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New Horizons

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: (419) 385-7484 :  
: TICOMM BBS :  
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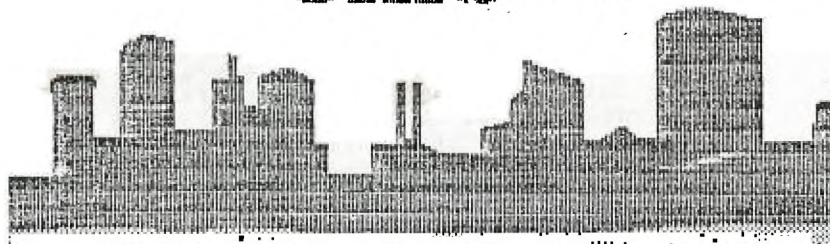
THE NEWSLETTER STAFF

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Bill Sager Dave Burkette

LOCAL CONTRIBUTIONS BY;

John Clulow

NORTHWEST  
OHIO 1987



99ERS NEWS



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Canada T5J 3L1

# THE PRESIDENTS PAGE

PRESIDENT'S CORNER ONE USERS' GROUP NEW HORIZONS NEWS

for Bob Peters  
OH-MI-TI

OH-MI-TI meeting will be October 9, 1987 at the #2 fire station in Oregon at 7:00 P.M. on Wheeling Road, off of Navarre Ave. Bob promises to have one heck of a graphics program demonstration.

SEE YOU THERE!

WITCH WAY TO THE  
TI MEETING



"I didn't get the raise, Edna. But what really hurt was being told 'no' by a voice synthesizer."

Kent Sheets 10/87

OH-MI-TI

In the past the Toledo area has been very fortunate to have a vast variety of talented individuals contribute to the success of the TI99/4A. Some of you may remember when OH-MI-TI and NEW HORIZONS users' groups were featured in Charles La Fara's International 99/4 users group publication Enthusiast '99. (Vol.1, Number 3) That was back in September 1983 when our combined mailing list was over 200 and growing.

Due to the Northwest Ohio 99'er newsletter published jointly, outsiders may think that the name of the Toledo users' group is Northwest Ohio 99'ers. We jointly support the TI BBS TI-COMM (419 385-7484). We have had many other joint functions from Christmas parties and auctions to swap meets.

Many members have joined both groups. Many users have continued to attend meetings both Friday and Saturday.

What this is leading to is that membership just is not what it used to be. It may be time to regroup as one TI users group. As in any volunteer group, a few seem to do all the work. For TI99/4A users the few are getting fewer and fewer.

Please give it some thought and talk about it with your fellow TI'ers. As orphans we need all the support we can get. You've all heard the phrase: United we stand, Divided we fall. Think about it.

Remember this is YOUR user group, YOUR organization it is important that YOU be there to voice your opinion(s). If you are not present, you cannot win.

by Don Turner

It's October, get ready for this months meeting. It will be packed with information concerning your user group. There will be several prizes given away at this months meeting. Last month there were 6 prize winners. Be sure to attend !!

Roger Feinauer is now our new newsletter editor. If you have any articles to submit contact Roger.

Ellen Thompson will be doing demo-ing the software we ordered from Tenex. Steve has at least one more demo set up for this meeting.

This month's "Disk of the Month" is HORIZONS6 which is featuring TASS Tri-Artist-Slide-Show V1.0.87.MG TASS is for making a slideshow of your TI ARTIST or GRAPHX or DRAW-A-BIT II pictures. There is no need to make special disks, because TASS is fully automatic. There is a very fast graphic program which works like one of the disks, built into TASS, and can be called up by using drive number zero in the disk order. This program handles up to four disk drives, and ramdisks from drive 1 to drive 9. The author would like a small donation if you like TASS, if you do you will be put on a mailing list for updates.

This month we will be meeting on October 17th at 2:00 PM. Please be sure to mark that date on your calander. Several people have mentioned that we merge our user group with OH-MI-TI. I would like to hear your thoughts on the subject and any ideas on how to do it.

## NEW EDITOR

Roger Feinauer

TO ALL

This will be my first news letter. As you can see I'm learning. I hope we can learn together. In this I mean that we can share what we know and learn on our T-I with each other.

I think this would be a much better News-letter. If we had

more articles from our members than a bunch of inserts from other groups news letters. All it takes are some volunteers to write about what they have done on there computer. If you can't think of what to write or how or need help in writing, or just want to find out about something about The 99/4A. Call me or write to me as my address is on this news letter. let's hear from you. This is your news letter it is your voice to the rest of the world.



The New Adventure

tm

by

Roger Feinauer

Well, lets see where should I begin, how about from the start? It all started about 5 months ago when I got an ad with a piece of software. It was an ad for the 9640 computer from Asgard Software. The price seemed very good to me, \$419.00 \$10.00 shipping and handling. I made out a check and set down to wait for it to come. You know how that is, it seemed to take forever. So about 2 months later I called Asgard to find out what happened to my check. The person I talked to said he had recieved my money and in about a week or two I would recieve my computer. Well a month and a half went by and still no computer. So I go to the phone again, this time I got a hold of Chris Bobbit who is the president of Asgard Software. I asked him why it was taking so long. At first he couldn't find my order and then asked me if I had verification through the mail stating that Asgard had recieved my order. i said no, I hadn't and wasn't aware that I was saposta get anything like that. Well, he said for me to give him my phone number and he would call me back later. While I was at work he called and my wife took the message for me. They said my order got placed in a filling cabinet they were using to refile order, and they would send me my computer the next day.

This was on a Friday and and I waited all weekend and still no computer. Still I hoped and it paid off. I called home from work at lunch and lunch and my wife said guess what came UPS today? I spent the rest of the day with all with all kinds of visions of what I was going to do when I got home. It was quitting time at work and I rushed home to see my new toy. When I got home there it was a box 18 inches long by 1 1/2 foot wide.

