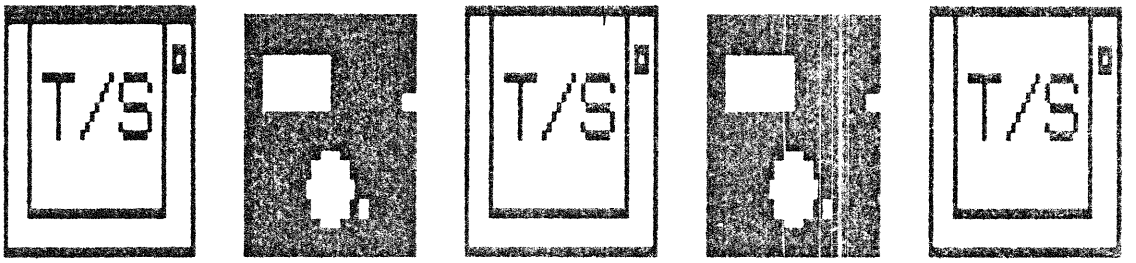
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UPDATE MAGAZINE





UPDATE MAGAZINE
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PERU, INDIANA
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UPDATE COMPUTER SYSTEMS PAGE DIRECTORY, JULY 1992

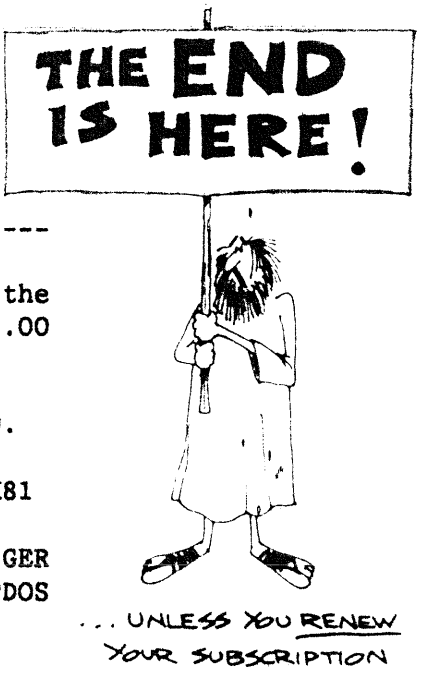
The computer that an article concerns is marked by using the following mark at the start of the page number-TS2068 = *,QL = # ,Z88 = % ,TS1000=^. There will be no mark if the article or ad applies to all or several different computer systems.

Inside Front Cover contains magazine directory information.

Page No. 1---UPDATE subscription page (please renew)
Page No. 2---Magazine Basic Information Page
Page No. 3---Editorial by Frank Davis
Page No. 4---Information on Dayton Computerfest
Page No. 5---Map to Dayton Computerfest
*Page No. 6---CAD Listings by B. Pedersen continued from April
Page No. 8---Computer Classics Ad--Dan Elliot
*Page No. 9---Interface Listing for CAD by B. Pedersen
*Page No. 11---Print Factory Graphics Ad--John McMichael
*Page No. 12---Instruction Manual for CAD#2--Olivetti Inkjet Printer by Bill Pedersen
*Page No. 25---Graphic Screen$ Dump Revisited by Abed Kahale
*Page No. 27---The Sinclair Music and MIDI Journal by Mike Felerski (replacing the DTP Journal)
#Page No. 29---Using Quill ASCII Files in a DOS DTP by Bob Hartung
Page No. 30---RMG Ad--Rod Gowen
#Page No. 31---Cable Column by Bill Cable--Archive Series Part 9
Page No. 33---Mechanical Affinity Ad--P. Holmgren and Frank Davis
Page No. 34---EMSoft Ad--Peter Hale
#Page No. 35---Letter From M. Kudelka on Lighthouse, QL Graphics by Taylor Penrose in April Issue
#Page No. 36---Text87 Plus4 Review by Hugh Howie
#Page No. 37---When Your QL's Too Fast by Peter Hale
*Page No. 38---RLE Made Easy by Bill Pedersen
#Page No. 39---Letter and Diagrams from Dennis Briggs, re: January 1992 UPDATE
Page No. 41---T/S Emulators by Peter Hale
Page No. 41---News and Views by Frank Davis
Page No. 42---Letter from Carlo Delhez to Peter Hale on His T/S Emulators
#Page No. 44---ZX Emulators for QL and PC by Carlo Delhez
Page No. 47---Eliad's Meanderings by E. P. Wannum
%Page No. 48---Mike Fink on the Ideal Printer for the Z88 (sounds like the Canon BubbleJet)
%Page No. 49---Graphics Demo of the Z88 by Mike Fink
%Page No. 50---Mike Fink's letter on the Z88 and Portable Computing
Back Covers ---Issue Disks for TS2068 and QL

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(All subscriptions run from Oct. issue to July issue.)

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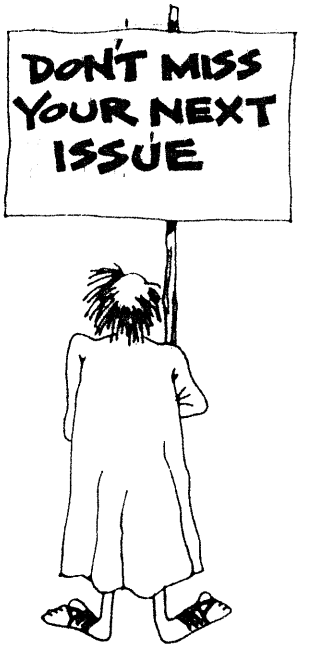
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Publishers- Frank and Carol Davis

* UPDATE COMPUTER SYSTEMS *

UPDATE COMPUTER SYSTEMS is Edited and Published by Carol and Frank Davis of P.O. Box 1095, Peru, Indiana 46970. Phone number is 317-473-8031, with normal phone hours being between 5 P.M. and 9:30 P.M. Eastern Time during the week and Noon to 6 P.M. on weekends. When we are not there or unavailable, please leave a message with our answering machine, you'll be answered by mail.

Mailing date for all issues is the fifteenth of the issue month. At times due to Postal Holidays, or the 15th falling on a weekend (bulk mail not accepted on weekends) they will be received at the Postal Unit the next business day. Please allow two to three weeks from this date before assuming your issue is not on its way to you. The Postal service tells us it can take as long as 6 weeks via bulk mail. For those wanting speedier service, contact us for making arrangements.

The magazine is published on a quarterly basis in the months of October, January, April and July. All subscriptions begin and end at the same time...first issue being October and all renewals coming due after receipt of the July issue. The cost is $18.00 U.S. for a one year subscription for North America, and for those outside of this area $22.00 U.S. We accept personal and business checks, money orders, and Cash. We do not accept credit cards at this time, due to costs. Back issues, where available can be obtained from us, at regular prices.

Assistance in Publishing this magazine is provided by Eliad P. Wannum, poet, computer user and all round good guy. The magazine is made possible by the regular contributors such as Peter Hale, Bill Cable, Paul Holmgren, Bill Pedersen , Bob Hartung to name a few, and by the many contributions of other writers and programmers. Your contributions to this magazine are welcome. This is truly a magazine BY THE USER AND FOR THE USER OF SINCLAIR, TIMEX AND CAMBRIDGE COMPUTERS. When we cover other operating systems such as CPM or MSDOS it will be in relationship to our computers or emulators for our systems to run their software. We primarily cover disk based systems and software for the TS2068, Spectrum, QL, Z88...and will cover items on the TS1000 if disk drive based or in relationship to using it with the above mentioned computers. We do accept reviews of peripherals that are useable by our systems, such as scanners, printers, modems, etc. Submissions should be on disk or hard copy (two copies and at least NLQ, no draft mode). If there is artwork, please let us know in what order it should be used, and provide it as a saved screen or hard copy screen dump. The format is very relaxed. Just pay attention to the width of the pages and allow 3/4 inch top and bottom, and make the left and right margins wide enough to accomodate a 3 hole punch that does not cut out some of the text. We have enlarge and reduction capacity to adjust a page, but may lose some print legibility in the process. Most important is legibility. Draft quality dot matrix does not reproduce well. Print size preference is ELITE 12 characters per inch. PICA 10 characters per inch is okay also, but please no condensed print. Please do not make programs submitted on cassette tape, use disk, mdv or wafer. Z88 programs on disk may be in either IBM or QL format or hardcopy. TS2068 programs may be LLISTED in 32 chr. lines.

THE EDITOR SPEAKS by Frank Davis

The first thing I would like to announce in this issue of UPDATE is that Carol and I have decided to continue to publish this quarterly magazine for a third year. This was not an easy decision to make, but one we decided on because many of you wrote or phoned and let us know that you wanted us to. The majority of time we have enjoyed publishing UPDATE and still seem to have people who are willing to write, and still exploring ways to use their Sinclairs. Some of you have even gone so far as to go and pay for your subscription ahead of time. Thank you. I hope to receive the renewal subscription of all of you soon. With this we hope to upgrade our printing setup, in order to bring you a higher quality magazine.

This issue finds me trying to get used to a new version of a word processor I had owned, but not used much of, TEXT87. This is the latest version, TEXT87 PLUS4, and so far I like it, and I could not say that for version 2.0 and 3.01. As I am sure you can tell from how I did my MECHANICAL AFFINITY AD, I still have a lot of exploring to do in order to be skilled in its use, but I will! It is available from Peter Hale of EMSOFT, and you will find his ad elsewhere in this and all previous issues. My thanks goes out to Peter for the help and encouragement he has given me in the past, and the hope that it will be there in the future. We really need to make use of our dealers, in order to have them there in the future, (and I do not just say that as a dealer, but as one who is also a user)to make new aand exciting products available.

Some people I have noticed seem not to be aware of the fact that there are still new products being produced for our machines. The Hacker Newsletter (now defunct) of Los Vegas was such an example. Most issues they complained that there were no new products for Sinclair computers, so why use them. Not a single member ever subscribed to IQLR or UPDATE, so had no way of keeping up with what was happening. They did exchange newsletters with other groups, but never bothered to mention in their newsletter to their members about any new products reviewed in these newsletters. Never did I see a mention about the Gold Card for the QL, TEXT87, mice for the QL, new ROMS for the QL, new keyboards for the QL, emulators for all but the Z88, WORD MASTER for the Spectrum emulated TS2068, John McMichaels graphics for the Print Factory, Hybiscus for the TS2068, Bill Pedersens CAD program, or for that matter none of the ISSUE DISKS which we have made available to our readers (from many good programmers such as Bill Cable, Al Feng, Bob Hartung and Paul Holmgren to name only a few). I guess what I am trying to say is that you need a flow of information and a source for that flow in order to stay informed of just what is new and where to find it. We are proud to be at least one of those flows of information. When you find out something new, let others know about it!

Last of all, for this editorial, I want to once again mention the upcoming Computerfest at Dayton, Ohio, the last weekend of August. They are once again having an area set aside for vendors and user groups that support the Timex, Sinclair and Cambridge computers. T/SNUG, CATUG, ISTUG, QUANTA, SMUG, DMA SINCLAIR, UPDATE, AND MECHANICAL AFFINITY are ones I have heard are to be there so far, and perhaps CATS and the Cleveland Sinclair Group. I hope to see more when we get there. Many of us will be staying at the Red Roof Inn, North, phone no. 513-898-1054 for those wanting to be near friends. All Sinclair newsletters that have so far failed to inform your members of this show, please do so now, even if you do not plan to attend.

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ATTENTION ALL SINCLAIR USERS

The Dayton Timex/Sinclair Users Group has again asked for an area to be set aside for Sinclair computer users groups and vendors to be placed close together during Computerfest 1992. Many have already been contacted by mail and phone. This is an extra mailing to make sure everyone has a chance to know a little about this years Fest.

The dates are 29 and 30 August 1992 at Hara Arena. Tickets are $5 for both days by mail and $6 at the door. Flea market space is $25 til 30 June and $30 after. Professional booths are $200 and $250 after 30 June. Friday night setup in fleamarket is $25 extra per vendor. Fleamarket spaces do not include admission but power is included so bring extention cords. The area is already being assigned and if you want close to the other Sinclair users you can only ask Mark Hanslip to find out where you will be placed. All requests for space and checks payable to "DMA Computerfest" should be mailed to:

MARK HANSLIP
143 Schloss Lane
Dayton, OH 45418
(513)263-FEST

Please pass on this information to others so again we can have a chance to see other Sinclair users at the Computerfest. Remember there will be parts and equipment available for other computers and this years major prize, a lazer printer, will go to one of about 15000 attendees.

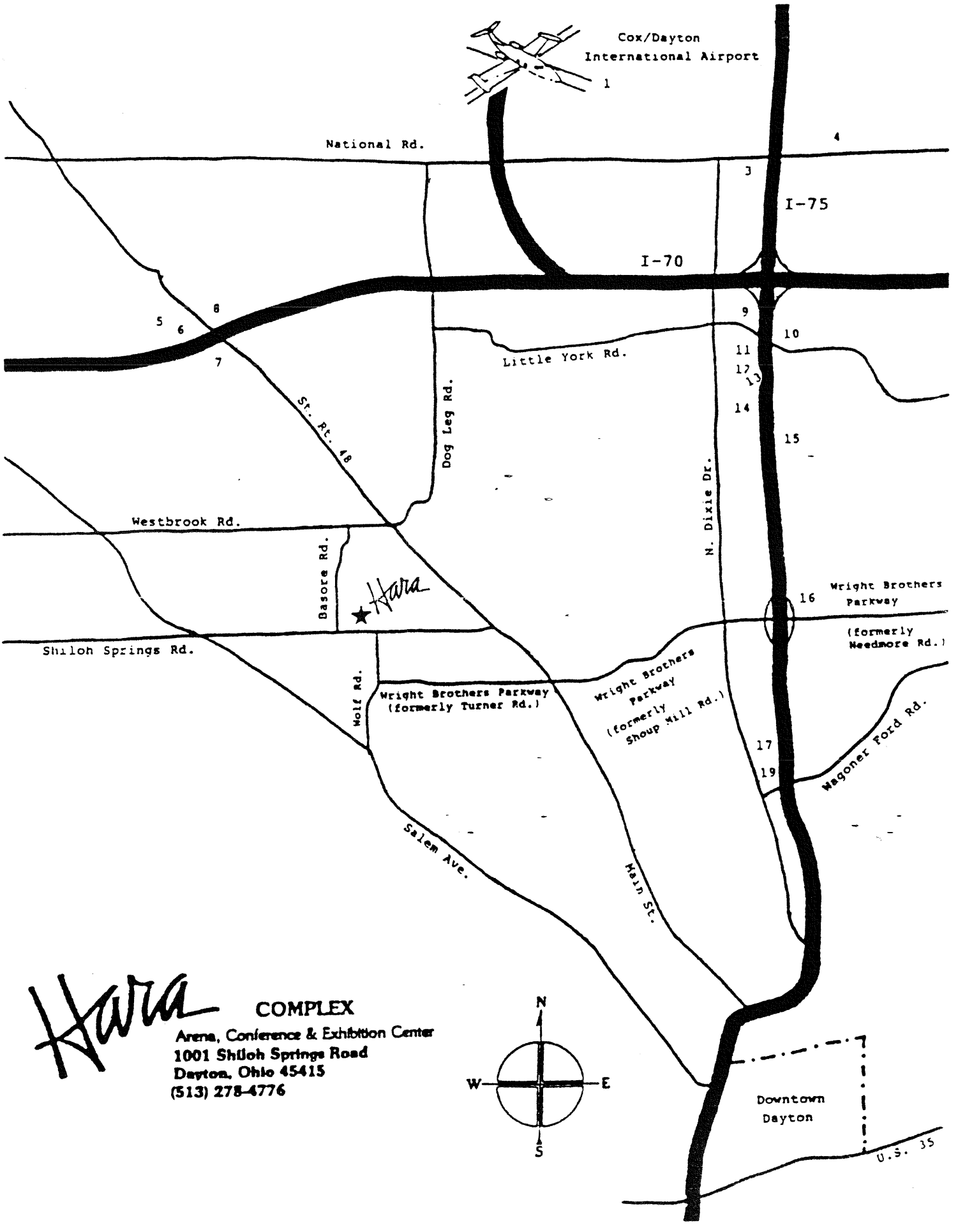
Thanks and hope to see you here in Dayton this year.

