Covering the TI99/4A and the Myarc 9640

MICROpendium

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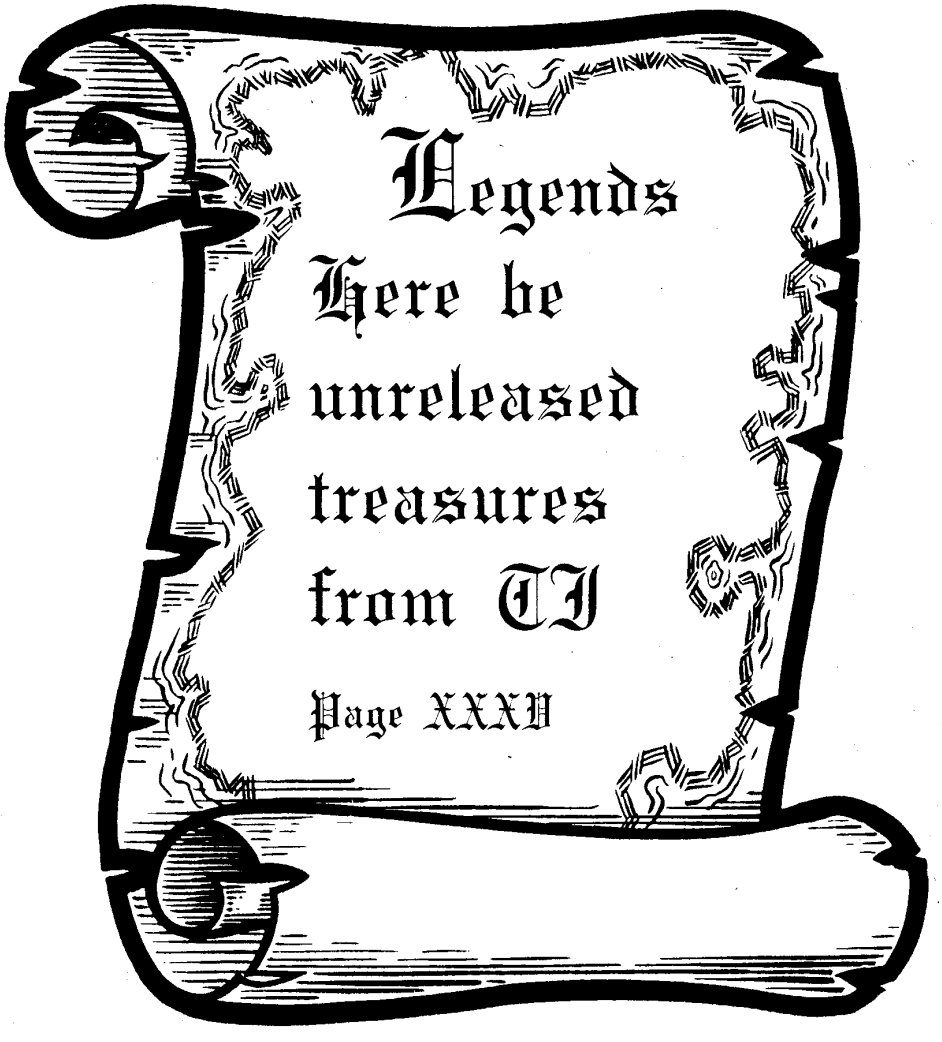

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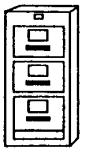
*READ THIS

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

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

The Organizer!

For TI Base



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For TI Base

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Please call or write for a complete detailed catalog of all our products. Texaments can be reached at (516)475-3480.

A utility every Geneve owner should have...

A>EXEC

How do you run TI-99/4a Option 5 Editor/Assembler programs? Most people load up GPL, then some option 5 loader, and then finally their program. With Exec, you can now run most E/A Option 5 programs directly from MDOS using one simple command! A dream come true.

Included with Exec are GETKEY and GETSTR, two short external MDOS batch file commands. With these two powerful commands you can create interactive batch files. GETKEY captures single key input, while GETSTR handles string input.

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Comments

Thoughts on a streamer tape backup system

Let's talk about hard disk backup systems.

As anyone who has a Myarc Hard & Floppy Disk Controller connected to a hard disk drive knows, it isn't possible to backup the entire hard disk using the backup utility that comes with Myarc Disk Manager 5. I have even had problems backing up single directories, though I know of at least one person who says he is able to do this. Right now, the safest way to backup the hard disk is to copy the files and programs individually to floppy disks. At best this is a tedious and time-consuming process.

There seem to be two solutions to this problem. The first is to do what needs to be done to MDM5 so that it will support the backup function. The second is to complete the software for the streamer tape backup system. And here is where my two cents come in.

I hope that whenever the streamer tape software is ready that it be used with one of the easily available, relatively inexpensive tape backup drives available for PCs. I'm talking about the devices from Colorado Memory Systems and others. These drives use the time-tested QIC-40 format and can handle up to 120 megabytes. Costs are under $300 for internal units and under $400 for external units. They connect to PCs as if they were floppy drives so it would seem that there is no reason they couldn't be used with the HFDC. I could be wrong here, but the floppies are plug compatible with the HFDC.

It would be nice to see something along these lines sometime in 1990. It really is an inconvenience to have to backup a hard disk file by file.

LOOKING AHEAD TO 1990

The first quarter of 1990 should be interesting for Geneve users who've been waiting for new software. In particular I'm looking forward to the release of a new user interface for the Geneve, and whether it will be the GEME software by Myarc or the operating system promised by Oasis Pensive Abacutors. OPA predicted that the software would be available sometime in early 1990. No release date has been announced for GEME. If OPA succeeds in getting its product to the market in the next several months, it could overtake Myarc as a principal supplier of software for the Geneve. Although Myarc's Lou Phillips said on Nov. 4 at the Chicago TI Faire that the company was making copies of its Advanced BASIC and final MDOS version for distribution to buyers "as he spoke," Geneve owners have yet to receive the software.

The Geneve, which is fine piece of hardware, still begs for software. It's been several years already since the first editions of the 9640 were sold and we are still waiting for the software. If it were my decision to make, I would concentrate entirely on getting Advanced BASIC and the final versions of MDOS to end users. Then we might start seeing more software for the computer. I would then concentrate on getting the Pascal Runtime completed so that users can start getting access to an entirely new realm of software. And I would spend more time encouraging others to develop software and put any hardware projects on the back burner. (The only new piece of hardware for the Geneve wasn't event developed by Myarc. I'm speaking of the 2-megabyte expansion card marketed by Bud Mills Services. This card was designed and built by Ron Walters.) Phillips mentioned at Chicago that Myarc is looking at an 18Mhz version of the Geneve. Give me a break. Let's first get the current version full-steam with a completed operating system and access to new software. That's what users want. They like the machine they have — now is the time to provide the software that lets them use it.

Whew.

SPEAKING OF SOFTWARE

I like what Texaments is doing in terms of support for its TI Base database manager. This month it announced the availability of a program called The Organizer that runs out of TI Base. The Organizer is a filing system that uses TI Base as a platform, just as Microsoft Multiplan is a platform for a spreadsheet. The Organizer looks like an easy to use application that doesn't require the user to know a lot about TI Base or how to use it.

Speaking of databases, JP Software has released Version 1.1 of the FirstBase database manager. Version 1.1 appears to be a significant upgrade that includes hard disk support and other improvements.

NO SURPRISE FROM *COMPUTER SHOPPER*

Some TI users may be surprised that *Computer Shopper* dropped its TI column, not to mention columns about other orphan computers. The writing was on the wall when Ziff-Davis bought out the magazine several months ago. Ziff-Davis is a serious marketing/publishing company that doesn't support products that don't have significant advertising support. The number of TI readers of *Computer Shopper* probably didn't amount to a drop in the bucket when compared to the total number of subscribers the magazine has. It is unfortunate that this happened, but it was inevitable.

SOFTWARE OFFER CONTINUES

Geneve users who haven't been able to obtain the latest versions of MDOS or Myarc Advanced BASIC — MDOS 1.14, MDOS 0.96h for hard drives, ABASIC 2.99 — may continue to send me formatted floppy disks with stamped, self-addressed return mailer and I will supply these programs. Just tell me what you want. It takes the equivalent of a DSDD disk for all three. Also, I'm adding MENU 80 to the list of software I will provide. MENU 80 is a public domain, 80-column batch menu system that runs out of MDOS. Ask for it only if you have EXEC, GETKEY and GETSTR. See the review in this issue.

Meanwhile, I hope everyone has a Merry Christmas and a Happy New Year.

—JK

Feedback

Thanks to Asgard

The continued support of our commercial software suppliers deserves an occasional pat on the back. Would TI die without them? I don't know, but it would certainly be less interesting for many of us who are not hackers or programmers.

My compliments and thanks to Chris Bobbitt — Asgard Software — for his help in solving an annoying problem. Asgard and Mr. Bobbitt's forward thinking, innovative products and support will go a long way toward keeping TI alive.

Don Schwab
Hayesville, North Carolina

Console lockups

In regard to the problems people are having with their TIs locking up, there are many causes, as was mentioned in the article from John Guion in the August issue of MICROpendium.

I too had problems with Extended BASIC like those mentioned by Frank Hreha in the September issue and like Mr. Hreha I was ready to throw in the towel. After cleaning the contacts really well and getting a cooler power supply and an occasional cleaning my problems all but ended.

The January and February 1988 issues of MICROpendium have articles that cover the cleaning of contacts in detail. The cartridge and sideport contacts should also be cleaned as well as the cartridge port contacts. The biggest problem seems to be where the cartridge port plugs into the motherboard. The December 1987 and May 1988 issues cover hard wiring the Extended BASIC cartridge in the conlole. The February 1988 issue covers installing the Mechatronics XBII+ in the console and the same method also works for the Triton SEB. The February 1989 issue deals with making the Triton SEB work in the Widget, and is an issue one should read before installing the SEB in the console.

The old coffee warmer power supplies will also cause lockups because of the heat buildup. The newer switching power supplies, which run much cooler, will solve that problem, if one can be found any more. Two other options are installing the power supply outside the console or putting a fan on the console (see MICROpendium, June 1987).

Steven Lisonbee
Orem, Utah

Moisture on Widget

I read the letter from Mark F. Armstrong in Lexington, Kentucky, and his problem with moisture on the Navarone Widget (Feedback November 1989). I checked my own Widget. Sure enough, I had a considerable amount of moisture build up. I live in an environment similar to that of Mark.

First thing I did was clean my Widget with a swab and alcohol. I then sprayed the inside of the TI's contacts with a zero-residue cleaner (available at Radio Shack). I then replaced my Widget and left the house.

Later the same night I rechecked my Widget. Again, I had moisture buildup. Out of scientific curiousity I wiped the moisture with my finger. I then proceeded to the bathroom and let water trickle on the same finger; it ran off. I was even able to form a bead of water. This leads me to believe the residue is oily in nature and *not* condensation of moisture. Water didn't bead on my other fingers. If it beads on all your fingers then you have oily fingers.

I never thought I'd see the day when I had to watch the cholesterol level on my computer! I have no idea how to solve this problem. Maybe we should use low-fat cartridges.

Frank P. DeCandia
Jersey City, New Jersey

Needs a group

I want to ask a favor. I am retired and getting uncomfortably close to 70 years of age. I am very active — my wife and I travel extensively in the US and abroad. During my down time at home I live with my TI99/4A. My inventory of hardware and software programs exceeds $4K.

As you know, we do not have a TI users group in this area and I would like to join one of the groups I read about in the MICROpendium. I think I would greatly benefit by an association with a large, active users group. Although I am a user, not a programmer, I would like to have some contact with someone who could help me when I have problems with my system. Although I belong to CompuServe and have a TI modem, I am weak in computer telecommunications. I want to upgrade to a faster modem and increase my activity in that area. In addition to the TI Emulator II, I have the TELCO system which I am attempting to master.

I would like to ask you for a moment to put yourself in my position and give me your recommendation on which user group I might contact.

Wayne Davis
Winter Park, Florida

We've sent you the names of two user groups in Florida that have been operating for several years. We hope one of them is near enough for you to attend meetings.

In general, you get out of a user group what you put in — which means that you have to attend the meetings. While it is conceivable that an on-line user group could be effective, most TI user groups that have a BBS operate them as adjuncts to their user group meetings and not as substitutes for them. The problem with an on-line user group is that few people would probably participate on a regular basis. This is evident from participation on the various commercial and user group bulletin boards.

Nonetheless, you can learn a lot by "interfacing" with other TI users on bulletin boards and CompuServe is a good place to start. By all means, get to know TELCO. It is a terrific terminal program and not difficult to use. A 1200 baud modem will also make telecommunicating a lot more efficient and will result in significant savings on online charges, which are billed by the minute and generally not by the baud rate.—Ed

Computer shakeup

As a Computer Systems Analyst for the federal government, I have become used to accessing large and sophisticated mainframe databases with sophisticated and expensive PCs. High speed telecommunications, dazzling graphics and software

(See Page 9)

Feedback

(Continued from Page 8)

whose capabilities bordered on overkill were needed so I could do my job properly.

Meanwhile, my home system of a Geneve 9640 with its trusty TI99/4A back-up served for word processing, games and other fun activities the systems I was paid to use could not be utilized for. I wished often for the disk speed and other capabilities of my system at work, but for the most part I was content with the Geneve.

Then came the Oct. 17 earthquake. My San Francisco office was damaged enough to be uninhabitable, leaving me and my colleagues unable to communicate effectively with each other or our clients throughout the country. My PC survived unscathed, but could not be removed from the building.

Thus, the Geneve that had been a source of relaxation and personal projects became my lifeline. Until a new office can be readied, most of my co-workers are working as best as they can from home. But without access to the office computers, it is difficult for any of them to exchange memos. As anyone who works in a large office knows, most documents must go through numerous edits and revisions before being deemed acceptable. With my group scattered around the San Francisco Bay area, the logistics of keeping written communications going was going to be a nightmare.

Fortunately, our mainframe is on the east coast, and as soon as telephone service became re-established, I logged on through TELCO and found a number of messages of concern from my clients through our electronic mail service. After reassuring them I was still alive and everyone had gotten out of the office without harm, I kept up a running correspondence on updates to the aftermath from the quake.

At the same time, it dawned on me that a number of my colleagues had home computers and could possibly benefit from electronic mail. I was able to salvage a few modems and volunteered to set up electronic mail for anyone who had a home computer and thought he might use it.

This turned out to be quite a success, and within a week over half a dozen persons had electronic mail. This was surprising considering the varieties of computer systems, as well as the seeming incompatabilities of the word-processing and telecommunications programs among the systems.

To overcome these problems, I ran extensive tests from my Geneve. Using TELCO and My-Word, I created, uploaded and downloaded a variety of text. The premise was that if the Geneve could read and edit text created in, say, Wordstar, then uploaded from an AT clone to electronic mail, it made little difference what type of computer or software was used. This seemed to convince those who were skeptical that their PCs could use electronic mail.

I do miss the 9600 baud rates in the office, but my Volksmodem 12 and TELCO are performing splendidly. In fact, TELCO is by far the best telecommunications program I have used. It is versatile, easy to use and can take advantage of many of the features on our mainframe computer. While I cannot use a number of programs, I do not feel isolated or unproductive.

By February, we should be back in another office, but in the meantime my colleagues are maintaining as normal a rate of productivity as possible. I have continued to find new capabilities for the Geneve, and am becoming more confident that it will survive a daily use rate of up to eight times higher than normal. I will admit to being concerned over the aging PEB components, especially the original disk drive, but so far have not encountered problems.

Now if Myarc would only develop a card to add IBM compatibility to the 9640, I would be more than content to continue working with all the comforts of home.

Eric Wilson
Fremont, California

Reason for moisture

Mark Armstrong's mysterious moisture-on-the-widget connector problem (Feedback, November 1989) has a simple explanation. TI built the GROM port with a felt pad inside to clean off the surface of cartridges (and widgets) inserted into it. At first, the felt pad serves its purpose, but after a year or so of use — and all 4As now must have at least six years of use — the pad becomes saturated with dirt, oils, and moisture. Instead of cleaning the contacts, it serves the opposite purpose and adds dirt and oils to clean connectors. The solution is fairly simple. The pad must be removed.

In some cases, the pad can be picked out through the GROM port with tweezers, but the better answer is to take the console apart carefully. It requires no special expertise to do so — just a screwdriver and careful attention to where everything belongs as the parts are lifted out, so it can be reassembled the same way later. An opened console that has been in use for some time without a good disassembled cleaning will amaze with the amount of dirt and hair inside. Clean everything, remove the felt pad from the connector, and many problems will disappear, particularly the pesky intermittent ones like lockups that never seem to have a good cause.

Loss of the felt pad will cause no problems — just solve them. Clean the inside of the console once a year, and the 4A will run better than ever.

Walt Howe
Boston Computer Society TIUG

No challenge

When I first played Sargon I I couldn't castle with white on the king side.

A white pawn showed up on my white knight square after the 21st move.

Well, I move that pawn during the game, so when I played a second game, I could castle!

And, because of that, it took me 17 moves to win the game instead of 51 moves.

Halfway through the game the compter placed his bishop (I'm playing white again) to attack my queen but it wasn't protected! When I took the bishop, that left my bishop in danger of being taken by his queen. But, he didn't take it!

Well, at the end of the game I was threatening a mate in two when the computer went berserk!

He gave me his queen and a rook out of sheer panic! And instead of moving the king out of mate in two, he moved his queen rook pawn.

As far as I'm concerned, it has nothing on the TI Chess game. It is far inferior to TI Chess. It's OK for beginners and for weaker players.

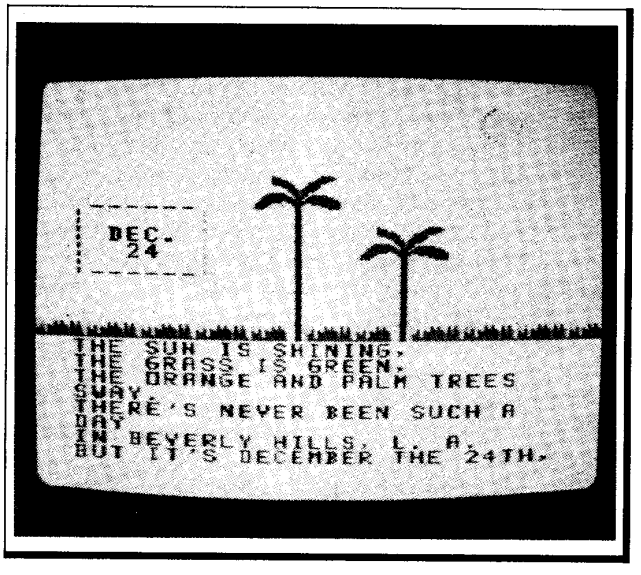
Arthur Dubeau
Woonsocket, Rhode Island

BASIC

Dreaming of a white Christmas

By REGENA

This month I'm publishing my annual computerized Christmas greeting program for the TI99/4A. In honor of Irving Berlin, here is the computer version of his famous "White Christmas." I have always enjoyed snow (perhaps because I was born during a blizzard), and I love having a white Christmas.



The BASIC music command is CALL SOUND(duration,frequency1,volume1,frequency2,volume2,frequency3,volume3). I use a variable T (for the Tempo), then use multipliers as necessary for the duration in each CALL SOUND statement. The TI allows three notes to be played at a time, and I usually put the melody frequency first with a louder volume than the accompaniment frequencies and volumes which follow.

Remember that in a song if you have two or more consecutive notes of the same frequency, you can change the volume to hear the distinct sounds. If you use the same volume, they usually sound like tied notes (or one longer note). There are quite a few places in this song where some notes change in a chord but others do not; therefore, volume numbers are adapted to get the desired effect.

I apologize for using so many DATA statements in this program. I realize they are difficult to type in from a listing, but I had to conserve memory and couldn't use individual statements. Everywhere you see a GOSUB statement, a subroutine is called that uses the DATA statements. The subroutine starting with Line 2530 first reads a value N for the number of CALL SOUND statements, then for each value of K from 1 to N, values are read for D, F1, V1, F2, V2, F3 and V3 for the duration and three frequencies and corresponding volumes.

The subroutine starting with Line 2590 reads C and C$ values six times for character definitions. C is a character number, and C$ is the definition. Lines 240, 250, 280, 420, 540 and 550 are of this form. Lines 2200-2210 contain data for a row number, column number and character number for the CALL HCHAR statement. All other DATA statements are used for the CALL SOUND statements.

If you happen to run the program and get a data error, the most likely place for a typing error is in a DATA statement. When the program stops with the error message concerning DATA, you can PRINT different variable values to help you try to pinpoint the error. For example, you can type PRINT N and press ENTER, and the computer will print the present value of N. If N is 9, the error could be in Lines 1140-1160; if N is 63, the error is in Lines 2240-2390.

If the error message refers to a READ statement, you may be out of data and perhaps left out a comma somewhere. Or, the computer may be trying to read a number and you have an alphabetic character as the next data item. If the error message refers to the CALL statement, the value read may not be appropriate for that CALL statement. You may have too large or too small a number for a variable. Again, you can PRINT variables to see what the problem is, then recheck your typing.

Since this program is nearly full memory, be sure to use this procedure before typing in or loading the program:

CALL FILES(1) [Press ENTER]
NEW [Press ENTER]

If you wish to save typing effort and want a copy of this program, you may request one by sending $4 to *REGENA, 918 Cedar Knolls West, Cedar City, UT 84720.* Be sure to specify that you need the TI version of "White Christmas" and whether you want cassette or diskette.