Opening it the first thing I found was a key board that was better then the IBM key board I use at work. The key board is seperated into 3 sections, on the left and covering 3/4's of the key board is the computer key's .To the med-right are eleven key's with names like Ins,Del,Home,Prt Sc, Pgup PgDn,and the four arrow keys. To the far right is a calculator key pad with it's own enter key. Over the key pad are three 3/4 inch square indicators for cap lock,num lock, and scroll lock. Over the top of the main keys are ten function keys. In a bubble plastic pack I found the computer card for the p-box. The card is a a little longer then a standered p-card. I guess this is so you don't have to remove the card to hook up different items to the four ports. The first port is the Video port which allows you to hook up both a composit color monitor or television set

with RF Modulator to the 9640 computer. Also, by moving the position of a jumper pin on the card you can use the same port with a RGB analog color monitor, very nice. Next there is a mouse port That will allow using a myarc mouse with the system. The joystick port is next, although I haven't been able to make any of my joysticks work and there isn't very much information in the manual of what is compatable. Which is unfortunate. Last!y is the key-board port Myarc says in the manual that most orther PC type key boards will also work, maybe?

Well I started to take apart my PE box. First you have to remove the card in slot one, this is the slot the 9640 is placed. Next you must remove the 32k card or other card as a Comcomp or Myarc ramdisk.

#### PORTS

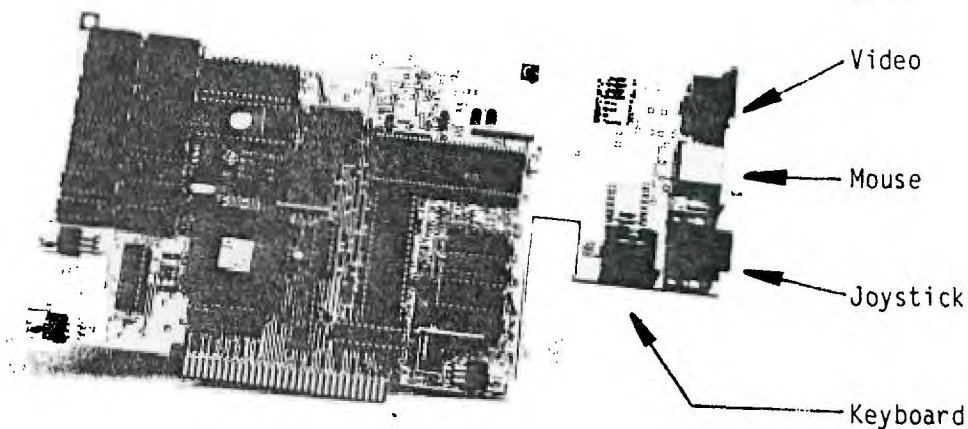


Figure 2 THE 9640 SYSTEM BOARD (Removed from Card)  
Ports are at rear of board



GET ANY KEY TO CONTINUE

These cards as they are not compatible. The Myarc ramdisk can be modified 128k.-512k. The cost is \$15.00 to cover shipping and handling.

MYARC, inc  
241 Madisonville Road  
Basking Ridge, NJ. 07920  
phone (201)766-1701

If you plan to do this please call them first to get an authorization number to make sure it is serviced with little delay.

Back to setting up the PE-box. After this take the RF connector that you have been using on your 99/4A that hooks you to your TV or monitor and connect it to the top plug connector on the card and you are ready to try it out.

Make sure all connections are right, then turn the PE/box on.

If everything went right you should see a very impressive picture of a swan. Which will be in about 32 shades of blue, green and yellow.

While the picture is on, the system is doing a memory and system check. After this the number one disk drive comes on and looks for the boot program.

At this point I discovered a problem. I couldn't make my Corcomp disk controller to work. I put in my TI controller and it work fine.

A call to Myarc cleared this up. It seems there are two versions of the corcomp disk controller. And there is 2 versions the .97 boot program. And I have the earlier ver. of both. It seems the earlier version of .97 switch the speed setting of the controller in memory to the fast setting. The TI disk drive 1

have in drive one can't move it's read head fast enough to read the disk. Myarc said they would send me a new program the same day no charge.

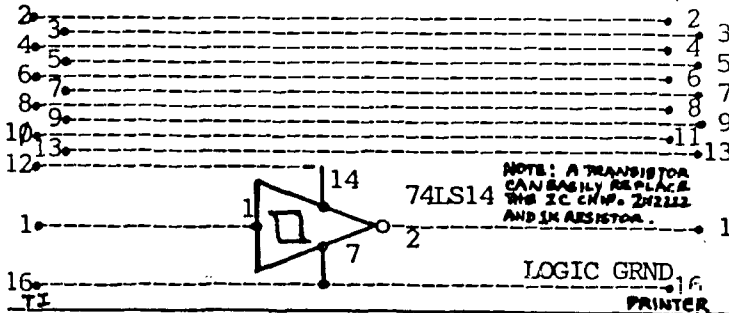
I also had another problem making my joystick work. They ask me what I was using and they said they haven't heard of any problems of this nature. They told me to send in my joystick converter. Possible the wiring might not be the same and they would like to see it. Possible they would have to rewire it for me.

With service like this I think Myarc and I will be friends for a long time to come.

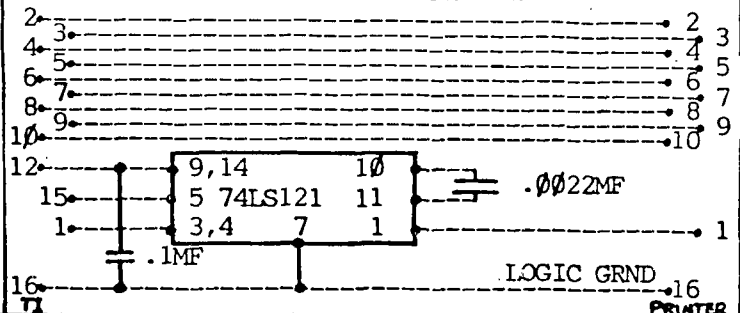
THE WEST PENN 99'ERS  
% JOHN F. WILLFORTH  
R.D. #1 BOX 73A  
JEANNETTE, PA  
15644

BELOW ARE TWO PIN-OUTS AND CABLE MODS FOR TWO RATHER COMMON, YET DIFFERENT PRINTERS. CREDIT FOR THE INFORMATION GOES TO WILLIAM M. LUCID, MEMBER OF THE HOOSIER USERS GROUP.

