge space memory for buffers. Choosing Goodbye will cause this area of memory to be restored, but if you exit with CTRL-SHIFT-SHIFT, the program does not have the chance to restore the cartridge space — thus, that area of memory will require reloading.

A few people have asked me if the Geneve version of the Myarc DM had changed all three files, or just DM1 and DM2. All files have major functional changes, and you should not mix the three files from various versions.

Readers with questions about the Geneve are encouraged to submit them to Dodd at 116 Richards Dr.; Oliver Springs, TN 37840. Answers will be published in this column.

REMIND ME!—

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new month and then move the text into daily windows.

The program disk contains two versions of Remind Me! The first is the standard REMIND program that loads as an E/A option 5, program image type file. A special loader, LOAD, is provided to load REMIND from Extended BASIC.

The second version of Remind Me! is called REMIND-SC. It can be loaded into a Super-Cart type of module allowing selection of Remind Me! from the power-up menu. The Super-Cart module (MICROpendium, June 1985) has 8K of battery backed RAM in the command module space. The commercial product is Super Space, available from DataBioTics.

The program is the only one I know of that will make use of several different real-time clocks. It will use the CorComp clock peripheral and Triple Tech clock, the MBP clock, the Myarc 9640 computer clock and the 8K DSR RAM project clock.

The manual is one thing I almost forgot to mention. It was written by J. Peter Hoddie and as you would expect is very well done. In fact, the clarity of the manual and the program design make learning to use Remind Me! effortless.

In conclusion, I use Remind Me! on a daily basis and would highly recommend it to anyone who uses a computer regularly. You'll be surprised at how useful it will be.

NOTICE TO HOLDER BUYERS

We are temporarily out of stock of plastic holders for MICROpendium. We expect a shipment by the end of December. Orders will be shipped at that time. Thanks for your patience.

Remind Me!

A computerized desk calendar

By JOHN CLULOW

Serving the same functions as a desk calendar, Remind Me!, by John Johnson, is easier, faster and more fun to use.

Remember what writing was like before word processors? The computer certainly made a big difference in how I felt about writing, and Remind Me! has had a similar effect on my use of the calendar for planning and recording daily events. In using Remind Me! at work, I was surprised at how many interesting applications it can have.

The central idea is a simple one. You select a month, and Remind Me! displays that month's calendar. Existing entries for the month are automatically loaded from disk. (If you have a real-time clock, the program uses the current date as the default and continuously displays time of day.) You can then enter or edit information for any day in the month, save the month's data on disk, load data for another month and even search for a word or phrase in all the daily entries.

The calendar display is the kind of monthly wall calendar we're all familiar with: rows of boxes with columns headed by day of the week. Each box has a number in the upper left corner to indicate the date. To select a date, you use the arrow keys to move a white bar. Once you have positioned the bar on the right date, you just press ENTER to open the "window" for that date.

The window is a large box, 12 lines of 38 characters, which looks like it's superimposed on top of the calendar. You can type text into the window using edit features like those found in TI-Writer and Editor/Assembler editors. When you have finished, you close the window with FCTN 9. Any days which have text stored in their windows are indicated by a white dot in the lower left corner of the box.

At the bottom of the screen, there's a prompt line showing the keys that activate Remind Me! functions: (L)oad, (S)ave, (P)rint, (E)rase, (F)ind, (C)onfig and (B)ye. Save and Load are used to transfer information to and from disk. By the way, the files are stored in D/V 80 format so they can also be loaded into TI-Writer if you wish.

Review

Report Card

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

Cost: $15 + $1 postage and handling.
Distributor: Genial Computerware, Box 183, Grafton, MA 01519.
Requirements: 32K memory, disk drive. Real-time clock, Supercart and printer optional.

The Print function lets you make neatly formatted hard copy for some or all of the days in a month. The output automatically provides for skip over perforation, and you can specify up to seven printer control characters to be sent before the actual text. The Configure function allows you to set up the printer name, control characters, and special characters to be used for horizontal and vertical lines. (If you want to send the output to a TI-Writer type disk file, you can speciry a file name rather than a printer.

In addition, the Configure function allows you to set up the screen colors you prefer and the default drive that will be used to store your monthly calendar data. You can also specify the default day, month and year. If you don't have a real time clock, changing this data once a month will provide the current month and year as defaults when you enter the Remind Me! program.

As an example of the special attention given to ease of use, the Configure function does not create a separate file on disk the way many programs do. When you save the data for your configuration, you're actually saving a modified copy of the REMIND program itself with your requirements built in. This way you can load the program faster and don't have a separate data file to keep track of.

Find and Erase work together and greatly increase the utility of Remind Me! The Find function allows you to search for a string in all of the entries for a month. The string can be up to 24 characters long, and upper and lower case are not distinguished. If the entry for a day contains the string, a check mark appears in that day's box. You can then move the bar to the days with a check to review their contents. The check marks stay on the screen to review their contents. The check marks stay on the screen until you use the Erase function. This means you can search for several different strings in a row and allow their check marks to accumulate on the screen. If you're using Remind Me as a daily diary of activities, the Find function comes in handy: You can very quickly pin down what day an event took place without having to read through lots of entries.

In addition to the windows for days of the month, Remind Me! provides a general purpose "Scratch Pad" window. This Scratch Pad appears when you press the space bar. You can use it to record reminders and notes that are not specific to a given day. It is saved along with all the daily entries when you save the month's data. If you are working on one month and then decide to load a new one, the Scratch Pad for the new month will be loaded. But if there are any blank lines in it, those lines from the previous Scratch Pad will be retained. You can use this feature to carry text from one month to another.

Control P prints the contents of the window on the screen at the time. Most of the function keys work the same as in BASIC or TI-Writer. For instance, Function 3 deletes the current line of text, Function 1 deletes a character, etc. Two exceptions are Function 5 and 6. Function 5 copies the current line of text from a window and retains it in a buffer as long as you're in the program or until you use Function 5 again. Function 6 copies the text from the buffer into the existing window. These two keys allow you to pick up text and put copies wherever you want, in other days or even in other months. Since the scratch pad is retained if a new month being loaded doesn't have one, you can copy lines into the Scratch Pad using Function 5 and 6, loadi

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Certificate 99

Make your own documents

By STEVEN D. MEHR

When I heard that Great Lakes Software was going to release Certificate '99, a certificate and sign making program for the TI, I couldn't wait to receive it. Having an immediate application for the program, I was anxious to start printing documents with my TI that were up until now quite difficult, if not impossible to produce.