WHITE CHRISTMAS

```
100 REM WHITE CHRISTMAS !041
110 T=550 !119
120 CALL CLEAR !209
130 CALL COLOR(9,12,1)!229
140 CALL COLOR(10,3,1)!221
150 CALL SOUND(T,262,2,208,6
,175,9)!020
160 CALL COLOR(11,3,1)!222
170 CALL COLOR(12,13,1)!017
180 CALL SOUND(T,294,2,208,6
,175,9)!025
190 CALL CHAR(97,"071F3F7F7F
FFFFF")!173
200 CALL CHAR(98,"E0F8FCFEFE
FFFFF")!239
210 CALL CHAR(99,"FFFFFF7F7F
3F1F07")!175
220 CALL SOUND(2*T,330,4,262
,8,196,10)!254
230 GOSUB 2590 !120
240 DATA 100,FFFFFFFEFEFCF8E
,104,C0F8FEFF7F0701,105,0000
00080C0E1F3F7,106,01071F7FFEF
CF87,107,F0FCF0C !226
250 DATA 108,01070F1F3F7F7CF
8,109,FCFFFFFFF9,110,77379ED
DFB7E3818,111,803F7FFFFF3F01
,112,00C0F8FCFEFEFF3F !059
260 CALL SOUND(2.2*T,330,3,2
```

(See Page 11)

REGENA ON BASIC—

(Continued from Page 10)

```
33,8,196,9)!052
270 GOSUB 2590 !120
280 DATA 113,9090B4B5F5F5FDF
F,120,1818181818183C,131,0
0008080C0C0E0B,132,07070F1F1
F3F7DE9 !071
290 CALL SOUND(1.5*T,440,1,3
49,5,262,8)!052
300 CALL COLOR(13,16,1)!021
310 CALL COLOR(14,16,1)!022
320 CALL SOUND(T/2,247,2,220
,6,175,8)!207
330 CALL SOUND(T,247,1,196,6
,165,8)!026
340 CALL COLOR(15,7,1)!230
350 CALL COLOR(16,7,1)!231
360 CALL SOUND(T,247,2,175,6
,147,8)!024
370 CALL CHAR(128,"101038387
C7CFEA2")!110
380 CALL CHAR(129,"FFFFFFFFF
FFFEFBD")!062
390 CALL CHAR(130,"0101030307
070F1D")!030
400 CALL SOUND(2.5*T,262,2,1
65,6,131,8)!048
410 GOSUB 2590 !120
420 DATA 133,C0C0E0F0F0F8FCA
E,134,00000000000103O7,135,1
F1F3F7FFFFFEFA2,136,F8F8FCFE
FFEF6F29 !077
430 CALL SOUND(T/2,523,5,440
,8,175,12)!001
440 CALL CHAR(137,"000000000
080C0E")!227
450 CALL SOUND(T/2,698,5,440
,8,175,12)!014
460 CALL CHAR(144,"030F1CF3E
FDF0F07")!154
470 CALL SOUND(T/2,880,5,440
,8,175,12)!007
480 CALL CHAR(146,"000000008
0FCFF01")!066
490 CALL SOUND(T/2,1046,5,44
0,8,175,12)!051
500 CALL CHAR(148,"FFFFFFFFF
FFFFFFF")!070
510 CALL SOUND(T/5,1046,5,78
4,5,659,5)!022
520 CALL SOUND(2*T,1318,5,10
46,5,784,5)!060
530 GOSUB 2590 !120
540 DATA 145,808000E3F1F8FCF
E,147,0703010101,149,FCFEFFF
FFFFFFFFF,150,00000080C0E0F0
F8,151,7F3F1F0F070301 !114
550 DATA 152,0000008080E0F8F
F !240
560 CALL CHAR(153,"0606E3E3
80107FF")!090
570 CALL SCREEN(8)!153
580 CALL SOUND(T,262,3)!123
590 PRINT "THE SUN IS SHININ
G," !133
600 CALL SOUND(T,294,3,229,7
,175,9)!030
610 CALL HCHAR(9,26,97)!017
620 CALL HCHAR(9,27,98)!019
630 CALL HCHAR(10,26,99)!060
640 CALL HCHAR(10,27,100)!09
3
650 CALL SOUND(T/2,294,4)!06
4
660 CALL SOUND(T,294,3,247,7
,196,9)!033
670 CALL CHAR(154,"7C3E3F3F7
FFEFCF8")!214
680 CALL CHAR(155,"3F3C18180
C0C0606")!087
690 CALL CHAR(156,"00000000C
0E0F07C")!061
700 CALL SOUND(T/2,330,4,247
,7,196,9)!216
710 CALL CHAR(157,"000000000
01C3E3F")!043
720 CALL SOUND(T,349,3,247,7
,196,9)!034
730 PRINT "THE GRASS IS GREE
N," !112
740 CALL SOUND(T/2,392,3,294
,6,196,8)!223
750 CALL HCHAR(21,1,113,32)!
012
760 CALL SOUND(T,392,4,294,6
,196,8)!033
770 CALL CHAR(101,"000C1C3C1
800FFFF")!121
780 CALL CHAR(102,"000000000
000FFFF")!052
790 CALL SOUND(2*T,392,2,262
,6,196,7)!215
800 CALL CHAR(103,"F0F838387
8F0E0C")!067
810 CALL SOUND(T/2,440,3)!05
6
820 PRINT "THE ORANGE AND PA
LM TREES  SWAY." !243
830 CALL SOUND(2*T/3,494,3,3
92,6,147,8)!156
840 CALL HCHAR(10,14,104)!09
3
850 CALL HCHAR(10,15,105)!09
5
860 CALL HCHAR(10,16,106)!09
7
870 CALL HCHAR(10,17,107)!09
9
880 CALL SOUND(2*T/3,523,3,4
40,6,147,8)!143
890 CALL HCHAR(11,13,108)!09
7
900 CALL HCHAR(11,14,109)!09
9
910 CALL HCHAR(11,15,110)!09
2
920 CALL HCHAR(11,16,111)!09
4
930 CALL SOUND(2*T/3,494,3,3
92,6,147,8)!156
940 CALL HCHAR(11,17,112)!09
6
950 CALL VCHAR(12,15,120,8)!
032
960 CALL HCHAR(13,20,104)!09
3
970 CALL HCHAR(13,21,105)!09
5
980 CALL HCHAR(13,22,106)!09
7
990 CALL SOUND(T,440,3,349,6
,131,8)!016
1000 CALL HCHAR(13,23,107)!0
99
1010 CALL HCHAR(14,19,108)!1
06
1020 CALL HCHAR(14,20,109)!0
99
1030 CALL HCHAR(14,21,110)!0
92
1040 CALL SOUND(T,494,3,349,
7,147,9)!034
1050 CALL HCHAR(14,22,111)!0
94
1060 CALL HCHAR(14,23,112)!0
96
1070 CALL VCHAR(15,21,120,5)
!029
1080 CALL SOUND(T,523,2,330,
5,131,8)!006
1090 CALL SOUND(T,523,2,330,
5,196,8)!017
1100 CALL SOUND(T,523,2,330,
5,262,8)!011
1110 CALL SOUND(T,330,3,233,
6,139,8)!014
1120 PRINT "THERE'S NEVER BE
```

(See Page 12)

REGENA ON BASIC—

(Continued from Page 11)

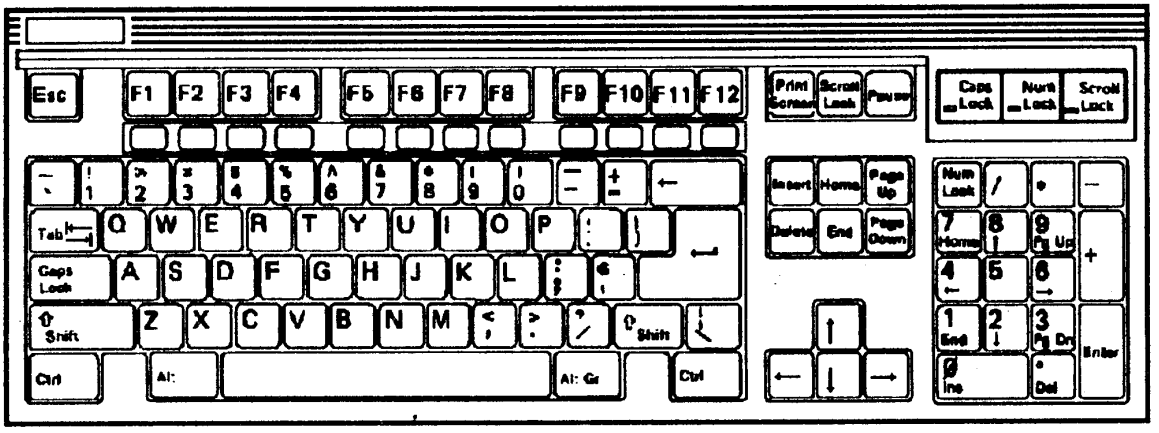
```
EN SUCH A   DAY" !064
1130 GOSUB 2530 !059
1140 DATA 9,.7,349,3,262,7,1
47,9,.7,349,5,262,7,147,9,.7
,349,3,262,7,147,9,1,440,3,3
49,6,165,8 !130
1150 DATA 1,247,3,165,8,247,
30,1,392,2,247,6,165,9,1,392
,2,294,6,265,9,1,392,2,262,6
,110,9 !079
1160 DATA 1,330,2,262,6,110,
9,8,.7,349,3,262,7,147,10,.7
,349,5,262,7,147,10,.7,349,3
,262,7,147,10 !234
1170 PRINT "IN BEVERLY HILLS
, L. A." !059
1180 GOSUB 2530 !059
1190 DATA 1,440,3,247,6,196,
10,1,247,3,175,6,196,10,4,26
2,3,220,6,131,10,1,131,5,131
,30,131,30 !222
1200 PRINT "BUT IT'S DECEMBE
R THE 24TH," !070
1210 CALL SOUND(T,294,2,208,
8,131,10)!060
1220 CALL HCHAR(7,4,95,6)!13
8
1230 CALL VCHAR(8,3,124,4)!1
92
1240 CALL VCHAR(8,10,124,4)!
239
1250 CALL SOUND(T,294,4,208,
8,131,10)!062
1260 CALL HCHAR(11,4,95,6)!1
82
1270 CALL SOUND(T/2,294,3,19
6,8,123,10)!003
1280 CALL HCHAR(9,5,68)!219
1290 CALL SOUND(T/2,330,3,19
6,8,123,10)!250
1300 CALL HCHAR(9,6,69)!221
1310 CALL SOUND(T/2,294,3,19
6,8,123,10)!003
1320 CALL HCHAR(9,7,67)!220
1330 CALL SOUND(1.5*T,262,3,
196,8,110,10)!093
1340 CALL HCHAR(9,8,46)!218
1350 CALL SOUND(T,294,3,196,
8,123,10)!068
1360 CALL HCHAR(10,6,50)!252
1370 CALL SOUND(6*T,330,3,24
7,6,196,10)!002
1380 CALL HCHAR(10,7,52)!255
1390 CALL SOUND(T,165,5)!127
1400 CALL SOUND(T,370,3,262,
5,131,10)!053
1410 PRINT "AND I AM LONGING
 TO BE" !251
1420 GOSUB 2530 !059
1430 DATA 1,294,4,208,8,131,
10,7,1,370,4,262,5,131,10,1,
370,3,262,5,131,10,.7,370,2,
220,6,156,9 !098
1440 DATA .7,392,2,220,6,156
,9,.7,370,2,220,6,156,9,1.5,
330,2,220,6,139,9,1,370,2,22
0,6,156,9 !200
1450 PRINT "UP NORTH." !234
1460 GOSUB 2530 !059
1470 DATA 8,1,392,1,247,6,16
5,8,1,392,1,784,6,659,8,1,39
2,1,659,6,494,8,1,392,1,494,
6,330,8 !240
1480 DATA 1,392,1,262,6,147,
8,1,392,1,784,6,523,8,1,392,
1,262,6,175,8,2,392,1,294,6,
175,8 !039
1490 T=400 !113
1500 CALL CLEAR !209
1510 CALL SCREEN(6)!151
1520 RESTORE 1550 !113
1530 PRINT "I'M DREAMING OF
A":"WHITE CHRISTMAS" !136
1540 GOSUB 2530 !059
1550 DATA 29,2,330,2,220,4,1
31,8,1,330,2,220,4,196,8,1,3
30,2,220,5,330,30,1,349,1,29
4,5,131,9 !248
1560 DATA 1,330,1,262,5,131,
9,1,311,1,247,5,196,8,1,330,
1,262,5,196,8,1,349,0,262,6,
147,9 !003
1570 DATA 1,349,0,262,5,147,
9,1,349,0,262,5,294,9,1,349,
0,262,4,220,9,1,370,0,277,4,
165,9 !021
1580 DATA 2,392,0,247,5,175,
10,1,587,8,494,12,587,30,1,4
94,10,392,14,494,30,1,440,3,
349,6,175,9 !088
1590 DATA 1,440,3,349,6,220,
9,1,494,3,392,6,131,9,1,523,
3,440,6,262,9,1,587,2,494,5,
175,9 !032
1600 DATA 1,523,2,440,5,262,
9,1,494,2,392,5,196,9,1,440,
3,349,7,196,9,1,392,2,330,5,
131,9 !027
1610 DATA 1,392,2,330,5,196,
9,1.5,392,2,330,5,247,9,.8,3
92,2,330,5,294,9,2,392,2,330
,5,220,9 !168
1620 DATA 1,262,2,220,5,175,
9 !230
1630 CALL SOUND(T,294,2,247,
5,175,9)!027
1640 CALL HCHAR(8,6,128)!009
1650 CALL HCHAR(9,5,130)!002
1660 CALL SOUND(T,330,2,262,
5,131,9)!007
1670 CALL VCHAR(9,6,129,3)!2
00
1680 CALL HCHAR(9,7,131)!005
1690 CALL SOUND(T,330,2,196,
5)!069
1700 CALL HCHAR(10,5,132)!04
5
1710 CALL HCHAR(10,7,133)!04
8
1720 CALL SOUND(T,330,1,247,
5,196,9)!020
1730 CALL HCHAR(11,4,134)!04
7
1740 CALL HCHAR(11,5,135)!04
9
1750 CALL SOUND(T,330,1,196,
5)!068
1760 CALL HCHAR(11,7,136)!05
2
1770 CALL HCHAR(11,8,137)!05
4
1780 CALL SOUND(T,330,3,233,
6,131,9)!007
1790 CALL HCHAR(12,4,130)!04
4
1800 CALL HCHAR(12,5,129,3)!
228
1810 CALL SOUND(T,440,2,330,
6,294,9)!016
1820 CALL HCHAR(12,8,131)!04
9
1830 CALL HCHAR(6,11,128)!05
2
1840 CALL SOUND(T,440,2,330,
6,131,9)!006
1850 CALL HCHAR(7,10,130)!04
5
1860 CALL VCHAR(7,11,129,3)!
243
1870 CALL SOUND(T,392,2,330,
7,233,9)!016
1880 CALL HCHAR(7,12,131)!04
8
1890 CALL HCHAR(8,10,132)!04
8
1900 CALL SOUND(T,262,3,220,
```

(See Page 14)

Look Whats New at RAVE 99

Introducing - Model XT/101 Keyboard Enhancement - $224.95

The New RAVE 99 Keyboard Enhancement allows you to connect an IBM style keyboard to your TI-99/4A! The full size keyboard eliminates the awful contortions required when using the original keyboard. This system includes both the Interface Card and our Model XT/101 Keyboard shown below. Get full-featured key layout with 101 keys, dedicated numeric keypad with numeric operators PLUS these additional great features:



- 0 Interface Logic Card Installs easily in console without soldering. A screwdriver is all that is required.
- 0 101 Key IBM Style Enhanced Keyboard with 12 functions keys across the top. Same as the TI-99/4A.
- 0 Supports single key entry of most TI-Writer, Multiplan, and Editor/Assembler commands.
- 0 Attractive low profile keyboard with adjustable tilt angle and 5 foot coiled cord.
- 0 Dedicated numeric keypad with numeric operators (+ - / *) and seperate ENTER key.
- 0 Four dedicated cursor keys, page-up and page-down, and home provide complete cursor control with a single keystroke.
- 0 Enlarged RETURN, SHIFT, and CONTROL keys.
- 0 Switchable locations for CAPS LOCK and LEFT CTRL key allows for personel prefrence.
- 0 CAPS LOCK, NUM LOCK, and Scroll LOCK LED Indicators provide immediate keyboard status.
- 0 Keyboard is XT/AT switchable which allows operation with the TI-99/4A(XT mode) or with an IBM style computer system (AT mode).

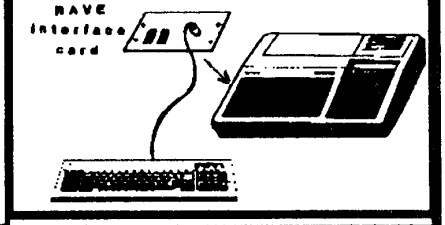
Model 99XT Interface Card - $149.95

The Interface card install in your 4A console in place of your old keyboard and allows use of any IBM PC/XT compatible keyboard with your 99/4A computer. The interface card supports all 83 standard PC/XT keycodes. Comes with complete, easy to follow installation and operating instructions. NO SOLDERING Required. Optional user installed RESET and LOAD INTERRUPT capability from keyboard.

Model 99XT KIT AVAILABLE - $92.00

Includes printed circuit board, complete instruction manual, and RAVE 99 custom chips. Hard to find hardware is also included. Requires only assembly and about $10.00 in easy to find components to complete.

EASY INSTALLATION



MX01 Memory Enhancement System - Start at $224.95 for Model MX01/64

The RAVE 99 MX01 memory enhancement system allows memory expansion for the TI-99/4A up to 544k bytes of backed-up memory. Up to four memory cards may be installed in the PEB which allows acess to over 2 MEGABYTES of backed -up memory. The card has 2 - 8K byte DSR's, 1- 8K byte Non-DSR, and 8K bytes in the cartridge memory space. Three programs are included for the holidays, at a savings of $45.00, which allows the card to be used as a RAMDISK, our RAVE_OS which provides a USER FRIENDLY method for Loading, Viewing, Deleting, Printing and Cataloging files. Also, our Keyboard MACRO program is included which allows single key presses to perform complex operations that you would normally type on the keyboard.
MX01/288 - Same as MX01/64 with 256K main memory $349.95, MX01/544 - Same as MX01/64 with 512 K main memory $489.95

Speech Synthesizer Adapter Card - $49.95

Finally a low cost method to move your TI-Speech synthesizer from the side of the console to the Peripheral Expansion Box (PEB). Compatible with the 99/4A and 9640 GENEVE computers. MAKE SOMEONE HAPPY, Put a "VOICE" back in the computer!!

RAVE 99 Co. 112 RAMBLING Road, Vernon CT 06066 (203) 871-7824

Add 5% for Shipping & Handling CT Residents, add 8% Sales Tax VISA & MASTER CARD add 3%

REGENA ON BASIC—

(Continued from Page 12)

```
6,175,10)!056
1910 CALL HCHAR(8,12,133)!05
1
1920 CALL HCHAR(9,9,134)!010
1930 CALL SOUND(T,262,3,220,
6,196,8)!017
1940 CALL HCHAR(9,10,135)!05
2
1950 CALL HCHAR(9,12,136)!05
5
1960 CALL SOUND(T,262,1,220,
5,175,8)!011
1970 CALL HCHAR(9,13,137)!05
7
1980 CALL HCHAR(10,9,130)!04
7
1990 CALL SOUND(T,262,1,220,
5,165,8)!010
2000 CALL HCHAR(10,10,129,3)
!015
2010 CALL HCHAR(10,13,131)!0
92
2020 CALL SOUND(T,262,3,208,
6,147,9)!020
2030 CALL HCHAR(11,9,132)!05
0
2040 CALL HCHAR(11,10,129,3)
!016
2050 CALL HCHAR(11,13,133)!0
95
2060 CALL SOUND(2*T,392,2,20
8,6,147,9)!213
2070 CALL HCHAR(17,20,102,6)
!017
2080 CALL HCHAR(17,21,101)!0
95
2090 CALL HCHAR(17,24,101)!0
98
2100 CALL HCHAR(17,26,103)!1
02
2110 CALL HCHAR(14,24,157)!1
06
2120 CALL SOUND(T,349,3,262,
6,208,8)!023
2130 CALL HCHAR(15,24,155)!1
05
2140 CALL HCHAR(15,25,156)!1
07
2150 CALL SOUND(5*T,330,3,26
2,6,196,8)!212
2160 FOR K=1 TO 13 !110
2170 READ RO,CO,C !115
2180 CALL HCHAR(RO,CO,C)!025
2190 NEXT K !225
2200 DATA 14,19,144,14,20,14
5,14,21,146,15,19,147,15,20,
148,15,21,149,15,22,150,16,2
0,151,16,21,148 !163
2210 DATA 16,22,149,16,23,15
2,16,24,153,16,25,154 !091
2220 CALL SOUND(T,349,2,262,
5,196,9)!028
2230 GOSUB 2530 !059
2240 DATA 63,1,330,2,262,6,1
96,9,1,294,2,247,6,147,9,1,2
62,2,220,6,147,9,1,294,2,220
,7,196,12 !039
2250 DATA 1,294,2,659,8,440,
12,1,294,2,587,8,392,12,1,29
4,2,523,8,349,12,1,294,2,494
,8,330,12 !239
2260 DATA 1,294,2,440,8,247,
12,1,294,2,392,8,262,12,1,29
4,2,349,8,247,12,1,330,2,220
,8,131,12 !202
2270 DATA 1,330,2,220,7,330,
30,1,330,2,220,7,196,12,1,33
0,2,220,8,330,30,1,349,2,294
,6,131,10 !156
2280 DATA 1,330,2,262,6,131,
10,1,311,2,247,6,196,10,1,33
0,2,262,6,196,10,1,349,1,262
,6,147,8 !134
2290 DATA 2,349,1,262,5,147,
8,1,349,1,262,6,349,30,1,370
,1,277,5,165,8,2,392,1,294,5
,175,8 !083
2300 DATA 1,587,8,494,10,587
,30,1,494,8,392,10,494,30,1,
440,3,494,6,175,8 !237
2310 DATA 1,440,3,494,6,220,
8,1,494,3,392,6,247,8,1,523,
3,440,6,262,8,1,587,2,494,5,
175,8 !037
2320 DATA 1,523,2,440,5,175,
8,1,494,2,392,5,123,10,1,440
,2,349,5,123,10,1,392,2,330,
6,131,10 !130
2330 DATA 1,392,2,330,6,196,
8,1.5,392,2,330,6,247,8,1,39
2,2,330,6,294,8,2,392,2,330,
6,220,8 !114
2340 DATA 1,262,2,220,5,175,
10,1,294,2,247,5,175,10,1,33
0,1,262,5,131,10,1,330,1,196
,8,330,30 !168
2350 DATA 1,330,3,247,6,196,
8,1,330,3,196,6,330,30,1,330
,1,233,5,131,10,1,440,1,330,
5,294,8 !079
2360 DATA 1,440,1,330,5,131,
8,1,392,2,330,6,233,8,1,523,
1,392,5,175,8,2,523,1,349,5,
175,8 !002
2370 DATA 1,523,1,330,5,175,
8,1,523,2,392,5,175,8,1,523,
2,349,5,175,8,1,262,1,208,5,
175,7 !015
2380 DATA 1,294,1,208,5,175,
7,2,330,1,262,5,196,7,2,330,
3,277,5,196,8,1.5,440,1,349,
5,196,7 !126
2390 DATA 1,247,4,220,8,175,
10,1,247,2,196,8,165,10,1,24
7,3,175,8,147,10,2,262,1,165
,8,131,10 !199
2400 IF CHOR>1 THEN 2460 !13
6
2410 GOSUB 2530 !059
2420 DATA 6,1,262,1,784,8,49
4,12,1,262,1,784,8,392,12,1,
262,1,784,6,523,8 !044
2430 DATA 1,262,1,784,6,392,
12,1,262,1,392,6,220,8,2,392
,6,294,8,247,10 !109
2440 CHOR=2 !229
2450 GOTO 1500 !048
2460 RESTORE 2480 !022
2470 GOSUB 2530 !059
2480 DATA 6,1,262,3,262,30,2
62,30,1,262,3,392,3,262,30 !
045
2490 DATA 1,262,3,392,3,659,
3,1,392,3,659,3,784,3,1,659,
3,784,3,1046,3,4,784,3,1046,
3,1320,3 !189
2500 CALL CLEAR !209
2510 PRINT "MERRY CHRISTMAS!
":"   FROM REGENA": :!075
2520 STOP !152
2530 READ N !229
2540 FOR K=1 TO N !142
2550 READ D,F1,V1,F2,V2,F3,V
3 !013
2560 CALL SOUND(D*T,F1,V1,F2
,V2,F3,V3)!237
2570 NEXT K !225
2580 RETURN !136
2590 FOR K=1 TO 6 !063
2600 READ C,C$ !244
2610 CALL CHAR(C,C$)!081
2620 NEXT K !225
2630 RETURN !136
2640 END !139
```