TI to SMITH-CORONA(TP-1,SC-1, FASTEXT 80 etc.)



TI to OKIDATA 82 PARALLEL PRINTER.



Keith G. Koch in the FEB. '87 issue of MANNERS, writes that "Pictures taken from a video camera can be fed into the system.....(99/4A, TMS9918A, by placing the video signal)... on pin 35 of the TMS 9918A video chip, and then turn off the internal sync of the chip with the following program"

```

100 CALL INIT
110 CALL LOAD("DSK1.SYNC")
120 CALL KEY(0,R,S)
130 IF S=1 THEN 120
140 IF R=73 THEN CALL LINK("ISYNC"):: GOTO 120
150 IF R=69 THEN CALL LINK("ESYNC")
160 GOTO 120
ASSEMBLE THE PROGRAM BELOW AND ON THE RIGHT.
*INTERNAL/EXTERNAL VIDEO SYNC
DEF ISYNC,ESYNC
ERRNBR EQU >837C
GPLWS EQU >83E0
VWTR EQU >2030
    
```

```

*SET SYNC TO INTERNAL
ISYNC LWPI WS
LI 0,>0000
BLWP @VWTR
JMP RETURN
*SET SYNC TO EXTERNAL
ESYNC LWPI WS
LI 0,>0001
BLWP @VWTR
*RETURN TO BASIC PROGRAM
RETURN LWPI GPLWS
SB @ERRNBR,@ERRNBR
RT
WS BBS 32
    
```

END  
The WEST PENN 99'ERS take no responsibility for any damage resulting from your attempt to incorporate this hardware modification. Aside from this WARNING, Enjoy!  
John Willforth

XB to TI-ARTIST INSTANCE...

By Terry Atkinson

Reprinted from 9T9 Newsletter, TI Users Group of Toronto

NOTE.. Line 4 in Version 1 of this program is the filename that the screen will be saved as. Change it to whatever filename you wish.

These programs were created to ease the pain of converting TI EXTENDED BASIC screens to a DV/80 format which can be loaded by TI-Artist 2. At present I have 2 versions. Version 1 is used for XB. This takes about 25 minutes to convert a screen to disk, depending on how many characters are on the screen. The maximum sector size the program will take is 58 sectors. Version 2 takes only about 7 minutes to convert a screen and requires the CorComp disk controller, making use of the tool shed utilities built into it.

There are two ways to run the program: either as a sub-program merged within a program or as a program run from EX-Basic at the appropriate break point. Instructions are geared toward that end. To use this program, first run your program that contains the graphics you want to convert, when the screen is displayed that you want to convert, "BREAK" the program (FCTN 4) and lok at the breakpoint, in the program, making sure it does not contain a FOR/NEXT loop. Replace this line with the statement "RUN DSK1.XB2ART" or whatever you have named the conversion program. In teh case of the FOR/NEXT loop, it would be better to select another line located before or after the breakpoint line. The resultant file obtained after running this program can be loaded directly into TI-Artist as an INSTANCE. After the INSTANCE is altered, you can save it as a TI-Artist program file.

For any advice, contact the author, Terry Atkinson.

EXTENDED BASIC VERSION

```

1! Terry Atkinson 28 Savona
Court Dartmouth, NS B2W4R1 (
voice) 1-902-434-1346
2! This program may be freel
y distributed. Please do not
remove the authors name
3 DATA 1,24,1,32
4 DATA DSK1.SCREEN
5 READ SROW,EROW,SCOL,ECOL,0
UT$ :: IF POS(OUT$,"_I",1)=0
THEN OUT$=OUT$&"_I"
6 IF SEG$(OUT$,1,3)="DSK" AN
D LEN(OUT$)<16 THEN 8
7 CALL CLEAR :: PRINT "Pleas
e check filename in DATA sta
tement in program" :: END
8 FOR E=0 TO 14 :: CALL COLO
R(E,2,8):: NEXT E :: CALL DE
LSPRITE(ALL):: CALL MAGNIFY(
1):: CALL SCREEN(8) :: CALL
SPRITE(#1,32,16,1,1)

```

```

9 B$="123456789ABCDEDED" :: OP
EN #1:OUT$
10 PRINT #1:STR$(ECOL+SCOL+1
)&","&STR$(EROW-SROW+1):: FO
R E=SROW TO EROW::FOR G=SCOL
TO ECOL::CALL GCHAR(F,G,H)
::IF H>32 THEN I=H ELSE I=95
11 CALL LOCATE(#1,F*8-7,G*8-
7):: CALL PATTERN(#1,I):: CA
LL CHARPAT(H+ABS(H=31),C$)::
GOSUB 13 :: NEXT G:: NEXT F
:: CLOSE#1
12 CALL SOUND(4000,400,1)::
CALL CLEAR :: END
13 FOR E=1 TO 15 STEP 2 :: D
$=SEG$(C$,E,2):: E$=E$&STR$(
POS(B$,SEG$(D$,1,1),1)+PO
S(B$,SEG$(D$,2,1),1))&"," ::
NEXT E
14 E$=SEG$(E$,1,LEN(E$)-1)::
PRINT #1:E$ :: E$="" :: RETU
RN