Certificate '99 lets you create professional looking certificates, awards, diplomas, licenses, signs, advertisements, etc. Included with the program are 6 text fonts, which you can output in two sizes, 12 border designs, and 24 custom graphic designs. A supply of single sheet parchment paper and gold foil seals are also included to get you started right away.

Ease of Use: The program is very easy to use. The program may be loaded from either the Extended BASIC, Editor Assembler, Mini-Memory, or TI-Writer modules. After deciding on a method of loading the program, you are presented with a very nice title screen. Any key press at this point will bring up the message to either insert the data disk or flip the ''flippy'' disk (my version was on a flippy) and press a key. The program now searches the diskette for default information which is saved during each session.

The program can be broken down into six categories: Font Selection, Border Selection, Graphic Selection, Signature Selection, Text Entry, and Printer Output as described below.

Font Selection: You are presented with a menu of six different fonts to choose from with a sample, ''ABC123'', of what each looks like, WYSIWYG (What You See Is What You Get), a very nice touch used throughout the program. Although the sample characters are shown in uppercase, lowercase characters are also available for use in your certificate. After deciding on which font to use (only one per certificate is allowed) you are asked whether you would like your text auto-centered.

Border Selection: You now must choose from 12 border designs to use. Pressing any key will cycle through each border on the screen showing a sample of what each looks like, WYSIWYG. You may also choose not to have a border by selecting ''No Border'' from the menu. When your selection is on the screen, you simply press the ENTER key.

Graphic Selection: Now you may select a graphic design to include in your certificate from a menu, again WYSIWYG, of 24 graphic designs included with the program. You may also choose ''No Graphic'' if you desire. Selecting from this menu is the same as with the border menu, pressing Enter to make your selection. After deciding on a graphic to include, you have the option to magnify it.

The following option deals with the placement of the graphic on your certificate and is directly related to weather it is magnified or not. If you choose to magnify the graphic, you have six positions on your certificate to choose from, three across the top and three across the bottom. An unmagnified graphic is allowed to occupy three additional positions across the center for a total of nine positions to choose from.

Signature Selection: You may also include a signature in your certificate if you desire, from a menu of seven different personality figures. You may also select a blank line to add your own signature later, or no signature at all. After making this final choice, you may start to input your text.

Text Entry: You are presented with a full screen editor with two windows, one occupying the top half of the screen and one occupying the bottom half. The top window can be used for inputting large text like a title or heading, and the bottom win-

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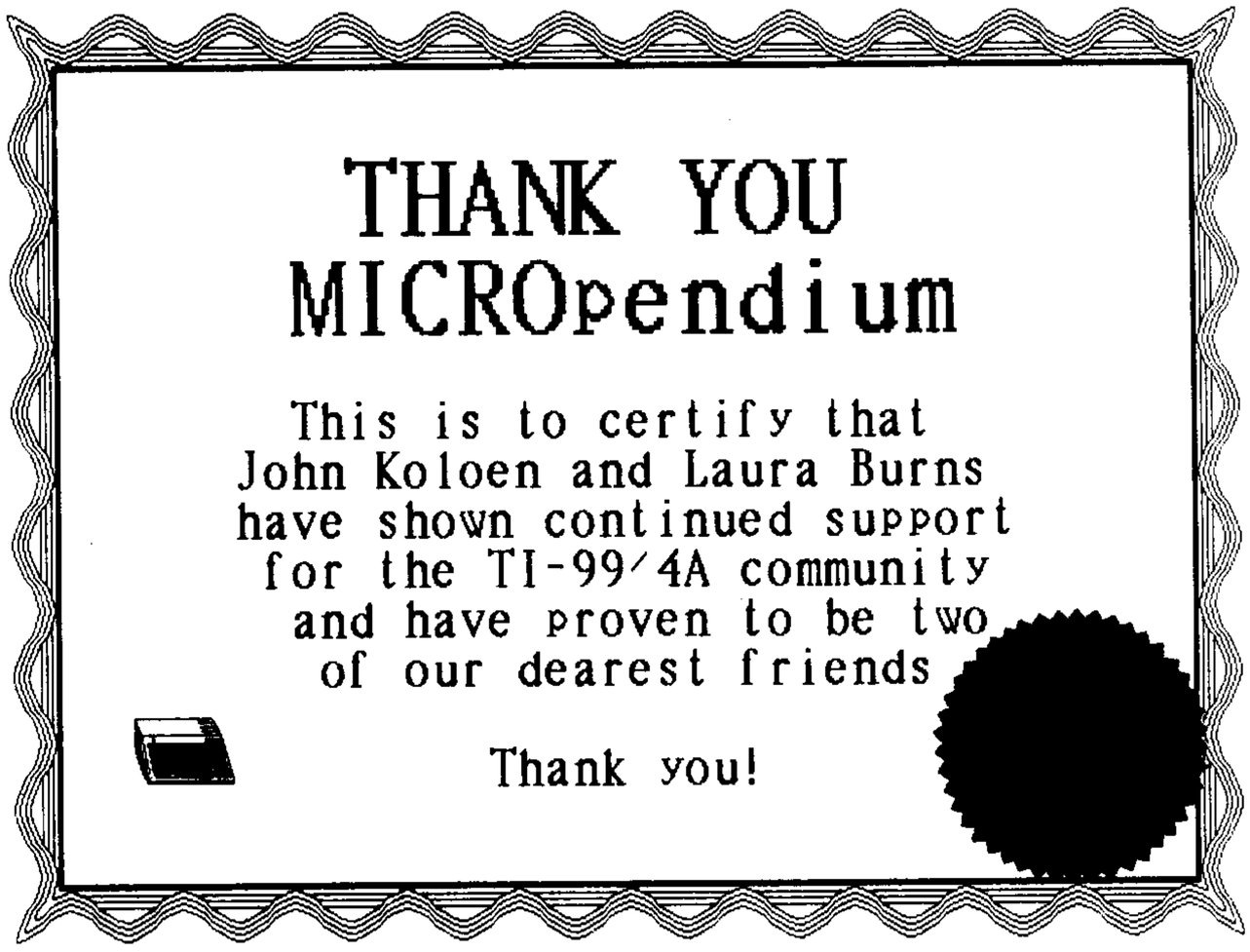
Review