EXTENDED BASIC

Gambling on the holidays

By JERRY L. STERN

The holiday season is no time to be working on manipulating programs and data, no time to be tied down in organizing stacks of disks. This time of year there is quite enough to do, what with sending out holiday cards, shopping, cooking, and general dashing about while waiting for Donner and Blitzen. For a change of pace, and a Happy Holidays wish to the TI community, this month's program is not the usual utility program. Instead, here is Adventuresome Roulette. This is a simulation of a casino roulette wheel. I began this program on an old IBM minicomputer as big as a desk and considerably less powerful than my TI 99/4A. This was a project in probability theory; many gambling simulations make good programming practice for classes in probability. ROULETTE has progressed past that point.

ROULETTE can simulate any single casino bet, as played in the casinos of Atlantic City, New Jersey. Two gamblers may play together. The speech synthesizer will be used, if it is present, to announce the winning numbers and colors. The expansion memory is required; not because of the size of the program, but because the Call INIT and Call LOAD statements need that memory. One caution for Geneve 9640 users: use the regular TI 99/4A speed to run ROULETTE. The faster speeds will throw off the positions of the sprites because they are created already in motion.

When you enter the Adventuresome casino, you are given $5,000 in gambling money. If you bring a friend there is $5,000 for each of you. When you are ready to leave the casino, wager zero dollars and the bouncer will throw you out. The list of bets may be brought back to the screen by betting on bet #0. If two of you are playing, then the croupier will address each of you individually, such as: "wager 1?" Or "bet 2?"

Wagers are the amount of money being bet. You may not wager less than $100 unless you have less than that amount left to you. Of course, you may not bet more than you have, either, since the Adventuresome casino does not offer credit terms at interest rates less than those considered to be highly illegal under state law.

A bet is placed by number: for example, to bet on RED, enter 12. If you bet on NUMBER or any of the group bets, the croupier will ask which number the group is to start with.

Wager amounts, bet numbers and the individual number groups on bets one through five may be repeated by just pressing 'enter' when asked for your selection (see chart this page).

CAN'T RESIST

I just can't leave out programming entirely. The sound effect of the spinning wheel is created in an unusual fashion. The TI SOUND statement can play three notes and one noise together. The effect of the slowing wheel is created by using noise #4 alone. That noise produces a sound that is similar to a motor or a wheel, but it does not normally change in speed. However, if the noise is played along with three notes, and the notes are all volume 30, or silent, and the frequency of the third note is decreased, the speed of the noise, or the wheel, will also decrease. This is not in any manual that I could find; I found it only by experimenting with sounds at the console.

(See Page 16)

Possible bets

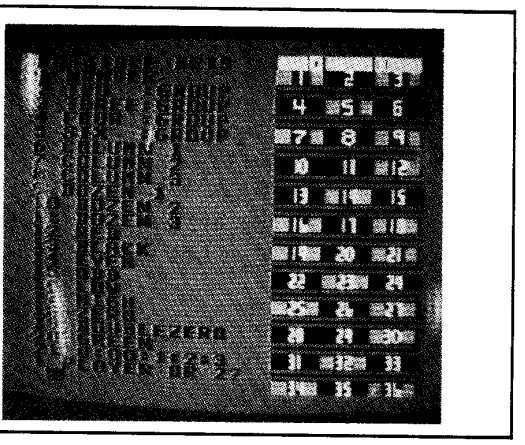
Keypress	Result	Payoff Odds
0 HELP	Lists the bets	
1 NUMBER	A bet on a single number in the range from 1 to 36.	35 to 1.
2 TWO	Any two consecutive numbers starting in the range 1 to 35.	17 to 1.
3 THREE	Any three consecutive numbers starting in the range 1 to 34.	11 to 1.
4 FOUR	Any four consecutive numbers starting in the range 1 to 33.	8 to 1.
5 SIX	Any six consecutive numbers starting in the range 1 to 31.	5 to 1.
6 COLUMN 1	The left hand column of the roulette table, or 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31 and 34.	2 TO 1.
7 COLUMN 2	The center column of the roulette table, or 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32 and 35.	2 to 1.
8 COLUMN 3	The left hand column of the roulette table, or 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33 and 36.	2 to 1.
9 DOZEN 1	From 1 to 12.	2 to 1.
10 DOZEN 2	From 13 to 24.	2 to 1.
11 DOZEN 3	FROM 25 TO 36.	2 to 1.
12 RED	The red numbers on the wheel, or 1, 3, 5, 7, 9, 12, 14, 16, 18, 19, 21, 23, 25, 27, 30, 32, 34 and 36.	1 to 1.
13 BLACK	The black numbers on the wheel, or 2, 4, 6, 8, 10, 11, 13, 15, 17, 20, 22, 24, 26, 28, 29, 31, 33 and 35.	1 to 1.
14 EVEN	The even numbers from 2 to 36.	1 to 1.
15 ODD	The odd numbers from 1 to 35.	1 to 1.
16 LOW	The numbers from 1 to 18.	1 to 1.
17 HIGH	The numbers from 19 to 36.	1 to 1.
18 ZERO	0.	35 to 1.
19 DOUBLEZERO	00.	35 to 1.
20 GREEN	0 and 00.	17 to 1.
21 0:00:1:2:3	The group of five numbers.	6 to 1.

EXTENDED BASIC—

(Continued from Page 15)

The sprites that make up the wheel are about at the limit of what can be done in TI Extended BASIC. The TI is not fast enough in its calculations to create a true spinning roulette wheel on screen, at least not in Extended BASIC. The wheel is shown from the edge, with the numbers passing down the screen as the ball passes them in the opposite direction. Not every number will show up in the wheel. There aren't enough sprites for that, and there isn't enough room on the screen for that either. I've found that gamblers are quite happy with the display, and non-gambling program hackers are not. That's okay; the gamblers need to be kept happy, and the non-gamblers don't want to have real fun anyway.

Well, I'd better let you start playing. Try to cheat if you think you must, but you'll be sorry! (HINT!) Enjoy your visit to the Adventuresome casino, and try not to lose all your money in one place!



ROULETTE

```
100 REM VEGAS ROULETTE- JERR
Y L. STERN-ALL RIGHTS RESERV
ED 12/89;V. 5.0 !239
110 CALL INIT :: CALL MAGNIF
Y(2):: CALL SCREEN(13):: RAN
DOMIZE :: ON WARNING NEXT ::
 CALL PEEK(-28672,SP)!033
120 CALL CHAR(95,"00FF")!150
130 DISPLAY AT(3,3)ERASE ALL
:"WELCOME TO ADVENTURESOME":
"                           "
:" CASINO... WHERE YOUR MONE
Y":"          ":"  IS OUR GR
EATEST ASSET!" !027
140 DISPLAY AT(12,1):"  STAR
TING BALANCE: $5,000.": :" P
LACE A BET ON 0 FOR HELP.":
:"     TO LEAVE, WAGER $0." !
211
150 DISPLAY AT(20,8):"J. L.
STERN" !036
160 DISPLAY AT(24,3):"PRESS
ALPHA LOCK DOWN!" :: CALL LO
AD(-31806,0)!250
170 FOR L=2 TO 10 :: CALL SP
RITE(#L,36,L,1,240,L*5,L-5):
: NEXT L :: IF G THEN 430 !2
29
180 DIM P(52),M(52),B(1),W(1
),E(1),D(1),N(1),H(1),J(1)!2
06
190 W(0),W(1)=100 :: D(0)=12
 :: D(1)=13 :: N(0),N(1)=1 !
206
200 W$="NUMBER     TWO
THREE      FOUR       SIX
  COLUMN 1  COLUMN 2  COLUMN
 3  DOZEN 1    " !182
210 W$=W$&"DOZEN 2   DOZEN 3
   RED         BLACK       EVEN
     ODD         LOW         HIG
H       ZERO        DOUBLEZEROG
REEN      0:00:1:2:3" !057
220 DATA 13,7,2,7,2,7,2,7,2,
7,2,2,7,2,7,2,7,2,7,7,2,7,2,
7,2,7,2,7,2,2,7,2,7,2,7,2,7,
13 !116
230 DATA 13,7,2,7,2,7,2,7,2,
7,2,2,7,2,7 !104
240 DATA 0,1,13,36,24,3,15,3
4,22,5,17,32,20,7,11,30,26,9
,28,37,2,14,35,23,4,16,33 !0
57
250 DATA 21,6,18,31,19,8,12,
29,25,10,27,0,1,13,36,24,3,1
5,34,22,5,17,32,20,7,11 !135
260 FOR L=0 TO 52 :: READ P(
L):: NEXT L :: FOR L=0 TO 52
 :: READ M(L):: NEXT L :: CA
LL PEEK(-28672,SP)!216
270 CALL CHAR(96,"808080808
0808080000000000000000010101
0101010101")!031
280 CALL CHAR(106,"7E7E66666
6667E7E0808080808080808300400
4043C2020C3C0404100404043C"
)!150
290 CALL CHAR(110,"444444447
E0404047C4040700404047C3C202
03C2424243C007E0204081010100"
)!058
300 CALL CHAR(114,"3C42423C4
242423C3E22223E0202020226292
92929292622222222222222222"
)!033
310 CALL CHAR(118,"272121212
72424272721212721212725252
52527212121272424272121212127"
)!203
320 CALL CHAR(122,"242424242
72525272721212121212121272525
52725252527272525252721212121"
)!210
330 CALL CHAR(126,"E6292929E
98989E6721212127242427277111
11177444477771111177141417 7"
)!083
340 CALL CHAR(130,"751515157
74141717714141771414177741414
41477454577771111111714141 71"
)!001
350 CALL CHAR(134,"771515177
54545777715151577414171E6292
9E9292929E67212127212121272"
)!084
360 CALL CHAR(138,"771111771
71414777711117771111117775151
57517111117177141477111111177"
)!251
370 CALL CHAR(142,"741414741
71515777755555555555577",99,
"000000FFFF")!053
380 IMAGE CHANGE          ####
##. !038
390 IMAGE WAGER ##         ###
##. !025
400 IMAGE BALANCE         ####
##. !070
410 IMAGE BET      ## ########
### !191
```

(See Page 17)

EXTENDED BASIC—

(Continued from Page 16)

```
420 IMAGE BET      ## ######
## !152
430 CALL DOORBELL !192
440 CALL PAUSE :: CALL CLEAR
 !059
450 GOSUB 1530 !079
460 C$="GANGSTER!LUCKY!  PL
EASE!  GAMESTER!BANDIT!  CHI
PHEAD!GAMBLER! CAPTAIN! DUCK
Y!   FAST!    OR ELSE!" !040
470 CALL CHAR(104,"1C3E7F7F7
F7F3E1C")!170
480 B(0),B(1)=5000. :: G=0 !
002
490 DISPLAY AT(23,2)SIZE(16)
:"1 PLAYER OR 2?" :: DISPLAY
 AT(24,1)SIZE(17):"  1" :: A
CCEPT AT(24,3)SIZE(-1)VALIDA
TE("12"):F :: A=0 !185
500 IF F=2 THEN Z$=" "&STR$(
A+1)ELSE Z$="" !215
510 CALL GCHAR(1,4,L):: IF L
-65 THEN 530 ELSE ACCEPT AT(
6+8*A,10)SIZE(-5)VALIDATE(DI
GIT):R$ !119
520 IF R$="" THEN 540 ELSE K
=VAL(R$):: DISPLAY AT(6+8*A,
1)SIZE(24):USING 390:Z$,K ::
 GOTO 550 !244
530 DISPLAY AT(23,2)SIZE(16)
:"WAGER";Z$;"?" :: DISPLAY A
T(24,1)SIZE(17):" $" :: ACCE
PT AT(24,3)SIZE(5)VALIDATE(D
IGIT):R$ !042
540 IF R$="" THEN K=W(A)ELSE
 K=VAL(R$)!132
550 IF K>B(A)THEN R$="WAGER
MORE THAN HIS BALANCE OF $"&
STR$(B(A))&"." :: CALL RAID(
R$):: GOTO 500 !179
560 IF K=0 THEN 1630 !099
570 IF K<100 AND B(A)>99 THE
N R$="WAGER LESS THAN THE FL
OOR   LIMIT OF $100.!" :: CA
LL RAID(R$):: GOTO 500 !142
580 W(A)=K !014
590 CALL GCHAR(1,4,L):: IF L
-65 THEN 600 ELSE ACCEPT AT(
7+A*8,6)SIZE(2)VALIDATE(DIGI
T):R$ :: GOTO 610 !002
600 DISPLAY AT(23,2)SIZE(16)
:"BET";Z$;"?" :: DISPLAY AT(
24,1)SIZE(7):" #" :: ACCEPT
AT(24,3)SIZE(2)VALIDATE(DIGI
T):R$ !087
610 IF R$="0" THEN GOSUB 146
0 :: GOTO 590 ELSE IF R$<>""
 THEN D(A)=VAL(R$)!104
620 IF L=65 AND D(A)>5 THEN
DISPLAY AT(7+8*A,1)SIZE(24):
USING 410:D(A),SEG$(W$,D(A)*
10-9,10)!045
630 IF D(A)>21 THEN R$="MAKE
 AN ILLEGAL BET!" :: CALL RA
ID(R$):: GOTO 590 !052
640 IF D(A)>5 THEN 720 !127
650 IF D(A)=0 THEN GOSUB 146
0 :: GOTO 590 !007
660 IF L=65 AND D(A)<6 THEN
DISPLAY AT(7+8*A,1)SIZE(24):
USING 420:D(A),SEG$(W$,D(A)*
10-9,6),N(A)!186
670 CALL GCHAR(1,4,L):: IF L
=65 THEN ACCEPT AT(7+A*8,19)
SIZE(-2)VALIDATE(DIGIT):N(A)
:: GOTO 700 !049
680 DISPLAY AT(23,2)SIZE(15)
:"WHICH NUMBER?" :: DISPLAY
AT(24,1)SIZE(7):" #" :: ACCE
PT AT(24,3)SIZE(2)VALIDATE(D
IGIT):R$ !051
690 IF R$="0" THEN GOSUB 146
0 :: GOTO 600 ELSE IF R$<>""
 THEN N(A)=VAL(R$)!124
700 IF N(A)=0 THEN GOSUB 146
0 :: GOTO 600 !027
710 IF N(A)>37-D(A)OR(D(A)=5
)*(N(A)>31)THEN R$="MAKE AN
IMPOSSIBLE BET!" :: CALL RAI
D(R$):: GOTO 600 ELSE GOSUB
1370 !034
720 IF F=2 AND A=0 THEN A=1
:: GOTO 500 ELSE A=0 !030
730 CALL DELSPRITE(ALL):: CA
LL GCHAR(1,4,L):: IF L-65 TH
EN CALL CLEAR :: GOTO 760 EL
SE CALL HCHAR(1,1,32,26):: C
ALL HCHAR(4,1,32,26)!203
740 CALL HCHAR(8,1,32,26)::
CALL HCHAR(10,1,32,26):: CAL
L HCHAR(11,1,32,26):: CALL H
CHAR(12,1,32,26):: CALL HCHA
R(16,1,32,26)!051
750 CALL HCHAR(18,1,32,26)::
 CALL HCHAR(19,1,32,26):: CA
LL HCHAR(20,1,32,26):: GOTO
770 !128
760 CALL CHARSET :: CALL COL
OR(9,2,16):: CALL VCHAR(1,27
,96,24):: CALL VCHAR(1,28,97
,24):: CALL VCHAR(1,29,98,24
)!092
770 CALL LOAD(-31806,0):: FO
R L=13 TO 1 STEP -1 :: CALL
SPRITE(#L,36,1,L*9.5,213,30,
0):: NEXT L !204
780 X=INT(RND*38):: G=G+1 ::
 E(0),E(1)=0 !237
790 CALL GCHAR(3,4,L):: IF L
=80 THEN DISPLAY AT(3,7)SIZE
(5):G !217
800 IF F=2 THEN Z$=" "&STR$(
A+1)ELSE Z$="" !215
810 ON D(A)GOSUB 1230,1230,1
230,1230,1280,1300,1300,1320
,1340,1340,1340,1360,1360,13
80,1380,1400,1400,1420,1420,
1360,1440 !142
820 IF F=2 AND A=0 THEN A=1
:: GOTO 800 ELSE A=0 !076
830 CALL SOUND(3000,440,30,3
30,30,610,30,-4,4)!240
840 FOR K=7 TO 44 :: IF M(K)
=X THEN 860 !113
850 NEXT K !225
860 FOR L=K+7 TO K-6 STEP -1
 :: CALL PATTERN(#L-K+7,M(L-
1)+106):: CALL COLOR(#L-K+7,
P(M(L-1))):: NEXT L !122
870 CALL SPRITE(#20,104,15,2
05,189,-128,0)!138
880 FOR L=610 TO 150 STEP -4
0 :: CALL SOUND(99,440,30,33
0,30,L,30,-4,4):: CALL MOTIO
N(#20,-L/5,0):: NEXT L !161
890 FOR L=4 TO 15 :: CALL SO
UND(150,440,30,330,30,150,30
,-4,L):: CALL MOTION(#20,L-2
5,0):: NEXT L !097
900 CALL SOUND(-1000,440,30,
330,30,150,30,-4,14)!225
910 CALL COINC(#8,#20,25,L):
: IF L THEN 920 ELSE 910 !06
5
920 CALL POSITION(#8,L,K)::
IF L>193 THEN 910 ELSE CALL
SPRITE(#20,104,15,L+9,189,30
,0)ELSE 910 !102
930 CALL SOUND(1000,440,30,3
30,30,150,30,-4,14)!031
940 IF SP=0 THEN 970 ELSE IF
 X=37 THEN CALL SAY("DOUBLE
ZERO")ELSE CALL SAYINT(X)!09
1
950 IF P(X)=7 THEN Q$=" RED"
 ELSE IF P(X)=2 THEN Q$=" BL
```

(See Page 18)