```

CORCOMP CONTROLLER VERSION

```

0! by Terry Atkinson Savona
Court Dartmouth, NS B2W4R1 (
voice) 1-902-434-1346 (TIBBS
)1-902-434-3121
1! This program may be freel
y distributed. Please do not
remove the authors name. AP
RIL 1986
2 CALL INIT :: DELETE "LD-CM
DS" :: CALL DELSPRITE(ALL) :
: CALL MAGNIFY(1):: A$,B$,C$
,D$,E$,F$,G$,H$,I$,J$,K$=" "
:: A,B,C,D,E,F,G,H,I,J,K=255
3 Y$=RPT$("80",7):: Z$=RPT$("
01",7)
4 FOR I=0 TO 14 :: CALL COLO
R(I,2,8):: NEXT I :: CALL LI
NK("MOVEM")(2,0,40960,768)::
CALL CLEAR :: CALL LINK("MO
VEM")(2,880,41728,1920)
5 CALL CHARSET
6 CALL A(L$,L,M,N,O,Y$,Z$)::
CALL DELSPRITE(ALL):: CALL
CHARSET :: CALL LINK("MOVEM"
)(3,41728,880,1920):: CALL L
INK("MOVEM")(3,40960,0,768)
7 OPEN #1:L$ :: PRINT #1:STR
$(O-N+1)&","&STR$(M-L+1):: C
ALL SPRITE(#1,32,16,1,1) ::
FOR P=L TO M :: FOR Q=N TO O
:: R=(P-1)+Q-1
8 CALL LINK("VPEEK")(R,160,A
$)
9 IF ASC(A$)>32 THEN S=ASC(A
$) ELSE S=95
10 CALL LOCATE(#1,P*8-7,Q*8-
7):: CALL PATTERN(#1,S):: T=
768+8*ASC(A$):: CALL LINK("V
PEEK")(T,96,B,C,D,E,F,G,H,I)
11 PRINT #1:STR$(B)&","&STR$
(C)&","&STR$(D)&","&STR$(E)&
","&STR$(F)&","&STR$(G)&","&
STR$(H)&","&STR$(I):: NEXT
Q :: NEXT P :: CLOSE #1
12 CALL SOUND(4000,400,0) ::
CALL CLEAR :: END
13 SUB A(A$,A,B,C,D,Y$,Z$)::
CALL CHAR(34,"FF"&Y$&"FF"&Z
$&Y$&"FF"&Z$&"FF"):: CALL SC
REEN(8)
14 CALL SPRITE(#1,34,16,1,1,
#2,35,16,1,1,#3,36,16,1,1,#4
,37,16,1,1)
15 DISPLAY AT(1,1)ERASE ALL:
"THE SCREEN HAS BEEN SAVED A

```

```

ND WILL BE RESTORED LATER.":
: DISPLAY AT(4,1):"SAVE FILE
NAME: "
16 ACCEPT AT(4,16)BEEP SIZE(
-8)VALIDATE(UALPHA.DIGIT):A$
17 DISPLAY AT(5,1):"WHAT DRI
VE NR? 1" :: ACCEPT AT(5,16)
BEEP SIZE(-1)VALIDATE("1234"
):B$
18 A$="DSK"&B$&","&A$&"_I" :
: DISPLAY AT(7,1):"FILENAME
IS: ";A$: "DO YOU WISH TO D
UMP THE COMPLETE SCREEN? N"
19 ACCEPT AT(10,18)BEEP SIZE
(-1)VALIDATE("YN"):B$
20 IF B$="Y" THEN A,C=1 :: B
=24 :: D=32 :: SUBEXIT
21 DISPLAY AT(12,1):"DO YOU
KNOW THE ROW-COLUMN COORDINA
TES THAT YOU WISH TO DUMP? Y
" :: ACCEPT AT(14,7)BEEP SIZ
E(-1)VALIDATE("YN"):B$
22 IF B$="N" THEN 27
23 DISPLAY AT(16,1):"START R
OW: START COL: END
ROW: END COL:"
24 ACCEPT AT(16,11)SIZE(-2):
A :: ACCEPT AT(16,25)SIZE(-2
):C :: ACCEPT AT(17,11)SIZE(
-2):B :: ACCEPT AT(17,25)SIZ
E(-2):D
25 IF D<2 OR D>32 OR D<C OR
C<1 OR C>31 OR A<1 OR A>23 O
R A>B OR B<2 OR B>24 THEN 24
26 GOSUB 29:: DISPLAY AT(24,
1):"DOES THIS LOOK CORRECT?
Y": ACCEPT AT(24,25)BEEPVAL
IDATE("YN")SIZE(-1):B$ :: IF
B$="N" THEN 24 ELSE SUBEXIT
27 DISPLAY AT(15,1):"RECOMME
ND YOU LOAD AND RUN THE GRAP
HICS PROGRAM YOU WISH TO DUM
P AND COMPUTE THE ROW/COLUMN
COORDINATES"
28 DISPLAY AT(19,1):"AND RE-
RUN THIS PROGRAM": "THANK YOU
-4,0) :: STOP
29 CALL LOCATE(#1,A*8-7,C*8-
7,#2,A*8-7,D*8-7,#3,B*8-7,C*
8-7,#4,B*8-7,D*8-7) :: RETUR
N
30 SUBEND

```

32K ON THE 16 BIT BUS

By - John Clulow

Based upon ideas from Mike Ballmann

The following is a step-by-step description of how to add 64K of RAM memory on the 16 bit bus. The present modification uses only 32K. This corresponds to the memory space of the 32K Memory Expansion. The modification yields a speed increase of about 50%.

Mike Ballmann is currently working on a circuit to allow CRU decoding of the remaining 32K. This will open up a whole new area of software, including such possibilities as a real DOS which could be loaded into RAM from disk on power-up. The 32K modification described below can easily be modified for full decoding upon completion of Mike's work.

You will need two Hitachi HM62256LP-12 RAMs. One source of these is Microprocessors Unlimited. They cost around \$12. You'll also need a 74LS21 and a 74LS153. These can be obtained from various electronics supply houses. All wiring should be done with wire-wrap wire. You should use a low wattage soldering pencil with a fine, pencil type tip.