Report Card

Ease of Use	**A**
Performance	**C**
Documentation	**B**
Value	**B**
Final Grade	**B**

Cost: $19.95 plus $1.00 shipping
Manufacturer: Great Lakes Software, 804 E. Grand River Avenue, Howell, MI 48843
Requirements: 32K memory, disk system, Epson/Star or compatible printer, and Extended BASIC, Editor Assembler, Mini Memory or TI-Writer



CERTIFICATE 99—

(Continued from Page 31)

dow for entering smaller text for the body of your certificate. You may choose to use the top window for entering large text only, the bottom window for small text only, or both for including large and small text together in your certificate. Since everything added to your certificate takes up space, like graphics and signatures, the text editor will graphically indicate these areas for you by highlighting them in both windows. Text entry is not allowed in these highlighted areas as they would be overwritten by your previous selections. As you enter text, the relative area in the opposite window you are entering text in is highlighted also. Using this technique of text entry, the program can format your input as you enter it, WYSIWYG, allowing you to visualize what your final creation will look like.

Printer Output: When text entry is completed, you must enter your printer device name and answer whether you want your certificate output in single or double-density. Single-density is fine for your first few drafts while double-density produces a much finer looking "suitable for framing" certificate. After answering these last few questions, your certificate begins to print. During printing, FCTN 4 is active to abort printing. After printing is completed, you are asked weather you want to continue. You are then asked for a number corresponding to a text and screen color combination. After entering this number, the program saves this information to your data disk and then responds to your choice of continuing the program or not. Although single sheet parchment paper was included with my copy, tractor feed continuous paper also works well.

Performance: The program performs well with a few complaints. First, the minor ones: The blue ribbon type graphic on the certificate shown on the title screen isn't available as one of the predefined graphic designs included with the program. I guess you are expected to create this one yourself. Some characters could have been created with more care for some of the fonts as the spacing between characters isn't always the same.

Text entry is somewhat slow when using FCTN 1 (delete) or FCTN 2 (insert), especially when auto-repeating. For example, I found it faster to hold down the space bar over unwanted text than to use FCTN 1. Even though you have full screen editing when entering text in the windows, using FCTN E (up arrow) or FCTN X (down arrow) to move around in the windows seems a little sluggish. Also, there is no provision to exit text entry other that to move the cursor to the last line of the bottom window using the ENTER key or FCTN X (down arrow). Using FCTN 6 (proceed) or some other key to signal the end of text entry would speed things up quite a bit.

You also have the ability to select from four screen and text color combinations, saved at the end of your session, but you don't know what color choices are available until you save your choice to disk, and then create another certificate.

Another minor annoyance is the default settings. Upon running the program for the first time, certain defaults are set up by the manufacturer. After creation of your first certificate, every option selected is automatically saved to your data disk and will be used as defaults for your next session. This feature is nice, to a point. It would have been better to allow the user to save certain configurations to disk and have them called up from a menu. For example, if you use certain options most of the time, it is nice to have them appear as defaults such as a certain font or border. But suppose you need to create something totally different for a one time certificate, sign, etc. Your original defaults are now replaced with your one time selections. It appears that your selections throughout the program are saved to disk as you enter them, apparently allowing the use of FCTN 9 discussed later. Using a buffer to store this temporary information and asking at the end of your session if you would like your selections saved to disk as defaults would have been a more logical approach.

Another minor complaint involves the way the program handles centered text. When inputting centered text in which line of text is one character longer or shorter than another, the lines are aligned at one end, and are offset by one character at the other. It would have been more aesthetically pleasing to have the program center on half characters, if required, when printing your certificate.

The 24 graphic designs included with the program can be modified to your liking by loading the graphic files into a graphics program, making your changes, and resaving them back to the data disk. But the two graphic files included, once modified, must be resaved using the original filenames. This allows only 24 graphic designs to choose from during each session, eliminating the possibility of having several different graphic files on your data disk to choose from. There is also no provision to modify either the six fonts or the 12 borders included. Does this mean the possible release of Certificate '99 Pal?

The text entry technique is unique but I would rather use a system closer to the CSGD type of text entry, using a pointer to indicate how much text can be entered. Although this would defeat the WYSIWYG concept used thoughout the program, it might eliminate the 32-character maximum for small text entry.

Now for the major complaint: When at a prompt requiring a Y or N response, for yes or no, a key press of FCTN 1 or FCTN 2 will lock up the program. The only recovery would be to turn off the computer and reload the program. This obviously means losing all data entered during the session up to the point of lock up. As it would be highly unlikely for anyone to press these FCTN keys when the program is asking for a Y or N response, these key combinations should be ignored by the program eliminating the obvious frustration of discovery. I should also mention that the program successfully handles all other error conditions including disk drive and printer errors.

Documentation: The program comes with seven 8½x11-inch pages of documentation which includes a cover page, which is one of their advertisements, and a copyright notice at the end of the documentation for a total of five pages used for actual explanations on program use.

The documentation describes what hardware requirements are necessary to run the program, includes a short program overview, and gives instructions on how to load the program. The rest of the documentation is laid out in a logical format explaining program features as they would appear in running the program. When the documentation was written, however, there must

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MY-Art and the Myarc Mouse

A winning combination

By JOHN KOLOEN

MY-Art is the first program written specifically for the Geneve 9640, and it is really a fine place to start. The program supports most of the features available in other drawing programs for the TI and one not available with any other — namely, the use of a mouse. In fact, MY-Art is useless without the Myarc mouse.

That's why you can't buy the Myarc mouse without MY-Art, and vice versa. This review is ostensibly about MY-Art, though inherently it is also about the mouse.

Performance: Anyone familiar with GRAPHX, TI-Artist or any of the other drawing programs should have no problem figuring out MY-Art. Even if you forget a command, there's no problem. The program includes online help screens that can be called up at any time.

What makes the program unique, of course, is the mouse. Briefly, the mouse is an input device that uses three keys and a ball. The ball is rolled against a mat-type surface and directs the cursor on the screen. The three keys are used to issue commands. The mouse doesn't work well on a hard surface. Users may purchase cloth-covered, foam rubber pads that are available commercially for about $9 or make their own mouse pad with pieces of felt.

The mouse glides effortlessly on a Mouspad, a three-eighths inch thick slab of cloth-covered foam rubber. Response to movement is precise. The only time I noticed skipping was when I used the mouse on a hard surface.