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```
   1 GO TO 1100
   2 PRINT AT 21,7;" PRESS ANY KEY ": RETURN
 998 RETURN
 999 DATA "p","100","4543","p","26739","4543","1","4543","4543",
"LLIST#5","512"," "
1000 DATA 33,83,92,94,35,86,235,43,43,1,q,r,205,187,18,201
1001 RESTORE 1000: FOR n=23706 TO 23721: READ byte: POKE n,byte:
 NEXT n
1002 RANDOMIZE USR 23706
1003 RETURN
1009 CLS : PRINT '"     CURRENT ASSIGNMENTS "'"Chan Addr  OUTPUT
 INPUT DEVICE  "
1010 LET b=PEEK 23631+256*PEEK 23632: LET a=PEEK 23635+256*PEEK
23636: LET k=1: REM CHANS, PROG
1011 PRINT " ";k;TAB 5;b;TAB 11;PEEK b+256*PEEK (b+1);TAB 18;: L
ET b=b+2
1012 PRINT PEEK b+256*PEEK (b+1);TAB 25;: LET b=b+2
1013 LET dv=PEEK b: PRINT CHR$ dv: LET b=b+1: IF dv>48 AND dv<58
 THEN  GO TO 1017
1014 IF PEEK b=128 THEN  GO TO 1016
1015 LET k=k+1: GO TO 1011'
1016 PRINT "EOT  ";b;" BASIC @ ";a: LET bb=b: RETURN
1017  FOR n=b TO b+9: PRINT  INK 1;CHR$ PEEK n;: NEXT n: LET b=b
+10
1018 LET len=PEEK b+256*PEEK (b+1): LET b=b+2
1019 PRINT " Data & Buffer ";len: LET b=b+len: GO TO 1014
1100 RESTORE 999: DIM y$(12,10): FOR n=1 TO 12: READ I$: LET y$(
n)=I$: NEXT n: LET j=1
1102 GO SUB 1009
1103 IF a=26710 THEN  PRINT '"" This is the default setup for  C
HANNELS after POWER-UP or NEW.": GO SUB 2: PAUSE 0: GO TO 1108
1104 IF a=27253 THEN  PRINT '"" The correct CHANNELS setup has a
lready been installed.": GO SUB 2: PAUSE 0: GO TO 2032
1107 PRINT '"  AN INCOMPATIBLE CHANNEL SET IS PRESENT.  IN ORDER
 TO RUN THIS  PROGRAM, EITHER CYCLE POWER OR  EXECUTE ""NEW"".
THEN RELOAD.    " : STOP
1108 PRINT AT 18,4;" Adding NEW Channels "
1109 LET s=0: LET w=4543: LET file=0: LET I$=y$(j): LET j=j+1: I
F I$(1)=" " THEN  GO TO 1150
1110 LET n=CODE I$: LET n=n-(32 AND n>96): IF n>90 THEN  GO TO 1
109
1111 IF n>63 THEN  GO TO 1115: REM alphabetic
1112 IF n>48 AND n<58 THEN  GO TO 1114: REM numeric
1114 LET file=1
1115 LET J$=CHR$ n
1117 LET I$=y$(j): LET j=j+1
1118 LET nn=VAL I$
1120 LET I$=y$(j): LET j=j+1
1121 LET m=VAL I$
1123 IF NOT file THEN  GO TO 1180
1125 LET I$=y$(j): LET j=j+1: LET J$=J$(1)+I$
1127 LET I$=y$(j): LET j=j+1
1129 LET ss=256*INT ((VAL I$-1)/256)+256
1130 LET s=21+ss
1131 LET r=INT (s/256): LET q=s-256*r
1133 GO SUB 1000
1135 LET msb=INT (nn/256): LET lsb=nn-256*msb: POKE bb,lsb: POKE
```

```
 bb+1,msb: LET bb=bb+2
1136 LET msb=INT (m/256): LET lsb=m-256*msb: POKE bb,lsb: POKE b
b+1,msb: LET bb=bb+2
1137 FOR f=0 TO 10: POKE f+bb,CODE J$(f+1): NEXT f: LET bb=bb+11
1138 LET msb=INT ((ss+4)/256): LET lsb=ss+4-256*msb: POKE bb,lsb
: POKE bb+1,msb: LET bb=bb+2
1139 FOR f=bb TO bb+ss-1: POKE f,32: NEXT f
1140 GO TO 1108
1150 PRINT AT 18,4;"  Creating LLIST#5  ": GO TO 2020
1180 LET r=0: LET q=5: GO SUB 1000: REM nonfile
1181 LET msb=INT (nn/256): LET lsb=nn-256*msb: POKE bb,lsb: POKE
 bb+1,msb: LET bb=bb+2
1182 LET msb=INT (m/256): LET lsb=m-256*msb: POKE bb,lsb: POKE b
b+1,msb: LET bb=bb+2
1183 POKE bb,CODE J$: LET bb=bb+1
1184 GO TO 1140
2000 DATA BA,AN,0,167,AN,0,NNA,117,104,AB,RNZ,0,0,CP,165,JRC,10,
SUB,165,CP,38,JRZ,114,CALL,69,7,RET
2001 DATA CP,144,JRC,4,198,49,JR,82,CP,128,JRC,4,198,97,JR,74,CP
,32,JRNC,42,CP,12,JRNZ,12,198,110,253,203,48,86,JRZ,-36,SUB,59,J
R,54
2002 REM   CODES
2003 DATA CP,13,JRZ,109,CP,6,202,63,105,CP,16,RC,CP,24,RNC,CP,22
,AN,1,JRC,1,60,NNA,117,104,201
2004 DATA CP,58,JRZ,44,CP,123,JRC,20, 203,71,JRZ,-78,253,203,48,
86,JRNZ,4,CP,123,JRNC,-88,CP,127,JRNZ,2,SUB,63
2005 REM   OUT_CHAR
2006 DATA 79,AN,10,CP,74,212,NEW,LINE,121,CALL,IOA,IOB,ANN,CUR,S
OR,60,NNA,CUR,SOR,RET
2007 REM   STYLE
2008 DATA 55,JRC,6,CP,58,JRZ,-27,JR,-123,253,203,48,86,245,204,N
EW,LINE,241,CP,38,JRZ,-15
2010 DATA PSHH,33,106,105,PSHB,BN,4,126,CALL,OUT,CHAR,35,DJNZ,-7
,POPB,POPH,RET
2011 REM   NEW_LINE
2012 DATA AN,13,CALL,IOA,IOB,AN,10,CALL,IOA,IOB,AN,10,NNA,CUR,SO
R,167,RZ,PSHB,BA,AN,32,CALL,IOA,IOB,DJNZ,-7,POPB,RET
2013 REM   PRINT_COMMA
2014 DATA CALL,84,105,230,15,47,198,17,BA,AN,32,CALL,OUT,CHAR,CA
LL,84,105,RZ,DJNZ,-11,RET,ANN,MAR,GIN,PSHB,BA,ANN,CUR,SOR,144,PO
PB,RET
2015 REM   TAB/AT
2017 DATA 229,33,104,105,229,42,79,104,233,225,201
2018 DATA 32,32,32,58
2020 LET MAR=46: LET GIN=105: LET PRT=71: LET COM=105: LET OUT=2
32: LET CHAR=104: LET CUR=234: LET SOR=104: LET IOA=95: LET IOB=
105: LET NEW=35: LET LINE=105
2021 LET DJNZ=16: LET JR=24: LET JRNZ=32: LET JRZ=40: LET JRNC=4
8: LET JRC=56
2022 LET BN=6: LET AN=62: LET NNA=50: LET ANN=58: LET AB=120: LE
T BA=71
2023 LET CP=254: LET RET=201: LET RNZ=192: LET RZ=200: LET RNC=2
08: LET RC=216: LET CALL=205: LET SUB=214
2024 LET PSHB=197: LET POPB=193: LET PSHH=229: LET POPH=225
2025 RESTORE 2000: FOR N=26739 TO 26989: READ BYTE: POKE N,BYTE:
 NEXT N
2030 POKE 23282,21: POKE 23584,26
2032 CLS : GO SUB 1009: PRINT '" This arrangement provides:"'"P
RINT #4   LKDOS Access,"'"LPRINT #5  Formatted printing,"'"LLIST
 #5   Formatted listings,"'"MEMORY     256 bytes @ 26995."
```

```
2033 PRINT '"See documentation for ""LLIST#5""."
2035 GO SUB 2: PAUSE 0
2036 RANDOMIZE USR 100: LOAD "INTFC.BO"
2040 STOP
9990 POKE 26876,167
9991 INPUT "Date? ";i$: LPRINT "LN";CHR$ 6;: LPRINT #5'"CAD#2.B1
 LISTING, LARKEN/Olivetti. ";i$'': LLIST #5:' LPRINT "LO";CHR$ 12
;: STOP
9999 RANDOMIZE USR 100: GO TO 0: RANDOMIZE USR 100: SAVE "CAD#2.
B1" LINE 1100
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```
  10 REM   RESET 1986 Wm. J. Pedersen  All Rights Reserved. WIN
KJET 1 Adapted for CAD#2
 100 LET W=USR "L": POKE W+1,126: POKE W+2,66: POKE W+3,90: POKE
 W+4,90: POKE W+5,66: POKE W+6,126
 110 CLS : PRINT "  THIS PROGRAM ESTABLISHES THE     OLIVETTI PR
2300 INTERFACE    ",,"  Please select which physical   interface
 you have.","""
 111 PRINT ,,"   1  TASMAN Type A (USA Type B)"''"   2  TASMAN T
ype B (USA Type C)"''"   3  AERCO/OLIGER"''"   4  A & J"''"   5
 OTHER"
 112 INPUT "Which? ";Intf:  IF Intf>5 OR Intf<1 THEN  GO TO 111
 113 GO SUB 120+Intf
 114 CLS : PRINT AT 3,0;"        PRINTER ADDRESSES     ",,," Data
 Port:        c1 = ";c1," Data Cmd Port:  c2 = ";c2'" Status Por
t:     c3 = ";c3," BUSY bit val:   c5 = ";c5," Control Port:
 c7 = ";c7," STROBE Bit val: c6 = ";c6," RESET Bit val:  c8 =
";c8," Control Cmd Port c4 = ";c4''
 115 PRINT "  Cmd ports apply to Z80 PIO.","Set to 0 if not used
."''"  Input new values as required  and GO TO 114, else CONTINU
E.": STOP
 116 PRINT AT 21,2;" Creating PRINTER module ": GO TO 140
 120 REM  PIO#2
 121 PRINT AT 0,0,,,,AT 1,6;" TASMAN Type A ": LET c1=123: LET c
2=0: LET c3=191: LET c4=0: LET c5=1: LET c6=8: LET c7=251: LET c
8=255-c6: RETURN
 122 PRINT AT 0,0,,,,AT 1,6;" TASMAN Type B ": LET c1=123: LET c
2=0: LET c3=251: LET c4=0: LET c5=1: LET c6=8: LET c7=251: LET c
8=255-c6: RETURN
 123 PRINT AT 0,0,,,,AT 1,6;" AERCO ": LET c1=127: LET c2=0: LET
 c3=127: LET c4=0: LET c5=16: LET c6=0: LET c7=0: LET c8=0: RETU
RN
 124 PRINT AT 0,0,,,,AT 1,6;" A & J ": LET c1=66: LET c2=0: LET
c3=65: LET c4=0: LET c5=4: LET c6=5: LET c7=65: LET c8=0: RETURN

 125 PRINT AT 0,0,,,,AT 1,6;" GENERAL CASE ": LET c1=130: LET c2
=131: LET c3=128: LET c4=129: LET c5=16: LET c6=64: LET c7=128:
LET c8=0: RETURN
 130 DATA 8,219,c3,230,c5,32,16,243,8,211,c1,62,255-c6,211+(8 AN
D Intf=3),(c7 AND Intf<>3)+(c3 AND Intf=3),62,255,211,c7,0,0,251
,201,205,9,32,56,-27,207,12: REM PIO#2
 131 DATA 245,62,255-c6-c8,211,c7,62,255,211,c1 AND intf<>3,211,
c7,241,201: REM INIT.printer
 132 DATA 0,201,24,25,24,45: REM JUMP entries
 133 DATA 245,175,61,211,c2,60,211,c2,61,211,c4,62,255-c6-c8,211
,c4,62,7,211,c2,211,c4,24,-41: REM INIT.intfc
 134 DATA 245,197,229,62,32,50,FN l(1,113),FN l(0,113),62,32,230
,224,50,FN l(1,145),FN l(0,145),6,8,33,32,64,24,16: REM WINDOW
 135 DATA 245,197,229,62,32,50,FN l(1,113),FN l(0,113),50,FN l(1
,145),FN l(0,145),6,176,33,0,64,229,197,6,32,126
 136 DATA 205,FN l(1,0),FN l(0,0),219,255,203,95,40,8,203,236,12
6,205,FN l(1,0),FN l(0,0),203,172,35,16,-21
 137 DATA 193,225,36,124,230,7,32,10,125,198,32,111,63,159,230,2
48,132,103,16,-45,225,193,241,201: REM DUMP w/64 wide
 139 DEF FN l(b,o)=((ld0+o-256*INT ((ld0+o)/256)) AND b=1)+(INT
((ld0+o)/256) AND b=0)
 141 GO SUB 7771: RESTORE 130: FOR j=ld0 TO ld0+158: READ Byte:
POKE j,Byte: NEXT j
```

```
 142 DIM U$(159): FOR j=1 TO 159: LET U$(j)=CHR$ PEEK (ld0+j-1):
 NEXT j
 143 GO SUB 7770
 144 PRINT AT 20,5;"Module completed.": PAUSE 30
 160 CLS : PRINT AT 10,6; FLASH 1;" RECORDING PmodO.A$ ": RANDOM
IZE USR 100: SAVE "PmodO.A$" DATA U$()
 165 RANDOMIZE USR 100: LOAD "CAD.BO": STOP
 450 LPRINT ("L/" AND Zoom);"LG";STR$ Margin;";32;22;";STR$ Aspe
ct;"LZ";: RANDOMIZE USR (ld0+47): RETURN : REM  DUMP
 451 LET Zoom=0: LET Margin=89: LET aspect=2: GO TO 450
 452 LET Zoom=1: LET Margin=89: LET aspect=2: GO TO 450
 453 LET Zoom=0: LET Margin=89: LET aspect=3: GO TO 450
 454 LET Zoom=1: LET Margin=89: LET aspect=3: GO TO 450
 500 POKE ld1,64: POKE ld2,64: POKE ld3,8: POKE ld4,128: POKE ld
5,80: LPRINT "LG";STR$ Margin;";64;1;3LZ";: RANDOMIZE USR Window
: RETURN : REM  NORMAL WINDOW
 501 POKE ld1,39: POKE ld2,39: POKE ld3,8: POKE ld4,128: POKE ld
5,80: LPRINT "L/LG";STR$ Margin;";39;1;3LZ";: RANDOMIZE USR Wind
ow: RETURN : REM  ZOOM WINDOW
 502 POKE ld1,20: POKE ld2,32: POKE ld3,112: POKE ld4,165: POKE
ld5,64: LPRINT "L-LG";STR$ Margin;";20;14;2LZ";: RANDOMIZE USR W
indow: RETURN : REM  NEGATIVE WINDOW
7770 GO SUB 7771: FOR j=1 TO 159: POKE ld0+j-1,CODE U$(j): NEXT
j: RANDOMIZE USR (ld0+49): LET Wld=INT (ld0/256): LET Wa=PEEK 23
631+256*PEEK 23632: POKE Wa+15,ld0-256*Wld: POKE Wa+16,Wld: RETU
RN : REM  INIT MOD & Z80PIO
7771 LET ld0=26995: GO SUB 7776: RETURN
7776 LET Wld=INT (ld0/256): LET Wlm=ld0-256*Wld: LET ld1=ld0+76:
 LET ld2=ld1+5: LET ld3=ld2+7: LET ld4=ld3+2: LET ld5=ld4+1:  LE
T Window=ld0+45: RETURN
7777 CLS : PRINT '''''" Margin is the location of the"'"first dot
 printed.  The current"'"value is ";Margin;". (1 to 255)"''" BRE
AK and enter new value as  required.  Then CONTinue."''" PRESS
ANY KEY": PAUSE 0: INPUT "WINDOW AT ROW? ";Wr;", COLUMN? ";Wc: L
ET Wx=768-32*Wr-Wc: IF Wr>23 OR Wr<0 OR Wc>31 OR Wc<0 THEN  GO S
UB 7790: GO TO 7777
7778 LET W64=INT ((IN 255)/4): LET W64=W64-INT (W64/2): LET Wm=I
NT ((Margin+6)/8): INPUT " WIDE? ";Wide;", HIGH? ";Wh: LET Wd=IN
T ((Wide+W64)/(1+W64)): IF Wd<1 OR Wd>Wx OR Wh<0 THEN  GO SUB 77
90: GO TO 7778
7779 IF Wide+Wm>110 THEN  LET Wide=110-Wm: LET Wd=INT ((Wide+W64
)/(1+W64)): GO SUB 7793
7780 IF Wh>(24-Wr)/INT ((Wc+Wd+31)/32) THEN  GO SUB 7791: GO TO
7778
7781 INPUT "0=normal1=ZOOM Which? ";Wz;: IF Wz>1 OR Wz<0 THEN  G
O SUB 7792: GO TO 7781
7782 IF Wide*(1+Wz)+Wm>110 THEN  LET Wide=INT ((110-Wm)/2): LET
Wd=INT ((Wide+W64)/(1+W64)): GO SUB 7793
7783 INPUT "0=NORMAL1=INVERSE Which? ";Wi;: IF Wi>1 OR Wi<0 THEN
  GO SUB 7792: GO TO 7783
7784 INPUT "1=short2=Normal3=TALL Which? ";Wa;: IF Wa>9 OR Wa<1
THEN  GO SUB 7790: GO TO 7784
7785 PAPER 7: BORDER 6: CLS : PRINT " ROW     ";Wr'" COL     ";W
c'" WIDE    ";Wd'" HIGH    ";Wh'" ZOOM    ";Wz'" INVERSE ";Wi'"
ASPECT  ";Wa'" MARGIN  ";Margin
7786 PRINT "    line 8 boundary ^"'"0::::!::::1::::!::::2::::!::
::3::::!::::4::::!::::5:::z!::::6::::!::::7::::!::::8::::!::::9:
:::!::::A::::!::::(32wide)"'"0::::1::::2::::3::::4::::5:z::6::::
7::::8::::9::::A::::(64wide)"
7787 PRINT '"    line 16 boundary ^"''" CMD$:""";("L-" AND Wi);(
```