The modification is done on the main board of the Black Silver console, and you'll need to refer to the Logic Board Component Location Diagram in the TI-99/4A Console Technical Data book.

1) Remove the board from the console, and identify the two ROMs. They are located between the GROM connector and the 9900 IC. One is parallel to the 9900 and the other is perpendicular to it. They are U610 and U611 on the Component Location Diagram.

2) Bend the pins on the HM62256 IC's closer so they will firmly contact the ROM pins when piggy-backed. One way of doing this is to place the RAM on it's side on a table and then move the body of the IC toward the table to bend the pins uniformly.

3) Bend out the following pins on both HM62256 RAMs: 1 2 20 22 23 26 27 28. These pins will NOT be soldered to anything on the ROMs. Holding the IC with the notch up and looking at the top, pin numbers start with pin 1 on the upper left, go down the left side, then across and up the right side. Pin 28 is opposite pin 1 on the end with the notch.

4) Place one HM62256 over the ROM that is parallel to the 9900. Make sure the notch points toward the 9900 and that the writing on the 9900 and the 62256 can be read from the same direction. Place the RAM such that pins 1 2 27 and 28 extend beyond the end of the ROM. The un-notched end of the RAM should line up with the un-notched end of the ROM. There should be a sort of "spring tension" that clamps the RAM pins onto corresponding ROM pins below it. This will help to insure good solder joints. If the RAM doesn't fit tightly, remove it and bend the pins closer.

5) Solder all RAM pins not bent out to the ROM pins below. Use a low wattage pencil with a fine, pencil type tip. Inspect each solder joint carefully in good light, under magnification.

6) Place the second 62256 on the ROM that is perpendicular to the 9900. The notch on the RAM points away from the 9900 and toward the edge of the board. As above, solder and inspect all pins that were not bent out.

7) Bend out the 74LS21 pins 1 2 4 5 6 8 10 12 14. Note that pins 1 and 14 are across from each other on this 14 pin IC.

8) The 74LS21 will be piggy-backed on the 74LS138 U504. This IC is located adjacent to the end of the board where the edge connector is. There are two 138's next to each other. U504 is the one nearest the end of the board. You will place the 74LS21 so that the UN-NOTCHED end lines up with the un-notched end of the 138 (pointing toward the cassette connector). Pins 1 and 16 of the 138 will extend beyond the notched end of the 74LS21.

32K ON THE 16 BIT BUS CONTINUED

9) Before positioning the 74LS21, solder 1/2" lengths of wire-wrap wire to the 138 pins 7 and 9. Then position the 74LS21 on top of the 138 and solder all pins not bent out to the 138 pins below and inspect the connections.

10) Bend out all of the 74LS153 pins EXCEPT 8 and 16.

11) Place the 153 over U613, a 74LS194. The notch will line up with the 194 notch and point toward the edge of the board away from the 9900. Solder pins 8 and 16 of the 153 to pins 8 and 16 of the 194 below.

12) At the end of the 9900 opposite to where the RAM's have been piggy-backed, you will see a line of three ICs. They are a 74LS00, 74LS32, and 74LS04. The 74LS00 is U606 and the 74LS32 is U605. Turn the board upside down so you can see the traces. Find the trace that runs from pin 11 of the 74LS00 (U606) to pin 13 of the 74LS32 (U605). Double check to make sure you're doing the pin numbering correctly. When you've found the trace, cut it with a knife so there is no continuity between the LS00 pin 11 and the LS32 pin 13.

13) Identify the piggy-backed RAM that is perpendicular to the 9900. Solder wire wrap wires connecting every bent out pin on this RAM to the corresponding bent out pin on the RAM that is parallel to the 9900. Pin 1 to pin 1, pin 2 to pin 2, etc. There will be eight wires in all to solder.

14) Solder wire-wrap wires to make the following connections on the RAM that is parallel to the 9900. Pin 1 goes to pin 24 of the 9900 (solder the wire to the 9900 pin on top of the board). Pin 2 goes to the 9900 pin 22. Pin 20 goes to two places. Connect pin 20 of the RAM to pin 22 of the RAM and also to pin 8 (bent out) of the 74LS21. There should be three wires coming off pin 20 of the RAM. Pin 23 of the RAM goes to pin 21 of the 9900. Pin 26 of the RAM goes to 23 of the 9900. Pin 27 of the RAM goes to pin 61 of the 9900 (fourth from the top on the right side). Finally, connect pin 28 of the RAM to pin 20 of the 74LS244 adjacent to the piggy-backed 74LS21.

15) Connect the following 74LS21 pins with a bare wire: 1 2 4 and 14. Connect the short wire from the 138 pin 7 to the LS21 pin 5 (bent out). Connect LS21 pin 6 to LS21 pin 12. Connect LS21 pin 8 (bent out) to the piggy-backed 153 pin 2. Connect the short wire coming from the 138 pin 9 to LS21 pin 10. Finally, connect the 74LS21 pin 14 to the 74LS244 pin 20 that you connected the RAM pin 28 to.

16) OK, we're almost done, so take a break and have a beer.

17) On the 153, connect pin 9 to pin 13 on the 74LS32 (U605). Pin 10 of the 153 goes to pin 14 of the 74LS74 next to it (U607). Also connect pin 10 of the 153 to pins 11 and 13 of the 153. Connect pin 12 of the 153 to pin 15 of the 153, and then connect pin 15 of the 153 to pin 7 of the 74LS00 U612 (next to the 74LS74). Connect pin 14 of the 153 to pin 11 of the 74LS00 U606; that's the one you cut the trace on.

18) That's it! Now have another beer before putting your computer back together. When you try it out, remember that this version isn't compatible with other 32K in the system.

If you have problems with this I can't promise I can help but feel free to give me a call or write EMAIL (419) 874-8838. A::: for John (or Hose-Head.)