EXTENDED BASIC—

(Continued from Page 17)

```
ACK" ELSE Q$=" GREEN" !Ø18
96Ø IF SP=96 THEN CALL SAY(Q
$)!Ø05
97Ø CALL COINC(#8,135,213,1Ø
,K):: IF K=Ø THEN 97Ø !15Ø
98Ø CALL LOAD(-318Ø6,64)!11Ø
99Ø CALL POSITION(#8,L,K)::
CALL LOCATE(#2Ø,L,189)!164
1ØØØ IF X=37 THEN R$="ØØ" EL
SE R$=STR$(X)!Ø48
1Ø1Ø DISPLAY AT(1,2)SIZE(23)
:"AND THE WINNER IS ";R$;"!"
 :: DISPLAY AT(3,1)SIZE(24):
"SPIN #";G !21Ø
1Ø2Ø DISPLAY AT(4,1)SIZE(24)
:"WINNER",R$;Q$ !216
1Ø3Ø CALL HCHAR(5,3,99,21)::
 CALL HCHAR(13,3,99,21)!Ø36
1Ø4Ø IF F=1 OR A=1 THEN 1Ø6Ø
 ELSE CALL HCHAR(21,3,99,21)
!Ø63
1Ø5Ø IF F=2 THEN Z$=" "&STR$
(A+1)ELSE Z$="" !215
1Ø6Ø IF E(A)THEN J(A)=W(A)*H
(A)ELSE J(A)=-W(A)!153
1Ø7Ø B(A)=B(A)+J(A)!Ø87
1Ø8Ø DISPLAY AT(6+A*8,1)SIZE
(24):USING 39Ø:Z$,W(A)!214
1Ø9Ø IF D(A)>5 THEN DISPLAY
AT(7+A*8,1)SIZE(24):USING 41
Ø:D(A),SEG$(W$,D(A)*1Ø-9,1Ø)
ELSE DISPLAY AT(7+A*8,1)SIZE
(24):USING 42Ø:D(A),SEG$(W$,
D(A)*1Ø-9,6),N(A)!144
11ØØ DISPLAY AT(8+A*8,1)SIZE
(24):USING 38Ø:J(A):: DISPLA
Y AT(9+A*8,1)SIZE(24):USING
4ØØ:B(A)!175
111Ø IF E(A)THEN 115Ø !114
112Ø IF B(A)<=Ø AND F=2 THEN
 GOSUB 179Ø :: GOTO 119Ø !Ø3
5
113Ø DISPLAY AT(11+A*8,1)SIZ
E(18):"AW, TOO BAD........"
:: DISPLAY AT(12+A*8,1)SIZE(
2Ø):".....MAYBE NEXT TIME."
!Ø75
114Ø IF B(A)<=Ø THEN 168Ø EL
SE 119Ø !237
115Ø DISPLAY AT(1Ø+A*8,1)SIZ
E(24):"YOU HAVE WON $";J(A):
: DISPLAY AT(11+A*8,1)SIZE(2
4):"AT ODDS OF";H(A);"TO 1."
 !ØØ2
116Ø DISPLAY AT(12+A*8,1)SIZ
E(24):"QUIT A WINNER, ";SEG$
(C$,9*INT(RND*11)+1,9)!223
117Ø DATA 44Ø,55Ø,44Ø,66Ø,88
Ø,66Ø,44Ø,55Ø,44Ø,1 !1Ø3
118Ø RESTORE 117Ø :: FOR L=1
 TO 9 :: READ K :: CALL SOUN
D(-99,K,2):: NEXT L !Ø12
119Ø ON F+1 GOTO 12ØØ,5ØØ,12
2Ø !Ø84
12ØØ IF A=Ø THEN A=1 :: GOTO
 1Ø5Ø ELSE F=1 :: A=Ø :: IF
B(Ø)=Ø THEN B(Ø)=B(1)!Ø49
121Ø GOTO 5ØØ !Ø68
122Ø IF A=Ø THEN A=1 :: GOTO
 1Ø5Ø ELSE A=Ø :: GOTO 5ØØ !
Ø83
123Ø IF X>=N(A)AND X<N(A)+D(
A)THEN E(A)=1 :: ON D(A)GOTO
 124Ø,125Ø,126Ø,127Ø ELSE RE
TURN !185
124Ø H(A)=35 :: RETURN !24Ø
125Ø H(A)=17 :: RETURN !24Ø
126Ø H(A)=11 :: RETURN !234
127Ø H(A)=8 :: RETURN !191
128Ø IF X>=N(A)AND X<N(A)+6
THEN E(A)=1 :: H(A)=5 !115
129Ø RETURN !136
13ØØ IF X=3*INT(X/3)+D(A)-5
THEN E(A)=1 :: H(A)=2 !172
131Ø RETURN !136
132Ø IF X=3*INT(X/3)AND X>Ø
THEN E(A)=1 :: H(A)=2 !ØØ5
133Ø RETURN !136
134Ø IF X>(D(A)-9)*12 AND X<
(D(A)-8)*12+1 THEN E(A)=1 ::
 H(A)=2 !218
135Ø RETURN !136
136Ø IF (P(X)=7)*(D(A)=12)OR
(P(X)=2)*(D(A)=13)OR(P(X)=13
)*(D(A)=2Ø)THEN E(A)=1 :: IF
 D(A)=2Ø THEN H(A)=17 ELSE H
(A)=1 !Ø1Ø
137Ø RETURN !136
138Ø IF (X=2*INT(X/2)+D(A)-1
4)*(X>Ø)*(X<37)THEN E(A)=1 :
: H(A)=1 !ØØ3
139Ø RETURN !136
14ØØ IF X>(D(A)-16)*18 AND X
```

(See Page 19)

EXTENDED BASIC—

(Continued from Page 18)

```
<(D(A)-15)*18+1 THEN E(A)=1
:: H(A)=1 !Ø67
141Ø RETURN !136
142Ø IF X=(D(A)-18)*37 THEN
E(A)=1 :: H(A)=35 !168
143Ø RETURN !136
144Ø IF X<4 OR X=37 THEN E(A
)=1 :: H(A)=6 !Ø44
145Ø RETURN !136
146Ø CALL CLEAR :: CALL DELS
PRITE(ALL)!198
147Ø DISPLAY AT(1Ø,5):"BELLB
OY!": : : :"BRING THIS PLAYE
R A" !Ø79
148Ø L=INT(RND*6)*14+1 :: DI
SPLAY AT(15,1):SEG$("SHIRLEY
 TEMPLEMARTINI          GIN AND
 TONIC WHISKEY SOUR  BLOODY
MARY   PAN GALACTIC GARGLE B
LASTER",L,14-(L=71)*14)!Ø88
149Ø DISPLAY AT(16,1):"AND A
 RULE BOOK!" !Ø97
15ØØ FOR L=1 TO 2 :: FOR K=Ø
 TO 3Ø STEP 2 :: CALL SOUND(
-99,698,K,1924,K):: NEXT K :
: FOR K=1 TO 4Ø :: NEXT K ::
 NEXT L !Ø65
151Ø FOR L=1 TO 35Ø :: NEXT
L !ØØ8
152Ø CALL CLEAR !2Ø9
153Ø DISPLAY AT(1,2):"POSSIB
LE BETS" !223
154Ø FOR L=1 TO 21 :: DISPLA
Y AT(L+1,1):L;SEG$(W$,L*1Ø-9
,1Ø):: NEXT L !Ø11
155Ø FOR L=3 TO 6 :: DISPLAY
 AT(L,9):":GROUP" :: NEXT L
!113
156Ø CALL CHAR(91,"FFØØØØFFF
FØØØØFF")!Ø98
157Ø CALL COLOR(Ø,2,2,2,7,7,
9,4,4,1Ø,16,2,11,16,2,12,16,
2,13,16,2,14,16,2)!Ø14
158Ø FOR L=3 TO 23 STEP 2 ::
 CALL HCHAR(L,2Ø,91,9):: NEX
T L !ØØ9
159Ø CALL HCHAR(1,2Ø,96,9)::
 CALL HCHAR(1,22,1Ø6):: CALL
 HCHAR(1,26,143)!Ø26
16ØØ FOR L=1 TO 12 :: FOR K=
Ø TO 2 :: CALL HCHAR(2*L,2Ø+
K*3,26+P(L*3+K-2)*2,3)!Ø65
161Ø CALL HCHAR(2*L,21+K*3,1
Ø4+K+L*3):: NEXT K :: NEXT L
 !164
162Ø RETURN !136
163Ø CALL CLEAR :: CALL DELS
PRITE(ALL):: CALL CHARSET ::
 CALL SCREEN(14)!ØØ7
164Ø DISPLAY AT(12,2):"WE DO
N'T ENCOURAGE          BROWS
ING!                   PERHA
PS YOU'D LIKE TO SEE   OUR L
OVELY FACADE? Y" !Ø24
165Ø ACCEPT AT(16,2Ø)VALIDAT
E("YN")SIZE(-1):R$ !Ø43
166Ø IF R$="N" THEN CALL SCR
EEN(13):: GOTO 5ØØ !Ø1Ø
167Ø CALL CLEAR :: PRINT "SO
 BE IT.": : :"ROCKY, SHOW TH
IS LOSER":"THE DOOR." :: STO
P !ØØ3
168Ø FOR L=1 TO 5ØØ :: NEXT
L :: FOR L=1 TO 5 :: CALL SO
UND(15Ø,-5,3):: CALL SOUND(1
5Ø,-5,1Ø):: NEXT L !Ø35
169Ø CALL DELSPRITE(ALL):: C
ALL CLEAR :: CALL SCREEN(2)!
219
17ØØ FOR L=2 TO 14 :: CALL C
OLOR(L,4,1):: NEXT L !Ø86
171Ø DISPLAY AT(2,2):"GEE, Y
OU LOST ALL YOUR"," MONEY IN
 JUST";G;" SPINS OF THE WHEE
L." !Ø27
172Ø DISPLAY AT(6,1):" DID Y
OU KNOW THAT OUR       FAVOR
ITE KIND OF CUSTOMERS  ARE T
HE ONES THAT LEAVE     ALL T
HEIR MONEY WITH US?" !244
173Ø DISPLAY AT(12,1):" WELL
, THAT MEANS.....      COME
 AGAIN.............    ...A
ND BRING MORE MONEY." !131
174Ø DISPLAY AT(19,1):" PRES
S REDO OR BACK TO      LOSE
 YOUR SHIRT AGAIN.     PRES
S ENTER TO GIVE UP." !Ø3Ø
175Ø CALL KEY(3,K,L):: IF L<
1 THEN 175Ø !Ø23
176Ø IF K=2 OR K=13 THEN 167
Ø !126
177Ø IF K<>6 AND K<>15 THEN
175Ø ELSE CALL CHARSET :: CA
LL SCREEN(13)!15Ø
178Ø GOTO 12Ø !199
179Ø FOR L=1 TO 5 :: CALL SO
UND(15Ø,-5,3):: CALL SOUND(1
5Ø,-5,1Ø):: NEXT L !156
18ØØ DISPLAY AT(1Ø+A*8,1)SIZ
E(24):"YOU HAVE JUST USED UP
" :: DISPLAY AT(11+A*8,1)SIZ
E(24):"ALL YOUR CHIPS, SO I'
LL" !163
181Ø DISPLAY AT(12+A*8,1)SIZ
E(24):"HAVE TO SHOW YOU OUT!
" :: F=Ø :: CALL HCHAR(1,3,3
2,4)!2Ø7
182Ø RETURN !136
183Ø SUB RAID(R$)!112
184Ø CALL CLEAR :: CALL DELS
PRITE(ALL):: CALL CHARSET ::
 CALL SCREEN(7)!216
185Ø DISPLAY AT(1Ø,2):"ALL R
```

(See Page 20)

EXTENDED BASIC—

(Continued from Page 19)

```
IGHT,                          WHO'S
 THE WISE GUY?                 SOME
CLOWN IS TRYING TO":R$ !Ø57
186Ø DISPLAY AT(16,2):"ALL S
UCH ATTEMPTS ARE               THORO
UGHLY INVESTIGATED BY  THE M
OB!" !231
187Ø FOR L=1 TO 3 :: FOR K=7
ØØ TO 9ØØ STEP 9 :: CALL SOU
ND(-2ØØ,K,6):: NEXT K !147
188Ø FOR K=9ØØ TO 7ØØ STEP -
15 :: CALL SOUND(-2ØØ,K,6)::
 NEXT K :: NEXT L !Ø4Ø
189Ø CALL SCREEN(13):: SUBEN
D !24Ø
29785 SUB SAYINT(X)!Ø12
2979Ø ! PRONOUNCES INTEGER F
ROM Ø TO 39, JLS 9/86 !251
29795 IF X>39 OR X<Ø THEN SU
BEXIT ELSE X=INT(X)!Ø3Ø
298ØØ IF X=Ø THEN CALL SAY("
ZERO"):: SUBEXIT !Ø57
298Ø5 IF X>19 THEN 29815 ELS
E IF X>9 THEN 2981Ø ELSE 298
2Ø !236
2981Ø CALL SAY(SEG$("TEN
   ELEVEN    TWELVE    THIRT
EEN  FOURTEEN  FIFTEEN   SIX
 TEEN  SEVEN TEENEIGHT TEENN
INE TEEN ",(INT(X)-1Ø)*1Ø+1,
1Ø))!:: SUBEXIT !Ø44
29815 CALL SAY(SEG$("TWENTY
THIRTY ",(INT(X/1Ø)-2)*7+1,7
))!124
2982Ø L=X-INT(X/1Ø)*1Ø :: CA
LL SAY(SEG$("     ONE   TWO
THREEFOUR FIVE SIX  SEVENEIG
HTNINE ",L*5+1,5)):: SUBEXIT
 !246
2983Ø SUBEND !168
3Ø82Ø SUB PAUSE !236
3Ø825 FOR D=1 TO 1ØØ :: NEXT
 D !241
3Ø83Ø DISPLAY AT(24,2):"PRES
S ANY KEY TO CONTINUE" !Ø88
3Ø835 CALL KEY(Ø,K,S):: D=D+
1 :: IF S>Ø OR D>9ØØ THEN 3Ø
84Ø ELSE 3Ø835 !Ø16
3Ø84Ø SUBEND !168
32295 SUB DOORBELL !196
323Ø5 FOR V=Ø TO 16 STEP 2 :
: CALL SOUND(-1ØØ,659,V,784,
V+5):: NEXT V !17Ø
3231Ø FOR V=Ø TO 16 STEP 2 :
: CALL SOUND(-1ØØ,523,V,659,
V+5):: NEXT V :: SUBEND !2Ø3
```

TRIALS OF A c99 BEGINNER

An address file

By CHARLES E. KIRKWOOD JR.

Most of us have an address file of some type for birthdays, anniversaries, Christmas cards, etc. This file might be be a card file, a book, or even a disk file on a computer. Usually casual acquaintances are not kept in such a file, but they could be.

How many times have you tried to remember some person's name, but could only remember a nickname, or a segment of a name, a first name or perhaps a town or street name? This has happened to most of us and we wish that the name would come to us. Sometimes I will only remember the first letter of a name. The name might have been written on a piece of paper. You thought that you would remember where you put it. Why not put it in a disk file that can be searched for names or segments of a word that could be used as a clue?

This program is a modification of the Search Program (April 88). The program can still be used for searching through an index for article titles, etc. Several programs have been written lately to index MICROpendium articles. With this program up to and including 5 key words can be used to find some particluar article(s) that is(are) stored in a D/V 80 file. Names and addresses are also stored in a D/V 80 file and can be searched in much the same way as an index file. Each name and address will be a record of up to and including 80 characters. A second record can be added which could contain the name and other identifying information such as a nickname, job, family, etc.

The program is written is such a way that address labels can be printed if desired. Special labels can be used or you might just cut out the label and scotch-tape it to the letter. The print is "emphasized." If this feature is not desired, omit the statements:

```
pt=fopen("PIO.LF","w");
fputs("\Ø33E",pt);
fclose(pt);

pt=fopen("PIO.LF","w");
fputs("\Ø33@",pt);
fclose(pt);
```

The function fndstr() used with this program has been rewritten to use pointers instead of arrays. The function strcpy() from Tom Wible's string library is added and a function print() is written to print mailing label(s).

In order to print the name on one line and the address on as many lines as need, two characters, and ', are used to indicate where a carriage control should be and the end of the address, respectively. Sample address date:

```
MR. JOHN DOE"1ØØ Lark Ave."Clemson, SC 29631'(8Ø3)6548ØØØ
MISS JANE DOVE"245 Main St."Easley, SC 2964Ø'(8Ø3)8558ØØØ
```

Select JOHN as the key word and Y after address label, the label would look like this:

MR. JOHN DOE
100 Lark Ave.
Clemson, SC 29631

The character accent grave charaacter (') terminates the print and the phone number would not be printed.

If 1 keyword is selected and Enter is pressed without a keyword, all records in the file will appear on the screen and records could be printed for all names in the file. If additional records are placed in the file for additional information, it is best that they be

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c99—

(Continued from Page 20)

placed at the end of the file so as not to interfere with the printed labels.

The object files CSUP and CFIO should be loaded with the object file of this program.

Refer to the c99 article in April 1988 for additional information about the original Search Program.

I will be glad to send you free the following ready-to-run programs using E/A 5:

CALENDAR Jun. 88
CRYPTOGRAM Feb. 88
FILE I/O Apr. 88
MODIFIED FILE I/O Feb. 89
FOG INDEX Mar 88
SCRAMBLE Nov. 87
SIMULTANEOUS EQUATIONS Jun. 89
SORT Oct. 88
POLYNOMIAL CURVES Jul. 89
PLOT OF OTHER EQUATIONS Aug. 89
ADDRESS AND SEARCH this month, and the latest revision of Mathematical Functions.

Please send 2 formatted SSSD disks or 1 formatted disk if it is double density or double sided along with a self-addressed stamped mailer to Box 1241, Clemson, SC 29633-1241.

```
/*ADDRESS & SEARCH PROGRAM*/
#include DSK1.STDIO
main()
{
  char buff[81],fnc[25],ic[5];
  int a,b,col,in,i,out,pr,k,fn,r;
  int n,nr,blen,j,x,m,keyln,yn,pt;
  char key[6][20]; /*keywords*/
  int keylen[6];  /*length of keywords*/
  char kk[20];     /*one keyword for argument*/
  puts("       ADDRESS & SEARCH PROGRAM\n");
  puts("       Charles E. Kirkwood, Jr.\n");
  puts("      Box 1241, Clemson, SC 29633\n\n");
  puts("         See MICROpendium 1989\n\n");
  puts("Input disk and file name ");
  fn=gets(fnc);
  col=81;
  puts("Input number of key words ");
  n=atoi(gets(ic));
  while(n>0)
  {
    in=fopen(fn,"r");
    puts("Input number of matches required ");
    nr=atoi(gets(ic));
    puts("Do you want to print address label(s) ? (Y/N) ");
    yn=getchar();
    if(yn=='Y')
    {
      pt=fopen("PIO.LF","w");
      fputs("\033E",pt);
      fclose(pt);
```

(See Page 26)

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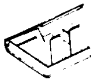

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This one is as good as anything you will see in an arcade. Great color graphics and displays of the Zodiac. Enter your birthdate and learn about your sign, your lucky days and famous events in history on your birthday. Even prints out a report. Can be used as a great moneymaker at a charity event. Help guide your spouse's career.

#23. WILL WRITER
Enter your answers to a group of computer asked questions and this program then writes you a last will and testament. Now you can leave your TI-99/4A to your favorite nephew. Works with any printer. Appears legal in all states but better check that out!

#24. ENGINEERING CALCULATIONS
A two sided computer handbood of dozens of the most often used engineering and technical formulas. A real time saver. Does conversions, calculations and even designs electrical circuits. A must for anyone whose profession or hobby involves scientific calculations. Even has medical and communications applications.

#25. MEDICAL ALERT
This disk contains many menu accessible files covering most everyday medical emergencies. A good "what to do until the doctor or paramedic comes" guide. Well written and organized. Could very easily save a life!

#26. R RATED GAME
It was bound to happen. A talented (but demented) programmmer in Germany wrote an Invaders type game but with most unusual guns and targets. Definitely not what you would find at your neighborhood arcade. Not only a great party game but some great programming. You must be over 18 to order this one!!

#27. KIDS LEARNING
An educator in Georgia put this two sided disk collection of educational programs together. Contains great material. Math, geography, reading improvement, and even IQ testing. All high quality programs for kids of all ages.

#28. LOADERS AND CATALOGERS
We put together a collection of the best programs that catalog and load a group of programs on a disk. Just try them, pick the one you like and transfer it to another disk with the file name LOAD and you are in business.

#29. LABEL MAKER I
Two great programs for making custom labels for disks, addresses video tapes or any other application. Even contains a graphic display of the TI-99/4A console. Now you can create custom labels of any number by just typing in the lines as you want them. Uses standard tractor labels.

#30. HOUSEHOLD BUDGET PRINTOUT
With this disk you print out the data you have stored with the TI HBM Module. HBM is a great module that can be used for many home and small business applications but TI forgot to include a printout function. This program comes with full instructions and we are sure that your HBM Module will now start being used. Fantastic programming job.

#31. MORSE CODE TRAINER DISK
This disk has everything you need to learn and practice Morse Code for the various FCC license exams. It also is great for scout groups and school "ham" clubs for group training and merit badge qualification. Professional quality.

#32. EXBASIC XMAS MUSIC
Two disk sides full of high quality xmas music that can be played throughout the holiday season and then used as a learning tool since it contains wonderful arrangements and graphics. Autoloading and menu driven.

#33. CHECKERS & BACKGAMMON
A collection of great checkers and backgammon games for the TI-99/4A. These are professional in quality and will keep you busy for hours.

#34. SOLITAIRE & SCRABBLE
Another collection of classic games for the TI-99/4A. Exbasic & 32K req.

#35. PROGRAMMING AIDS & UTILITIES I
A collection of some unusual programs of interest to programmers. One program shows a group of opening title displays, another is a cross reference program as good as any of the commercial ones, plus a great disk management utility.

#36. STRICTLY BUSINESS
A collection of various programs for evaluating loans, calculating interest, and other financial items such as return on investment and security performance. Two disk sides filled with financial and business related programs.

#37. LAPD COOKBOOK
This unofficial police cookbook was put together by one of our boys in blue who is also a gourmet chef. (Yes, it contains jailhouse chili) Over 50 great receipes from soup to nuts on two disk sides and each separate side can be called up on screen or printer in exbasic from a menu. As good as any of the new PC computer cookbooks we have seen.

#38. GREAT 99/4A GAMES VOL. I
A collection of professional games in assembly and exbasic that all load from a menu in exbasic. Includes a great ski game where you dodge the trees in a fast downhill run. We have included only the best.

#39. GREAT 99/4A GAMES VOL. II
Still more of the great ones from all over the world. The quality, graphics and speed of many of these games will make you wonder why they were never released commercially.