The mouse plugs into the back of the Geneve card and must be connected before loading MY-Art. According to Myarc, the port is compatible only with a Myarc mouse. In fact, according to Myarc, use of an incompatible mouse could blow the 9640 board.

In conjunction with MY-Art, the mouse has great utility. (Other than some routines published in MICROpendium, I know of no other program that can take advantage of the mouse.) Perhaps the most appealing thing about the mouse and MY-Art is the manner in which they enhance even my limited drawing ability. I am not one of those who finds excitement in spending hours creating drawings on a computer screen. With previous programs I found that I lacked the skill and patience to manage even moderately good work. Cursor control was never as precise as I desired, and resolution or the lack thereof often turned a fine line into a jagged edge. Not so with MY-Art and the mouse.

Review

Report Card

Performance	**A**
Documentation	**A**
Ease of Use	**A**
Value	**A**
Final Grade	**A**

Cost: $125 (mouse and MY-Art)
Manufacturer: Myarc Inc., P.O. Box 140, Basking Ridge, NJ 07920
Requirements: Geneve 9640

MY-Art supports two modes of resolution: 256x212 pixels with 256 preset colors, and 512x212 pixels with 16 basic colors and the ability to create any other color by mixing any combination of the basic 16. Mixed colors are saved to disk along with pictures. The higher resolution provides the sharpest looking pictures. However, it's not possible to toggle between the two modes without losing the picture in memory. The program boots up in 256 resolution but is easily switched to 512 by pressing CTRL M.

I mentioned that the mouse has a row of three buttons. Each has at least one function in MY-Art. For example, clicking the lefthand button toggles the color selection bar at the bottom of the screen. Clicking the righthand button causes the color bar to scroll across the screen, revealing all 256 color selections. (There are so many colors in the 256 mode that the entire spectrum, or palette, can't be viewed without scrolling.) Clicking the middle button while in the pencil drawing mode results in erasure of the most recently drawn line.

Pressing a button, holding it down, also has a role to play, versus mere clicking. For example, to draw a line in the pencil mode hold down the center button while moving the mouse. Releasing the button "lifts" the pencil off the screen, so to speak.

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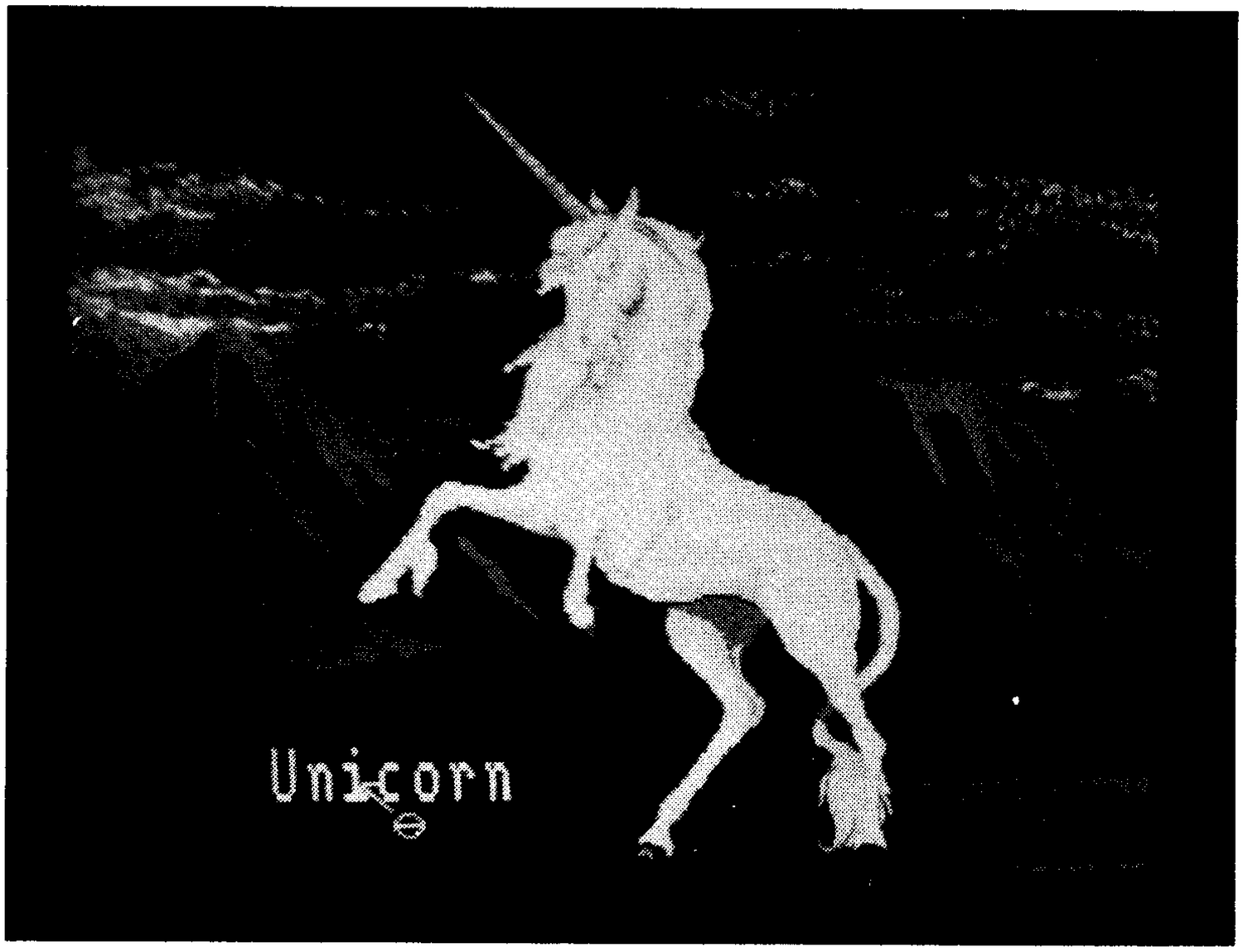

MY-ART—

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Icons are used throughout MY-Art to represent various functions. A pencil appears on screen when the pencil mode is selected. A teapot appears when the fill command is issued. A magnifying glass appears when the zoom mode is selected. When the level of magnification is at its highest, the magnifying glass turns into a microscope.

Most functions operate in a similar fashion, with a key used to activate it and the mouse used to determine coordinates. Other features of MY-Art include:

Icon speed control — This lets the user exercise as much control as he wants over the cursor.

Fill — select a color from the palette, place the teapot icon's spout where the color fill is to be done and click the mouse.