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DIJIT Systems, the San Diego based company that brought professional quality RGB display to the TI-99/4A, introduced its latest product at the 99/FEST-WEST/87 in Los Angeles: The Advanced Video Processor Card. The AVPC fits into the Peripheral Expansion Box and is compatible with existing TI99/4A software. It features 80 column text and advanced graphics with up to 512 colors. The AVPC also supports Mouse and Light Pen inputs. The DIJIT Systems card contains 192K of video RAM and is designed to work with the "DIJIT-EYEzer", an external Gen-lock and video digitizing accessory. It will allow titling and graphic overlays on home videos as well as computer manipulation of external video images. The DIJIT Systems AVDP gives the TI-99/4A video processing power comparable with the Atari ST and the Amiga. The product is scheduled for release in August for \$195.00. DIJIT Systems 4345 Hortensia Street San Diego, CA. 92103 (619) 295-3301



### TIWRITER OVERLAY OVERVIEW

by Tom Kennedy

How many of you have a typewriter, please raise your hand. Keep your hand up if your typewriter has interchangeable text. How about automatic bold and underline? Or some amount of memory storage (for letter heads, etc.)? How about an erase key? Those of you left have probably got a pretty expensive piece of machinery, but TI-WRITER has ten times the functions, or features of the best typewriters. With TI-WRITER, your only limitation is your own creativity.

To start off with, what will you need to operate your Word Processor? You must have the 99/4A console (TI-WRITER won't work with the 99/4), a TV or monitor, the cartridge and disk package, the disk system, memory expansion, the RS232 interface, and a printer. In other words, the whole works. The printer is something you definitely want to be careful in choosing because all of your work will be in vain if you can't print out exactly what you type in, and with an attractive appearance. First, let's look at the command line. That's the line at the top of the screen when you're in the command mode. There are seven commands shown and sixteen sub-commands that are options of the main seven. The commands are selected by typing only the letters that are capitalized in the word. For instance: "F" for Files, "SH" for Search, or "LF" for Load File. That's an interesting point: you can access any of the sub-commands from the main command menu. In other words, to ShowDirectory (which is a disk catalog) you would enter the command mode, (FCTN 9), and either type "F" for files, and "SD" for ShowDirectory, or just type "SD" immediately. This feature saves a lot of time and keystrokes.

The first command is Edit. This simply enters you into the text-edit mode in which text is created.

Next is Tabs. When you hit "T", the top part of your text is shown with a scale across the top showing the current tabs and margins. Changes are made by simply typing over existing entries with the appropriate symbol (L,R,T, or I).

"F" for files allows you to work with your text file as a whole. To Load, Save, Delete, Print, Purge, or ShowDirectory. "PF" for print file is not what you'll get when you print out through the text formatter; it just prints a "hard copy" of the whole file, just as you see it on the screen. It doesn't print with any of the modifications made by the format commands (more on those later). "PF" is useful for making a fast copy of a long letter, or whatever, in order to check for errors without having to scroll back and forth or up and down. Purge simply erases the file from memory to prepare for a new entry. It is similar to the "NEW" command in BASIC.

Next is "L" for Lines. This allows you to work with whole lines or groups of lines by moving them to somewhere else in the text, copying to somewhere else and leaving the original intact, to delete groups of lines, or to quickly move the cursor to some line in the text with the ShowLines option.

Search (or "SH") gives you the option of either the FindString routine or the ReplaceString routine. FindString will move the cursor to the first and/or each successive use of the word string you give. ReplaceString searches the text for a given string and replaces all or one occurrence with the new string. This is great for correcting a repetitive spelling error.

RecoverEdit is a failsafe repair in case the text buffer was purged in either the File or Quit command. It will pull back everything but the first line and restore the file. I guess the loss of the first line is the penalty paid for accidentally erasing a file, which can't be done very easily.

Finally, Quit, as the name implies, blows it all apart and leaves you with the title frame. But before it goes, all open files are closed (such as to disk or printer) so no data is lost. Fortunately, it first gives you the option of saving your file (in case you forgot to do that already) or just purging the file and going back to the edit mode. But if you really want to quit, you type "E" for Exit and it shuts down.

Now let's go over the keyboard. TI-WRITER makes extensive use of the FCTN and CTRL keys and uses every possible function of the top line of keys (the numbers). There are also many functions that have duplicate methods of keystrokes to activate them. For instance, to enter the command mode, you either press FCTN 9 or CTRL C. The reason for this duplication is to allow you to choose which is easiest to use depending on where your fingers are at. The problem though, is that it can be very confusing trying to remember the fifty different key combinations that activate the thirty functions. A better method is to just pick which keys you're going to use for what function and ignore the rest. What I do is use the number line keys for anything shown on the overlay strip and just memorize the few functions hidden down in the keyboard. Let's start by going down the overlay strip, left to right as shown on the next page.

The last four key functions to mention are the cursor arrows: UP, DOWN, LEFT, & RIGHT. These stay the same as in console BASIC. Now, if you're still following along you may be quite confused with this onslaught of information. The point is, you can't learn all of this in one sitting, but after using TI-WRITER for a while you start to pick things up as you need them. Rest assured, you do spend the majority of your time typing. The purpose of most of the functions I've mentioned are to manipulate the text which is already in the file. I have simply tried to cover all of this in order to bring something to your attention that you might have missed, or to peak your interest in the capability of the TI-WRITER software.

To review, in the command mode we can choose between Edit, Tabs, Files, Lines, Search, RecoverEdit, or Quit. As sub-commands of those seven, we can choose Load File, Save File, Print File, Delete File, Purge, ShowDirectory, Move Lines, Copy Lines, Delete Lines, Showlines, FindString, ReplaceString, or Exit.