#40. ARTIFICIAL INTELLIGENCE
This disk contains the famouse computer program "Eliza" where you type in a question or a problem you are having and "Eliza" helps you find the solution. Also contains one of the better bio-rhythm programs so you can analyze all your emotional problems at one sitting..

#41. VIDEO GRAPHS MODULE BACKUP DISK
This disk is a backup of the discontinued Video Graphs Module from TI. For legal reasons, it can only be purchased for backup use by owners of the original module. Do not order UNLESS you have the original module and intend to use this disk only for backup purposes. Exbasic autoload...

#42. FUNNELWEB FARM UTILITY
You heard about this one, now direct from Australia is the latest version of this fantastic utility that puts everything at your command. From one program you can access word processing, editor assembler, telecommunications and just about everything else. A freeware program complete with documentation on a second disk side.

#43. BEST OF BRITAIN, VOL I
Now for the first time, a collection of the best 99/4A games Britain has to offer including the famous "Billy Ball" series of arcade games. Great graphics, action and excitement.

#44. LABEL MAKER I GRAPHICS
A disk filled with graphics for the Label Maker I disk (#29). Dozens of great graphics for custom labels!

#45. BEST OF BRITAIN, VOL II
This disk contains an outstanding 3-D graphics adventure game for the TI-99/4A. Carfax Abbey lets you actually move through a four story mansion complete with bats and vampires. You actually are placed in each room and go up and down stairs and through secret panels. Legend of Zelda...look out!

#46. SUPER TRIVIA 99
A great trivia game for 1 to 4 players with great questions and capability to add your own and print out the files. This one is a real challenge.

#47. INFOCOM RAPID LOADER
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c99—

(Continued from Page 21)

```
  pt=fopen("PIO","w");
}
b='a';
puts("\nInput key word(s), terminate each with  <ENTER>");
putchar(1Ø);
for(i=1;i<=n;++i) /*input keywords*/
{
  gets(buff);
  strcpy(&key[i][Ø],buff);
  keylen[i]=strlen(&key[i][Ø]);
}
putchar(1Ø);
while(b)
{
  r=Ø;
  b=fgets(buff,col,in); /*input record*/
  blen=strlen(b);
  for(m=1;m<=n;++m)
  {
    keyln=keylen[m];/*only one length as argument*/
    strcpy(kk,&key[m][Ø]);
    k=fndstr(b,blen,keyln,kk);
    r=r+k;
    if(r==nr)
    {
      puts(b);
      putchar(1Ø);
      if(yn=='Y')
        print(b,pt);
      r=Ø;
    }
  }
}
fclose(in);
if(yn=='Y')
{
  fclose(pt);
  pt=fopen("PIO.LF","w");
  fputs("\Ø33@",pt);
  fclose(pt);
}
puts("\nType Ø to stop.");
puts("\nInput number of key words ");
n=atoi(gets(ic));
}
}

/*SEARCH FUNCTION*/
fndstr(b,blen,keyln,kk)
int blen,keyln;
char *b,*kk;
{
  int i,j,p,s,k;
  p=blen-keyln;
  j=Ø;
  while(j<=p)
  {
    if(*kk==*(b+j));
    {
      s=Ø;
      while((s<keyln)&(*(kk+s)==*(b+j+s)))
        ++s;
      if(s==keyln)
      {
        k=1;
        return(k);
      }
    }
    ++j;
  }
  k=Ø;
  return(k);
}

/*CONVERT STRING TO INTEGER*/
atoi(s)
char *s;
{
  int sign,n;
  while(*s==' ')
```

(See Page 27)

c99—

(Continued from Page 26)

```
    ++s;
  sign=1;
  if(*s=='-')
  {
    sign=-1;
    ++s;
  }
  if(*s=='+')
    ++s;
  n=0;
  while((*s>='0')&(*s<='9'))
    n=10 * n + *(s++) - '0';
  return(sign*n);
}

/*STRING LENGTH*/
strlen(s)
char *s;
{
  int n;
  n=0;
  while(*s++)
    ++n;
  return(n);
}

/*COPY A STRING*/
strcpy(s1,s2)
char *s1,*s2;
{
  while(*s1++=*s2++)
    ;
  return;
}

/*PRINT A LABEL*/
print(b,pt)
char *b;
int pt;
{
  int i,j,k;
  k=1;
  for(j=1;j<=80;++j)
  {
    if(*b=='~')
    {
      putc(10,pt);
      ++k;
    }
    else if(*b=='`')
    {
      *b=' ';
      k=6-k;
      for(i=1;i<=k;++i)
        putc(10,pt);
      break;
    }
    else
      putc(*b,pt);
    *b=' ';
    *b++;
  }
  for(i=j;i<=80;++i)
  {
    *b=' ';
    *b++;
  }
  return;
}
```

EXPANDING YOUR SYSTEM

Composite monitors and the TI

By JOHN KOLOEN

I was wrong about one thing in last month's installment about expanding your TI system: The TI Peripheral Expansion Box is *not* as noisy as a PC. With a whisper fan installed, it is quieter than a PC. And another nice thing about the PEB is that it is not difficult to install a whisper fan in it. The same cannot be said for a PC, which integrates its cooling fan into its power supply.

This month's topic is about monitors. Specifically, composite color monitors for the TI. (Those with a Geneve or DIJIT Systems Advanced Video Processor Card, or other devices that allow the TI to use analog RGB monitors may refer to an article published in the March 1989 edition comparing various RGB monitors.)

Unlike PCs, Macintoshes and the Geneve, the TI console has its own video display processor. Thus the monitor plugs directly into the console and can be used without a Peripheral Expansion Box or other peripheral.

Selection of a composite monitor is based primarily on how much you want to spend. There are few other variables involved.

WHAT ABOUT MONOCHROME

The only other monitor alternative you have with a basic TI is digital monochrome. Monochrome doesn't come highly recommended, though it can be used with a TI with good results. If most of your computing has to do with word processors, spread-sheets or similar text-oriented applications, then monochrome may serve you well. However, many programs for the TI — particularly games — are designed to use color, and they just don't look the same in monochrome. Incidentally, monochrome usually comes in green or amber.

COMPOSITE COLOR

What is a "composite" color monitor? The name comes from the way the monitor receives signals from the computer. With a composite monitor red, green and blue are combined with synchronization pulses. Synch pulses create a stable image. Without them, the image would flutter.

As a rule, composite monitors are about double the price of normal monochrome monitors. Most come with built-in speakers and amplifiers. But don't assume that the monitor you select has a speaker. Many of them, particularly the lower end models, may not support sound. If you buy a monitor without a speaker you will have to jury-rig an external speaker to your TI. Otherwise your TI will produce no sound (except through the speech synthesizer, if you have one.) Remember, the TI console doesn't have a speaker.

COLORFUL BUT LOW-RES

Specifications of composite monitors are not very important when it comes to the TI, or many other brands for that matter. Composite color is not comparable with the higher resolution possible with RGB color as used by the Geneve and the AVPC.

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EXPANDING YOUR SYSTEM WITH A MONITOR—

(Continued from Page 27)

In fact, most color composite monitors are sold to support machines that do not have 80-column screens, such as the Commodore 64, the Adam and many of the Atari machines. These monitors lack the capability of displaying high-resolution images.

Even though a composite monitor is low-resolution, it is much better than the resolution of a TV set, be it color or black and white. The color monitor also provides a more solid and clearer image than most monochrome monitors. The fact that you can control the foreground and background colors with many programs can help reduce eyestrain and fatigue.

WHAT ABOUT A CABLE?

Anyone who has ever purchased a printer for a TI from a non-TI vendor knows that the cables that come with it aren't likely to be plug-compatible with the TI. The same goes for monitors. If the monitor doesn't come with a cable that is designed to be used with the TI, then you will either have to buy one or fabricate one.

Whether you buy a monochrome or color monitor, the cabling is basically the same. Each requires two RCA-type leads — one for video and one for sound. The end that plugs into the TI console is a 5-pin DIN. (It's not uncommon to find TI compatible cables that include the 5-pin DIN at one end and up to four RCA-type plugs on the other. Generally, you can ignore two of the RCA plugs since only one carries the composite color signal and one other carries the sound. The additional plugs are for use with computers and monitors that require additional inputs.) Cabling is so important that it may determine where you buy your monitor.

Once you've decided whether to go with monochrome or color, you'll need to decide on a vendor. If you go to a PC dealer, you are not likely to get much help when it comes to locating an appropriate cable. Ironically, even though it is relatively easy to find the most expensive part — the monitor — finding the lowly and inexpensive cable can be a trial. Those who simply want to open the box and plug the monitor in will do best by buying from companies that support and sell TI products.

Those who are more adventurous can select a monitor from a local K-Mart or PC dealer and hunt up a cable at a Radio Shack or other electronic store. Larger cities often have electronic retailers and wholesalers that stock a bewildering array of equipment for products that are no longer manufactured. (You can locate them under "Electronics" and "Electronics Equipment" listings in the phone book.) If this is the route you go, make sure you have the cable in hand before buying the monitor. Otherwise you'll get frustrated with the monitor sitting on the table and no cable to plug into it.

The third option with cables is to fabricate your own, or have a technician fabricate one for you. This isn't as difficult as it may sound, if you are handy with a soldering iron and have a basic understanding of electronics. Parts can be obtained from an electronics supply house. I have no experience at fabricating composite monitor cables, though I have built a cable for use with an RGB monitor. If you go the do-it-yourself route, check with Texas Instrument's technical experts at 806-741-2663 before starting out. However, as with all do-it-yourself projects, if you make your own cable, you are responsible for what it does or doesn't do. Wiring the power lead into the wrong position could short out your monitor and computer in an instant. If you aren't willing to take the responsibility you can have a local computer doctor fabricate it for you. It shouldn't cost more than $15-$20.

AFFORDABILITY

I've used a number of monitors with my TI, including those sold by Commodore for its computers, Magnavox, BMC, and TI's color 10-inch color monitor for the 4A. There isn't a whole lot of difference between them, in terms of color output. I like the 10-inch monitor because of its relatively compact size. Many of the composite monitors have 14-inch screens and are quite bulky. But many users prefer the large screens. It's a matter of taste.

You shouldn't expect to spend a lot on a monitor. A manufacturer's lower end models — such as those by Magnavox — will do just as well as their higher-priced models. What you are looking for primarily is a composite color monitor by a reputable manufacturer. It shouldn't be difficult to keep the cost under $200. (As an example, Tex-Comp recently advertised a composite color monitor by Magnavox for under $140. Other advertisers have the TI 10-inch monitor available for $175.)

Regardless of what you buy, you want to reserve return privileges if the monitor proves to be unsatisfactory. The plain truth is that in most cases you will not be able to demo a monitor before buying it. When you buy one you are doing it on faith because until you actually plug it into your TI you will not be able to judge whether it is adequate to your needs.

WHAT ABOUT USED?

Used composite and monochrome monitors are in plentiful supply from a variety of sources, including Goodwill stores, pawn shops, flea markets, and computer repair businesses. If you can't afford a new monitor, or just like to shop for the best deal you can get, then check these places out. Even though the risk of getting a defective product is greater, the possiblity of obtaining a bargain to write home about is always there. For many, this may be the only way to get that TI disconnected from the TV and plugged into its own monitor. And believe me, it's worth it.

Next month: Disk drives.

Texaments releases publications index for TI Base

Texaments has announced the release of Publications Index, an addition to its series of supplementary database application packages for TI Base.

Using Publications Index, a user can develop a personal index of publication references in a single centralized database, according to Steve Lamberti, president of Texaments. Indexes can be created for periodicals, books, newspapers and newsletters.

Publications Index is available from Texaments for $14.95 plus $2.50 shipping. It requires TI Base v.2.0 or higher.

For more information or to order, contact Texaments, 53 Center St., Patchogue, NY 11772, (516) 475-3480 (voice) or (516) 465-6463 (BBS).

HARDWARE PROJECT

An 8-bank Supercart

Putting your cartridges into one basket

The author wrote a series of articles published in MICROpendium this summer detailing the construction of a portable TI99/4A. He is a member of the Chicago TI User Group. Readers who undertake this project do so at their own risk.—Ed

By JAN JANOWSKI

My first "portable TI" was a console that had an 8-bank Supercart and 32K memory expansion inside it. This cartridge plugs in like any other cartridge. However, unlike any other cartridge, it had a write protect switch, a reset button, and a BCD rotary switch on its front.

I had read other articles about supercarts, but I couldn't quite follow the typed schematics that accompanied the articles. I was discussing this problem with a friend, Hank Ellermann, who agreed that the most important part of any project is a clear and concise schematic; he then suprised me with one, and that was enough to get me hooked!

As you probably know by now, I get my biggest bang out of my TI by making things to use with it. Software to me is merely something that you run. I feel this way about it, because I don't write programs.

Before I decided to undertake this project, I was toying around with a slightly modified console that was connected to my HAM radio. I wanted to use the "HAMSOFT" cartridge to control a printer in conjunction with a program that would log amateur radio station contacts during a contest called "Field Day." Field Day is a contest in which you take your HAM equipment out to the middle of nowhere, set it up using emergency antennas power generators, and, for a pre-determined 24-hour period, make as many contacts as possible. It can turn into a real comedy of errors if not done properly. It is this keeping track of your contacts — so that you don't waste time contacting the same station more than once — that is a perfect example of what a computer can do when working in conjunction with a HAM radio rig.

Before I could proceed with this project, there were certain technical problems for me to overcome:

- The power is not constant, and this will result in some surges. This constitutes no great problem for me; I just use a beefed-up power supply with much, much more capacitance.
- Occasionally, the power will completely disappear. This occurs when the generator needs to be stopped so that I can refill its gas tank. Now THAT is a problem!

This problem generated the solution that the HAM radio/TI computer must have both AC and DC power simultaneously. The revised TI power supply, explained in the "portable" articles (MICROpendium June-Aug. 1989),partially solved this problem, but I had to find a location on the TI power supply to which I could attach the batteries. I chose the Gel Cells that I ended up using for the portable and made a connection to the 27 V D.C. area of the switchmode power supply (past the rectifier). This battery connection, by the way, must not be reversed. If it is, great damage will occur to the TI power supply (and probably to the computer, too).

> A dual chip Supercart was a step in the right direction, but what if I wanted more than 2 programs? Following the powers of 2, after 4 comes 8, then 16. It was then that I decided I would have either an 8-bank or 16-bank Supercart.

Clearly, my solution to the "Field Day" contest problem led me to the eventual development of the power supply for my portable project.

So what does all this have to do with a Supercart?

Well, I wanted to load my "Field Day" program as fast as possible, and the Supercart loaded *much* faster than a cassette. (It also requires a lot less equipment.) Jim Derk, of the Chicago Users' Group, wrote the code for a lightning fast sort which he named *Amateur Radio Contest Logger*, and I then added 32K inside the console so that I could run the program. So, you see, the Supercart was just a means to an end.

Once I got everything going, I realized that I had inadvertantly overcome almost all of the obstacles that stood in the way of creating a portable TI. This HAM radio computer opened my eyes to the project that became the portable. Realizing this, I concentrated on expanding on my program storage — a single Supercart was out. A dual chip Supercart was a step in the right direction, but what if I wanted more than 2 programs? I thought that I might want 4 programs, but my initial design would leave me with no room for any expansion. Following the powers of 2, after 4 comes 8, then 16. It was then that I decided I would have either an 8-bank or 16-bank Supercart on my HAM radio TI computer.

Now, with all this out of the way, back to the Supercart specifics.

DESIGNING THE CIRCUIT

I immediately determined that the 6264 chip was out, and its bigger brother, the 62256, would be the chip of choice. I started in by designing the circuitry necessary for separating the 62256 chip into four 8K X 8 areas. I had three problems:

- First, I had to enable only one 8K bank at a time.
- Second, I had to be able to disable one 62256 chip completely while I worked with the other.
- Third, I needed to make my selector switch as convienent as possible, yet small enough to fit in the cartridge. Furthermore, I wanted all IC's in sockets, for easy trouble-shooting.

I next decided on a BCD switch for the selector switch for the 8K banks. The switch measures 3/8 x 3/8 x 3/8-inch so it fit right into the face of the cartridge. It has three control lines, or a combination of 8

(See Page 32)

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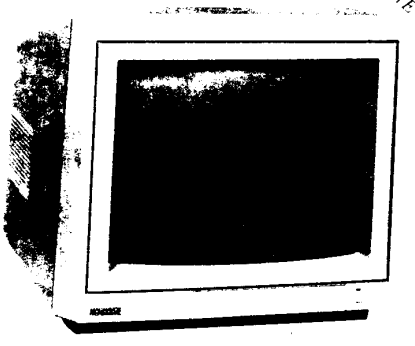

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8-BANK SUPERCART

(Continued from Page 30)

different combinations, as described below: 000, 001, 010, 011, 100, 101, 110, 111. (1=High=+5V 0=Low=0V)

The "power" of the control lines were: 1, 2, 4. I used lines 1 and 2 to decode the four locations inside each chip using the upper two address lines going to the memory chip. Control line 3 would have to be played with to disable one chip at a time in total, so that I could "store" to position 1 of the Supercart without damaging th contents at positon 5, and vice versa. Now here's where the fun began. (At this point, please refer to the 8-Bank Supercart schematic. This drawing was also published in the August 1989 MICROpendium.)

In order to disable one chip at a time, I had to have both the output of control line 3 *and* its inverse simultaneously; the 2N3904 transistor does this. The output of its collector is exactly the opposite of its base, the input. The base of the transistor is in turn connected to control line 3 of the BCD switch, and control line 3 is grounded in positions 5, 6, 7, and8. Therefore, the collector of the transistor is high for positions 5, 6, 7, and 8, just what we need!

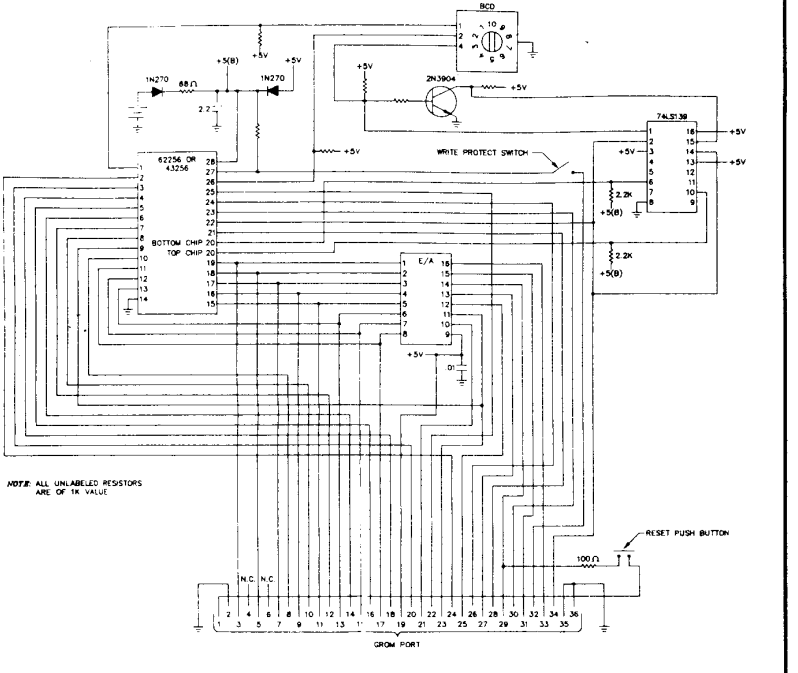
To make certain that one memory chip is totally disabled, we used the 74LS139 asa data switch. It switches between +5V, which disables the memory chip and the chip enable signal from the GROM port, depending on the signal that goes into pin 1 (one half of the chip) and pin 15 (the other half). So the BCD switch provides the logic to the transistor inverter which controls the data switch, and disables one, or the other memory chip (and lives in the house that Jan built).

The next problem I ran into is really a dual problem: No cartridge has enough pins to accomodate a 62256 chip or enough height inside the cartridge for two chips and an IC socket and still allow the cover of the cartridge to be used. This stopped me for a while, but then I came up with a solution thatsatisfied both of these problems.

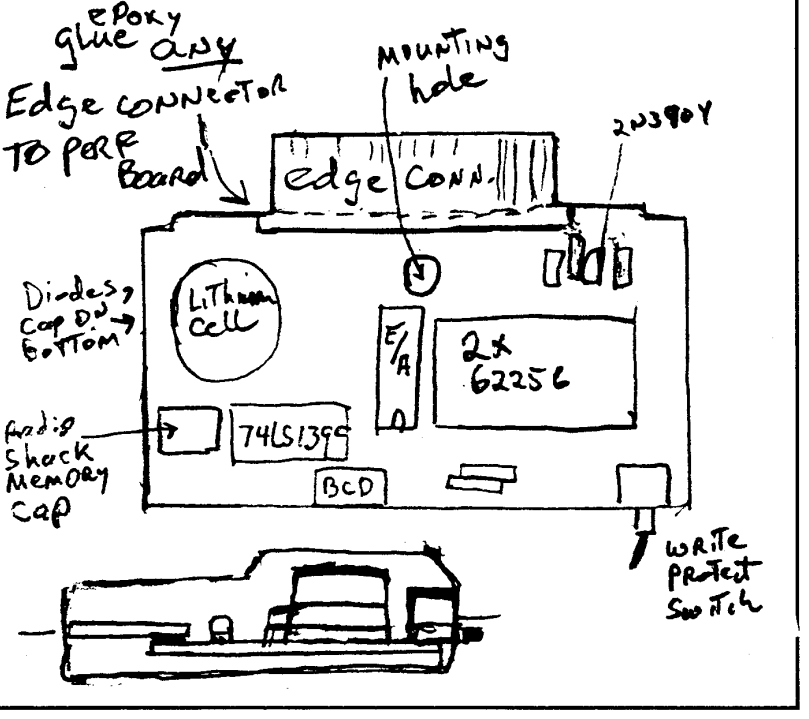
Pick up any cartridge, and look at it sideways (with the edge connector pointing to theleft). Notice how the edge connector is about even with theseam of the cartridge. Now look at all that wasted space between the seam of the cartridge to the bottom of

(See Page 34)

8-bank Supercart schematic



8-bank Supercart layout



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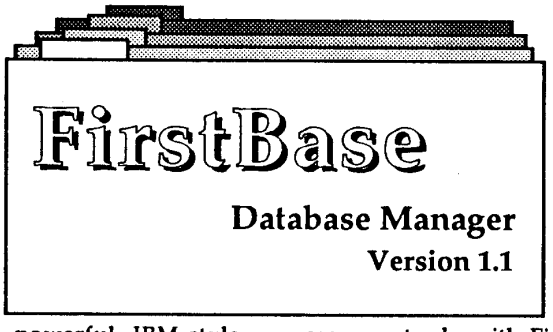
MICROpendium Review, January 1989



Over two years in the making, FirstBase from JP Software has become an unqualified hit with users and major publications throughout the TI Community. The reason is simple - FirstBase heralds the arrival of a new breed of database management software: easy to use yet extremely flexible. Enormous file capacities, clean design, powerful IBM-style queries, global updates, and thorough documentation make FirstBase the one to beat.