```
"L/" AND Wz);"LG";STR$ Margin;";";STR$ Wide;((";"+STR$ Wh) AND W
h);((";"+STR$ Wa) AND Wh);"LZ"""
7788 PRINT '" POKES: ";Wide;" ";32*INT ((Wc+Wide+31)/32);" ";8*W
h+(1 AND NOT Wh);" ";32*(Wr-8*INT (Wr/8))+Wc;" ";64+8*INT (Wr/8)
7789 GO TO 7794
7790 PRINT #1;"INVALID PARAMETER": PAUSE 120: RETURN
7791 PRINT #1;"OFF BOTTOM OF SCREEN": PAUSE 120: RETURN
7792 PRINT #1;"MUST BE ""0"" or ""1""": PAUSE 120: RETURN
7793 PRINT #1;"LINE TOO LONG. SHORTENED TO ";Wide: PAUSE 120: RE
TURN
7794 DIM a$(Wd): FOR j=1 TO Wd: LET a$(j)=" ": NEXT j: LET W=INT
 ((Wd+31)/32): PRINT AT Wr,Wc;: FOR j=0 TO Wh-1+(1 AND NOT Wh):
IF Wr+W*j<=22-W THEN  PRINT  OVER 1;TAB Wc: PAPER (5-(j-3*INT (j
/3)));a$: NEXT j
7795 PLOT 0,175-64: DRAW 255,0: PLOT 0,175-128: DRAW 255,0
7796 STOP : GO TO 7777
9990 POKE 26876,167
9991 INPUT "Date? ";i$: LPRINT "LN";CHR$ 6;: LPRINT #5'"INTFC.BO
 Listing, LARKEN/Olivetti. ";i$'': LLIST #5: LPRINT "LO";CHR$ 12
;: STOP
9999 RANDOMIZE USR 100: SAVE "INTFC.BO" LINE 1
```


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PRINTED CIRCUIT BOARD DEVELOPMENT PROGRAM

INSTRUCTION MANUAL PROGRAM CAD#2

For the OLIVETTI PR2300 INK JET PRINTER

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The WIDJUP Co. is proud to present the most powerful, flexible, and user friendly printed circuit board design program available for the TIMEX TS2068 as of this date.

It lets ambitious people create their own electronic hardware without demanding access to industrial facilities or photo laboratories.

At the same time, this program does fully professional work suitable for small industry. Though CAD#2 is self-contained, it is compatible with several specialized companion utilities like "TRACE MASTER", which writes DATA FILES for CAD.. using higher level graphic language.

TABLE OF CONTENTS

SUBJECT	PAGE
INTRODUCTION	2
EXTENDED FEATURES	2
MENUS	2
MAIN MENU	2
LOAD PCB DATA	3
LOAD SUB-MENU	3
SAVE PCB DATA	3
EDIT PCB DATA	4
ADD ITEM	4
FIX MENU	5
GENERATE	5
DISPLAY	6
GETTING STARTED	6
TUTORIAL	6
DEMO	8
EDITING A PCB DATA FILE	9
EDITING GRAPHIC FILES	10
ADVANCED TECHNIQUES	12
PLANNING WORK-SHEET	12
APPENDIX	13
CIRCLE.AZ REPORT	13

INTRODUCTION

This program makes use of LARKEN LKDOS. This version is for the OLIVETTI PR2300 INKJET PRINTER. Other versions are available for EPSON, STAR, and some other EPSON incompatible printers. CAD#2 makes use of file types Program, Data, and Code. Files created using CAD#2 are transferable to some other DOS systems. The other system must be able to store Data type records.

Though this program assumes double density 2 sided, 5 1/4 disks, other formats are readily accommodated by changing default parameters.

All operations are menu supported, system initialization is automatic, and no LKDOS commands are required after the program is loaded.

The problem of monitoring your work as it proceeds is dealt with by a DISPLAY feature. This saves much time, paper, and aggravation.

Operations have been made as easy to use as can be, considering the complexity of the task at hand. The temptation to unnecessarily standardize operations (thus limiting what your ingenuity can accomplish) has been resisted. No compromise has been taken with quality of results. Best use of printer performance is made, though this creates a heavy computation load for the computer. If you want superior results, you have to do the work!

Exceptional editing procedures let you avoid doing work over and over again. Now THAT is user friendly!

EXTENDED FEATURES

CAD#2 provides several features in addition to what is available in LKDOS extended BASIC. To be specific, WIDJUP programs LPRINT #5, LLIST #5 (Which does formatted and indented LISTings), screen dumps, and several graphic windows for LPRINTing single and double size lines.

They say that nothing is fool-proof to a sufficiently talented fool. Well, CAD#2 has been designed to require considerable talent to foul it up, AND to recover even if it has been. Error trapping is used extensively.

DISPLAY is limited to 4 x 5.4 inches. This does not prevent making boards longer than 5.4 inches. It is simply not possible to DISPLAY the whole board at once. With advanced editing procedures this limitation becomes an advantage. (Boards wider than 4 inches can be made using wide-bed graphic printers. DISPLAY then accommodates 8 x 10.8 boards with reduced detail, but that requires a different version for that specific printer.)

MENUS

MAIN MENU

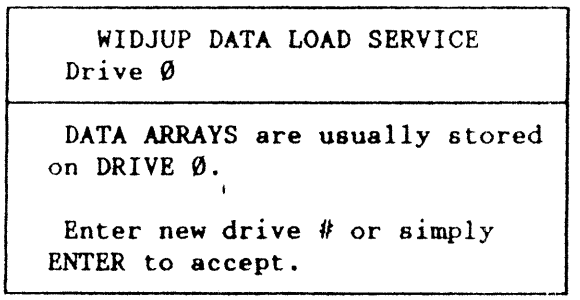
The WIDJUP Co. (C) 1989..CAD#2
MAIN MENU

FUNCTION		DESCRIPTION
1	LOAD	PCB Data Array
2	CREATE	New PCB
3	EDIT	PCB Data Array
4	DISPLAY	PCB
5	DIRECTORY	Drives 0-4
6	REPORT	LPRINT Data
7	GENERATE	PCB Image
8	COPY	From Image File
9	SAVE	PCB Data Array

Select by # " "

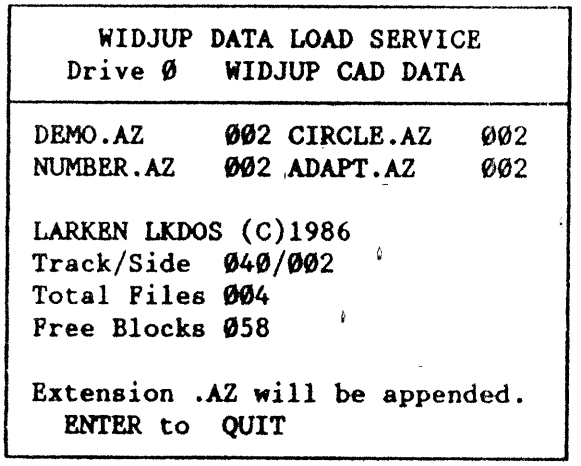
This is what you see after CAD#2 is loaded. It reappears after selected operations are completed.

LOAD PCB DATA



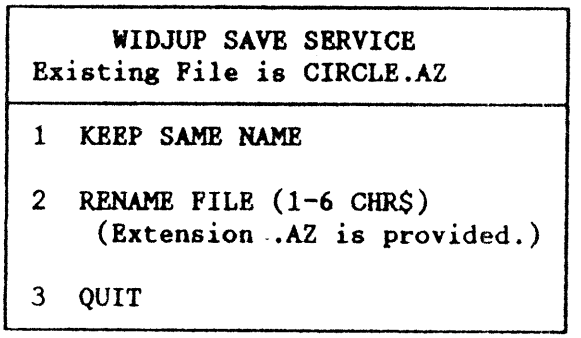
You may elect to keep PCB DATA files on another drive so you can use a write-protect device on your master disk. If you want to use Drive Ø and still use write-protect, you must change disks often. It is much better to have spare master disks available.

LOAD SUB-MENU



This is a directory of PCB data files from which you select by name without having to enter the file-name extension.

SAVE PCB DATA



After creating new data, or revising old data, you can name, store or update the file. You can quit if you aren't sure about your work - or even then, you can give it a temporary name for later attention.

EDIT PCB DATA

```
        WIDJUP EDIT SERVICE
  CIRCLE.AZ LAST 20  SELECT 1

  1      2      3      4      5
  ¦      -      O      O      O

  1      2      4      4      4
  .Ø3    .Ø3    1      1      1
  Ø      Ø      1      1      1
  Ø.2    Ø.2    Ø.4    Ø.35   Ø.3
  Ø      Ø      Ø      Ø      Ø
  2      2      1      1      1
  3.8    3.94   1ØØ    1ØØ    1ØØ
  2      2      1      1      1
  5.239  5.1    1ØØ    1ØØ    1ØØ
  Ø      Ø      Ø      1      Ø

 EscFixSelAdd < PutCut > MapDel
  1  2  3  4- 5  6  7  8  9  Ø
```

This menu operates using ten FUNCTION KEYS labeled across the bottom of the screen. You don't have to guess what they are, or look them up in a manual. SELECTED data and adjacent ITEMS are displayed.

ADD ITEM

```
        WIDJUP EDIT SERVICE

 1  ¦  Line        7  /  Jog
 2  -  Line        8  \  Jog
 3  =  Box         9  ?  Slant
 4  O  Circle     1Ø  #  Pad
 5  /  45 deg     11  #  Pad
 6  \  45 deg     12  $  Quadrant

  Items oriented as they appear
 DISPLAYED, not as printed.