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*****
OOPS! * CTRL 1 * This can be a real lifesaver. It recovers, or "backs up" a function
      *(CTRL Z)* that you didn't mean to hit. Like if you goofed and hit "Delete Line"
      * instead of "Insert Character", hit "OOPS!" and the line comes back.
Del Char * FCTN 1 * This is the same as "DEL" in console BASIC. It deletes one character
      *(CTRL F)* under the cursor and pulls the rest of the line up to fill.
Reformat * CTRL 2 * This is used to close up the text after using Insert Character. It
      *(CTRL R)* deletes all spaces between the cursor and the next word in the text
      * Then it draws all subsequent words up through the paragraph until it
      * encounters a Carriage Return.
Ins Char * FCTN 2 * In Word Wrap mode (solid cursor), 32 blank characters are inserted
      *(CTRL G)* after the cursor. The bulk of the text is pushed down the line. After
      * insertion of new text, hit Reformat. Any remaining spaces are removed.
      * In the Fixed mode (hollow cursor), this operates the same as BASIC.
Screen * CTRL 3 * This allows you to choose which of the five color combinations of
Color * * text/screen you prefer. The default, for no good reason, is white on
      * dark blue. This is hard on the eyes. I prefer to turn down the color
      * on my monitor and use either black on green or black on light blue.
Del Line * FCTN 3 * Deletes the entire line that the cursor is on, including the space
      *(CTRL N)* of the line.
Next * CTRL 4 * This advances the cursor to the beginning of the following paragraph
Paragraph*(CTRL J)* and puts the first line at the top of the page.
Roll Down* FCTN 4 * This is a "vertical block scroll", meaning the next 24 lines of text
      * of text are shown. Scans quickly down the text to get to some point.
Dupe Line* CTRL 5 * Creates a duplicate below of the line the cursor is on. The Move/Copy
      * function can do the same, but this key makes it faster and easier to
      * create repetitive lines such as a doublerow of '*'s under a title.
Next * FCTN 5 * A "horizontal block scroll". It jumps across to
Window * * display the next block of 40 characters, in increments of
      * 20. For example, the screen starts out on column one to
      * forty, then twenty to sixty, then forty to eighty.
Last * CTRL 6 * The opposite of "Next Paragraph"
Paragraph*(CTRL H)*
Roll up * FCTN 6 * The opposite of "Roll Down"
      *(CTRL B)*
Word Tab * CTRL 7 * This moves the cursor down the line to the first letter of each word.
      *(CTRL W)*
Tab * FCTN 7 * Just like on a typewriter, this moves the cursor to next setting,
      *(CTRL I)* placed using the Tab function on the command line.
New * CTRL 8 * Places Carriage Return at end of current line, then skips down to next
Paragraph* * line. If you have preset an auto-indent, (by using an "I" in Tabs)
      * then it also indents over to the proper column.
Ins Line * FCTN 8 * Inserts a blank line above the line the cursor is on.
      *(CTRL O)*
New Page * CTRL 9 * Inserts a blank line with a Np and Cr symbol at the beginning.
      * This causes the printer to feed to the next page.
Command/ * FCTN 9 * This is how to exit from the edit mode to get to the command line.
Escape *(CTRL C)* It is also used to cancel a command already in progress.
Word Wrap* CTRL 0 * Switches from the "Word Wrap" mode to the "Fixed" mode. In Word Wrap,
      * upon reaching the end of the line the cursor jumps to the next line.
* * * If you're in the middle of a word at the end of the line, the word you
      * were on moves down too. This allows you to just type continuously
      * without looking up to see when to hit enter. In the fixed
      * mode, when you reach the end of the line your letters just
      * pile on top of each other and you hit enter to move to the
      * next line.
Line * FCTN 0 * This removes or displays the four-digit line numbers at the left side
Numbers * * of the screen. The numbers are used for reference when manipulating
      * blocks or lines of text, just like when editing a BASIC program, line
      * numbers are needed to refer to where changes will be made.
Quit * FCTN - * Quit is the same as in console BASIC. Use Quit option of the Command
      * line to safely exit TI-WRITER.
Back Tab * CTRL T * The same as Tab except it backs up one setting.
Beginning* CTRL V * Moves the cursor to the beginning of the line you're on.
of Line * *
Del.End * CTRL K * This is just like Delete Character (FCTN 1), except it takes out
of Line* * everything to the right of the cursor.
Home * CTRL L * Moves the cursor to row 1, column 1, on the screen only. Unfortunately
Cursor * * it doesn't move to first line of text, which would be more convenient
      * when at the end of a long document and want to jump to the top. [For
      * that, enter S, then enter I.]
Left Mrgn* CTRL Y * Allows you to temporarily back-arrow beyond the left margin when it
Release* * has been set past zero.
*****

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### TIWRITER FORMATTER OVERVIEW

by Tom Kennedy

Now I want to cover the Text Formatter, which prints out the document. Most importantly, the special symbols, called Format Commands, that the formatter uses to alter the print-out of the document, which are installed in the Text Editor.

In other words, you put these commands into the text when you write it and as the formatter comes across them it changes the text accordingly but doesn't actually print the symbols.

There are six groups of formatter commands that are all applied in a similar manner. All commands must be in caps and must be on a line that starts with a period.

The use of these commands in your text is what separates the word processor from a typewriter. They allow you to get the most out of your printer.

So, now you've written your document, and inserted all the format commands, now how do you print it out? First, save the document and exit the Text Editor. At the title menu, select Text formatter, (make sure the program disk is in the drive) and the screen will blank with the prompt "ENTER INPUT FILENAME". Enter the name of the file you just saved, (ex. DSK1.MYFILE) and hit enter.

Next, the prompt "ENTER PRINT DEVICENAME" appears after the file is loaded. If you use a serial printer, the device name would be RS232.BA-xxx with xxx being the baud rate. If you're using a parallel printer, the device name is PIO. Also, you must add either .CR or .LF to the end of the device name. This tells TI-Writer whether your printer will handle the carriage return or the line feed. Check your printer manual and the TI-Writer manual in detail to find out which you use.

The next prompt is "USE MAILING LIST". If you aren't printing "form letters" just hit enter to accept the default of N (NO).