Straight lines — The line appears like a rubberband between the two points until the button is clicked.

Drawing circles — Circles may be created from the radius (center) or from the diameter.

Boxes and rectangles — Rectangles may be created as outlines or as solid boxes.

Icon color — CTRL S is used to toggle a series of colors used for the icon.

Cutting and pasting — Areas of a picture may be moved or duplicated.

Text — Text may be input in a number of sizes up to the height of the screen. Text may be rotated. Only one font is available at this time.

An Undo and erase function are activated by the center button. "Undo" undoes the most recent action.

MY-Art also supports a number of disk functions, including formatting, cataloging, and saving and loading of pictures.

Outputting of images may be done only with an Epson or Epson-compatible printer.

Images may be output in two sizes. The larger size is printed sideways on the paper. Two resolutions are also offered: outline or "gray scale." Although the screen image is in color, there is no provision for outputting color images. Colors are outputted as varying shades of gray.

At this time, MY-Art cannot use any art created with any other drawing program. Nor can it access fonts from any other program. I have been told that there is some third-party development going on in terms of fonts and graphics but I'm not sure how these would be accessed by MY-Art. Unlike GRAPHX, TI-Artist and other similar programs, MY-Art doesn't have a load routine to merge fonts or Instances.

As a drawing program, MY-Art is a fine piece of work. It provides most of the graphics capabilities that I look for and is capable of being used with great precision. I think direct comparisons with drawing programs for the TI99/4A are difficult on a point by point basis. There are elements in the TI programs that are missing from MY-Art that could only have made it a better program. (The ability to import pictures, clip-art and fonts are three useful functions and I appreciated the drawing grid that could be used with GRAPHX to help block out the dimensions of a drawing.) However, the main feature of MY-Art and what puts it in a different class is the mouse, and it definitely enhances the act of drawing over what is possible through keyboard or joystick input.

The ability to zoom in on an area at the pixel level, coupled with complete control over the speed of the icon, provides the user with as much control over drawing as one can expect to have.

Documentation: A 12-page manual accompanies MY-Art, and it's packed with information. It includes a detailed table of contents and a summary of commands on the back page. Each feature of MY-Art is described individually, with instructions on how to use it. The text is clearly written and easy to understand. The manual is backed up by online help screens, a feature that I wish other application programs would incorporate.

Ease of Use: MY-Art and the mouse are easy to use. The learning curve is very short. Virtually all functions are implemented by the press of a single key. Although this was not noted above, the ability to directly access functions is a distinct advantage over menu-driven drawing programs. It unclutters the interface between user and software by eliminating the need to leave a function, and call up a menu in order to access another function. This saves time and enhances the creative use of the program.

Value: The $125 list price for mouse and My-Art represent a good value. It's competitive with the pricing of similar devices for other computer systems. The Myarc mouse appears to be well-built and will probably last a long time under normal use.

Putting a price on MY-Art itself would be difficult, but $50 isn't unreasonable. (The disk includes several examples of extremely detailed art-work created with MY-Art. The Geneve swan is another example.) If there is a drawback on MY-Art it is that it can't import existing fonts, clipart and drawings from other programs.

As a drawing tool, a mouse can't be beat. No combination of keyboard and joystick input can compete with the fluid motion of a mouse. Once you've used it, you'll never go back to anything else.

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have been only a flippy version, as it states flipping the disk over during loading. This may be confusing to someone who purchased the program on two separate diskettes as this conflicts with the instructions on screen when the program loads. Maybe the two-disk version instructs the user to remove the program disk and insert the data disk.

The documentation states to tap the space bar to cycle through each border, and each graphic. This is partially true. In fact, any key press will do (including FCTN 1 and FCTN 2) as long as FCTN 9 or Enter are not pressed. The documentation gets a little fuzzy explaining the signature option. The program flow does not quite follow the series of events in the example included in the documentation. I found I had to experiment a little to find out why. The documentation says to magnify the graphic for the sample certificate. Doing so will conflict with what happens next, according to the documentation. If you choose not to magnify the graphic, everything happens as the documentation states when you reach the signature option. The rest of the documentation was found to be accurate and I found no other inconsistencies.

The documentation also includes an "Additional Comments" section including

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Newsbytes

Columns on disk

Jim Swedlow writes that he notices user groups occasionally reprint one of his columns in their newsletters. He says that all his columns are available on disk, 20 in the XB series and 17 in the TIT BITS series.

Swedlow notes that anyone interested can send him a note advising the series they want, the requisite number of formatted disks, and a return mailer and postage to receive the disks at no charge. Each series requires two SSSD disks or one DSDD disk.

He says the columns are public domain material, but says newsletters publishing them should mention the author and the original publication, the User Group of Orange County, California, ROM.

For further information, write Swedlow at 7301 Kirby Way, Stanton, CA 90680.

Printer aid released

McWare Products has released Fast & Easy Tutor for the Star NX10 printer.

Fast & Easy Tutor includeds a booklet with examples and explanations and a disk designed as an interactive tutor. Programs are available for the TI99/4A; Commodore Plus4, Vic20, C64 and C128; Sanyo MBC 550/555; and IBM compatibles.

The disk and booklet are available for $12.95 plus $2 shipping and handling from McWare, P.O. Box 2784, Fairfax, VA 22031.

TI-IBM file transfer program available

Robert C. Holland of San Diego, California, has written a file transfer program which will both send and receive files for the TI and IBM computers.

The TI program is written in Extended BASIC and the IBM in Turbo Pascal.

To operate, the program requires a serial cable to connect the computers through an RS232 port.

He says he has operated the program using a TI disk controller and that it has not been tested using other disk controllers.

He says that the program will transfer all types of files. However, he notes, display file transfers "work better" in that internal type files run into difficulty because the IBM and the TI read some characters differently.

He says that the program works with strings which the computer reads as lines of text to transfer. He notes that the transfers are faster from the TI to the IBM.

Holland says there are plans to post the program on the bulletin board of the Southern California Computer Group or it is available from him by sending him two double-sided, double-density disks with mailer and postage at 6188 Caminito Baeze, San Diego, CA 92122.

Memory card slated by Rave 99 this month

Rave 99 is scheduled to release its new Memory Enhancement Card system, which allows up to two megabytes of backed-up RAM memory for the TI99/4A, in December, according to company president John McDevitt.

The card allows memory expansion for up to 544 bytes. Up to four memory cards may be installed in the peripheral expansion box, he says.