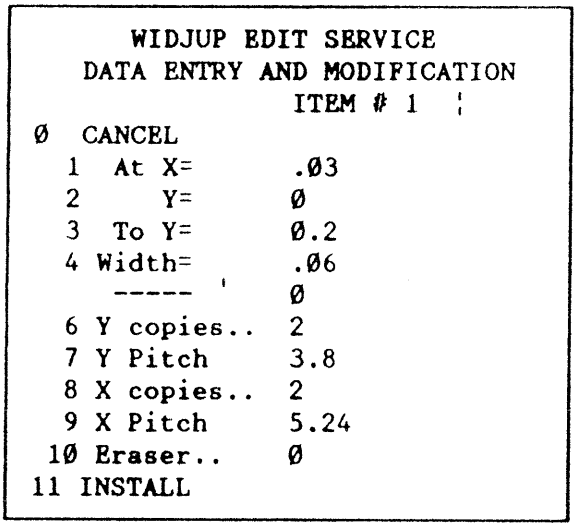
Select by # " "
```

The sprite characters shown above are not quite what appears on screen. The actual screen displays UDGS which cannot be printed using ASCII CHR$s.

Each item has a default which saves entry time and helps avoid errors.

It is planned to increase this library in the future, but it is hard to predict what might be wanted that isn't already there.

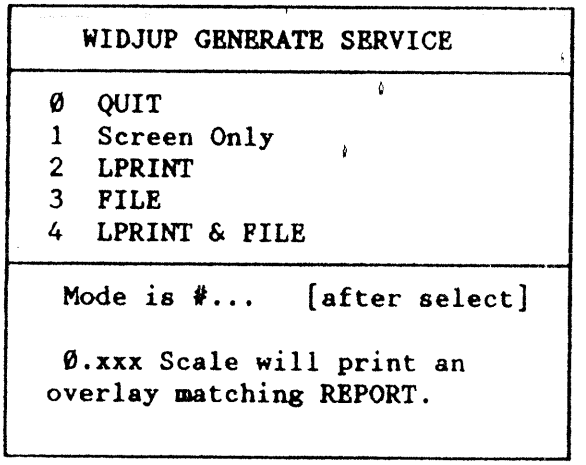
FIX MENU



An **ADD**, or **SELECTED** existing item is displayed in a format unique to each "sprite". Any parameter can be selected and changed. You can QUIT or INSTALL the results of your work. If you make an error, you can always recall the item to correct it.

This menu returns you to the **EDIT** menu.

GENERATE



This menu really has the choices you want. It is possible to PRINT and/or FILE graphic images of the PCB in exquisite detail in any scale.

What is remarkable is how you can edit GRAPHIC FILES without needing to regenerate them.

This feature allows you to create a library of graphic MASTERS for standardized cards.

(A WIDJUP program is available for GENERATING logos, text and component designations. That program is intended for making silk-screen masters, but can be used to add similar detail on copper as well.)

DISPLAY

When called from the **MAIN** menu, this draws a picture of the PCB using symbols and lines. The real PCB has too much detail to show on the screen, even if windowed. The display is completely independent of scale factor, which would also make windowing difficult.

When called from the **EDIT** menu, this draws a picture of the SELECTED item. This lets you try what you please, and get it exactly right. There is no need to wait for a GENERATED image to find you have to make a change.

When called by **REPORT** it displays and prints a PCB image in hard copy for you.

GETTING STARTED

1. It is assumed you have an LKDOS or equivalent disk system for your TS2068 and at least one disk drive. Two drives are required to get the most out of CAD#2, but one drive will do.

2. **RANDOMIZE USR 100: LOAD "CAD#2.B1"** after power-on, NEW, or use of LKDOS **FORMAT** or **Move** operations will call up the program.

3. An information display will appear on the screen that shows which channels are in use. If the power has just been turned on, or **NEW** executed, this will be TS2068 default assignments. If called after LKDOS operations, it may show those channel assignments too.
   Press any key after you examine this screen.
   If LKDOS assignments have been made which are incompatible with CAD.#2 you will get a warning message.

4. The next screen shows channel assignments used for CAD#2 after initialization. Flashing labels appear while these channels are being created and extended function features are initialized.
   After examining this screen, press any key to continue.

5. The next screen to appear is from another program called by the first. It permits you to select from TASMAN, AERCO, OLIGER, A & J, or custom CENTRONICS interfaces. After selection (or a custom interface specification), a printer interface module is built to handle your hardware requirements. This is stored on disk for recall at any time by other programs.

6. After the printer module has been completed, the working program CAD.BO is automatically called. "INITIALIZING" appears while CAD.BO loads arrays, UDGS, and the printer module.
   After this work is done, the MAIN MENU appears.

7. You are now in business. In spite of the complexity of this start-up sequence, all you had to do was select your interface.

TUTORIAL

In order to make it easy for you to become familiar with how this program works, several examples have been included on the master disk along with operating programs and data. The sample PCB DATA records are:

DEMO.AZ, CIRCLE.AZ, NUMBER.AZ and ADAPT.AZ.

Select DIRECTORY (5) from the MAIN MENU and then DRIVE 0 from the DIRECTORY MENU. You will see the MASTER disk directory. Pressing any key returns you to the MAIN MENU.

If you have a second drive, now is a good time to put a disk in it and repeat the selection using drive 1.

On leaving DIRECTORY SERVICE, control is always restored to DRIVE Ø.

Now, with the MAIN MENU on screen, is a good time to demonstrate the screen dump feature. Instead of entering a selection number, enter "Q" or "q".(QUIT) This returns you to Sinclair BASIC. CONTINUE will usually return you to CAD.BO depending on what you do in BASIC. GO TO 1 will always work. Though RUN works too, all your working data is lost and the program has to re-initialize itself.

GO SUB DUMP will copy the screen to your printer. GO SUB DUMP+1 will do the same, only twice as large. This works for any screen (except auto-listings) after breaking out into BASIC. Escape into BASIC has other uses, which will be discussed later when the subject is editing GRAPHIC FILES.

Try entering these immediate commands before proceeding. Then enter GO TO 1 to return to the MAIN MENU.

Select LOAD (1) from the MAIN MENU. You will be asked which drive you wish to use for storing PCB DATA FILES. These files have extension .AZ. Because the sample files are on the master disk, press ENTER to accept default DRIVE Ø.

A directory of all DATA FILES appears. You will be asked to select which of them you wish to load. It is not necessary to type the file-name extension. Type CIRCLE and ENTER. Press any key to return to the MAIN MENU.

Select DISPLAY (4) from the MAIN MENU and a picture of CIRCLE will be drawn on screen.

Select REPORT (6) from the MAIN MENU. The same thing will happen except the picture will be dumped to the printer followed by a complete report of the "sprites" which make up CIRCLE. This report is graphic so you can see UDGS which cannot normally be printed. This hard copy report makes it much easier to edit your work at leisure, away from the screen.

Select GENERATE (7) from the MAIN MENU. An OPTIONS MENU appears.

Select LPRINT (2) from the OPTIONS MENU because we don't want to create any GRAPHIC DATA files as yet. You will be prompted to enter the desired scale factor. Enter a value of Ø.5 to get a half scale printout.

This will take some time, but the process is well worth watching.

The vertical resolution of the OLIVETTI PR23ØØ printer is 216 scan lines per inch.

The horizontal resolution is 11Ø dots per inch.

It takes four SCREEN lines to map one eight-line printer pass. The screen displays three lines of 256 pixels (768 total) plus a partial line of 112 pixels to match the 88Ø dots on a printer line. This pattern of four lines is repeated twice more on the screen to make up the three passes needed for the printed line.

Even at half scale you can appreciate the precision that is possible using this program. Even smaller scales can be used to get a quicker look at your work without creating a file.

PCB photo masters are usually done with a scale factor of 2. On occasion, a factor of 1 is used for silk screen masters, solder masks, and contact print transparencies. By adjusting the scale to match photocopy reductions, good transparencies can be made without the services of a photo laboratory -- saving $$$$. Then you can use them

with photo-etch kits available from RADIO SHACK and others.

Before proceeding, if you have only a single drive, enter "Q" or "q" at the MAIN MENU. Then LET Gdrive = Drive. Remove the master disk, replacing it with a blank formatted one.
Remember not to use RUN to return to the MAIN MENU. Use GO TO 1.

If you have two or more drives, place the disk in DRIVE 1. You don't have to remove the master disk unless it makes you feel safer that way.
Write protect tabs are a good idea if you decide to keep your PCB DATA files on other than your master disk. Always make a copy of your master disk --in fact make several. That way you can keep a disk set for every large project you tackle.

Select GENERATE (7) from the MAIN MENU. This time select FILE (3) from the OPTIONS MENU. A new prompt appears, asking you if you wish to create a new file or update an existing one. There is no GRAPHIC FILE for CIRCLE so enter "N" or "n". You can enter NEW if you want, but only the first letter matters.

Then enter 1 at the "Scale?" prompt and find something else to do while the computer is busy creating a GRAPHIC FILE of CIRCLE.AZ. For simple files like-CIRCLE the wait is not very long. A highly complex circuit board may take up to three hours and generate hundreds of records. This is seldom required because GRAPHIC FILES can be EDITED as the job proceeds.

When the file has been completed, return to the MAIN MENU and use DIRECTORY to examine the results. You will see that the records use the first three characters of the DATA FILE name followed by numbers in ascending order and the extension .CZ.
Note the number of the last record. It is the number of printer lines.

Return to the MAIN MENU and select COPY (8). You will get a directory of the GRAPHIC FILE and asked to enter the file-name. Only the first three characters matter. This lets you do magical things like joining several different graphic files to make a single photo master.
Type in CIRCLE and ENTER.

You are prompted to enter the number of the last record to be copied. Use the number of the last record shown on the screen. Later on, you will find how to use other values to get repeating patterns for longer boards, but for now we want to print the complete file.
The records are read in one by one and printed as fast as the printer can accept the data.

DEMO

Now put in the first of the two DEMO IMAGE disks in place of the one you just created. COPY this file to the printer after aligning the paper as you did for CIRCLE. The DEMO file has 93 records which exceeds the capacity of a single disk. It is a full page size file.
After printing 76 lines, you will be prompted to install the second DEMO disk and enter "GO" when ready. In this case you must use upper case letters exactly two characters long as shown. This guards against accidentally striking keys while you are changing disks.

DEMO contains examples of "sprites" of all kinds and two kinds of graphic file editing. It demonstrates the importance of having erasers to complement drawing. Any "sprite" can be repeated as an array, making DIP patterns a single feature ITEM.

Nearly all CAD programs provide 45 degree diagonal lines. Very few provide slanting lines at other angles. This limits the efficient layout of conductor traces. Draftsmen are used to using tape and rub-on supplies to create layouts. One form of rub-on line has rounded ends so it doesn't matter at what angle a direction change is made. CAD#2 is nearly unique in providing a "sprite" which gives round ended line performance. The same used as an eraser allows other "sprites" to be clipped at any angle.

An explanation is required as to why "sprites" has been enclosed in quote marks. This will not be done hereafter.

A sprite is most commonly a pattern of dots called a bit-map. In this form a sprite can be repeated and moved very efficiently for games and for graphic drawing where precision is not critical. It does not matter if an engineering drawing, or circuit diagram is exactly to scale. On schematics a capacitor or resistor symbol has initially been created as a bit-map to the appropriate scale and need not be re-drawn. This is also true even of fonts generated by algorithms. They are drawn once but used many times.

A printed circuit board DOES require precision. If everything on the PCB was on a .1 x .1 grid, the OLIVETTI dot spacing would be 11 x 21.6.

21.6???? How do you print .6 of a dot? You could round this off to print a bit-mapped sprite at dot 21 or 22, but the irregular spacing is sure to create problems. This limitation of bit-mapped sprites is too serious to allow their use when better methods are available.

The sprites used by CAD#2 are two dimensional versions of those used in flight simulator programs, but the image generating technique is different.

They are defined as figures in real space, not as dot patterns. To print these images as dots, the printer dot grid is overlaid on real space. Those grid points which overlay real figures get printed. The others don't.

It is easy to show that statistical error is much less than for bit-mapped sprites and is essentially independent of PCB feature location. Non-decimal spacings for some connectors and conductor traces are easily accommodated. Repeated sprites often do not have identical bit-maps because the printer dot grid does not match that in real space for the board. This lets sprites be as accurate as possible at any position. Rounding errors on one scan line are averaged by adjacent scans, making the pattern rendition much closer to true position than a single dot. These slight edge irregularities are barely visible and are smoothed even further by the etch process.

That is why extra effort has been spent in computation. The results are worth it. DEMO should convince you of that. A full description of DEMO is too long to include here. It is suggested that you LOAD DEMO and print a REPORT for it, as you did for CIRCLE.

EDITING A PCB DATA FILE

LOAD (1) CIRCLE as you did before. We will now edit this file in two ways. We will ADD a new feature. Then we will CUT a MACRO FEATURE from another file and PASTE it to CIRCLE.

Select EDIT (3) from the MAIN MENU. The EDIT screen will appear with the first five ITEMS of CIRCLE displayed. The first item appears in red because it is SELECTED, as also shown in the heading. The heading shows the file-name and total number of ITEMS in the file as well.

Across the bottom of the screen is a command line showing what each FUNCTION KEY does. To activate a FUNCTION KEY, press SHIFT and any number key. The corresponding operation will be performed.

KEY	LABEL	FUNCTION
1	ESC	Return to MAIN MENU
2	FIX	Edit SELECTED ITEM
3	SEL	SELECT a different ITEM
4	ADD	Append a new ITEM
5	<-	SELECT ITEM to the left
6	PUT	PASTE stored ITEM just before SELECTED position
7	CUT	CUT and store SELECTED ITEM
8	->	SELECT ITEM to the right
9	MAP	DISPLAY SELECTED ITEM
Ø	DEL	DELETE ITEM without storing

Hold the SHIFT key down and then press the 4 key. A menu of pre-defined sprites will appear. There are 12 choices, each of which has default values which can be edited to meet your needs. This helps avoid errors of omission when entering parameters.

Select sprite # 1Ø. This is a DIP pad array by default. A new screen appears showing default parameters for the selected sprite. We will not change any values, accepting the default for now.

Select "G" (GO) from this menu. The EDIT menu will reappear with our new sprite SELECTED.

Use FUNCTION KEY "ESC" (s1) to return to the MAIN MENU.

Select DISPLAY to see what has happened.

Select SAVE and rename the file TEST so CIRCLE will not be changed.

You can verify the file has been saved using DIRECTORY.

We have just added an ITEM to a file. Now we will do something more interesting. We will transfer ITEMS from one file to another. In this case we will transfer three ITEMS which make up the graphic character "1" from NUMBER to TEST.

Select LOAD from the MAIN MENU and load NUMBER.
Select EDIT.
Command "SEL", enter 3. ITEM #3 is now selected.
"CUT". ITEM #3 is deleted and stored in the cut file
"ESC" and press any key.
LOAD TEST, Select EDIT
"SEL" 1, "PUT". The stored cut ITEM is inserted as ITEM #1.
"ESC", SAVE TEST. (With updated data.)
Repeat this sequence for ITEM #2 and #1 from NUMBER to TEST.

By now you should be getting familiar enough with CAD#2 to allow us to abbreviate instructions as shown above. DISPLAY your updated TEST to see how these new sprites look. It is possible to recognize the graphic number "1", but DISPLAY cannot generally render such small detail in a form which can be recognized.

GENERATE TEST to the printer using Ø.5 scale. Now you can see the final results of your editing operation. Repeat using .25 scale to see how detail is slowly lost as scale is reduced. When checking your work, this is not objectionable in most cases. Use as small a scale as you can accept.

EDITING GRAPHIC FILES

You have GENERATED a GRAPHIC FILE from CIRCLE.AZ. That file has record names CIR1.CZ, CIR2.CZ and up. Only the first three characters of the DATA FILE name have been copied.

Another DATA FILE named CIRC#1.AZ would GENERATE the same record names, obliterating the old file.

Instead, if CIRC#1.AZ is used to UPDATE an existing file, we have a perfect mechanism for editing GRAPHIC FILES.

An application which comes immediately to mind is to have a set of DATA FILES all having the first three characters in common. The first could be the edge contacts and basic circuit arrangement for a family of similar boards. A second could define the hole patterns and pad layout. A third could define conductor traces, targets, and other features.

The first DATA FILE could be used to make as many copies of the basic GRAPHIC FILE you might want. Then one of these can be UPDATED to define hole patterns to make new files representing two sides of the same board. Then other files could be used to add circuitry, pads, text, and other features for each side of the board.

LOAD NUMBER (from master disk)
SAVE NUMBER, renaming it CIRNUM (does not replace NUMBER on disk)
Place the CIRCLE GRAPHIC FILE disk back in the drive.
GENERATE using FILE and UPDATE (LPRINT optional)

The program loads a GRAPHIC RECORD so it can read what scale to use. Then it updates only those frames effected, scanning through but not changing intermediate records. If LPRINT was also asked for, only these same frames will be printed.

COPY the resulting merged file. You will see that all numbers from 1 thru Ø have been transferred to the GRAPHIC FILE.

THIS ENDS THE TUTORIAL.

NOTES:

ADVANCED TECHNIQUES

There are 432 scan lines or 18 printed lines to the inch referred to double scale photo master layouts. This is also 18 records in a GRAPHIC FILE. When GRAPHIC FILES are COPIED, they continue without any gaps between them. One file could contain one end of a PCB. A second could contain the other end of the board and a repeatable pattern of 9, 18, 27 etc. records.

The first file can be copied in full. It should be a multiple of 9 lines in length or copied to that number. An overlap zone is optional.

The second file can be copied using the repeat portion as many times as necessary, then the repeat portion plus the end of the board.

You can erase portions of a board layout to correct errors, or to edit text, logos, or part numbers. This applies nicely to circuit variations which make use of alternate jumpering to adapt a board to varying conditions like I/O address assignment.

PLANNING WORK-SHEET

The master disk contains GRID.BO which generates work-sheets for use in planning and editing your jobs. Call it after breaking in on CAD.BO. To return, bypass CAD#2.B1. Reload CAD.BO. (Or use the SHELL provision.)

U$ is a machine code image of the OLIVETTI printer driver. It is installed as an overlay from within the program. Though not applicable here, this method allows changing printers on the fly. It consists of three parts. The root section is for matching to various physical interfaces, like AERCO, TASMAN etc. An initialization section primes whatever interface you are using. The third section is the GRAPHIC DRIVER. This is the part which matches up the screen with the printer. It does windows.

By POKING values, this driver will do many kinds of normal, or zoom WINDOWS, printing to the full width of your printer.

Program modifications to accommodate other disk formats and other special information is provided separately because updates occur which do not effect program operations, but which may change line numbers and content appreciably. These modifications refer to specific revisions of CAD#3 and are cumulative over time.

The WIDJUP Co.
1120 Merrifield S.E.
Grand Rapids, MI 49507
Tel: (616) 452-7004

GRAPHIC SCREEN$ DUMP REVISITED

The article on the "Graphic Screen$ Dump" generated responses from some readers, all of them are not able to do a graphic screen copy to their various printers, so here is a simplified program with REMarks explanations, less the TIMACHINE and Larken languages. You will have to use your interface and DOS/TOS/JLO languages.

While reading George Chambers's incompassing series of articles on printer interfaces in the Toronto Sinc-Link, I became aware that there are many more users that have a graphic screen copy problem including George; so here is what I know about the subject;

At work, I used a 33 MHz 386 PC with a 24-pin Toshiba printer, it took almost 6 minutes to screen dump the stock chart in my article to a full page worth; while my 2068 did a half page chart in 1 minute 40 seconds. Why? because all IBMs & compatibles are not bit-image mapped graphics, the **Sinclairs are.** The PCs have to go through an enormous amount of number crunching for every and each BIT before sending it to the printer. The program I was using was Microsoft's Excel, a $300 spreadsheet software. It had a list of over 130 different make/model printers that I had to choose from prior to doing any printing, because the Excel is a 100% graphic software not unlike desktop publishing. This implies that most of the printers are not created equal even those made by the same manufacturer.

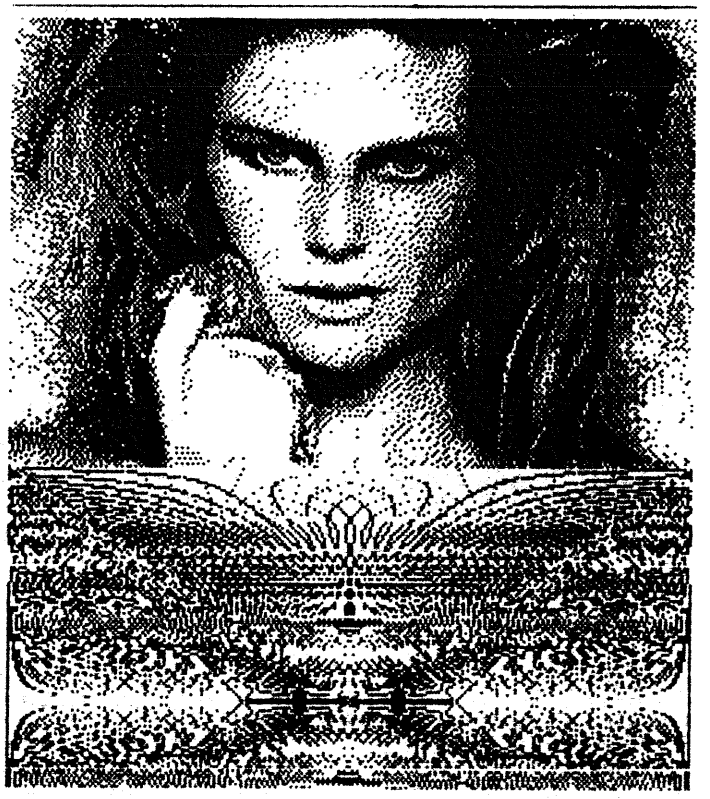
The object of the above is to bring out the fact that if you can not do a graphic copy, ENTER this simple program and experiment.

¶Activate your interface.

¶Open a stream/port to the printer using your interface language and/or POKE whatever needs to be POKEd.

¶Modify those lines in the program with LPRINT CHR$x; CHR$y; CHR$z; to your printer codes that should be in your manual.