Next is "WHAT PAGE(S)? <ALL>". If you want to print the whole document, accept the default for all pages. Otherwise, you can print any of the pages or groups of pages.

The prompt "NUMBER OF COPIES: 1" tells how many copies of each page are to be printed.

The last prompt is "PAUSE AT END OF PAGE? N". The main purpose of this function is if you are using separate sheets of paper it will stop and wait for you to align the next sheet.

Now, about the Mailing List Option. Let's say you've written a form letter to send out to various individuals, maybe a resume'. You write the letter like normal, but when you come to a name or address or something that will change with each letter, you put in its place a variable in the form of \*n\*, where n is a number to identify the order. So instead of starting off with: "Dear Mr. Smith" you would have "Dear Mr. \*1\*" and so on. when you're all through with your letter, save it and purge the memory. Now you must create what is called a Value File, which is your mailing list where TI-Writer will draw the variables from. A value file consists of a list values to be inserted into the letter, listed one to a line, preceded by the number of the variable and ending with a carriage return symbol. Groups of values must be separated by a line with just an asterisk and a carriage return. For example:

```
1 John Smith
2 123 STREET
3 Seattle, WA
*
1 Jane Doe
2 456 STREET
3 Seattle, WA
```

At the top of your letter you insert the .ML f command where f equals the filename of your value file. After selecting the mailing list option the computer will use this command to fill in the variables. If there is no .ML command in the letter then when you are prompted for "MAILING LIST NAME:" you supply the filename. This allows you to call on a number of files for different groups.

**Text Dimension commands**, as the name implies, move or shape the words in the document (margins, linespacing, right justify, etc.)

.FI : FILL : PUTS AS MANY WORDS ON A LINE AS WILL FIT.  
 .NF : NO FILL : CANCELS FILL.  
 .AD : ADJUST : ALIGNS THE TEXT TO THE LEFT AND RIGHT MARGINS. (RT. JUSTIFY)  
 .NA : NO ADJUST: CANCELS ADJUST.  
 .LM n : LF MARGIN: SETS LEFT MARGIN TO "n".  
 .RM n : RT MARGIN: SETS RIGHT MARGIN TO "n".  
 .IN n : INDENT : CREATES AN AUTO-INDENT FROM LEFT MARGIN.  
 .LS n : LINE SP : SETS LINE SPACING TO "n" LINES.  
 .PL n : PG LENGTH: DEFINES NUMBER OF LINES TO A PAGE.  
 .BP : BEGIN PG : DEFINES FIRST LINE OF NEW PAGE.

**Internal Format commands** control the spacing of characters on a line.

.SP n : SPACE : SIMILAR TO THE TAB FUNCTION.  
 .CE n : CENTER : CENTERS NEXT "n" LINES BETWEEN MARGINS.

**Highlighting commands** control functions such as underline or bold and allow you to redefine characters to use them to send CTRL codes to the printer.

^ : REQUIRED : JOINS WORDS TOGETHER WHEN REQUIRED TO PREVENT SPLITTING IN  
 : SPACE : REFORMATING, UNDERLINE, ETC.  
 & : UNDERLINE: (UNDERScore) UNDERLINES ALL TEXT FOLLOWING UNTIL NEXT PAGE.  
 @ : BOLD : (OVERSTRIKE) RETYPES FOLLOWING TEXT FOUR TIMES.  
 .TL xx: TRANS- : ALLOWS REASSIGNMENT OF ONE CHARACTER TO REPRESENT A NUMBER.  
 : LITERATE : OF CHARACTER VALUES TO SEND CODES TO THE PRINTER.  
 .CO t : COMMENT : SIMILAR TO REM IN BASIC--ALLOWS NOTES THAT DONT PRINT.

**Page identification commands** print notes in the upper or lower corner of each page, either headers or footers.

.HE t : HEADER : PRINTS TEXT (t) AND PAGE NUMBER AT TOP OF EACH PAGE.  
 .FO t : FOOTER : PRINTS TEXT (t) AND PAGE NUMBER AT BOTTOM OF EACH PAGE.  
 .PA : PAGE # : RESETS PAGE NUMBER IN .HE AND .FO

**File management commands**

.IF f : INCLUDE : MERGES A FILE TO PRINT A DOCUMENT TOO LARGE FOR ONE FILE.  
 : FILE :

**Mail Merge option commands** are used to supply values to the variables in a letter that has been set up for the mail merge option

.ML f :MAIL LIST: IDENTIFIES VALUE FILE (f) FOR MAIL LIST.  
 \*n\* :VARIABLE : INSERTED IN TEXT AS VARIABLE FOR ASSIGNMENT FROM VALUE FILE.  
 .DP n:t:DISPLAY : PROMPTS YOU USING TEXT "t" TO ASSIGN TO VARIABLE (\*n\*).  
 : PROMPT :

\*\*\*\*\*

Another way to insert values is to use the Define Prompt command. With this command you do not insert a .ML comand calling a value file and instead you insert lines containing the format: .DP n:t - where n is the number of the variable and t is the prompt text. Now, when you come to the prompt "USE MAILING LIST?" you select "N" for NO and as the document is printed when a variable is encountered the printing stops and the text you chose appears on the screen asking you for the appropriate value. If you don't include a ".DP n:t" command in your text, the computer responds with "ENTER DATA FOR VARIABLE \*n\*" and it can get confusing trying to remember which item you're on. This method is handy for letters which you only want to print one copy at different times to different people.

Let me tell you, this is why I bought a computer. I'm sure we all went through that period of time before buying a computer when we would ask: "what am I going to use a computer for, anyway?". Well I decided there were two things I wanted to do: 1) Store files of data (recipes, albums, etc.) and 2) Use my computer as a typewriter. I didn't know about TI-WRITER when I bought the 99/4A, but now I know that I made the best choice possible. I hope you will all find TI-WRITER as easy to use and as powerful as I have.