The company lists the following features:

• Special "memory mapping" of addresses >4000 -> >7FFF allows an extra 16K bytes of memory for assembly programs which allows programs up to 48K long without any user memory mapping required.

• Two 8K bytes "backed-up" DSRs are provided, one reserved for the system software, the other for the user.

• Memory backup is provided by two methods:

1) The card is designed to back up the memory for about five days without the use of batteries or external power source. Each time the system is poweed on, the card "recharges" itself automatically.

2) To extend the backup time beyond five days, an optional lithium battery may be installed which provides backup for months.

• Memory management software is supplied controlling the memory bank switching on the card, GROM space access and loading of programs into the DSR memories. System "CALLs" from (X)BASIC allow the selection of the 32K memory bank to map into the computer as well as enabling/disabling the GROM memory space (>6000 -> >7FFF).

• Non-DSR space—The memory at address space >4000 -> >5FFF is used normally to map in a Peripheral Device Service Routine. When a device's DSR is not mapped in, this memory space goes unused. Now, 8K are mapped in when no other DSR is active.

According to the company, all software originally programmed to run on the TI 32K memory expansion card is compatible. McDevitt says advanced programs which take advantage of the additional memory are Ryte Data's Command DOS, R.A. Green's Macro Assembler and DataBioTics' Software Support Loader.

Requirements are a TI99/4A with PE box. The Memory Enhancement Card is said to be compatible with the TI RS232 card, TI disk controller card, Myarc disk controller card, Horizon RAM Disk and Rave 99 Speech Adapter Card. McDevitt says other cards may work, but have not been tested.

The card is available in three models:

• Model MX01/64 at $199.95 includes 8K of memory at >6000 -> >7FFF, 8K non-DSR memory, 8K system DSR memory, 8K user DSR memory and 32K main memory. Only very low-power memories are used. It includes advanced memory backup design and expansion sockets to increase memory to 544K.

• Model MX01/288 includes all the features of the model MS01/64 with additional memory included to have 256 bytes of main memory.

• Model MX01/544 at $399.95 includes all the features of the model MX01/64 with additional memory included to have 512 bytes of main memory.

Individual, very low power 32K x 8 static RAMS are available. Price is $18.

For further information, contact Rave 99 Co., 112 Rambling Road, Vernon, CT 06066 or (203) 871-7824.

Newsbytes is a column of general information about products and services related to TI and 9640 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

Charlton offers graphics loader

Paul Charlton is offering a GIF graphics loader for the 9640 via national telecommunications services. The program will take pictures in GIF format, which can be used by many computers, and display them or convert them to MY-Art format. It handles higher resolutions than the RLE (Run Length Encoded) files which have been available for the 4A. The file is a preview version of a forthcoming commercial release of the software. The cost of the loader is $15. Charlton promises a substantial discount on the commercial version for those who pay the $15 for the loader.

Reader to Reader

Lee D. Renda, 1762 Mahoning Ave., Youngstown, OH 44509, would like to know where he might obtain any software for a TI99/8 and to get in contact with any other TI99/8 owners. He also needs information on a PHP 1290 video controller card.

Michael Miller, 8901 Utah Court, Thornton, CO 80229, is looking for information on the Mechatronics 128K GRAM Karte, e.g., any utilities anyone may have written for it, compatibility with hardware and other information from GRAM Karte users.

A digit was left out of Harold K. Liter's address in the Reader to Reader column in November. His correct address is 732 W. 147th St., Gardena, CA 90247.

The Reader to Reader column is 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.

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information on using FCTN 9. This will take you back one screen at a time until you are back at the first menu. Also mentioned is the help file, stating that this file contains quick directions about using the program. Though they gave it a logical filename, "RUN-ME!," it is no more than a program which reads a help file and displays on screen how to load the program.

Information is also offered on how to modify the graphic files which come with the program. Although the example explains using Joy Paint '99 or Joy Paint Pal, several other graphic programs are compatible with the graphic files included with Certificate '99.

Also stated is the comment that encrypted information such as your name, address, version number and so on is placed on the disk to thwart the potential pirate. Makes sense to me, except why encrypt the version number? Maybe to further confuse the pirate? I really don't know. This is the only place that the version number exists on the diskette, making it impossible for the legitimate user to know.

Value: Throughout this review, no comparison was made between Certificate '99 and any similar program running on any other computer. For this reason the program was judged on its own merits as it performs in the 99/4A operating system environment. Although it may appear that I have been quite critical throughout this review, I do feel that Certificate '99 offers a fair value for the money.

Final Grade: Like most other program we purchase for our computer, there are some things we like and some things we dislike. All things considered, I feel that Great Lakes Software has produced a potential winner. It does what it's supposed to do quickly and easily, allows you to print documents with your TI that were up until now quite difficult, if not impossible to produce, and just needs a little polish here and there. I'm sure the next release of Certificate '99 will address these areas. Until then, my Certificate '99 disk will get its share of use with my TI. As they say, "A spinning disk gathers no dust!"

Put XBASIC into your 4A console

Chuck Reinhart, of Bellaire, New York, has contributed a number of utility programs in the past and now has a project to locate Extended BASIC in the 4A console.

This project is to be undertaken only at the user's risk. It is not simple and should not be attempted by those who are unfamiliar with electronics and soldering.

Reinhart recommends that solder be used sparingly. "There are land patterns that run between the pins. Also, use a small soldering iron."

After this modification, you will not be able to have a cartridge installed while running Extended BASIC. Read the following instructions thoroughly before starting the project.

PARTS LIST

1 56K resistor ¼ watt

1 DPDT mini switch (Radio Shack 275-626)

2 8 in piece of ribbon cable with 17 conductors in each (Radio Shack 278-772)

5 in pieces of wire

INSTRUCTIONS

Remove the main board from the console.

Remove the cartridge port and metal shield from the main board.

Remove the Extended BASIC circuit board from its case.

Take the two pieces of ribbon cable and separate the wires in the four ends back one inch. Then strip all of the wire ⅛-inch and tin the bare ends. Mark one cable TOP and the other BOTTOM.

Place the main board component side down with the side port connector on the right. Locate the two rows of pins that go to the cartridge port (see main board diagram).