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8-BANK SUPERCART

(Continued from Page 32)

the cartridge. I needed this space, SO I USED IT!

ANY CARTRIDGE WILL DO

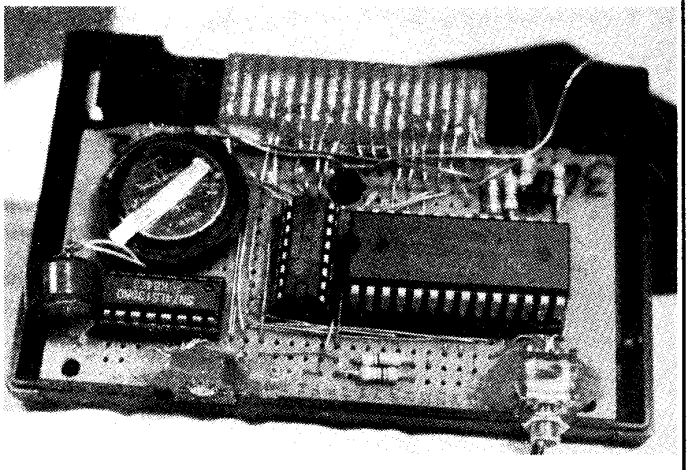
In order to complete this project, you may use ANY cartridge. You must cut off the edge connector, about one inch back from the edge and, using epoxy, glue a piece of vector board, with solder pads, on both sides, to the bottom of the edge connector. By gluing the board to the bottom of the edge connector, and thereby reducing the space at the bottom, in effect, you give yourself more room on the topside of the board. This solution works like a charm. (See the full-sized board layout.)

Point-to-point wiring was done to complete the board, and there was now room for two 62256 memory chips, on top of one another, and all chips are in IC sockets, too. The bottom support of the cartridge cover had to have about 1/16th of an inch of plastic removed on the center screw mount to accommodate the lower PC board, but the edge connector is still in perfect alignment with the GROM port, and there is plenty of room for the top cover to clear the two memory chips and the IC socket.

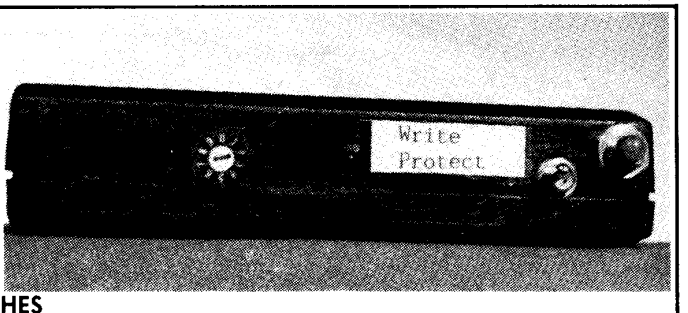
TESTING THE SUPERCART

The remainder of the circuitry was installed at this time, and everything was checked for continuity twice before power was applied. Once power was applied, the Editor/Assembler GROM chip was checked to make sure it still worked flawlessly. Next, using the program *CART-TEST*, all of the 8 banks of the supercart were tested. No, that's not exactly right — the chips were tested individually prior to being soldered on top of one another. Also note here that Pin 20 of both chips were NOT soldered together but were kept separate from one-another. They were tested again after they were soldered together.

After all was verified as being okay, up to that point, I performed the final test, which was to load all 8 banks and verify that bank 1 did not corrupt banks 5, 2-6, 3-7, and 4-8. The procedure of this final test was to load something unique in bank 1 and check banks 2 through 8. I then loaded something else in bank 2 and check all others. Next, I loaded something entirely different into bank 3 and checked all others. I repeated this procedure until I verified that all of the banks were working as they should. That is it.



INTERIOR OF SUPERCART



FINISHED SUPERCART WITH SWITCHES

LATER MODIFICATIONS

A write-protect switch, and 1K pull-up resistor were added to pin 27, so that an ABSOLUTE write-protect is manually implemented, regardless of what the computer does. (The last thing I needed was to lose the programs, while out in the middle of nowhere, with the nearest Peripheral Expansion Box miles away.)

A second modification was the addition of a reset switch to the cartridge, which was not necessary, but it that shows you how it can be easily implemented. The only mod not indicated on the schematic, but alluded to in the portable article, is the addition of a Radio Shack memory capacitor, which is in parallel with the 2.2 capacitor. My 8-Bank Supercart is now rock-solid in operation, and it is very useful too. Should you choose to build one, I have provided you with as much information as I can think of. Have fun!

TI's unreleased legends

Products that never reached the market

By RICHARD FLEETWOOD

The following article — one in a series — covers products that Texas Instruments developed for its home computer but never released. Fleetwood is a former presient of the Forest Lane TI User Group of Dallas. The articles appeared in the group's newsletter.—Ed

There have been many stories about things that TI was working on for its home computer before the company shut down the home computer division due to heavy financial losses. There were several items that TI "pre-advertised" before actual availability, and many others that never even made it to that point. This series of articles covers many of these hardware items, and even some software projects that were never officially released.

The purpose of this information is for personal enlightenment. This information comes from first-hand knowledge, and actual use of the products. These projects are not figments of anyone's imagination — they are real. However, trying to verify the information with TI is virtually impossible. Given its experience with the consumer market, the company would rather forget this episode of its corporate history than perpetuate it.

TI HARDWARE PRODUCTS

With that out of the way, let me start by giving a list of some of the TI hardware I own, have owned, have used or have seen. The list is by no means complete, but it is full of products not seen by the vast majority of 99ers:

COMPUTERS

TI99/4	the "original"
TI99/4A	the computer we have come to love
TI99/4B	the *missing link* between the 4A and the 99/8
TI99/8	the ultimate TI home computer
TI99/2	TI's entry into the "Timex" arena
TICC/40	TI's entry into the "portable" arena

PERIPHERALS

GROM Box
Double-sided/double-density disk controller
Hard drive controller
IEEE-488 interface card
Video controller card
128K SuperRAM card
374K UltraRAM card
Forti 4-channel music card
4-port RS232 card
Armadillo interface card

HEXBUS PERIPHERALS

Modem
RS232
Printer/plotter
Printer 80
5¼-inch disk drive
Smart modem
Video controller
HEXBUS interface

Of course, the 99/4 is what started everything off for the TI home computer market. Originally designed in the late 1970s, it reached the market in 1980. The cost was more than $1,100. For this amount buyers got a 16K, 16-bit computer with built-in BASIC and a 19-inch color monitor. The worst thing about the 99/4 was its keyboard. It used the same "chiclet" style keys found on TI's entire line of calculators. The 99/4 was also limited in terms of expansion. In fact, when it was first introduced there was no way to expand it. Expansion possibilities came months after it was introduced to the market.

TI listened to the feedback from customers who bought the 99/4 and did the right thing. The company redesigned the machine, adding a "real" though downsized keyboard that made touch-typing much easier. The company modified portions of the operating system to make things easier for the user. The video processor was changed to the 9918A (hence the "A" in 99/4A) and in the process added gobs of power to the overall system.

SIDECAR DEVICES AND PEB

Shortly after the 4A was released, TI announced the Peripheral Expansion Box, and several cards to make use of it. However, during the period between the release of the 99/4 and the 99/4A, TI developed the side-car style of peripheral devices that plugged daisy-chain fashion into the right side of the console. Separate peripherals for RS232, disk controller and P-code unit were sold as standalone units. They were about the size of cigar boxes and similar in appearance to the black and silver TI console. The disadvantage of these devices was that a user had to have at least a table four-feet wide just to hold the console and these side-car expansion devices.

Of course, the release of the PEB changed all that and allowed users to expand their systems without taking up a lot of desk space.

TI also developed a lot of software to take advantage of the 99/4A's graphics capabilities. Many programs flowed from Lubbock, Texas, where the TI home computer was produced.

In late 1982 and into 1983 TI began encouraging third-party companies to access the inner workings of the 99/4A so that they could produce software under a license from TI. This led to programs by Atarisoft, Milton-Bradley, Parker Brothers and many others.

Unfortunately, by the time things were rolling for these companies, TI's home computer marketing was already headed downhill. But more about software later.

THE TI/994B

Also about the time good things were happening with software development, TI was looking toward the future and the possibilities of system expansion. TI engineers played with ways to make the computer simpler to use, yet more complex. They threw together a half-dozen "all new" 99/XX computers based on market research and other criteria. These new computers were little more than proposals and prototypes for the new wave of home computers that would renew the infamous home computer wars of the early 1980s.

These new consoles were known as the 99/4Bs. They had a brand new memory mapper and used the big brother of the 99/4A's microprocessor. They were equipped with the new 9995 u-processor that enabled much more memory to be accessed, as well as much faster throughput of machine code. These new chips were much

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TI LEGENDS—

(Continued from Page 35)

more efficient than the 9900, and soon proved very capable and powerful in a small home-based system. The 99/4B was equipped with 32K of memory, a faster system clock, and a semi-new keyboard. All six of these prototypes were basically hand-built and weren't meant to be marketed. They were the testing ground for the 99/4A's big brother — the 99/8.

THE TI99/8

The 99/8 was TI's final attempt at making it to the top of the home computer market. At the time it was going to be released, it would have been more powerful than any other home computer in its price range. (Rumors about the immenent release of the 99/8 were hot and heavy the fall of 1983, with many expecting it to be on dealer shelves in time for the Christmas rush.—Ed)

The 99/8 was equipped with 64K of memory and could be upgraded to 2 megabytes. Unlike all other computers at the time, it had built-in speech capabilities. Instead of BASIC as a menu selection on powerup, the 99/8 came with Extended BASIC II. XBII was an upgrade of Extended BASIC, with improvements in graphics commands, string handling and new routines that made use of hexadecimal/decimal number handling. Also available on the powerup screen was the Pascal P-code system.

With all these standard features, the 99/8 was in a class by itself. Also included were ports for cassette, video, A/C power, and the all-new HEXBUS port. The expansion port on the side of the console had 50 pins, compared to the 44 on the 99/4A. The extra pins and some juggling of signals gave the 99/8 true 16-bit performance on its I/O bus.

The cartridge port was mounted on top of the unit, and installing a cartridge consisted of inserting it straight down instead of pushing the cartridge into the front of the console as with the 99/4A. The keyboard was redesigned and included several new keys to reduce dependency on the Function keys for such characters as ?, ", _, ', ~, |, [,], and so forth. The FCTN key was also moved to the left side of the keyboard, so that users could maintain full cursor control with one hand instead of two.

The 99/8 keyboard was almost four-inches wider than the 4A keyboard, and touch-typing was easier because it felt like a full-size IBM Selectric typewriter keyboard.

Incidentally, the powerup menu of the 99/8 offered another option: system speed. You could choose between "slow" mode, 99/4A mode or "fast" mode. This control over operating speed made it possible to change the speed at which a program ran. It was interesting to try to play Munchman at full speed on the 99/8 because it ran much faster than on the 4A. Similar effects were noticeable with other cartridges as well.

250 WERE MANUFACTURED

In discussions with others who know about the 99/8 project, I have put together the following facts:

- The 99/8 project almost died in the prototype stage because of the complexity of the memory mapper. A big breakthrough by one engineer kept the project going.
- There were about 1,000 etched PC boards made. Only 250 of these were assembled into working units. Of these, only about 150 were considered to be final, pre-production versions. These early units, if they had the Pascal system installed, held the code on ROMs instead of GROMs. This was to facilitate debugging until the final version was ready.

Speaking of Pascal, I talked with the fellow who had the responsibility of taking the actual silicon wafers from the SC building after etching to Singapore, where the final GROM chips were to be manufactured. He made it as far as Los Angeles before he got a call on Black Friday to come back home. That was when he learned that TI was getting out of the home computer business.

I'll bet that fewer than two dozen 99/8s have the Pascal system intact. My 99/8 doesn't have it. I have seen about two dozen of the 99/8s, and none seems to be exactly the same. Each had a different "feel" and some of the operating characteristics.

TI's code name for the 99/8 project was "Armadillo," which for non-Texans is a fiesty, little armored mammal that roams the Texas plains and Hill Country. On more than one occasion, while displaying my 99/8, a former or current TI employee would remark when they saw my computer, "Wow, An Armadillo!" Most of these TIers had heard about the project but had never seen one. The ones who had seen it while it was being developed provided me with much of the information for this article.

Next month: More on the 99/8 and software compatibility with the 99/4A, the 99/2 and the GROM box.

1990 TI FAIRS

FEBRUARY

TI-Fest West '90, Feb. 17-18, Day's Inn, 88 E. Broadway, Tucson, Arizona. Sponsored by Southwest 99ers. For information, call (602) 747-5046 or the Cactus Patch BBS, (602) 795-1953, check GEnie or write P.O. Box 17831, Tuscon, AZ 85730. For room reservations, call (602) 622-4000 by Jan. 16 and mention Fest-West.

MARCH

TICOFF (TI Computer Owners' Fun Faire — The IBM & Clone Owners' Fun Faire, 9:30 a.m.-4 p.m. March 17, Roselle Park, New Jersey. For information, call (201) 241-4550 or the TICOFF BBS (201) 241-8902.

APRIL

Canadian TI-FEST, April 28, Merivale High School, Nepean, Ontario, Canada. For information, contact Ruth O'Neill, 34 McLeod St., Ottawa, Ontario, Canada K2P 0Z5 or (613) 234-8050 or CompuServe 72117,3541 or Delphi REON.

MAY

TI Multi User Group Conference, 9 a.m.-6 p.m. May 26, Reed Hall/Student Activities Building, Ohio State University Lima Campus. For information write Lima Ohio User Group, P.O. Box 647, Venedocia, OH 45894, or call Dave Szippl evenings (419) 228-7109.

This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Send informaton to: MICROpendium Fairs, P.O. Box 1343, Round Rock, TX 78680.

TI-ARTIST PLUS

Now you can make movies

By SHIRLEY SLICER

TI-Artist has long been the de facto standard artist program, and now TI-Artist Plus has taken the program to new heights with its powerful new capabilities and improvements. It ships on three SS/SD disks.

Picture this: the main title screen has been made with the included movie module. It's an animated sequence of pictures that move and rotate. All menus have been updated to include the new features, and most have also had color and additional options added to them. The brand new menus are truly amazing for the features they contain, particularly the Vectors Menu.

Performance: The main menu presents you with the following choices: Artist, Converts, Enhancement, Fonts, Input DSR, Movies, Print, and Vectors. Each choice is a separate module.

Artist — will take you to the familiar drawing tablet menu. Most of the original choices of Draw, Point, Line, K-line, Rays, Fill, Frame, Box, Circle, Disc, Clear Image, H or V, Swap, Invert, Clear Color, Store, Zoom, and Mirror are still here.

The Circle and Disc options have been improved; now they are capable of producing elipses as well as circles. New to this menu is the Arc function which will draw a curved line between any two points.

Also improved is the Store option. It calls up a blue screen with white text that includes the options of L)oad, S)ave, and I)ndex. You simply type the first letter of an option, or move the white window to your choice. If you choose Index, you will be prompted for a drive number, and the filenames of all the pictures (_P) on that drive will appear. Then you may type in the desired filename, or move the white window to your choice.

The new Spray Paint option produces a pattern of scattered dots, and works like a brush choice. Also new is the Color option which will call up the brushes, color choices, patterns and spray paint icons while you are in the drawing screen — even while in Zoom mode. This is a big help, as it removes the need to toggle back to the drawing tablet menu for anything, other than loading another module. The number keys now control the cursor speed with 1 being the fastest, and 0 confining cursor movement to one pixel at a time. (No longer included in this menu are the Hard Copy and Alpha Num options. These have been moved to other modules.)

Converts — The conversion menu allows you to L)oad, V)iew, and S)ave artwork which was created with other artist programs. Currently supported are Draw-A-Bit, Draw-A-Bit II, Draw 'N Plot, Graphx, and of course, TI-Artist.

Enhancement — This menu still has Move Without Color, Move With Color, Copy Without Color, Copy With Color and Slides. Alpha Numeric Entry has been replaced with Instances. This area is still used for loading and saving Slides and Instances as well as moving and copying any section of the screen. This is the module with the fewest changes.

New to this section is the screen that is used when choosing Instances or Slides. It uses the same blue/white screen as the Artist-Store option, except that Index will call up either all Instance (_I),or Slide (_S) filenames on the drive specified.

Fonts — The Font Menu is totally new, and allows for about 14 times more text to be entered at a time. Choices here are Files and Edit.

Files will take you to the blue/white screen, except that Index will call up all the font (_F) filenames on the specified drive.

Edit allows you to enter text on any or all 14 lines. To the right of each line is an area with three letters. The defaults are NNC. The first letter is for Outline; N for no outline, or change it to Y to have the text on that line outlined. The second letter is for Shadow; N for no shadow, or change it to Y for the text on that line to be shadowed. Outline and Shadow may be used together for an interesting effect. The third letter, C, means *center the text on this line*. Change it to L to push the text to the left, or R to push the text to the right. Try filling at least four lines with the same font while changing the three options in various combinations to see how versatile these effects are.

Input DSR — This is used to load drivers for alternate input devices. Included drivers are ARTMOUSE for the Myarc Genéve mouse, MECHA for the Mechatronics mouse and TI mouse, and JOYST for joysticks. The program uses both keyboard and joystick input devices as defaults. The manual also details driver requirements so that users may write their own input device drivers; perhaps for a light pen or Super Sketch pad.

Movies — This menu, unlike all the others, contains no icons. First you create a movie file (_M) on a disk with the CREATE option. Then you can either LOADPIC to load a previously stored picture (_P), or go back to either the Artist Menu to draw a picture or to the Enhancement Menu to load a previously stored instance (_I), or to the Font Menu to add text.

Back in the Movie Menu, you USE a movie file that you create, and APPEND the movie file with whatever graphics/text you select. This creates one frame in the movie. The sense of motion is created by repeatedly going go back through the menus and moving, editing, adding and

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Review

Report Card

Performance	**A**
Ease of Use	**A–**
Documentation	**B+**
Value	**A+**
Final Grade	**A**

Cost: $24.95 + $2.50 S&H per order (Owners of the original TI-Artist may upgrade for $14.95 + S&H. You must return your original TI-Artist disk and the front page of your TI-Artist manual.)
Manufacturer: Texaments, 53 Center St., Patchogue, NY 11772
Requirements: disk system, 32K, and Extended BASIC, Editor/Assembler, or Mini-Memory cartridge. Printer recommended. (The program is Geneve and hard drive compatible.)

TI-ARTIST PLUS—

(Continued from Page 37)

deleting images. This basically is how artists create Saturday morning cartoons, except that you can make yours entirely on the screen; using the multitude of ready-made pictures, instances, slides, and fonts available, or your very own.

When you are done appending frames to the movie, you choose PLAY and watch the animation. The PLAY function also allows you to set its speed in frames per second and, while the movie is running, you can make it S)lower or F)aster. In addition, the PLAY program is public domain and may be passed onto TI friends with your personal movies. Hook your VCR up to your monitor, and you can even pass on your movies to non-TI owners!

Print — The Print Menu is totally new and all options produce printouts that are unlike those of the original TI-Artist. R toggles between Print Upright (portrait mode; prints in the same direction as a letter), and Rota Print (landscape mode; prints sideways). D toggles between Low Density (double-density), and High Density (quad-density). The High Density choice produces the darkest printing I have seen from any TI program. V toggles between Half Vertical (produces a half-page length by full page width printout when Print Upright is chosen); Full Vertical (produces a full-page length by full-page width printout when Print Upright is chosen); and the accordian pleated paper icon is for a Banner printout.

Rotate Print must be used in conjuction with the Banner. Only the centermost horizontal third of the screen is printed with the Banner choice, but full screens used with the Rotate Print option alone may also be used to produce banners. Up to three pictures at a time may be printed. When you enter a 1, 2, or 3, the uppermost section of the menu will allow you to enter the drive number and filenames of up to three pictures. If a picture is already in memory, it will automatically place *MEMORY in the filename field.

Like the Font Menu, you will see three letters to the right for additional effects. The first is Color Shading (Y/N), the second is Reverse Image (Y/N), and the third is Outline Picture (Y/N, T)op, B)ottom, M)iddle. The Color Shading isused to activate or deactivate multi-color printouts for those who are using color printers, and the Top, Bottom, and Middle are used when you wish to Outline when printing more than one picture at a time.

S toggles between Spread Apart and Scrunch Them, which are options used for multi-picture printouts. P will prompt you for your printer's pathname and will automatically present you with PIO.CR.LF, which is great for the majority of parallel printers. Currently there is no way to produce a single-density printout, nor a way to produce a printout as small as the size 1 option, that were both available on the original TI-Artist.