```
  1 REM Dot Matrix Printer Driver by Abed Kahale 3/92
 20 REM Activate your printer driver.
 30 REM POKE whatever needs to be POKed to open stream/port to
the printer.
 40 REM POKE so as the LPRINTs and the CHR$s can go to the pri
nter unmolested.(ASCII mode)
 50 LPRINT CHR$ 27;CHR$ y;CHR$ z; REM Select your font style.
 60 LPRINT CHR$ 27;CHR$ g;: REM Select Graphic Mode.
 70 LOAD "your" SCREEN$
155 FOR Y=0 TO 175 STEP 8: LET R=175-Y: REM Vertical pixels fr
om the top the screen (for 8-pin head)
160 FOR C=0 TO 255: REM Horizontal pixels.
170 LET B=0: REM Determines whether the BIT is INK or PAPER.
175 REM If the graphic pass is upside down, then use the right
column only.
180 LET B=B+POINT (C,R-1): REM     LET B=128*POINT (C,R)
190 LET B=B+2*POINT (C,R-2): REM   LET B=B+64*POINT (C,R-7)
200 LET B=B+4*POINT (C,R-3): REM   LET B=B+32*POINT (C,R-6)
210 LET B=B+8*POINT (C,R-4): REM   LET B=B+16*POINT (C,R-5)
220 LET B=B+16*POINT (C,R-5): REM  LET B=B+8*POINT (C,R-4)
230 LET B=B+32*POINT (C,R-6): REM  LET B=B+4*POINT (C,R-3)
240 LET B=B+64*POINT (C,R-7): REM  LET B=B+2*POINT (C,R-2)
250 LET B=128*POINT (C,R): REM   LET B=B+POINT (C,R-1)
260 LPRINT CHR$ B;
270 NEXT C
280 LPRINT CHR$ 10: LPRINT CHR$ 13: REM Line feed :  REM Carri
age return
290 NEXT Y
300 LPRINT CHR$ x: REM Put it back into character mode.
320 REM : RUN
```



It will be slow in BASIC, if you have a compiler such as the TIMACHINE, by all means use it in your program.

If the graphic pass is upside down, then reverse the B*POINT, B*2 POINT, B*4 POINT.. to B*128 POINT, B*64 POINT, B*32 POINT etc. If the printer does not advance the paper, then add a line LPRINT CHR$ 10; if the print head does not return, add LPRINT CHR$ 13; if you get a blank line, then remove LPRINT CHR$ 10; and so on.

No guarantee that the program will work for your printer. Most printers will accept the CHR$ language. Some manuals give you a program that you will have to modify to T/S's language. Then there is:- John McMichael Software
1710 Palmer Dr
Laramie WY 82070
307 742-4530

Stan Lemke, in his "Bit Image Graphics", UPDATE January 89, article covered quite a few printers. I started with using his program; I worked on the program using the manual's "Graphic Mode" pages that instructed me to:-

1. Specify the print density (resolution) by selecting the character style. (font)

Mine is PICA 480 dots/line code 27,19 (default); ELITE is 576 DPL code 27, 23 and CONDENSED is 800 DPL code 27, 20; density doubles in graphic mode!!

2. Specify Graphic mode code 18

3. Specify head positioning code 27, 16, N1?, N2?; where I got lost.

4. Specify the dot column (margin). Another subject.

I tried and tried different combinations to no avail on my odd printer, then told my story to Bob Swoger. He came in one evening and reviewed my work and said; **"Let's forget about all this head positioning for now and try the gut approach"**; I said I was game. So this is how this program was developed; I could copy the screen but not locate it to a specific place on paper (at that time) which was just fine.

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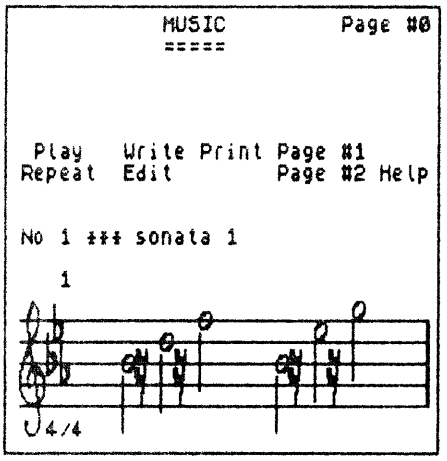
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The Sinclair Music & MIDI Journal

Summer 1992 Editor: Mike Felerski

Writing and Playing Music with: Romantic Robot's Music Typewriter

Since there is no true standard for music writing and/or playing programs for the TS2068 or Sinclair Spectrum computers, almost anything goes! With word processing programs, there are some baseline features which are expected such as block functions, paragraph formatting, word search, etc. But with music programs, the baseline features would only be the ability to "Play" the composition (via BEEP or SOUND commands) and "Print" the composition (via the TS2040 or a fullsize printer). So using these two



"base" features as a starting point let us look at Music Typewriter from Romantic Robot Ltd. of Great Britian.

Music Typewriter is a music composition, play and print program for the 48K Sinclair Spectrum and Spectrum Emulated TS2068. As stated in its manual:

"Music Typewriter is designed to assist Spectrum users in all phases of music making."

Continued on page 2

The RAM Music Machine

Piano, Drums, Sampler and MIDI all in one for your Spectrum!

The RAM Music Machine's User Guide asks the question, "What sort of things can The Music Machine Do?" And it answers, "This Question would be easier to answer if we asked what The Machine cannot do!"

The RAM Music Machine is a hardware interface and software program for the Sinclair Spectrum computer. It will work with a Timex Sinclair 2068 emulating a Spectrum with a "twister board" for the rear I/O port. Once the Music Machine is connected it provides the following ports: a headphone jack, microphone jack, line level audio output port, MIDI IN, MIDI THROUGH and MIDI OUT. There is also a level control slide adjustment on top.

The only other items which come with Music Machine are a microphone for sound sampling, a cassette which contains the Music Machine software and a users manual. Once the software is loaded, the Main Menu appears (see page 2). Here the Sinclair musician has a choice of playing the existing tune, editing a tune, LOADing or SAVing Music Machine data, sampling sounds, playing the piano, playing the drums or dropping into BASIC. Let us now look at these options.

Play is used to actually play the music which you have composed. It includes all parts such as the piano, drums and voices. Piano lets you use the Spectrum keyboard to play tunes but it is not limited to just the sounds of a piano, but any of the eight synthesized sounds stored in the system!

A Short Introduction

Welcome to the Sinclair Music & MIDI Journal. This special publication is for Timex TS2068 and Sinclair Spectrum computer owners who are interested in composing and playing music or controling musical instruments with their computers.

I have found that the sound and music aspect of Sinclair computers is grossly ignored. On occasion you might catch an article on the TS2068 SOUND command, or even a blurb on the BEEP command. But in general there is very little said about the Sinclair's sound capability. On a higher level, there is almost no mention of the music programs or musical hardware add-ons available for the Sinclairs.

Now, most of you are wondering what happened to the Sinclair Desktop Publishing Journal. Well, it has been put aside for now. After publishing for over two years I began to get a little stale. Therefore, I felt it was time for something new.

So welcome once again to this special publication I call the "Sinclair Music & MIDI Journal" and I hope you will enjoy it.

--MJ Felerski

Drums allows you to play any of the eight drum sounds using the 2,3,4,W,E,A,S,D keys on the Spectrum as drum pads. Echo does just that. It causes any sound picked up in the supplied microphone to be echoed and/or delayed. Sounds can also be sampled and stored with the supplied microphone for playback later as a voice. The Bar Editor allows the Sinclair musician to play two

Continued on page 2

Writing...

Music Typewriter allows the owner to write, edit, play, copy to a printer and save to tape musical compositions. The program uses musical notation to display and edit your piece on screen in a graphics mode. This means eighth notes look like eighth notes and whole notes like whole notes, etc.

Music Typewriter is also a mini file handler for compositions. Up to 16 different music pieces (or a total of 254 bars) may be stored in the computers memory at one time. Its pitch range is six octives, from Contra C to C4. Music Typewriter allows time signatures from 2/4 to 8/4 or 2/8 to 15/8, and it provides automatic bar length control.

Other features include the ability to use treble or base clefs, notes with sharps, flats, double sharps, double flats and naturals, and indication of +8 and -8 octive shifting all done graphically on screen. As compositions are played, each note is displayed on screen.

Since the program is written almost entirely in machine code, I/O is via Cassette only. Good hackers should be able to patch disk I/O commands, but this author is unaware of any I/O patches as of this writing. Printer support is via the TS2040 (ZX Printer) and several other British printer interfaces, most of which are older models. I was able to break into the program and locate the printer output code, but I have yet been able to make the program work with my Aerco parallel interface.

Setting aside the Cassette only I/O and the limited printer support, Music Typewriter is an excellent "sit down and compose" music program. Even if you are not a musical person, you can take a piece of sheet music and enter it into Music Typewriter just like a word processor, and then have the computer play it back to you. And in that respect, it is an excellent conversation (or "show off your Sinclair") item.

Editors Aside: This particular music product is a wonderful beginners program for enrty into the Sinclair music world and is currently being closed out by Romantic Robot for £5.95.

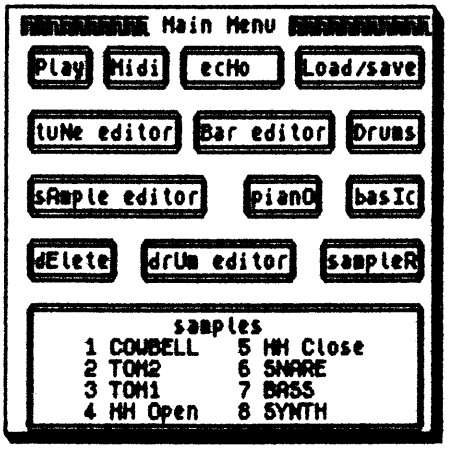
Music Typewriter available from:
Romantic Robot Ltd.
54 Deanscroft Ave.
London NW9 8EN, England

Price: £5.95, VISA accepted
Phone: 081-200 8870 (24 Hrs)

RAM...

synthesised voices in parallel. The Bar Editor allows you to adjust time and signature, tempo and add lyrics. The Tune Editor allows parts of the drums and the music to be repeated without re-entering bar information over and over, thus conserving memory space.

MIDI stands for Musical Instrument Digital Interface. This is an industry standard for communications between



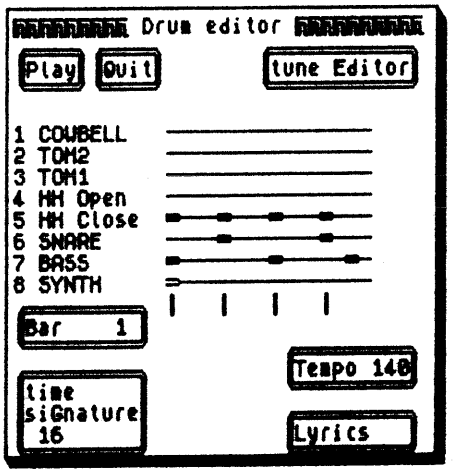
electronic instruments such as keyboards. The connections are made with DIN cables, In the case of my RAM Music Machine and Casio MT-540 keyboard, I used one DIN cable from the MIDI OUT on the RAM Music Machine to the MIDI IN jack on my Casio. The Music Machine also supplies MIDI IN and MIDI THROUGH for daisy chaining other instruments as master and slave.

This issue of the Journal does not have enough space to include a discussion on MIDI, but it will be covered in a future issue. In short, the MIDI interface portion of the Music Machine took almost no time to connect to my keyboard. Then, after setting my Casio to MIDI, all I had to do was press PLAY and the piano portion of the supplied tune was now being played on my keyboard!

The MIDI interface can be made to provide all kinds of information to connected musical instruments, but it can not be used to record tunes from external sources. For instance, there is no feature which allows you to play a song on an external instrument and at the same time record that song on the computer.

Finally, SAVing and LOADing is via BASIC and can be modified to use disk interfaces. The main program can also SAVEd and LOADed from disk.

If you have any interest in computer assisted music (MIDI) or you just want to show off your Spectrum, and learn something new about computers as I have, then I would not hesitate



to order the RAM Music Machine now while they are still available.

RAM Music Machine available from:
Datel Electronics Ltd
Govan Road
Fenton Industrial Estate
Fenton, Stoke-On-Trent ST4 2RS,
England

Price: £49.99, VISA accepted
Phone: 0782-744707

USING QUILL ASCII FILES IN A DOS DTP

Bob Hartung, 2416 N. County Line Road E., Huntertown. IN 46748

As noted in my final paragraph of USING QUILL FOR ASCII FILES (p.23 April UPDATE) at that time I did not have a PC or clone to use with files translated in this manner. At the risk of shocking and perhaps alienating purist T/S devotees, I hereby confess that I could not resist the temptation to take advantage of the drastic price-cutting on 8088, 80286, and now 80386-based clones. I acquired a 286-12 with 1 Mb RAM, enhanced 101 KBD, two HD floppy drives, VGA IF, DOS 3.31, Turbo Pascal, Quattro, Professional Writer, Now Speak, and WordStar 5.5 for about $220. Adding a color VGA monitor, 42 Mb hard drive, hand-scanner with PC Paintbrush, Perceive OCR text recognition SW, mouse, FAX/modem card, and DR DOS 6.0 (with data-compression, caching, and task capabilities that effectively double the hard drive capacity and greatly enhance access time) still makes the total cost about half the introductory base price for the ExeQtor SuperQL that does not include any of the above, HD drives, hard drive, nor a monitor. Does this mean I am abandoning my QL and TS2068? Most certainly NOT!!! What it does do is give me access to much of the best of two worlds of computing. This text, for example, was keyboarded into QUILL, translated into an ASCII file, and then poured into a DOS DTP program acquired from DAK Industries Inc. for $10 + P&H. Such bargains abound if one is willing to live with a bit less than "the lastest with the mostest" and use non-Windows SW. For 99% of the purposes for which I use wordprocessing, spreadsheets, and data-bases I much prefer QUILL, ABACUS, ARCHIVE, TASWORD, MSCRIPT, and ProFile 2068 over the complex, memory-intensive programs of this type which require hours if not days to learn and which require most of 1Mb of RAM to run properly plus 1.5 Mb or more space on a hard drive. Graphics can take up even more memory, as compared to the 48K under which VideoFace and Word Master can store a half-dozen screens plus text files and print them out with as much resolution as a dot-matrix printer can produce. Speaking of printers, in the midst of my introduction to the world of DOS, my old faithful C. ITOH 8510 Prowriter that I bought back in 1984 began showing signs of senility, i.e. forgetting of not acknowledging the first dozen or so characters in each line of text output to it. If anyone out there has one of these for sale for about $100 or less which is working OK mechanically and electronically, even if it has a worn-out printhead, I would be much interested in hearing from you. So, to paraphrase Mark Twain, if you hear any rumors whatsoever about the demise of my interest in Sinclair computing, they are ALL greatly exaggerated! I am finding my duties as a jail chaplain and counselor for troubled young people often do not allow me as much time as I would like for exploring even a small part of all the programming possibilities that are at our fingertips as T/S users, but I still find it to be a most satisfying and rewarding hobby. Hopefully, too, it will help me to ward off just a little while longer the senility that my old C. ITOH seems to have acquired!

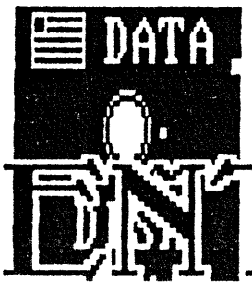


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CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 9 : UPDATE and WHILE COMMANDS and INTRODUCING THE "P" WORD

We have covered most of the essential ARCHIVE commands. As we introduce the last of them, we will begin putting groups of commands together to do more complex operations. For now we will still work from the ARCHIVE command prompt (>) but we will make a point of having more than one command on a line. We will type the commands and press <ENTER> to execute them. Some will be complex enough to be considered mini programs. Soon we will move on to full blown programming and use the ARCHIVE program editor to write our programs. One important benefit of creating programs is that we can save our work and build upon it. I will attempt to make this transition as painless as possible for those of you whose eyes glaze over at the mere mention of programming.

PREPARATION

In the description below I will "*italic*" what you should type in to participate in the examples. Previously, what you have had to type in fit within a column's width. Now the line to type in may span several column lines before you reach the end. You must type everything as one line up to the <ENTER> and then press the ENTER key. On your screen it may or may not wrap around to span more than one line. Take special care to spot where spaces are. We will use the OPEN command on the GAZET_DBF database supplied with ARCHIVE and permanently change it. Make sure you use a copy and not your original. I might add that we will be playing with looping and if you make a loop that never ends you may have to reset the QL to stop it. Since GAZET is open and vulnerable, it could be corrupted if you have to reset without closing it. Start ARCHIVE (DATABASE) and open GAZET as shown below :

```
open "{}gazet"<ENTER>   {}=device,mdv1_,flp1_, etc
print count()<ENTER>    see how many countries
display<ENTER>          display current record
order country$;a<ENTER> order by country
```

COMMAND PROMPT PROGRAMMING

I have already illustrated what I call command prompt programs several times. They are constructed by typing more than one command after the ARCHIVE command prompt (>) before pressing <ENTER>. Each command must be separated from the next command by a colon (:). SuperBASIC uses the same syntax so you may already be familiar with it. The collection of commands might not fit on just a single line on your screen. With ARCHIVE you can actually enter up to 255 characters in response to the command prompt. The commands you are typing in will just wrap around to the next line when they reach the end of the line. The entry is complete when you press <ENTER>. Assuming that you have opened the GAZET database as above, the following simple command prompt program would print the country and population field values of the current record to the screen and move on to the next record making it the new current record. It consists of the PRINT command and the NEXT command. The PRINT command sends output to your screen and tab is a column positioning option of it. Look up the details of the PRINT command in your ARCHIVE manual. The NEXT command was covered in an earlier column.