Take the cable marked BOTTOM and mark a 1 on the edge at both ends. Then solder the wires from one ends of the cable to the bottom row of pins skipping pin No. 4. Keep the wires in order with pin No. 1 on the right (see main board diagram). Solder one of the 8 in wires to pin No. 4

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and one 8 in wire to pin No. 9 (pin No. 9 will have 2 wires). Place a piece of black electrical tape on the circuit board under the cable to prevent shorts.

Take the cable marked TOP and mark a 1 on the edge at both ends. Then solder the wires from one end of the cable to the top row of pins, skipping pin No. 2. Keep the wires in order, with pin No. 1 on the right (see main board diagram). Solder one of the 8 in wires to pin No. 2.

Place the XBASIC circuit board with component side up and connector facing the cable marked TOP. Solder the wires to the connector, skipping contact No. 2 (see circuit board diagram). Solder an 8 in wire to contact No. 2.

Turn the circuit board over and solder the wires from the cable marked BOTTOM, skipping contact No. 4, to the contacts on the foil side of the XBASIC cartridge (pin No. 1 TOP should line up with pin No. 1 BOTTOM). Solder an 8 in wire to contact No. 4.

Solder the 5 wires and 56K resistor to the switch (see switch diagram).

Bend the edge of the metal shield to allow room for the cable to pass. Mount the XBASIC cartridge on a piece of cardboard and tape it to the top of the metal shield to the left of the cartridge port.

Mount the switch in the back of the console cover near the center.

Check the wiring with an OHM meter from the cartridge port to the XBASIC circuit board connector.

Clean the side port and cartridge port.

Reassemble the console and test the switch in both positions.

Once again, don't attempt this unless you are sure of your skills and understand the instructions.

Picture demo writer

This comes from Robert Coffey Jr., of Tonawanda, New York.

Picture Demo Writer is a companion to Display Master. It is fairly easy to use if you are already familiar with Display Master! If you are not familiar with it, then I suggest you read the documentation, as the rest of this documentation will draw from your knowledge of Display Master.

One note, if you don't have Display Master, it is a program that lets you use pictures compatible with TI-Artist, and will let you demo those pictures, as well as present them in a professional slide show.

Basically what you do to run Picture Demo Writer is load it into Extended BASIC, and RUN it.

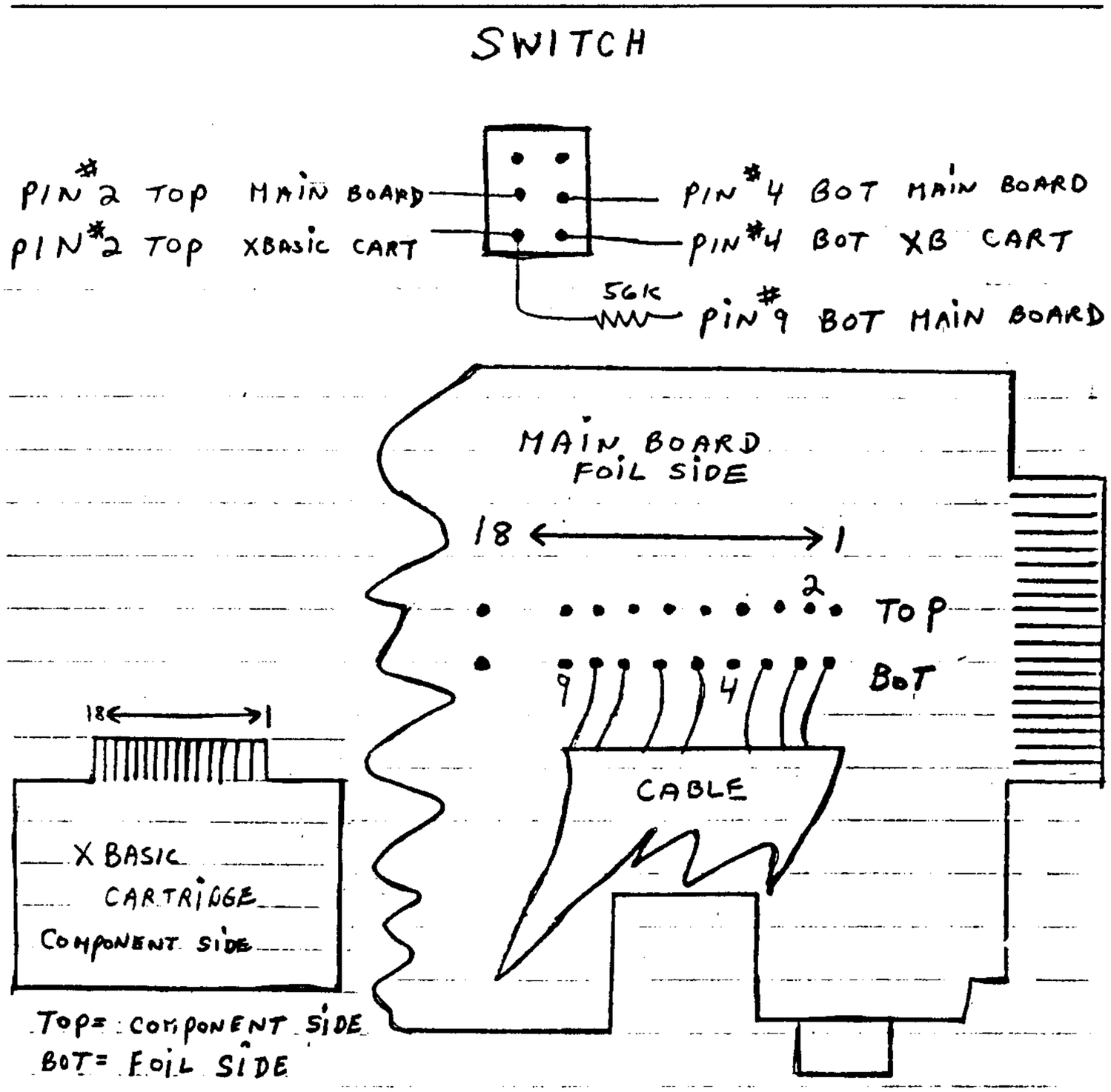
After it starts, you will be prompted for a drive number. Enter the drive that has the pictures on it (which is the same drive you will have it in when you run Display Master!).

Next, it will prompt you whether you want to use the Pause or Delay feature of Display Master. If you select Delay, it will also prompt you for the time delay you wish to use in seconds.

Now it will prompt you for a filename, DEMO is the default, to which it will write the command file, that you run in Display Master.

Now it will run through the disk and only pull out *only* the pictures and write them into the command file.