As you may have guessed, the higher quality, larger printouts take more time to print than with the original TI-Artist. As shipped, the default printer driver is for Epson and compatible printers, but also included are drivers for the following printers: Canon, CGP220, GP100, GP250, GP550,NX-1000 Rainbow, OKI92, and Prowriter. A program that installs the drivers is also included. The manual describes the printer drivers in enough detail for users to be able to write drivers for other printers as well.

Another plus is a program to help users calculate values for user-written drivers. Well done!

Vectors — The Vector Menu is really impressive. Choices here are S)caling, V)ector, and A)-H) for a variety of special effects. Scaling allows you to surround any area of the screen with a "rubberband." When you hit Enter, the rubberband changes to a dotted-line rubberband. At this point, you use the arrow keys to size the dotted-line rubberband to any size — smaller, larger, taller, shorter, wider, or narrower. When you hit Enter again, that area of the screen will be re-drawn in the size you chose.

Choosing Vector presents a blue/white screen as described in the Artist-Store section. First you select Save, press Enter, then use a rubberband to select an area of the screen to be saved as a vector file (_V). Next you choose Load to load the vector file back in and be presented the following options: Rotate (0-360 degrees), Spin (0-360 degrees), Tip (0-360 degrees),Horiz (spin 0-360), Vert (tip 0-360), X scale (% of X to use), Y scale (% of Y to use), and Z scale (percentage of Z to use). When working with the two-dimensional graphics and text that TI-Artist Plus creates, it's best to enter equal values for each of the X, Y, and Z planes. It is also easy to re-size vector files with the X,Y, and Z scale options, anywhere from 0 to 999 percent of its original size.

It is just as easy to rotate a vector file. With rotation, 90 degree increments work beautifully, while other increments may need some editing. 3-D objects are probably best suited to the Vector option, but you would have to write your own program to create them. The special effects with choices A-H are unique and allow you to "bend" your art in ways that will give it perspective, slant or make you feel as if you are looking into a trick mirror in an amusement park. Examples of this would be having one end of your art wider with the other end narrower, the illusion of accordian pleats (partially unfolded), being wider in the center and narrower at both ends, being narrower in the center and wider at both ends, tilted horizontally, and tiltedvertically. Any number of special effects can be performed on any section of art.

Ease of Use: I found the program to be friendly. Users who haven't used the original TI-Artist may need to get used to using the rubberband. I also recognize that users with only one SS/SD drive will have some disk swapping to do to fully utilize this program.

Documentation: The manual and disk-based README file were very descriptive on the use of most functions. They were a little sketchy about the Banner option, which left it up to the user to find the precise area of the screen that would actually end up in a Banner printout. Another fuzzy area was in the Vector portion, which left it unclear as to how the user might create a 3-D image. The Appendices are filled with precise definitions of the items contained in the files for instances, fonts, vectors, printer profiles, and movies. These are beneficial to software authors.

Value: I think that TI-Artist Plus is an excellent value. This program has more features packed into it than I ever dreamed of. It's by far the most versatile artist program I have ever seen.

MICRO-REVIEWS

Educational software gets A's and FunnelWeb strikes again

By HARRY BRASHEAR

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

★ Leave it alone, back to the drawing board.
★★ Needs improvements, but workable.
★★★ A good program, worth trying.
★★★★ Send your money and buy it.

★★★ INVENTIONS

A few months back I told you about a educational program relating to the Japanese language by Don Shorock. Well, I can hardly believe it, but Don got some requests for the program and it inspired him. (That's what we're here for, isn't it?) He recently sent me a new program called "Inventions," and it's really neat!

Like everything else that Don does, the game is very educational, even for me. The idea is to guess, from multiple choice questions, when certain items were invented. You don't need to know the dates because it's a matter of what was invented first. For instance; Which came first, wire, Pyrex telescope lens, the steam engine, or, the printing press. After you make your best guess, the program tells you whether you were right or wrong and gives you the dates they were all invented. The program then tallies a score based on the number of years elapsed between the choices. (I think this leaves a little to be desired, but who cares about scores.)

The inventions cover a period from 10,000 BC to 1960, and get this: up to 24 people can play... classroom size! You can also select from two to six choice questions. The more choices, the tougher it gets. It's a grand program.

Most of the stuff that Don does is educational, and he has a ton of it. It all tends to be plain vanilla in appearance, no fancy menus, screens or depressing noises when you're wrong. The reason is because he uses the memory for work, not silly stuff. The programs *work*, and that's what is important.

He also has programs for other languages, such as French, German, Spanish, Russian, Scandinavian languages etc., and if he hasn't got it, suggest it. He has two general education disks as well.

All of his material is considered fairware donation, but please, from my point of view, don't send less than $5, and include a disk and postage. This stuff is worth at least that much, and more. Send to: Don Shrock, PO Box 501, Great, Bend, KS 67530.

PS: If there are any readers living near Don, drop him a note, he thinks he is the only TIer in that neck of the woods.

★★★★ CALENDAR QUIZ

This must be my month for education, because no sooner did I get Inventions done than along came another winner.

Calendar Quiz is a program to test the elementary school knowledge of the days, months, holidays, etc. I don't recall having seen anything like this before so it might be a good idea for the teachers out there to check this out.

First of all, the program makes very good use of graphics and speech on the TI. The screens are colorful, and well balanced between function and simplicity. The speech isn't over done either, just enough to keep the student *and* the teacher advised as to correctness of the practice session.

At the beginning of the program, the user is asked for his birth date and that's what is worked towards. The outcome of the program (and reward I would say) is the ability to print out a full year calendar on a single sheet of paper.

Each question is given three tries to get it correct and then the program installs the answer. There aren't any insulting faces and the like for a bad third try answer, just a "You'll get it right next time" as the program takes over. Great!

The program is done in Extended BASIC with the help of the STAR assembly routines so it's fast enough to do the job. All in all, a very nice job, including docs. The only fault I could find may be stupidity on my part — Keep in mind that the student must know how to spell days and months to use the program. I think there may be a little conflict of grade level here, but I'm not sure. On the other hand, this may allow the teacher to get more involved.

It get's four stars for concept, programming, and good educational value. Send $10, which includes disks, extra labels for copies, and mailing to: Edgar C. Lecuyer, 566 Dedham St., Wrentham, MA 02093.

★★★★ QDAV—DIRECTORY UTILITY

Funnelweb Farms strikes again!

I don't have to tell anyone about the value of the Funnelweb system. I never used it all that much because I've always had DSDD drives and a couple of RAMs to feed my programs to me. That has all changed now because I have a Mechatronics 80-column card. (It was actually developed on the Digit Systems 80-column card.) No sooner did I get that set up, then I found the 80-column editor for FW. It works like gang-busters and I am stuck on it, forever. Now the McGoverns have added this neat 80-column Directory Utility to the system, and I'm in love! This program does things that I haven't seen anywhere else.

It "mounts" directly to the FW system as I said, and will not work from any other kind of E/A 5 loader, other than those in FW.

It brings up a directory from any drive and then lets you select a file to view on an editor type screen, any kind of file — relative, display, program image, BASIC, Extended BASIC, it doesn't care. It looks at the file header, decides what it is, and then presents it in the appropriate format.

D/V 80 files go to text format, of course, but it uses a 64K buffer in the 9938 to load it to, so you can get a whale of a sized file in there.

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MICRO-REVIEWS—

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Program files get listed as you would see them in a sector editor, but the ANSI format sits right next to it for you to look at. It's not a sector editor though, so don't let me mislead you about that.

I tried it on a Relative 200 file that I had, not knowing what to expect. Would you believe, there were all of the records and fields printed to the screen, pretty as a picture.

There are other things it will allow you to do also from the directory. You can print the directory, protect and unprotect files, delete them, and RUN any executable file. It hooks directly to the FunnelWeb loaders, finds the set it needs automatically, then presents you with the loading options. Neat!

There is supposed to be a 40-column version of the program in the works, so some of you may be looking forward to that.

FunnelWeb is up to version 4.13 now, so if you are working with an old version, send some money and upgrade.

The FunnelWeb system is fairware. What's fair, is at least a $20 bill in an airmail envelope with return postage to: Tony McGovern, 215 Grinsell St., Kotara, NSW 2289—Australia.

★★★★

REMEMBRANCE
March Music

Harrison Software produces a lot of music, and I have already stated how I feel about their offerings a couple of months ago. I can't possibly review all of it because this column would become solid music reviews. When I was in Washington, however, Bruce Harrison told me that he would be coming out with a new "album" of Revolutionary War Marches. I begged him to send me a copy ASAP, mainly because it would be a break from the traditional. I received it, and it is.

There are 24 marches on the disk, plus an informative blurb on the music and how it was done. The interesting thing is that, like much of their other music, you hear it here first! Most of the selections are real compositions, about 12 days older than water, and have never been recorded in any manner. That makes this material special.

Most of the songs were written for fife and drum, and I can't believe the nifty snare drum sound that they were able to get. It's fantastic! By the way, this one plays on the Geneve, too.

Send $4.50 to: Harrison Software, 5705 40th Place, Hyattsville MD 20781.

If you would like me to review your software in this column, send it to: Harry Brashear, 2753 Main St., Newfane, NY 14108. If you would like it returned, include a SASE. Make sure to include a phone number.

EXEC-GETSTR-GETKEY

A MDOS utility for menus

By JOHN KOLOEN

This is a short review about a collection of programs for the Geneve that I find very useful. The programs — EXEC, GETKEY and GETSTR — will prove to be invaluable for Geneve users who want to do serious things with their menus or who want to load Editor/Assembler Option 5 programs from MDOS rather than the GPL interpreter. The programs are written by Barry Boone and are available from Texaments for $17.95. (Texaments; 53 Center St.; Patchogue, NY 11772.)

To use these programs effectively you should have an understanding of batch file programming. Batch files, of course, may be written using a word processor and utilize a limited number of commands supported by MDOS. GETKEY and GETSTR serve as external commands for MDOS.

The two programs work in a similar fashion. GETKEY waits for a keypress and stores it in a batch argument. GETSTR waits for a string and stores the string in a batch argument. Through this mechanism, interactive batch files can be written.

As an example, examine the sample batch file:

```
:LOOP
CLS
ECHO Enter filename to view
GETSTR
TYPE %1
PAUSE
GOTO LOOP
```

This file asks for a filename, lists the file to the screen and then, when finished, asks for another filename.

EXEC allows users to load E/A 5 programs from the MDOS prompt. Like GETSTR and GETKEY, EXEC is saved to a floppy or hard disk and then called from MDOS using a batch file. EXEC then loads the E/A 5 program as if you'd loaded it from GPL. When you quit the program, you are returned to MDOS.

EXEC works with many programs, including TELCO, MDM5, Archiver and others. It also works with MY-Word but the directory function is disabled.

The three programs are ideal for creating and running menuing systems from MDOS. With them you can set up menus so that you can load and run programs by entering a single keystroke. I've been using a menu system called MENU 80 that lets me load any of several dozen programs. I can also access a variety of disk management functions such as John Johnson's XDIR which was published in MICROpendium earlier this year, initialize a printer, etc.

The menu system is flexible and easily modified, though the user needs to study its format before changing it.

MENU 80 doesn't come with the EXEC package — though it would be a good idea if it did — but is available on many bulletin boards. The menu requires EXEC.

The three programs, used in conjunction with MDOS and a batch file menu system, allows Geneve users to run virtually everything from the MDOS prompt. Anyone who has a menu that works from MDOS should have the EXEC package. It gets all A's from me.

If you don't have access to a BBS but would like copies of MENU 80 you may send me a formatted disk with a self-addressed, stamped, return mailer.

Newsbytes

Adventure SIG debuts on Pittsburgh BBS

The Pittsburgh User Group is beginning a new Adventure Special Interest Group on its BBS.

The SIG will be hosted by Mickey Schmitt, author of *The Adventure Reference Guide* and co-author of Oliver's Twist. Assisting will be Lynn Gardner, co-author of Oliver's Twist and author of Zoom Flume.

Schmidt says the BBS will offer both fairware and public domain adventure games on the download section on a monthly basis, with new adventure games being added on the first day of the month. Both text and graphic-type adventures will be promoted, she says, and conversations are encouraged on an adventure message base.

The PUG Bulletin Board operates at 300/1200/2400 baud at 8, N, 1, 24 hours a day, seven days a week at (412) 824-6779.

Group compiling P-code manual

The Boston Computer Society is compiling the articles written for its newsletter by Ron Williams on P code for the TI99/4A.

The compilation will be available for $5 by mail, according to Justin G. Dowling of the Boston Computer Society.

Dowling says a disk of the programs in the manual is under consideration also, "but we really don't know how many people are interested in P code applications."

For information, write the Boston Computer Society, TI99/4A User Group, One Center Plaza, Boston, MA 02108.

8K banks accessible on Horizon RAMdisk

A modification has been created for the Horizon RAMdisk to allow 8K banks to be accessed at the programmer's wish to >4000 – 5FFF or >6000 – 7FFF memory locations. The user has the ability to turn on 8K blocks of memory as part of a running program.

The modification was created by Ron Walters, the late John Guion and Gary Bowser. It is accomplished by replacing one small chip with a mini-board and connecting six wires. The Horizon can still be used as a RAMdisk with space allocated for the 8K bank switching. A software program controls the 8K banks. Full instructions for installing and use are provided, and, according to the manufacturer, this plug-in mod will work on any version of Horizon with a 99/4A.

For information, write Bud Mills Services, 166 Dartmouth Dr., Toledo OH 43614.

Quality 99 Software offers free catalog

Quality 99 Software is having a sale, according to company president Larry Hughes, and is offering a free catalog of its disk programs.

To receive the catalog, send a self-addressed, stamped business envelope (No. 10) to Quality 99 Software, 1884 Columbia Rd. #1021, Washington DC 20009.

2400 bps availability to expand through GE

GE Information Services has announced an expansion of its 2400 bits per second asynchronous dial-up service access.

This will expand GEIS' U.S. 2400 bps availability from 69 cities to 393 cities by the end of 1989, and will make it available on the GEnie telecommunications network, according to Steve Haracznak of the GEIS press relations office. Haracznak says that, with the expansion, GEIS will be providing its U.S. clients the widest 2400 bps coverage of any network services vendor. GEIS also plans to expand its international 2400 bps capability in the near future, he says.

In addition to the 69 cities with the capability originally, the following cities are scheduled for the 2400 bps capability:

Alabama — Dothan, Hartselle, Huntsville, Mobile, Montgomery and Sheffield.

Arizona — Benson and Tucson.

Arkansas — Conway, Little Rock and Stuttgart.

California — Bakersfield, Canoga Park, Chico, Colton, Concord, Corona, Dublin, El Monte, Eureka, Fremont, Fresno, Lompoc, Livermore, Madera, Marysville, Merced, Modesto, Oceanside, Ontario, Oxnard, Palm Springs, Redwood City, Rialto, Roseville, Sacramento, San Luis Obispo, San Rafiel, Santa Barbara, Santa Cruz, Santa Rosa, Stockton, Thousand Oaks, Victorville and Visalia.

Colorado — Colorado Springs, Ft. Collins, Greeley, Loveland, Montrose and Pueblo.

Connecticut — Bristol, Groton, New Haven, Norwalk, Old Saybrook and Waterbury.

Delaware — Wilmington.

Florida — Boca Raton, Clearwater, Daytona Beach, Ft. Lauderdale, Ft. Myers, Ft. Pierce, Ft. Walton Beach, Gainesville, Kissimmee, Lakeland, Melbourne, Naples, New Smyrna Beach, Ocala, Pensacola, Sarasota, Sebring, Stuart, Tallahassee, Vero Beach and West Palm Beach.

Georgia — Albany, Athens, Augusta, Columbus, Macon and Savannah.

Idaho — Boise, Kellogg, Nampa and Pocatello.

Illinois — Bloomington, Champaign, Decatur, DeKalb, Effingham, Elgin, Freeport, Macomb, Morrison, Peoria, Quincy, Rockford, Rolling Meadows, Schaumburg, Springfield and Waukegan.

Indiana — Anderson, Columbus, Crane, Elkhart, Evansville, Gary, Kokomo, New Castle, Muncie, Richmond, South Bend, Tell City and Terre Haute.

Iowa — Belmond, Burlington, Carroll, Cedar Falls, Cedar Rapids, Davenport, Des Moines, Dubuque and Marshalltown.

Kansas — Hays, Hesston, Independence, Leavenworth, McPherson, Topeka and Wichita.

Kentucky — Lexington and Owensboro.

Louisiana — Alexandria, Baton Rouge, Lake Charles, Monroe and Shreveport.

Maine — Augusta, Bangor, Brunswick, Kittery, Lewiston and Portland.

Massachusetts — Attleboro, Fitchburg, Framingham, Lawrence, Lynn, Milford, Pittsfield, Quincy, Springfield and Worcester.

Mississippi — Gulfport, Jackson and Meridian.

Missouri — Maryville and Springfield.

Michigan — Adrian, Ann Arbor, Battle Creek, Bay City, Benton Harbor, Flint, Grand Rapids, Holland, Jackson, Kalamazoo, Lansing, Marquette, Muskegon, Saginaw and Traverse City.

Montana — Billings, Bozeman, Butte, Great Falls, Helena and Missoula.

Nebraska — Kearney, Lincoln and York.

Nevada — Las Vegas and Reno.

New Hampshire — Concord, Keene, Manchester and Nashua.

New Jersey — Atlantic City, Heightstown, Kearny, Merchantville, Pitman, Princeton, Rahway, Red Bank and Westfield.

New Mexico — Albuquerque and Santa Fe.

New York — Auburn, Binghamton, Buffalo, Corning, Elmira, East Hampton, Kisco, Maybrook, Mineola, Mt. Kisco, Niagara Falls, Norwich, Oneonta, Poughkeepsie, Port Jefferson, Utica, West Babylon and Woodstock.

North Carolina — Durham, Fayetteville, Winston-Salem, North Wilkesboro and Wilmington.

North Dakota — Fargo and Underwood.

Ohio — Akron, Alliance, Athens, Canton, Coschocton, Dayton, Springfield, Toledo, Troy and Youngstown.

Oklahoma — Bartlesville.

Oregon — Corvallis and Eugene.

Pennsylvania — Allentown, Coatesville, Erie, Harrisburg, Hazelton, Lancaster, Langhorne, Norristown, Reading, Scranton, Selinsgrove, State College, Williamsport and York.

Rhode Island — Providence.

South Carolina — Aiken, Anderson, Charleston, Clemson, Columbia, Florence, Greenwood, Spartan-

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burg and Sumter.

South Dakota — Rapid City.

Tennessee — Bristol, Brownsville, Elizabethton, Jackson, Jefferson City, Johnson City, Kingsport, Knoxville and Memphis.

Texas — Abilene, Amarillo, Austin, Beaumont, Brownsville, Bryan, Corpus Christi, Harlingen, Levelland, Longview, Lubbock, Lufkin, McAllen, Pampa, Port Arthur, San Angelo, Seminole, Temple, Tyler, Victoria and Waco.

Vermont — Brattleboro and Burlington.

Virginia — Blacksburg, Bristol, Charlottesville, Harrisonburg, Herndon, Newport News, Norfolk, Roanoke and Waynesboro.

Washington — Kennewick, Olympia, Spokane and Tacoma.

West Virginia — Beckley, Charleston and Wheeling.

Wisconsin — Appleton, Green Bay, Lacrosse, Madison, Marinette, Racine and Sheboygan.

Wyoming — Casper, Gillette and Sheridan.

Texaments releases The Organizer!

Texaments has released **The Organizer!**, which it describes as the first free-form database application designed specifically for TI Base.

According to the manufacturer, the program stores data in "electronic filing cabinets," each with four "drawers" that can hold up to 16,129 "file folders." Each folder may contain a subject line to identify it and six text lines for storage of data. Folders may be searched for, displayed, changed, printed, deleted and sorted by subject. Drawers can also be individually labeled.

Steve Lamberti, president of Texaments, says each command file included with the program can be viewed using the TI Base editor and altered to suit the user's needs.

The Organizer! is available from Texaments for $14.95 plus $2.50 shipping. It requires TI Base V2.0 or higher.

For further information or to order, contact Texaments, 53 Center St., Patchogue, NY 11772 or (516) 475-3480 (voice) or (516) 475-6463 (BBS).

Software demo videos offered by group

The Lima Ohio User Group is offering two videotaped software demonstrations to users groups and to individuals who are paid members of the Lima group.

According to Charles Good, the group's librarian and editor of the group's newsletter, one videotape demonstrates the newly released Funnelweb V4.2. The demonstration includes step-by-step configuration of Funnelweb and shows the new features that have been added to both 40- and 80-column versions of Funnelweb.

The second videotape demonstrates a collecton of official TI module software that was either never released for commercial sale or that was only released to limited circulation when TI abandoned the 99/4A. Module titles include Mighty Multiplication, Gastion Privee (a budgeting program in French), the official TI diagnostic module, Paddle Ball, Verb Viper, Starship Pegasus, Germ Patrol, ET and ET at Sea. The second videotape also includes step-by-step instructions for using XHI's Hardcopy by Alexander Hulpke. This utility allows all users with a disk system, even those without 80-column capability, to dump My-Art pictures to a printer. Each videotape runs about 110 minutes.

User groups and individuals who are paid members of the Lima Ohio Users Groups can obtain the videotapes by sending blank VHS tapes and paid return mailers, or $5 per tape, to P.O. Box 647, Venedocia, OH 45894. Persons sending money will receive their tapes by fourth class mail, Good says.

***Newsbytes* is a column of general information for TI and Geneve users. Information from manufacturers, distributors, authors, etc. is welcome. Illustrations and photographs will be used when space permits. Send items to MICROpendium Newsbytes, P.O. Box 1343, Round Rock, TX 78680.**

User Notes

Tip on using GE 3-8100 printer

This comes from Ryan Waltrip, of St. Paul, Minnesota. He writes:

I have owned a GE 3-8100 printer for quite some time. It is not fully compatible with TI graphics, though. When printing printing graphics with Max-RLE there are spaces in the picture. This is called the "Venetian Blind Effect." However, with the following routine and run before booting up Max-RLE, the picture will be set to normal. (Max-RLE is a program used to print high-resolution graphics on the TI.—Ed)

```
100  OPEN #1:"PIO"
110  PRINT #1:CHR$(27);CHR$(51);CHR$(24)
120  CLOSE #1
```

The routine sets the variable linefeed to scrunch the image to the printer. Also, this routine will work with TI-Artist. Just set the printer to Epson, magnification factor 1, and line spacing to 7.