```
print country$;tab 20;pop;next<ENTER>
```

Now if you press <F5>, this line will be recalled for repeated execution or editing. Press <ENTER> again and you will see the country and population fields of the new current record and it will move on to the next record. Suppose you wanted to also see the languages field . You could retype the line from scratch adding in the languages field to the print command but the easiest way is to press <F5> to recall the line and then use the cursor, delete and other keys to modify it. Try doing that so you end up with :

```
print country$;tab 20;pop;tab 30;languages
;next<ENTER>
```

You will notice that you are not at the first record any longer as you have stepped through a few records already. Suppose you wanted to start this new inspection at the first record and see some after it. One way to do it is to recall the line by pressing <F5> and move to the beginning of the recalled line and insert the FIRST command with ':' and press <ENTER>. Then press <F5> again and remove the FIRST command and press <ENTER>. Now you can repeatedly press <F5> <ENTER> to move through the records. So the above line becomes :

```
first:print country$;tab 20;pop;tab 30;lan
guages;next<ENTER>
```

After it is executed you recall it and edit out the 'first:' and repeatedly execute and recall it. If you neglected to remove the 'first:' you would always be repositioning to the first record each time you pressed <F5><ENTER>. This technique of recalling and editing the last command line is very handy feature of ARCHIVE.

Often when you type a long string of commands you will make a mistake and you will get an error message. To correct the mistake just recall the line and edit it. The error messages in ARCHIVE are quite good in my opinion. Once you make enough errors to become familiar with them you can spot the errors quickly. Compared to SuperBASIC or most other languages I have worked with ARCHIVE error messages are superior. You are always shown the line where the error occurs and given a message that gives a good hint about the error.

You can put quite a few commands on a line. There is an absolute limitation of 255 characters (over 3 lines on the screen) plus structural limitations on how much you can

pack into a command prompt program. We will have lots of examples as we introduce the new commands below.

UPDATE COMMAND

Not to be confused with the name of this magazine. Until now, we have only discussed the ALTER command as a way of changing the value of an existing field. When the UPDATE command is issued the current values of the fields are updated to the actual database. To illustrated this let us go through the following exercise :

```
display:locate "U.S.A":<ENTER>      notice display
let pop=220<ENTER>                  notice display
next:back<ENTER>                    notice display
```

Here is what happened. You located the United States record through the LOCATE command. You set the current record's field for population to a new value (220). Did you see it change in the display? Next you moved forward and then moved back to the United States record again. When you moved forward that record wasn't displayed because there were more commands to execute, namely the back command. After the back command the display was refreshed and you might have noticed that the population field took on its old value again. Why wasn't the new value of 220 retained? Whenever a database is accessed there is a current record (active one). The current values of the fields match that record. If you manually change a field value the actual record value is not changed unless the UPDATE commands is also executed. If you haven't updated the record and move forward one record all the current values are changed to the new record's field values. When you move back to the previous record its field values become the new current values so the old unchanged value for population appeared again. Now let us permanently changed it :

```
let pop=220:update<ENTER>           notice display
next:back<ENTER>                    notice display
```

UPDATE allows us to do a very controlled alteration of a record's field(s).

WHILE COMMAND

The WHILE command is a 2-part command. It has a starting statement of the form : "while {numerical expression}" and an ending expression of the form : "endwhile". The statements between the "while" and "endwhile" will be repeatedly executed until the numerical expression after the "while" is false (zero). If an error occurs within the loop execution will also be stopped. Pressing the escape key, <ESC>, will also halt the loop but if any other key is pressed before <ESC> it will block the <ESC> from halting the loop. This means that if you create a loop that will never stop (the numerical expression is always true) you may not be able get control of the program again and resetting may be your only option. This is not a major problem but it has happened to me enough times so I am always careful when making while loops especially in command prompt programs.

Here is a simple command prompt program which ends when the end of file (eof() function is true) :

```
first:while not eof():print country$;tab 2
0;pop;tab 40;languages$:next:endwhile<ENTER
>
```

Pressing <ESC> will stop it. After its done or if you <ESC> to stop it use <F5> to recall it and <ENTER> to restart it. If you wanted to see each record completely then the following would do it:

```
display:first:while not eof():sprint:next
endwhile<ENTER>
```

Normally when a group of commands are being executed the display screen is not updated until they are finished but the SPRINT command used above makes ARCHIVE update the screen immediately. It takes a long time for the above mini program to run to completion. you can <ESC> to stop it if you don't want to wait.

To make a counting loop out of the WHILE command you can do something like :

```
display:first:let i=1:while i<20:sprint:ne
xt:let i=i+1:endwhile<ENTER>
```

Our last example will illustrate a good use of both the UPDATE and-WHILE commands. Suppose that we wanted to increase the population of all the countries by 20%. The following program will do it :

```
first:while not eof():print country$;tab 2
0;pop;tab 40;:let pop=1.2*pop:update:print
pop:next:endwhile<ENTER>
```

Notice we print out the records as we work through them with both the old and new population value. Ending the first print with a ";" keeps the cursor in position for the next print command. We update each record before we move on. Although this example doesn't make practical sense it illustrates a very good use of both commands.

Suppose we wanted to increase the populations in Africa by another 20%. Using the SELECT command, we could modify the previous set of commands to :

```
select continent$="AFRICA":first:while not
 eof():print country$;tab 20;pop;tab 40;:le
t pop=1.2*pop:update:print pop:next:endwhil
e:reset<ENTER>
```

This time we selected just African countries and increased their populations then reset back to the whole group. In doing this the order was lost. Although selecting seems to always finish with the first record being the current record, I always feel better using the FIRST command whenever I start a while loop using the NEXT command to work my way through it.

```
close<ENTER>                        Don't leave file open
```

Next time we look at the ALL Command and IF Command and write some more command prompt programs. Until then Happy Archiving!

MECHANICAL AFFINITY AD

MANY..NEW..AND..EXCITING...Z88+QL THINGS HAVE BEEN HAPPENING HERE AT MECHANICAL AFFINITY. THIS ISSUE WE ARE GOING TO TELL YOU JUST A FEW OF THEM, AND LET YOU KNOW THAT BY THE TIME YOU READ THIS OUR TOTALLY REVAMPED AND REVISED CATALOG WILL BE DONE, AND FOR THOSE WHO HAVE ASKED FOR ONE , IT WILL BE IN THE MAIL!

WE HAVE LOWERED THE PRICE ON A FEW ITEMS! WE HAVE ADDED A LINE OF ITEMS FOR THE Z88, AND ARE LOOKING TO EXPAND IT EVEN FARTHER, SHOULD WE SEE THAT THERE IS A DEMAND FOR IT. WE HAVE ALSO ADDED TWO NEW LINES OF SOFTWARE FROM EUROPE, FROM **JOCHEN MERZ SOFTWARE** OF GERMANY, **AND DILWYN JONES COMPUTING** OF THE **U.K.** WE ARE ALSO ABLE TO OBTAIN FOR YOU SOFTWARE FROM **CARE ELECTRONICS.**

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Boutal, Chris

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SB Programming aid

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Michael J. Kudelka
4859 Sacramento Ave.
St. Louis, MO 63115-2028

Editors
Update Magazine
P.O. Box 1695
Peru, Indiana 46970

Dear Editors:

I read with special interest the column titled, **"LIGHTHOUSE, QL GRAPHICS"**, by **Taylor Penrose.** I own a Radio Shack CGP 220 **Color** ink jet printer.

I entered the program listing on page 31 on my QL. Everything came out fine with the exception of the **lighthouse.** Although the lighthouse windows appeared where they should, the lighthouse did not appear at all. After experimenting a little bit, I discovered that each of the high parameter numbers on program lines 930, 935, and 940 had to be reduced by exactly 25 to line up the lighthouse with the windows.

The screen dump program listed would not run my CGP 220 printer. I would like to know how Mr. Penrose got his CGP 220 printer to work with the program. The interface I use is the Miracle Systems Centronics Printer Interface for the QL. The serial interface on CGP 220 is a non-standard 4-pin din serial interface designed primarily for the TRS80 computer so I never use it. According to the CGP 220 printer manual, writing a screen dump program in basic is a complex process, 640 dots per line has to be addressed and consumes a lot of memory space.

I have a CGP 220 screen dump program in machine code written for the QL, by Mr. Don Thompson of DW Thompson Computer Consultants, and distributed by Curry Computer, which I purchased in 1986. Three other printer drivers were included for the price of $10 on a cartridge.

The enclosed screen dump was accomplished with Mr. Thompson's program. Also listed below are the changes I made for the **LIGHTHOUSE** to appear on my QL monitor screen.

I hope you can communicate to Mr. Penrose concerning my comments above on his screen dump program for the CGP 220, and would like to hear back from him.

Sincerely,

Michael J. Kudelka

HAPPY QL COMPUTING!