After it is done, you will load in Display Master and load the command file, and it will automatically start executing. It will run through all of the pictures using the Pause (until key pressed) or Delay you chose. After it runs thru all of the pictures, it will return you back to Display Master.




```
100 ! PICTURE DEMO WRITER V
1.0 !038
110 ! WRITTEN ON 4/27/87 !02
3
120 ! BY ROBERT COFFEY JR. !
242
130 !     102 WOODGATE ROAD !
086
140 !     TONAWANDA, NY 14150
 !174
150 !!131
160 LENGTH=20 :: FILE$=".DEM
O" :: MODE$="D" :: SOURCE=2
!240
170 DISPLAY AT(2,3)ERASE ALL
:"P I C T U R E  D E M O": :
```

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```
"    W R I T E R  V 1.0": :"
   by Robert Coffey Jr." !21
5
180 DISPLAY AT(9,1):"Source
drive for pics>";SOURCE :: A
CCEPT AT(9,24)SIZE(-1)VALIDA
TE("12345"):SOURCE !028
190 DISPLAY AT(11,1):"Pause
or Delay (P/D) > "&MODE$ ::
ACCEPT AT(11,24)SIZE(-1)VALI
DATE("PDpd"):MODE$ !110
200 IF MODE$="P" OR MODE$="p
" THEN 220 ELSE DISPLAY AT(1
3,1):"Length of delay (sec)
>";LENGTH :: ACCEPT AT(13,25
)SIZE(-3)VALIDATE(DIGIT):LEN
GTH !091
210 IF MODE$="d" OR MODE$="D
" THEN FLAG=1 ELSE FLAG=0 !0
88
220 DISPLAY AT(15,1):"Demo f
ilename>DSK"&STR$(SOURCE)&FI
LE$ :: ACCEPT AT(15,20)SIZE(
-12):FILE$ :: FILE$="DSK"&ST
R$(SOURCE)&"."&FILE$ !185
230 DISPLAY AT(18,8):"Workin
g..." !215
240 OPEN #1:"DSK"&STR$(SOURC
E)&".",INTERNAL,RELATIVE,INP
UT :: OPEN #2:FILE$ :: INPUT
 #1:BUFF$ !035
250 FOR X=1 TO 127 :: INPUT
#1:BUFF$ :: IF BUFF$="" THEN
 290 ELSE IF POS(BUFF$,"_P",
1)=0 THEN 280 !218
260 PRINT #2:".CLEAR;" :: PR
INT #2:".LOADPIC "&CHR$(34)&
"DSK"&STR$(SOURCE)&"."&SEG$(
BUFF$,1,LEN(BUFF$)-2)&CHR$(3
4)&";" !172
270 IF FLAG THEN PRINT #2:".
DELAY "&STR$(LENGTH)&";" ELS
E PRINT #2:".PAUSE;" !030
280 NEXT X !238
290 PRINT #2:".STOP;" :: CLO
SE #2 :: CLOSE #1 !248
300 DISPLAY AT(18,7)BEEP:"
D O N E !": : :"        Do an
other ?" !093
310 CALL KEY(0,K,S):: IF K<>
78 AND K<>89 AND K<>110 AND
K<>121 THEN 310 !250
320 IF K=78 OR K=110 THEN EN
D ELSE FILE$=SEG$(FILE$,5,LE
N(FILE$)-4):: GOTO 170 !081
```

TINYHUSTLE for modem users

TINYHUSTLE is another in the long line of Tiny Grams by Mike Stanfill of the Dallas TI Home Computer Group. What's unusual about this Tiny Gram is that it requires a modem (or direct connect RS232) to operate.

TINYHUSTLE is modem version of TI's Hustle game. The rules are simple: You move your charactger (the blue square) with the arrow keys. As you move, you'll leave behind a trail of O's, which you will use to encircle your opponent's X's. The object is to force the opponent to run into your trail of O's or the border walls, whichever comes first. Of course, your opponent will be trying to do the same thing to you.

To play, go online with your opponent. The program is set for 300 baud but users may modify baud rate to conform to their modems. Decide who is going to move first. Both players should then run the program on their respective 4As.

Once the program is running at both ends, the players will be prompted as to which will move first. Press the appropriate key (1 or 2) and then press Enter. The player going first should wait a moment so that the opponent's program will have reached the proper place. (The first thing the program will do for player No. 2 is go to line 9 and wait for an input. If player No. 1 starts too soon, he will pass information before player No. 2 is in a position to receive it.)

To move the square, press an arrow key. Once the key is pressed, the square will continue to move in that direction until it encounters a wall or border.

The game is equipped for scoring and sound. The game requires Extended BASIC and an RS232 port. A modem is necessary unless players connect their RS232 ports with a cable.

```
1 !*******TINYHUSTLE*******
   *******A TINYGRAM*******
   ****BY MIKE STANFILL****
   ****MEMBER DTIHCUT*****
!191
2 CALL CLEAR :: INPUT "R U 1
ST OR 2ND?":P :: Q=P :: OPEN
 #1:"RS232.EC.LF",INTERNAL !
061
3 B=0 :: CALL CLRAR :: P=Q :
: CALL COLOR(2,5,5,5,7,7)::
Y=6-(P=2)*19 :: G=1+(P=2)*2
!182
4 X=12 :: F=0 :: CALL HCHAR(
23,1,64,96):: CALL VCHAR(1,3
1,68,96):: DISPLAY AT(24,1):
"   YOU=";U;"   HIM=";M !049
5 ON P GOTO 6,9 !197
6 CALL KEY(1,K,S):: IF (K=2)
+(K=3)+(K=0)+(K=5)<0 THEN F=
(K=5)=(K=0):: G=(K=2)=(K=3)!
000
7 CALL HCHAR(X,Y,88):: X=X+F
 :: Y=Y+G :: CALL GCHAR(X,Y,
C):: H=X :: J=Y :: CALL HCHA
R(X,Y,40):: PRINT #1:H,J,C !
099
8 M=M-(C<>32):: GOTO 10 !083
9 INPUT #1:H,J,C :: CALL HCH
AR(H,J,79):: U=U-(C<>32)!116
10 IF C=32 THEN P=P+1 :: P=P
+((P=3)*2):: GOTO 5 ELSE B=B
+1 :: CALL SOUND(-99,110,B,-
7,B):: ON (B=30)+2 GOTO 3,10
 !174
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