Access time left out of hard disk article

An article published in the October 1989 edition listing specifications of hard disk drives failed to include information about average access time. Harry G. Bieker of Burbank, California, write:

Besides the capacity of the drive, one should look at the access time, especially if time is of any importance. ("Average access time" is the average amount of time it takes for a hard disk to move its heads from one cylinder to the next.—Ed)

I have included information about access time and the "formatted capacity" of selected drives since formatted capacity is of more importance than "full capacity." The full capacity of a drive is of interest only in comparing the efficiency of drives. You will note that with most manufacturers, the part number reflects the full capacity rather than the formatted capacity.

One point of interest: I have two 30-megabyte drives in one of my systems and use the second to back-up the first, rather than floppies. With the Myarc Hard and Floppy Disk Controller may copy files from one drive to another quite quickly. If something happens to one drive the other

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still has information on it.

SPECIFICATIONS OF SELECTED HARD DISK DRIVES

MODEL	CAP.	CYL.	HDS.	WPC	ACCESS TIME
		RODINE			
102	6	192	4	0	NA
103	10	192	6	0	NA
104	13	192	8	0	NA
201	5	320	2	128	100
202	10	320	4	128	100
203	15	320	6	128	100
204	20	320	8	128	100
201E	10	640	2	132	65
202E	20	640	4	132	65
203E	33	640	6	132	65
204E	44	640	8	132	65
252	10	306	4	306	95
351	5	306	2	306	95
352	10	306	4	306	95
		SEAGATE			
125	20	615	4	615	28
138	32	615	6	615	28
206	5	306	2	128	90
212	10	306	4	128	90
213	10	615	2	300	65
225	20	615	4	300	65
251	42	820	6	820	45
406	5	153	4	128	100
412	10	306	4	128	100
419	15	306	6	128	100
425	20	306	8	128	100
506	5	153	4	128	100
4026	20	615	4	300	40
4038	30	733	5	300	40
4038M	30	733	5	733	40
4051	42	977	5	300	40
4053	44	1024	5	1024	40
4096	80	1024	9	1024	40
4144	80	1024	9	1024	40
		SHUGART			
604	5	160	4	127	95
606	8	160	6	127	95
610	9	180	6	127	95
612	10	306	4	127	95
712	10	306	4	127	95
		SYQUEST			
306RD	5	306	2	306	120
312RD	10	615	2	615	120
325	20	612	4	128	120
325AF	20	612	4	612	120
338	30	612	6	612	95

CAPacity is in megabytes
Access time is in milleseconds
HDS=number of heads
CYL is number of cylinders

HARD DISK ACCESS TIMES

MODEL	CAP.	ACCESS TIMES
	SEAGATE	
ST506	5	85
ST4026	20	40
ST4051	42	40
ST4096	80	28
ST225	20	65
ST251	42	40
ST251-1	42	28
ST277R-1	65	28
ST125	20	40
ST138	30	40
	TANDON	
602S	5	85
TM502	10	85
TM503	15	85
TM703AT	30	40
TM252	10	85
TM262	20	65
	MINISCRIBE	
2012	10	85
4020	16	85
6053	44	28
6085	72	28
3425	20	65
3650	40	65
3053	42	28
8425	20	65
8438	30	65
	CMI	
5619	15	85
3426	20	85
5412	10	85
6640	39	32
6426	20	39
	NIPPON	
NP04-13T	10	85
	IMI	
5006H	5	85
5012H	10	85
5018H	15	85
	CDC	
BJ7D5A	24	36
94155-36	30	36
94155-86	72	28
94205-51	42	28
	IBM	
30	30	55
	QUANTUM	
Q530	26	40
Q540	32	45
	ATASI	
3046	39	33
3051	42	33
	HITACHI	
DK511-5	41	30
DK511-8	72	28
	MICROPOLIS	
1304	42	30
	MAXTOR	
XT1065	56	28
XT1085	72	28
	FUJITSU	
M2243AS	72	28
	PRIAM	
V185	72	28
	TASHIBA	
353A	72	28
	NEWBURY	
1140	120	25
	OLIVETTI	
5210/2	10	85
5220/2	20	65
	MICROSCIENCE	
HH612	10	85
	NEC	
5146H	42	40
	MITSUBISHI	
MR535	42	22
	RODINE	
5090	74	28
252/352	10	85
	LAPINE	
LT100	10	85
LT200	20	85
	MMI	
112	10	85
	BTI	
338	30	36

Using a 3.5-inch disk drive

This comes from Michael G. Mickelsen of the Windy City 99 Club of Desplaines, Illinois. As with any hardware project, neither the author nor MICROpendium can take responsibility for the outcome. He writes:

How would you like to have a 3.5-inch disk drive connected to your TI99/4A? Well, now you can with Radio Shack offering its Tandy 1000 EX 3.5-inch, 720K external disk drive for only $99.95.

All the parts you need can be purchased from your local Radio Shack store. Here is the parts list:

Part No.	Description	Cost
25-1061	External 3.5-inch disk drive	$99.95
276-1525	34-position computer connector	$2.95

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Part. No.	Description	Cost
277-1022	Plug-in 3-output DC power supply	$4.95
277-1016	Switching power supply chassis	$4.95

The only part needed from the switching power supply chassis is the three-wire connector. If you have changed out your old power supply in the console, you can remove the connector from the old power supply. There are three wires on this connector. The red wire is the only one that needs to be moved. It is located on the second pin. Just break it off and solder it to the first pin. The fourth pin has a black wire which is common. The thired wire is white and is the 12-volt line. The new red location is the 5-volt line.

Now that you have the power supply completed, the next step is to disassemble the disk drive case. You will find a small printed circuit board inside. The power supply three-wire connector will be soldered at the point where the power wires go from the circuit board to the disk drive.

Disconnect the ribbon cable from the disk drive which is attached to the circuit board. You may want to use this connector instead of purchasing the part listed above. The connector is press-fitted to the ribbon cable. Add this connector to the end of your existing expander ribbon cable then attach it to the disk drive.

When reassembling the disk drive, you may place the connector for the power supply inside the disk drive. I have mine on the outside for ease of replacing the power supply if needed.

The complete project took me only one hour. The drive is so quiet you may not think it is formatting. I have mine connected to a Myarc HFDC. It can be formatted to 720K and have up to three subdirectories.

HFDC doesn't create hard disk volumes

Contrary to an item about partioning hard disk into volumes in last month's User Notes, the Myarc Disk Manager won't create more than one volume on a single hard disk. However, MDM5 does allow the creation of subdirectories on floppy drives, which are analogous to the creation of volumes on hard drives.

Clarification of SEB modification

A data transmission error caused an item by Tom Freeman that appeared in last month's User Notes to be incomplete. The item has to do with modifying the Super Extended BASIC cartridge. The errors occurred in portions of the code that is to be modified. Here is the complete code as it should have appeared. Referred to last month's edition for an explanation of the changes:

At address 6B2A type the following: (in this and the next line note that only the fourth, fifth, ninth and tenth bytes in each group of 10 are actually changed):

```
D6 75 08 6C E7 D6 75 09 6C E3
```

At address 6BB3 type:

```
D6 75 0B 6B C2 D6 75 0A 6B C2
```

At 6AD7:

```
05 77 96
```

At 7796 type:

```
D6 75 91 57 A0 BD 61 20 4C E7 D6 75
81 57 AD BD 61 2A 06 77 E7 4C E3 D6
75 85 57 C1 A7 61 00 20 C5 20 61 4A
A8 A3 61 00 20 4A A8 D6 75 98 57 D5
A3 61 00 20 C9 2A 61 6A A8 A7 61 00
20 4A A8 06 DB E1 6B D0 05 6A DC
05 6A DC
```

40-column version of MP Index program

The following item is from James Aaron of Norwalk, California. He writes:

This index program, like the index program published in the April 1989 issue, prints a MICROpendium index in double columns. However, it prints the data sequentially rather than switching back and forth between columns. It also uses the assembly language sort program (April 1989) and Peter Hoddie's 40-column display package (August 1986).

Additional enhancements include the ability to scroll forward or back multiple screens in display mode and display or print statements greater than 40 characters long. You can also get a hard copy from the display mode. Operating instructions appear when the program is run.

If the index you are working on has an odd number of DATA statements, place a comma after the last DATA statement and add 1 to the value of B and the DIM statement in line 10.

To use this program, delete program lines from your MICROpendium Index and resequence the DATA statements starting with 500. Also, delete any program lines beyond the existing DATA statements in the index. MERGE this program into the resequenced DATA statements and save in the normal fashion.

To use this program, you must have the 40-column program and the Sort program on the same disk, in drive 1. The program will not run without them. It also requires a memory expansion and Extended BASIC.

```
1 ! INDEX PROGRAM !083
2 !!131
3 ! BY JAMES AARON !095
4 !!131
5 ! of NORWALK, CA !134
6 !!131
10 CALL CLEAR :: B=178 :: DI
M N$(178):: B$="1988B MICROp
endium INDEX" :: ON ERROR 29
0 :: CALL LINK("SORT",N$(),1
):: GOTO 20 :: A,C,D,E,K,L,S
,X$,Y,Y$,Z :: CALL INIT :: C
ALL KEY :: CALL LOAD :: CALL
 LINK :: !@P- !063
20 DISPLAY AT(4,3)ERASE ALL:
B$: : : :"          1 SCREEN"
: :"          2 PRINTER" !087
30 CALL KEY(0,K,S):: IF S=0
OR K<49 OR K>50 THEN 30 :: C
ALL CLEAR :: IF K=50 THEN 60
 ELSE ON ERROR 300 :: CALL L
INK("BEGIN"):: CALL LINK("IN
IT",1,40,40,2):: CALL LINK("
CLS")!217
40 CALL LINK("SCREEN",16,5):
: X$="USE NUMBER KEYS TO MOV
E AHEAD AND LETTERKEYS TO MO
VE BACK MULTIPLE SCREENS."&R
PT$(" ",45)!222
50 X$=X$&"USE UP ARROW TO SC
ROLL BACK AND ANY     OTHER
KEY TO SCROLL FORWARD ONE SC
REEN  AT A TIME." :: CALL LI
NK("DSPLY",2,9,B$):: CALL LI
NK("DSPLY",10,1,X$)!099
60 X$="READING DATA..." :: I
```

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```
F K=5Ø THEN DISPLAY AT(24,1)
:X$ ELSE CALL LINK("DSPLY",2
4,1,X$)!1Ø1
7Ø FOR A=1 TO B :: READ N$(A
):: NEXT A :: IF N$(B)="" TH
EN N$(B)=CHR$(127)!237
8Ø X$="SORTING DATA..." :: I
F K=5Ø THEN DISPLAY AT(24,1)
:X$ ELSE CALL LINK("DSPLY",2
4,1,X$)!145
9Ø CALL LINK("SORT",N$(),B):
: IF K=5Ø THEN 21Ø !Ø39
1ØØ CALL LINK("CLS"):: FOR A
=1 TO B :: C=C+1 :: IF LEN(N
$(A))>4Ø AND C=24 THEN A=A-1
 :: GOTO 12Ø ELSE CALL LINK(
"DSPLY",C,1,N$(A)):: IF LEN(
N$(A))>4Ø THEN C=C+1 !186
11Ø IF C<24 AND A<B THEN NEX
T A ELSE IF A=B AND C<21 THE
N 14Ø ELSE IF A=B AND C>2Ø T
HEN 13Ø !154
12Ø CALL KEY(Ø,L,S):: IF S=Ø
 THEN 12Ø ELSE IF L=11 THEN
A=A-24-C :: GOTO 16Ø ELSE IF
 L>64 AND L<91 THEN A=A-(L-6
4)*24-C :: GOTO 16Ø ELSE IF
L>48 AND L<58 THEN A=A+(L-49
)*24 :: GOTO 16Ø ELSE IF L=1
3 AND A=B THEN 18Ø ELSE IF A
<B THEN 16Ø !Ø42
13Ø CALL KEY(Ø,L,S):: IF S=Ø
 THEN 13Ø ELSE IF L=11 THEN
A=A-24-C :: GOTO 16Ø ELSE IF
 L>64 AND L<91 THEN A=A-C-(L
-64)*24 :: GOTO 16Ø !Ø99
14Ø X$=RPT$(" ",41)&"END OF
INDEX.
     PRESS LETTER OR UP ARRO
W KEY TO SCROLL  BACK OR RET
URN KEY FOR MENU." !253
15Ø CALL LINK("DSPLY",21,1,X
$):: GOTO 12Ø !Ø97
16Ø CALL LINK("CLS"):: IF A<
Ø THEN A=Ø ELSE IF A>B THEN
A=B-INT(25*(B/24-INT(B/24)))
!Ø89
17Ø C=Ø :: NEXT A !Ø83
18Ø CALL LINK("CLS"):: X$=B$
&RPT$(" ",141)&"1 REVIEW AGA
IN"&RPT$(" ",66)&"2 PRINT" :
: Y$="3 NEXT INDEX"&RPT$(" "
,68)&"4 END" !13Ø
19Ø CALL LINK("DSPLY",2,9,X$
):: CALL LINK("DSPLY",1Ø,13,
Y$)!187
2ØØ CALL KEY(Ø,L,S):: IF S=Ø
 THEN 2ØØ ELSE IF L=49 THEN
A=Ø :: CALL LINK("CLS"):: GO
TO 17Ø ELSE IF L=5Ø THEN 22Ø
 ELSE IF L=51 THEN CALL LINK
("SCREEN" 5,5):: RUN "DSK1.I
NDEX89" ELSE IF L=52 THEN CA
LL LINK("CLS"):: END ELSE 2Ø
Ø !Ø81
21Ø OPEN #1:"PIO",VARIABLE 9
6 :: PRINT #1:CHR$(27);CHR$(
77)!Ø75
22Ø CALL CLEAR :: ON ERROR 2
1Ø :: IF B<11Ø THEN 26Ø !Ø16
23Ø FOR A=1 TO INT(B/11Ø)*11
Ø STEP 11Ø :: PRINT #1:TAB(3
7);B$: : :: FOR D=A TO A+54
:: PRINT #1:N$(D);TAB(49);N$
(D+55):: NEXT D :: PRINT #1:
 :TAB(46);"PAGE "&STR$(INT(A
/1ØØ)+1)!192
24Ø IF A>1 THEN PRINT #1:CHR
$(12)!231
25Ø NEXT A :: IF B/11Ø=INT(B
/11Ø)THEN 27Ø !Ø37
26Ø PRINT #1:TAB(37);B$: : :
: Z=INT(B/11Ø)*11Ø :: Y=(B-Z
)/2 :: FOR E=Z+1 TO Z+Y :: P
RINT #1:N$(E);TAB(49);N$(E+Y
):: NEXT E :: FOR E=1 TO 56-
Y :: PRINT #1 :: NEXT E !Ø63
27Ø PRINT #1:TAB(46);"PAGE "
&STR$(INT(A/11Ø)+1):: IF K=4
9 THEN 18Ø ELSE DISPLAY AT(2
,3)ERASE ALL:B$: : : :"
    1 NEXT INDEX": :"
2 ANOTHER COPY": :"          3
 END" !21Ø
28Ø CALL KEY(Ø,L,S):: IF S=Ø
 THEN 28Ø ELSE IF L=49 THEN
CALL CLEAR :: RUN "DSK1.INDE
X89" ELSE IF L=5Ø THEN 22Ø E
LSE IF L=51 THEN PRINT #1:CH
R$(27);CHR$(64):: CLOSE #1 :
: CALL CLEAR :: END ELSE 28Ø
 !148
29Ø DISPLAY AT(24,1)ERASE AL
L:"LOADING SORT ROUTINE..."
:: CALL INIT :: CALL LOAD("D
SK1.SORT"):: RETURN !122
3ØØ DISPLAY AT(24,1)ERASE AL
L:"LOADING 4Ø-COLUMN SCREEN.
.." :: CALL LOAD("DSK1.FORTY
/OBJ"):: CALL CLEAR :: RETUR
N !19Ø
31Ø !@P+ !Ø62
```

Use batch file to switch system/sys from 1.14 to .96h

MDOS batch files offer many possibilities for Geneve users. A use illustrated here is for those who have two SYSTEM/SYS and AUTOEXEC files they like to use. For example, users who need to use MDOS 1.14 for some applications and MDOS 0.96h for others. The latter is for use with hard disks and to load Myarc Advanced BASIC, while MDOS 1.14 is required to use Myarc Disk Manager V.

The problem with switching from one version of MDOS to another is that both must be named SYSTEM/SYS to be loaded by the Geneve. The solution, of course, is to rename them, and there are several ways of doing this.

The most obvious way is to use the REName command from the MDOS prompt and manually change the names of the two files. The syntax to rename a single file is: REN "SYSTEM/SYS" "SYSTEM/ALT."

This renames the SYSTEM/SYS file to SYSTEM/ALT. "ALT" here is used as a mnemonic for alternate. The quote marks are required because a slash is used. Without quote marks MDOS won't accept a slash as a valid character in a filename.

A better way to rename alternative MDOS files is to use a batch file that does the job automatically. The batch file presented here performs several name changes when executed. First, it will rename the current SYSTEM/SYS file either MD114 or MD96H depending on which version it is. It also renames the AUTOEXEC file to AUTO114 or AUTO96H depending on which version of SYSTEM/SYS you want to use. After switching to a new SYSTEM/SYS you need to reboot the system to load it.

This batch file can be used as a module within a larger batch file system. As published here, it works with drive A but

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User Notes

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can be changed to any drive simply by changing the drive designation in the second line. After executing a change, the file loops back to the beginning. To break out of the batch file, select option C and then press CTRL BREAK. Option C is used simply to determine which version of MDOS was booted when you turned the computer on. It does not tell you the version of MDOS that you may have just switched to because it doesn't load until you reboot the system.

Note that Barry Boone's GETKEY utility is required to use this batch file.

SYSTEM/SYS RENAME BATCH FILE

```
:LOOP
A:
ECHO THIS IS LOOP
:GETKEY
CLS
ECHO Enter Selection
ECHO A = Load MDOS114
ECHO B = Load MDOS96H
ECHO C = Check version of SYSTEM/SYS in use
GETKEY
IF %1==A GOTO MD114
IF %1==B GOTO MD96H
IF %1==C GOTO VER
GOTO LOOP
:MD114
CLS
ECHO This changes SYSTEM/SYS from MD96h to MD114
ECHO It also changes to a MD114 AUTOEXEC file
ECHO When finished, reboot operating system
:REN
IF EXIST MD114 REN "SYSTEM/SYS" MD96H
IF EXIST MD114 REN MD114 SYSTEM/SYS
IF EXIST MD96H REN AUTOEXEC AUTO96H
IF EXIST MD96H REN AUTO114 AUTOEXEC
ECHO MDOS 1.14 is SYSTEM/SYS file
GOTO LOOP
:MD96H
CLS
ECHO This changes SYSTEM/SYS from MD114 TO MD96h
ECHO It also changes to a MD96h AUTOEXEC file
ECHO When finished, reboot operating system
:REN
IF EXIST MD96H REN "SYSTEM/SYS" MD114
IF EXIST MD96H REN MD96H SYSTEM/SYS
IF EXIST MD114 REN AUTOEXEC AUTO114
IF EXIST MD114 REN AUTO96H AUTOEXEC
ECHO MDOS Ø.96h is SYSTEM/SYS file
GOTO LOOP
:VER
CLS
VER
GOTO LOOP
```

User Notes **is a column of tips and ideas designed to help readers put their computers to better use. The information provided here comes from many sources, including user group newsletters and MICROpendium readers. MICROpendium pays $10 for items sent in by readers that appear in this column. Mail *User Notes* to: MICROpendium User Notes, P.O. Box 1343, Round Rock, TX 78680. Or post them to us on CompuServe, Delphi or GEnie.**

READER TO READER

George K. Bennison writes:

I have a problem with four tape cassettes that has me bamboozled. Three of these cassettes are commercial (Best of 99er tapes 1, 2 and 3) and one of my own concoction. I cannot get these tapes to load into the console. I have tried two different tape recorders and two different consoles. The error message is always either ERROR DETECTED IN DATA or NO DATA FOUND. I have tried micro-inching the volume control of the tape deck and go from one error message to the other. I cannot find a spot in between where the sucker will load. I have also tried rerecording the tape from one machine to the other with the same results.

The place where I procured the tapes has ceased to handle TI products, so I can't got back for replacements. Any suggestions?

Write Bennison at P.O. Box 184, Holland Patent, NY 13354-0184.

Frank W. Aylstock, 4336 Eureka Ave., Yorba Linda, CA 92686, wants to know where he can get a copy of the Pascal program Free Form.

***Reader to Reader* is a column to put TI99/4A and Geneve 9640 users in contact with other users. Anyone with a specific problem or question that may be answered by other readers is encouraged to submit an item. Be sure to address it to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.**

USER GROUP UPDATE

The following are additions and updates to our user group listings, begun in May 1987.

New York

Upstate New York TI Users Group, c/o Mrs. R. Burch, 3 Evergreen Court, Loudonville, NY 12211 (new address).

Texas

Houston Users Group, c/o William Mautner, 4615 Lochshin, Houston, TX 77084 (new address). Meets second Sunday each month at NPOA Clubhouse on Claridge Drive. HUG TIBBS, 300/1200 baud, (713) 495-7368.

TI and Geneve user groups are encouraged to provide information about address changes and other matters of interest for use in this column. There is no charge to be listed in *User Group Update.*

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