```
930 INK 2:FILL 1:LINE 140,35 TO 142,90;154,35 TO 152,90:ARC 140,35 TO 154,35,PI/3:
INK 7:FILL 1:ARC 142,90 TO 154,90,PI/3:REMark Tower
935 INK 0:FILL 0:LINE 142.5,89 TO 143,95
;151.5,89 TO 151,95:ARC 142.5,89 TO 151.5,89,PI/3
940 INK 2:FILL 1:CIRCLE 147,95,5.5,.2,-PI/
2:REMark Top
```

plus4 REVIEW

by Hugh Howie

Plus4 is not a Desktop Publisher but probably the nearest you will get in a Word Processor. It is a most remarkable program. It is fast, easy to use and very complete.

To start with, **plus4** is said not to need a manual, but be sure that it helps. The Menus are excellent, but the manual still helps understand what is going on.

To go back to the beginning of my acquaintance with **plus4:**

I was, I think, one of the first to get this program. The version 1 that I received had a serious fault inasmuch as the program had a tendency to crash with the last line/word erased.

I wrote Software87 and shortly received version 2. This is the program I refer to from now on.

Version 2 corrects all the faults of version 1 and is a pleasure to use.

The manual is good. It is described as a learning tool to help learn how to use **plus4.** I would have liked to see a better index and perhaps a glossary of the special terms coined for unique features. However, I made my own index from the manual while using the program and learned from the experience.

Plus4 is the sequel to **text87.** (Why **plus4**? text87 plus 4 = text91.) Although **text87** was good, it took a long time to get to know. From the novice's point of view, **plus4** will be easier to learn.

It's easier because there is a Quill-like interface with the same function keys doing roughly the same as in Quill, but with more flexibility.

If it is at all harder, it is because there are so many more features than you ever dreamed of that you can be overwhelmed by the sheer numbers.

One example is that it is possible to have up to eight - count 'em eight - separate documents at once in **plus4.** With less than eight several windows can be opened over different parts of a document, all on the same screen.

Yet at the same time the novice needs nothing more than the defaults to begin being productive.

The first thing is to get it going and this is not too bad as there are plenty of Founts and Printer Drivers to select from. There is bound to be one to suit your particular set-up and taste.

There are no translates to trouble you - they are in the drivers. Program configuration is simplicity itself. Software87 designed **plus4setup** to virtually do it for you. Once set, you can forget about it.

When the time comes to load a program, pressing the down arrow opens a window with a list of loadable/importable files on the default save disk. The up/down arrows select a file and <ENTER> loads it for you. Neat, huh?

The same applies to saving a file so you can select a suitable title or modify the name of an existing one.

The menu appears on the top of the screen, but can be moved to the bottom if prefered. The menu always reminds you what stage of action you are at and the possible parameters for a particular operation. If you are unsure of a choice, the F1 key opens a window to the relevant section of the HELP file.

Before you are ready to print a document, you can preView its shape and layout on the screen.

text87 and **plus4** use Layout to describe the physical dimensions of the footer, header text body and number of columns on the paper.

In the past, and with Quill and most other word processors, the entire document was set to a single layout. **plus4**

can have multiple layouts within a document, so that a range of page formats can be included in a single document.

Most of us have an idea of how we want a document to appear. Once it is typed, then you may set the Layout. After setting the Layout and saving the document, the text can be Zapped, retaining the document layout and rulers. This in turn can be saved as a Style File to be loaded each time you prepare a similar document.

As with Quill, **plus4** keeps track of the number of words and the page number. It also reports the line number where the cursor is.

Changing typefaces within a document is only a few keypresses away. Keypresses, because there are so many more options open with a modern printer than with Quill. And the system to achieve that is very easy.

Search and replace are very quick - so quick that the answer is on the screen before the finger leaves the key. And now you can search forward or backward from any point in the document. The search can be case-sensitive or not as you choose.

I am sorry that I cannot tell you all about this program in a couple of pages when the manual takes 56.

All I can say is that if you do a lot of writing or you care about the appearance of the documents you write, **plus4** is for you. If you like versatility and speed (Wow! You don't need a Gold Card to be impressed with the speed) and ease of operation, then this is for you.

text87plus4 is stocked in the U.S.A. by EMSoft, Box 8763, Boston MA 02114-0037 (1-617) 889-0830. The price is $139.95 with nine-pin printer drivers, Qtyp dictionaries in four languages and a monster English dictionary that can spell American.

WHEN YOUR QL's TOO FAST

by Peter Hale

We recently received a copy of ***SLOWGOLD 2*** from Dilwyn Jones. The main reason was that we were dissatisfied with the way the keyword SLUG worked on the Gold Card ROM.

The beauty of ***SLOWGOLD 2*** that it works on any QL, with or without a Gold Card, and selectively in a multi-tasking environment.

Can't play a favorite interactive game? ***SLOWGOLD 2*** slows it down, even on a unexpanded QL, so you can practice to get the hang of it. Problems debugging a program because it moves too fast? ***SLOWGOLD 2*** slows it down.

SLOWGOLD 2 comes on a disk or microcartridge for just $10.95 (+$4.00 on microcart.) It's a short family of extensions including GO_SLOW, NO_SLOW, SLOW, SLOW_ON and HOW_SLOW.

Once loaded, GO_SLOW activates it - until then it is dormant. Then specify the SLOWness desired by typing SLOW n, where n is a number from 0 to 31. The higher the number, the slower the QL.

SLOW_ON reads whether or not SLOW has been activated and HOW_SLOW reads the SLOWness. Finally, NO_SLOW turns it off (and is faster than SLOW 0.)

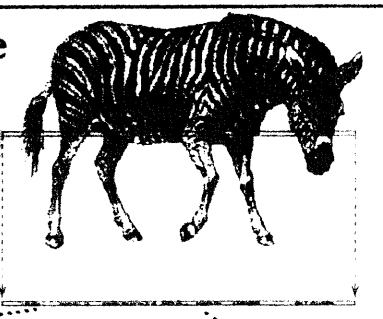
SO FAR not much different from SLUG, but there is a PANEL program to let you control SLOW from within any program and also set speed control keys to control ***SLOWGOLD 2*** without even calling up the panel.

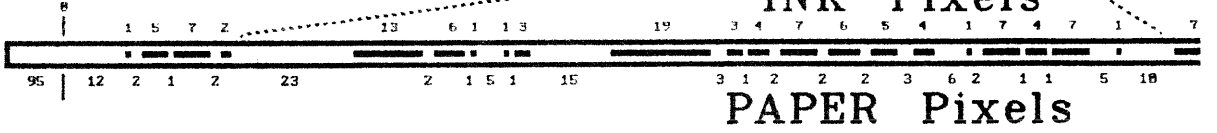
And finally, the pièce de résistance is a program to specifiy which of a series of multi-tasking programs it is desired to have effected by ***SLOWGOLD***. Now that's what ***SLOWGOLD 2*** is all about.

Available in North America from EMSoft, P.O. Box 8763, Boston MA 02114-0037 for just $10.95 (+$4.00 on microcartridge.)

RLE MADE EASY

Run Length Encoding is one way to send pictures over the telephone lines. Picture data replaces character data. The parity bit is ignored, as are ASCII control codes except Ø7h.





The divider bar shows where there are too many PAPER pixels to fit in a byte. An INK byte for Ø pixels is inserted. Any number of pixels can be accommodated. In this way, bytes alternate between INK and PAPER. 32 is added to pixel count so that Ø to 95 pixels can be stuffed in each byte. The list of bytes is ended by Ø7h. It begins after a header ending in "GH". Headers can be up to 1Ø1 bytes.

Picture data above is:.../127/32/44/33/34 37/33/39/34/34/55/45/34/38/33/33/37/33/33 35/47/51/35/35/33/36/34/39/34/38/34/37/35 36/38/33/34/39/33/36/33/39/37/33/42/...

RLE works best with line drawings. It often yields files bigger than SCREEN$, so file compression is not to be expected.

BBS Uploading and downloading is its forte, at which it excels.(C)1992 W.J.Pedersen

53 Gilpin Road,
ADMASTON,
Telford,
Shropshire. TF5 0BG
Tel. 0952 255895
27/5/92

Dear Editor,

UPDATE magazine Jan 1992

Several items appear in this copy which I can be of help with and perhaps expand on.

1. There is a mention of the Schoen keyboard. Keyboard products of Market Harborough, England manufactured all three types. One was the sit on top key replacement whilst the other two were pc style remote units. The Interface boards inside the QL are the same with the exception of the EPROM contents. This data is used to map the different key presses to the QL. The only item I am not certain of is the extra 8049 but it appears to be a standard one. Avoid going into raptures over these keyboards as there are problems due to the extra current drawn through the 5 volt regulator and clashes with the serial ports. On many units bits of garbage will appear on your printer. See diagram 1

2. A request was noted for Page Designer I have a copy of this program for sale and I am sure that Dilwyn Jones of Wales still has it in his catalogue. £10.00

3. The monitor converter circuit on page 40 can be made easier to install by using a low power chip such as a 74HCT04 and powering the chip from the signal lines. See diagram 2.

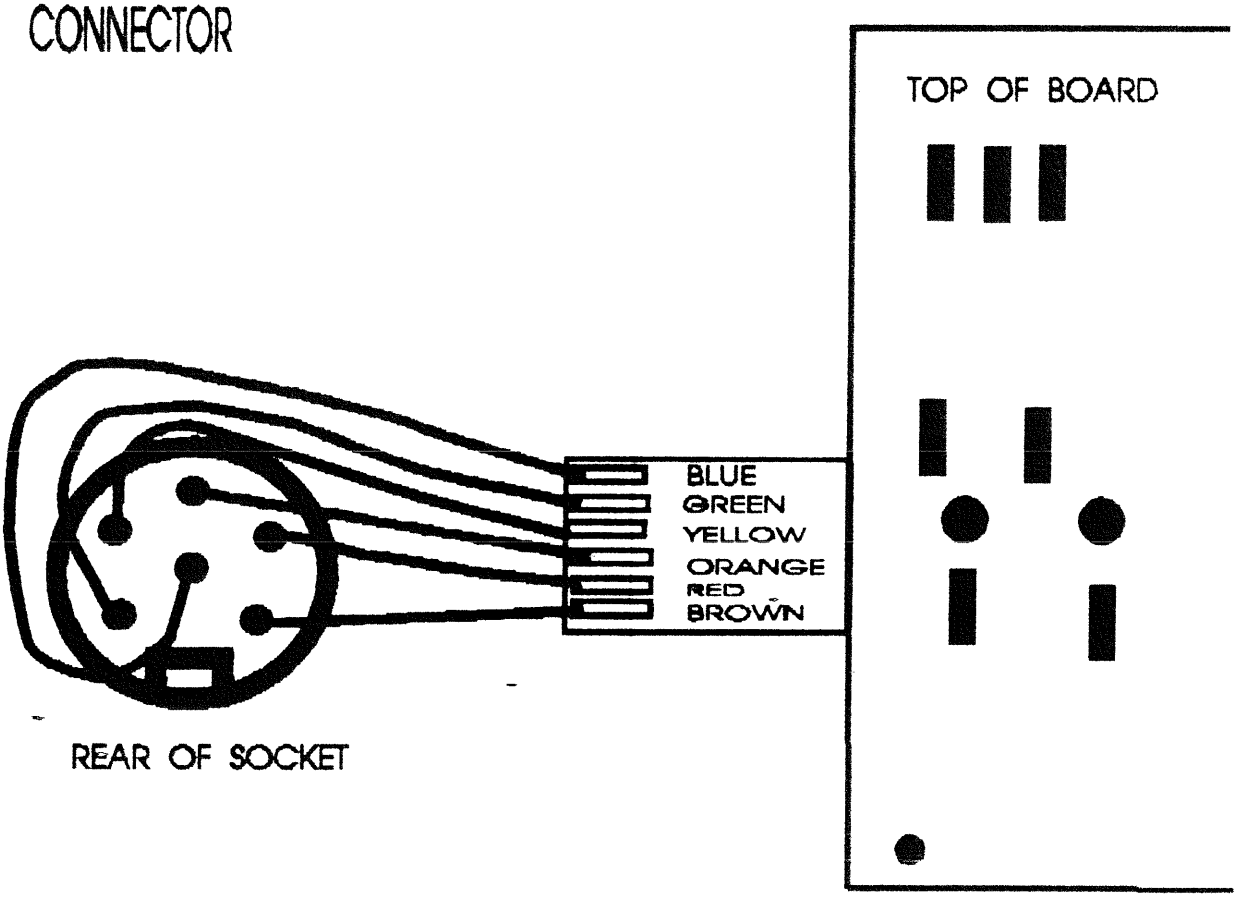
4. A mention is made of repairing microdrive units. The question is why repair when new replacements are so cheap ?. Ten Pounds each from me. There was a long and sorry tale about the manufacture of these units by Thorn EMI with the result that the only real cure for a faulty one is to fit a new head, a new ULA plus all the capacitors. After this it is possible it will not work as the original alignment jig is not available. If the microdrive has a pink spot on the head then Mabel at Feltham was the lady who actually did the final check on it. These units are usually very good but do suffer from the odd ULA failure. The snag with the microdrives in the early days was that there was no quality control on the goods inward section.

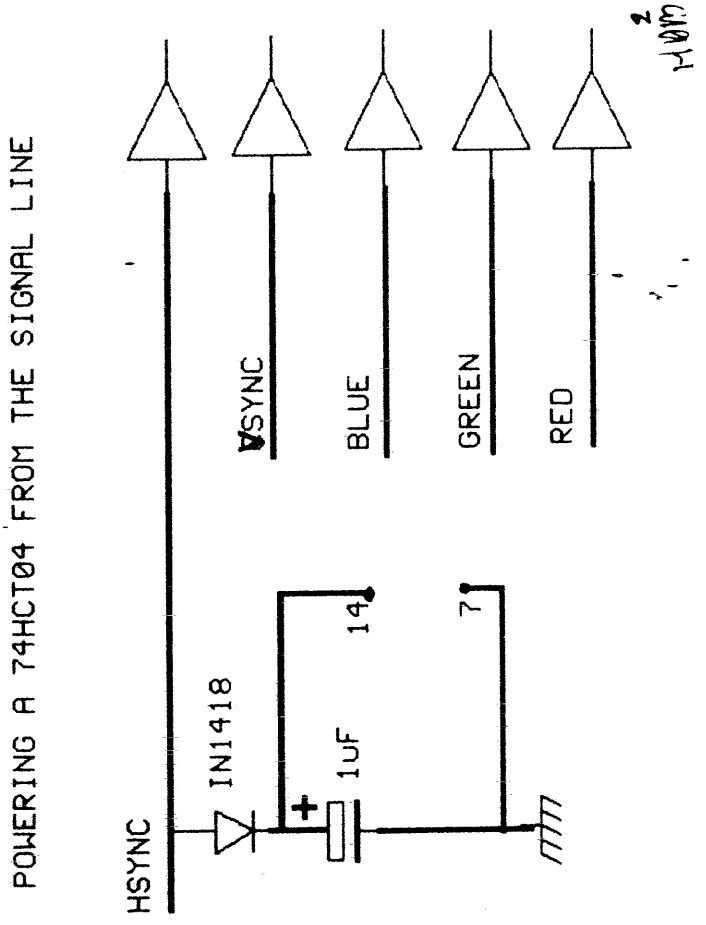
I keep in stock every last little tiny piece for the QL plus other items such as ROM boards, Foldover boards etc. I think also that I have a copy of every QL program of significance that has ever appeared and have had personal contact not only with the factory but with every other QL hardware producer in Europe. A reply paid letter to the above address will get your problems sorted out.

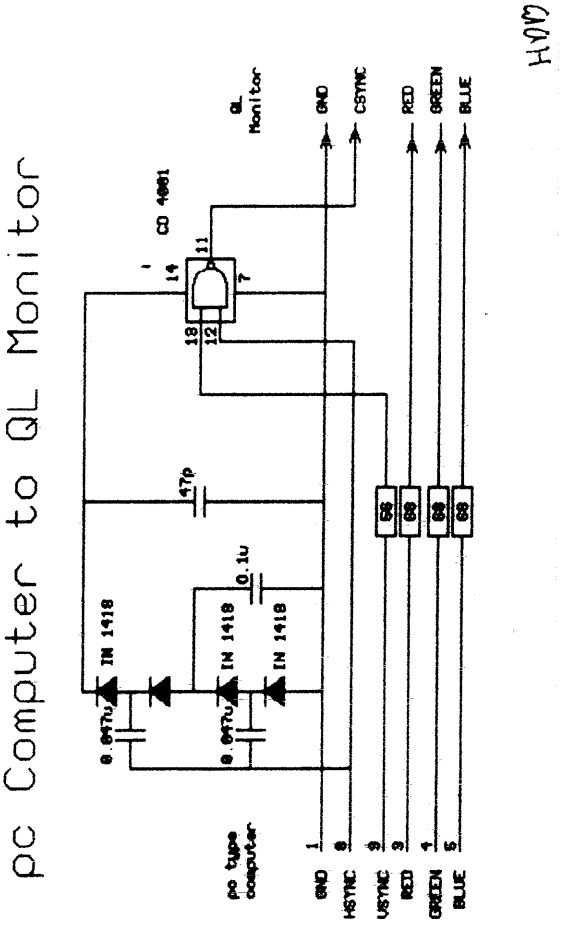
Regards

Dennis Briggs

SCHOEN KEYBOARD CONNECTOR







T/S EMULATORS

by Peter Hale

I received news of several Sinclair-Timex emulators being developed in Holland by Carlo Delhez.

I have left his initial letter to speak for itself, so I will add nothing to it except to report that there are three emulators: two for the ZX-81 on the QL and on MS-DOS and one for the Spectrum on the QL.

The programs are in continuing development and there is a shareware price that involves regular upgrades of the programs for 50 Dutch Guilders per program. If you send US$ (roughly $25.00), please add $15 for the currency conversion charges his bank imposes.

I wrote that I was perplexed as to how cassette tapes or any of the multitude of disk formats could be read by a QL.

He replied that he has written a ZX-81 fileserver for the QL (software from him about $10.00, plus about $10.00 for parts for a DIY RS232 interface to the QL drives). A similar fileserver is in development for MS-DOS.

For the Spectrum life is easier. A registered copy of the Spectator comes with file conversion utilities to transfer Spectrum disks to QL disks. Beta, Disciple, Opus and Microdrive are supported operating systems. Whether any of these is similar to various operating systems in use here, I do not know. It also emulates the serial port of the ZX Interface 1, so transport is possible.

As I have no knowledge of the various hardware requirements of the ZX-81 and the Spectrum, I cannot help with technical details.

This article reports the essence of Mr. Delhez's reply and the accompanying letter must speak for itself.

Please share this information with any dedicated T/Sers who may benefit.

NEWS and VIEWS by Frank Davis

I have just a few short things to mention here. Thank you for the many letters and calls telling us how much you enjoy UPDATE Magazine!

Next issue we will finish off the TS2068 CAD program by Bill Pedersen. We will list the line differences for the IBM printer version and both versions for the Oliger Disk interface. As soon as possible we will also have a TOS version for it. Andy Hradesky of Colorado Springs (and a good friend) has offered to do some Issue Disk translating to TOS.

We plan on starting a new TS2068 program for the Larken (with other formats to follow). It is a PAYROLL program by Jim Bretz, and you are going to find it worthwhile. Jim has done a good job with this.

We will also have a new issue disk for the QL and will also be presenting it as a type in program for those who enjoy that. UPDATE supports SINCLAIR PROGRAMMERS. Now what I need is for you Z88 users to get us a new program to print or offer.

Some comments from a letter to me from Bob Hartung: "Several bits of info caught my interest in E. P. Wannum's ' Computer Meandering ' page (1/92 UPDATE). In fact his comment about using the TK WDIR command gave me an idea for using it in my BOOTsortCOPY program, although the way I originally wrote it the desired data could be extracted from a DIR file and the rest discarded. I do not have a Gold Card but with my Trump Card I found that WDIR flp1__doc (note the double underscore) is required to correctly catalog a wild card selection of _doc titles. I'm wondering if the same might be the case with the Gold Card TK2."

Also a well done to Don Lambert and Bob Swoger for getting out four issues of TSNUG's newsletter. I look forward to hearing about their Public Domain library.

Steenbergen, 5th of June, 1992.

Peter R. Hale,
NESQLUG News,
P.O. Box 8763,
Boston,
MA 02114 USA.

Dear Mr. Hale,

First of all, thank your for your friendly reply to my previous letter about the ZX81 and Spectrum emulators for QL and PC. I greatly appreciate your efforts to inform other QL magazines about these programs as well. I myself had already written to 'IQLR' (Newport, RI) and 'Update Magazine' (Peru, IN). I did not know about 'ZX91' and the Sinclair column in 'Computer Monthly', so thank you for forwarding copies of my letter to them.
There are quite a lot of diskdrive systems for the ZX81, but most of these systems are used by only a few people and the applied disk formats are quite non-standard, thus difficult to read from QL or PC drives. As an alternative, I have written a comprehensive fileserver for my ZX81 and QL, so that my ZX81 can easily access the QL drives at reasonable speed (in fact: data transfer is faster than offered by most diskdrives connected to the ZX81 directly!). I consider this fileserver to be an ideal solution, costing no more than $ 20 ($ 10 for the ZX81 DIY RS232 interface, the software can be obtained from me against costprice ($ 10)). Also for the PC, a similar fileserver will be developed by me in the (near) future.
For the Spectrum, there is more uniformity in diskdrive systems: four different systems are being widely used (including the Sinclair ZX Interface-1 Microdrive system). The disks used by these systems are also more standardized and may easily be read from QL drives (including the microcartridges). A registered version of Spectator comes with conversion utilities which transfer Spectrum programs on original Spectrum disks to QL disks; the supported diskdrive systems are: Beta, Disciple, Opus and Microdrive. Since Spectator also emulates the serial port of ZX Interface 1, it is very easy to transport

programs from a real Spectrum directly into Spectator.
It is not possible (yet) to transfer programs on tape immediately to QL or PC. I think it might be possible to do this by building some expansion card which would have to be connected to a tape recorder, but I don't know if it will be worth the effort to develop such a card. I strongly belief that a serial connection between ZX81/Spectrum and QL/PC is the most flexible solution.
Your offer for distributing the programs for me seems advantageous from a monetary point of view, but practically it is less attractive: I improve the emulators weekly and always prefer to distribute the latest versions. Also, I would have to supply you with a number of printed manuals without knowing beforehand how many copies you are going sell of each program. So, thank you for the offer, but I'm afraid it is not well suited for my small-scale program distribution.
I am aware of the problems Americans have in acquiring Dutch Guilders. But it is just the same the other way round: I have to pay a large charge to cash a cheque written in a foreign currency. Even for a EuroCheque, a charge of 15 Guilders ($ 8) per transaction is imposed. In order to end up with a net amount of 50 Dutch Guilders, I would have to raise the registration cost for USA customers by $ 15 to $ 40, but then these people could just as well pay $ 15 (or less) at their local bank to obtain a cheque of 50 Dutch Guilders. As a slightly cheaper and easier alternative, people may also send the registration fee in cash (by registered post); but then please add $ 5 for exchange costs, yielding a total registration fee of $ 30 for one program, $ 55 for two or $ 80 for all three programs.
I hope this letter has sufficiently informed you about program transfer to QL disks and about the payment methods I prefer. But, if you have any other questions or remarks, I would be most pleased to hear from you again.

Yours Faithfully,



Carlo Delhez,
Emmastraat 3,
4651 BV Steenbergen,
Netherlands.

ZX emulators for QL and PC

by Carlo Delhez

Many people owning a QL or PC nowadays may have been using a smaller Sinclair machine (ZX81 or ZX Spectrum) in the past. Fully overwhelmed by the exciting technical features of the more modern QL or PC, they may also have gotten rid of their good-old machines. And retrospective regrets may have occured later, as these small machines weren't so bad after all!

Fortunately, there now exist programs which allow you to work with the ZX81 and ZX Spectrum again, yet this time within the safe environment of your modern and fast QL or PC: three different emulators turn your QL into a ZX81 or into a ZX Spectrum and your PC into a ZX81. The three emulators are called 'XTricator' (ZX81 in QL), 'Spectator' (ZX Spectrum in QL) and 'XTender' (ZX81 in PC), respectively, and are distributed on a ShareWare basis.

Let me first expand a little on the way the emulators are working. As an example, 'XTricator' emulates a ZX81 with Z80 processor on a QL with 68000 processor. So, the emulator must understand the Z80 machine code language and be able to convert any Z80 instruction (over 700 exist!) into a sequence of 68000 instructions which have the same effect. Obviously, this needs to be done real-time and as fast as possible for maximum performance. The Z80 (8-bits) can handle at most 64k of memory, so the emulator also allocates a block of this size in the QL memory. Once the entire Z80 instruction set can be interpreted by the emulator, the ROM of the original computer can be copied into the allocated memory block and be executed as a more or less arbitrary piece of Z80 software.

Next step is to consider the specific hardware features of the original computer. Nobody can use a computer without keyboard, screen, tape recorder etc. So, another part of the emulator takes care of hardware compatibility. For example, it reads the QL keyboard and sends the information about any keys being pressed in the proper way to the input/output lines of the emulated Z80. Meanwhile, it grabs the ZX81 screen with all its peculiarities and transports it to the QL display. Mind you, all this (and more) needs to be done in a flash and be repeated continuously, so that the person using the

emulator gets the distinct impression of working with a real ZX81. Naturally, a similar scheme applies for the other two emulators.

XTricator and Spectator emulate a 64k ZX81 and 48k Spectrum on the QL this way. For both programs you need a QL with a least 256k RAM, a 3.5" diskdrive, and preferably ToolKit-2 and the pointer environment (e.g. QPAC2). On a 8 MHz 68008 QL, the emulators can reach an effective Z80 frequency of about 0.3 MHz, i.e. 35% of the original ZX81 speed (in SLOW) or 9% of the original ZX Spectrum speed. On a 16 MHz 68000 QL, the frequency leaps up to 1.2 MHz, i.e. 150% of the original ZX81 speed and 35% of the ZX Spectrum speed. From these numbers one can see that a QL with Gold Card or Atari-QL is essential for reasonable operating speed of Spectator. Both XTricator and Spectator are activated as jobs and are really multitasking: neither keyboard input nor screen output interfere with other jobs, provided the pointer environment is resident.

XTender is very similar to XTricator, but intended for MS/DOS machines. Since the machine code language of the 8088/8086 series is very similar to the Z80, the emulator performance is much better. Even on a 8 MHz XT, a speed of 60% of the original ZX81 can be reached. Moreover, the speed increases rapidly when using faster machines. For example, on a 33 MHz 386dx, a speed of about 900% can be reached (over 7 MHz Z80 emulation frequency, 9 times ZX81 speed!). XTender will work on a PC (8088/86/286/386/486...) with at least 256k of memory, DOS 2.0 or higher, and with Hercules, CGA, EGA or VGA graphical adapter.

Some specific features of XTricator and XTender: they both emulate a 64k ZX81, tape commands are redirected to disk drives (or hard disk), a set of new commands has been implemented for communication to the QL/PC hardware directly from ZX81 Basic, ZX81 high resolution offered by many games is emulated, ZX81 printer output is redirected to QL serial port, QL/PC keyboard is fully mapped on the ZX81 keyboard, graphical help screen with scanned image of ZX81 keyboard activated by a simple keypress, additional features include SuperBreak, screen invert and Z80 reset by keypresses etc.

Spectator emulates a 48k ZX Spectrum with ZX Interface 1 (issue 2). Full colour and flash attribute emulation in QL mode 8. The tape commands of Spectrum Basic are redirected to floppy disk. Of the ZX Interface 1, the Shadow ROM Basic extensions, the microdrive commands and the serial RS232 interface are emulated properly (the LAN will follow later). The QL keyboard is mapped fully on the Spectrum keyboard and a graphical

help screen with the Spectrum keyboard is activated by a keypress. Also keypresses are available for SuperBreak, screen invert and Z80 reset. In fact: too many feature to mention here!
All three emulators have been tested thoroughly with hundreds of existing ZX81 and Spectrum programs (mostly commercially marketed games and utilities written in machine code). The vast majority of programs worked just fine. Only few programs fail to run on the emulator, but generally these programs are to blame (e.g. because of excessive piracy protection), not the emulator! ZX81 programs were not so well protected as Spectrum programs, and 99 out of 100 existing ZX81 programs will work! For the Spectrum, this number is currently about 95 out of 100.
The emulators are supplied with extensive manuals as 80-column ASCII text files. As said before, the programs are distributed on a ShareWare basis. To obtain a try-out version of all three programs, send eight DS/DD 3.5" brand disks to me (2 for XTricator, 4 for Spectator, 2 for XTender). I will always keep half the number of disks to cover my p&p. Ofcourse, you can also order registered versions immediately. Registration costs 50 Dutch Guilders per emulator (this is about $ 25, but for reasons of exchange I accept cheques in Dutch Guilders only)*. For this fee, you will get the most recent version of the emulator on a 3.5" DS/DD 3M disk, a laserprinted copy of the manual, you will receive one update of the emulators for free and are informed about later releases. For XTricator and XTender, you also get access to a huge ZX81 library; the first disk with 80 programs is dispatched together with your registered copy. For Spectator, you will get a number of disk conversion utilities with your registered copy, which allow you to convert programs on original Beta, Disciple and Opus Disk to QL files which can be loaded directly into the emulator. A conversion utility for Spectrum microcartridges is in development. And last but not least: when you register, you support my efforts so that more programs of this kind may appear in the future!
For questions, try-out versions or registration, please write to me at the address below.

Carlo Delhez,
Emmastraat 3,
4651 BV Steenbergen,
Netherlands.

* or cash in any currency, but please add 15% exchange costs.

ELIAD'S MEANDERINGS by E. P. Wannum

This issue I want to touch upon some of the mail that has found its way here to UPDATE MAGAZINE. Folks, I have to admit that it has been a real kick to me to be of help to the Davis family in this magazine, and that I have made a lot of friends (and an occasional jibe) by doing my part. Some have asked if I am for real, the answer is yes, I have known the Davis's for a long time. In fact, Frank and I met in 1967 at Indiana University, where we both majored in psychology. That is still my profession, though Frank has taken a short sidetrack with Federal government work. We have been close friends since that time, and my only straying is the occasional poem I've penned under various names for other mags.

Now to more serious tones, and a reflection back on the April issue. On Bill Pedersens CAD program the listing started in that issue and ended in this issue, was for the Olivetti Inkjet and not the IBM compatible as listed. Next issue we will cover the necessary changes to do the IBM version. Sorry.

The second known error from the last issue was Bob Hartungs listing on page 26 was completed out of sequence on page 24, with no indication given that this was the case. It appeared to some that it was part of his article on page 23. Not so, and I hope this sets things to rights. I can only plead tiredness on these errors. Too bad that life does not give us error codes as Sir Clive did, prior to an action being allowed to take place.

John Shepherd has informed Frank that he hopes to have an article for us soon on using the TS2068 and the disk drives for Oliger and/or Larken to store files and/or upload/download with the Z88. We look forward to this info, perhaps it will get more TS2068 users interested in the Z88. Mechanical Affinity is in the process of repairing some so that they can be offered for sale. This may all work out for everyone!

Rod Gowen of RMG has asked us to remind people that he raised his price from $3 to $4 for his catalog effective June the 1st. If you owe him an extra buck, please be nice and remit it; he has done a lot to keep Timex and Sinclair alive in North America for us all.

From Gordon Sharp we hear "One item I'd be interested in is expanding the Abacus. It must have an array like: DIM Z$ (255,640), but in machine language. So how can we alter that to provide 510 lines. Perhaps someone can comment on that in UPDATE". Can anyone help us on this? Gordon's address is P.O.Box 6502, Nalcrest, FL 33856-6502.

Two items from Earl Kielgass of 2015 East Duke Drive, Tempe, AZ 85283. "FOR SALE: 2 seldom used unimproved QL's with Miracle System Printer Interface (1), power supplies, basic QL manuals, several micro cassette programs, and Misc. literature. All yours for $125 and I'll pay the shipping." Phone 602-838-4308.

For Earls TS2068 he writes, "New subject- What ever happened to BYTE POWER? In January I ordered PRINT FACTORY and several other programs and sent a check which has never come back. In March I sent them a letter to find out what happened to the order, but still no response. In May I sent another letter and another check, thinking the first order had somehow become lost. The last I sent Registered mail, so it must have been delivered. I would still like to get Print Factory. Does anyone else handle Print Factory?" Can someone help Earl? He wants to get this so he can get and use John McMichaels Graphics. Used original for Sale?

IT IS POSSIBLE, WHILE EATING IN A RESTAURANT WITH MY RIGHT HAND, TO TYPE AND USE MY PORTABLE 2 POUND COMPUTER WITH MY LEFT HAND!*!*!

THIS PHENOMENAL COMPUTER NOT ONLY HAS ALL THE NECESSARY PROGRAMS ALREADY INSIDE, BUT IT OFFERS BASIC, SO THAT YOU CAN CREATE YOUR OWN PROGRAMS; OR BUY AND LOAD PROGRAMS AVAILABLE FROM DOMINO CUBES. YOU CAN LEARN HOW TO PROGRAM IN SPREADSHEET YOURSELF, OR BUY THIS INFORMATION FROM DOMINO CUBES SO THAT YOU WILL NO LONGER NEED DOMINO CUBES. YOU CAN NOW DRIVE YOUR COMPUTER DOWN ANY PATH YOU CAN IMAGINE.

THE Z88 HAS A PRINTER EDITOR ALLOWING YOU TO PRINT TO ANY PRINTER. THIS COMPUTER IS DESIGNED TO ALLOW YOU THE CHOICE OF INEXPENSIVE UNLIMITED EXTERNAL MEMORY ON A SMALL PORTABLE DISK DRIVE, OR MORE EXPENSIVE BUT LIGHTWEIGHT AND SMALL MEMORY CARDS THAT FIT INSIDE THE COMPUTER. SOME OF THE MEMORY CARDS ARE EPROMS WHICH CAN ACCEPT THE DATA FROM THE RAM MEMORY CARDS BECAUSE THE COMPUTER HAS THE ABILITY TO BURN THE DATA PERMANENTLY INTO THE EPROM. OTHER COMPUTERS DO NOT HAVE EPROM BURNERS. THESE PERMANENT RECORDS ARE SMALL, LIGHTWEIGHT AND 10 MEGABYTES WILL FIT IN YOUR POCKET. IF YOU BUY AN EPROM ERASER YOU MAY ERASE YOUR PERMANENTLY STORED DATA, AND YOU CAN NOW HAVE A NEW EMPTY STORAGE PLACE.

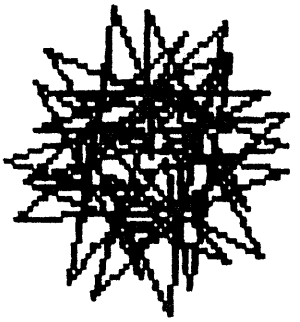
DOMINO CUBES ALSO SELLS A 4 POUND PORTABLE BUBBLE-JET PRINTER. THIS PRINTER PRINTS LASER QUALITY, NOISELESSLY. YOU CAN TAKE THE COMPUTER AND PRINTER INTO A LIBRARY, CLASSROOM, COURTROOM OR REWRITE SCRIPTS WHILE THE ACTORS ARE REHEARSING, PRINTING OUT SCRIPTS WITH ONLY YOUR LINES AND LEAD-INS. NO ELECTRICITY REQUIRED*!*!*!

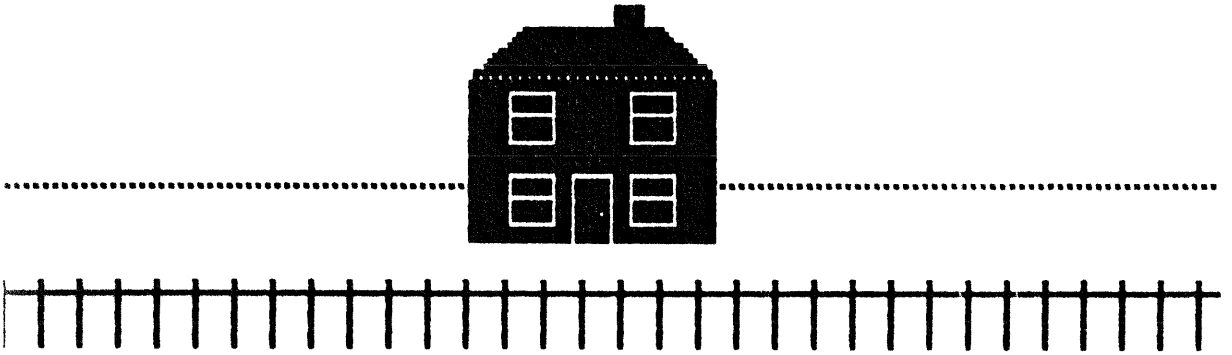
IF YOU DON'T WISH TO CARRY THE PRINTER, YOU CAN CARRY THE 4 OUNCE PRINTER CABLE IN YOUR POCKET, SO THAT YOU CAN PRINT YOUR DATA INTO ANY PRINTER, ANYWHERE.

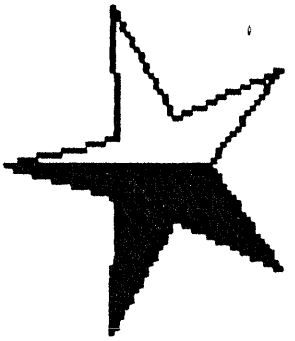
IF YOU HAVE A CAR AND A PASSENGER, YOU CAN DICTATE YOUR DATA WHILE DRIVING, (THERE IS ALSO A CIGAR LIGHTER ADAPTER), AND WHEN YOU FIND A PHONE, OR IF YOU HAVE A CAR PHONE, YOU CAN SEND YOUR DATA OVER THE MODEM TO ANYPLACE IN THE WORLD!*!*!*!*!

THIS PAGE HAS BEEN PRINTED BY THE 4 POUND PORTABLE BUBBLE-JET PRINTER FASTER THAN A LINE PER SECOND, AND BETTER QUALITY PRINT THAN ANY DOT-MATRIX PRINTER, AND FASTER THAN THE DAISY-WHEEL PRINTERS, WHICH CAN'T DO GRAPHICS OR CHANGE FONTS !

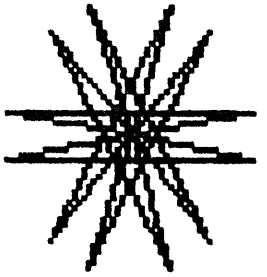
DOMINO CUBES - MIKE FINK
212 971 0368
FAX 212 268 4122







DOMINO CUBES
484 W. 43rd ST. SUITE 27-Q
NEW YORK 10036-6329 N.Y.
212 971 0368 MIKE FINK
FAX: 212 268 4122



ALL OF THESE GRAPHICS HAVE BEEN CULLED FROM PROGRAM D-5, WHICH IS ONE OF THE MANY PROGRAMS AVAILABLE FROM DOMINO CUBES.

Thursday 11 June 1992

FRANK;

THOSE Z88 OWNERS WHO WISH TO USE THE CHEAPEST MEMORY BACK-UP, CAN BUY THE Z88 DISK DRIVE FROM DOMINO CUBES. IF THEY ALREADY OWN THE RADIO SHACK DISK DRIVE, THEY CAN SAVE MONEY BY ORDERING ONLY THE MISSING CABLES, SOFTWARE, AND MANUALS.

THE TOTAL PACKAGE IS $450, $400 IF YOU BUY THE COMPUTER FROM DOMINO CUBES, AND ONLY $200 IF YOU ALREADY HAVE THE RADIO SHACK DRIVE.

TWO EPROM LOADING PROGRAMS ARE SUPPLIED **FREE** TO THOSE WHO BUY MY DISK DRIVE SYSTEM. THE FREE PROGRAMS ARE DESCRIBED NEXT:

#1. BY RICHARD RUSSEL; A PROGRAM THAT FORCES YOU TO LOAD **ALL** THE FILES ON THE EPROM AND CREATES **RAM.-** FILES, WHICH IF FORGOTTEN, AND NOT ERASED, CAN CAUSE SOFT AND HARD RESETS. NO TITLE TYPING REQUIRED.

#2. PROGRAM BY MIKE FINK; PRESS ONE KEY AFTER TYPING TITLES OF FILES TO BE LOADED, AND ALLOWS YOU TO SELECT **ONLY** THOSE YOU WANT, ALLOWS ALPHABETIZING, AND DOES **NOT** CREATE PROBLEM **RAM.-** FILES ! ! !

THESE PROGRAMS CAN BE BOUGHT SEPARATELY, EVEN IF YOU DO NOT BUY THE DISK DRIVE.

I HAVE CREATED SOME MORE PROGRAMS; (WHICH WILL ULTIMATELY WIND UP IN THE EVER EXPANDING ADVANCED MANUAL) THAT ARE AVAILABLE **NOW** SHOWING HOW TO USE **VDU** COMMANDS, AND CREATE YOUR OWN **WINDOWS**, AND SPECIAL SCREEN CHARACTERS, INCLUDING USER DEFINED CHARACTERS.

THE ABILITY TO CREATE GRAPHICS USING **PLOT, DRAW, CLG, DRAW, MODE**, AND **POINT** ARE AVAILABLE ALONG WITH 3 KINDS OF LINE EDITING FOR BASIC PROGRAMS. **NO ONE** IN THE UNITED STATES CAN OFFER THESE THINGS **EXCEPT ME.**

THE ABILITY TO *EASILY* MERGE BASIC PROGRAMS, EASIER AND QUICKER AND BETTER THAN ANY PROGRAMS SHOWN IN OTHER MANUALS, HAS BEEN DESIGNED BY MIKE FINK. IT TOO; IS EASY TO USE AND **DOES NOT** CREATE THE DREADED **RAM.-** FILES AS DO THE PROGRAMS WRITTEN BY THE Z88 DESIGNERS!! THIS WILL BE ADDED TO THE EVER EXPANDING *ADVANCED MANUAL* BY ME, **MANUAL-B**

AN IN-DEPTH DISCUSSION OF BBC BASIC PROGRAMMING BY ME IS A WORK IN PROGRESS AND GROWING.

AN AFFORDABLE FAX/MODEM WILL BE AVAILABLE BY JULY 92 FROM ME!

THE ABILITY TO HAVE A PROGRAM RUNNING, HAVE THE PHONE RING, PRESS A KEY TO PAUSE THE PROGRAM, PRESS A KEY AGAIN TO HAVE THE PROGRAM CONTINUE - IS ALSO AVAILABLE FROM DOMINO CUBES.

RIGHT NOW, IF YOU TRY TO PAUSE A RUNNING PROGRAM, YOU HAVE TO ESCAPE (STOP), AND START OVER, OR USE TWO FINGERS TO CONSTANTLY HOLD DOWN TWO KEYS UNTIL YOU WISH TO CONTINUE-WHICH MEANS YOU CAN'T ANSWER THE PHONE!

THE Z88 DESIGNERS HAVE MADE A **BOOT** PROGRAM, SO THAT UPON **RESET**, THE THE RESETTING PARAMETERS YOU USE, ARE RECREATED, BUT; AGAIN CREATE **RAM.-** FILES. MIKE FINK HAS MADE AN EASIER BETTER RESET-RE-BOOT PROGRAM THAT **DOES NOT** NEED TO CREATE **RAM.-** FILES!!!!!

IN ESSENCE, THE Z88 CAN DO ANYTHING, AND IF MIKE FINK HASN'T FIGURED OUT HOW TO DO IT, HE WILL TOMORROW!!!!!!!

UPDATE-3.LTR

Mike

QL UPDATE ISSUE DISKS

These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises thrown in. Half of the money goes to the author and is meant to encourage new programming for the QL that makes use of the disk drive systems, and microdrives on both the expanded and unexpanded QL. Where possible we will give a version for each of these configurations. Some of the programs take advantage of TK2 by Tony Tebby. All are 20.00, except QLuster, which is $15.00; includes P & H, add $1.00 CAN.Available as 3 1/2 or 5 1/4 disks. Add $5.00 for mailing to other countries. We accept personal checks, company checks, money orders as well as International Postal Money Orders, but no charge cards. If ordering on MDV, then please include one that is already formatted, so we will know it will run on your QL. Due to the expense of MDVs this is necessary. If two MDVs are required we will state so in the ad.

1) HARTUNG UTILITY ISSUE DISK- Several excellent programs such as stand alone data base, Address, and QSO files. All are in Superbasic. Lots of hints and tricks for programmers. Requires some knowledge of Superbasic or a yen to learn. Recently updated by Bob Hartung. Address file can be used as inventory program. It can print out labels. Both screen or paper printouts can be by Alpha sort, or be by last name.

2) CABLE ARCHIVE ISSUE DISK- Contains six Archive programs along with Doc files to get you going on making use of the Archive programming language. Also has Tasket, plus Doc file, to give you multi-tasking on your QL (much cheaper than QRAM or Taskmaster). Included is Arithmetic, a Superbasic program for math, along with math drills. This is for both the advanced and beginner user and greatly extends the use of Archive. To order on microdrive send two formatted microdrives, too much for one!

3) QLUSTER ISSUE DISK by Al Feng- Ql utilities to unclutter your disks and microdrives. COPY, DELETE, FORMAT, PRINT, VIEW, plus extended use of some Tool Kit 2 commands. TK2 is required. These are TURBO compiled for speed. Multitasks and uses minimal key presses. Includes Fast-Disk and Vegemat2, a super clone making program. Also Snap Shot-a directory column or condensed printout program.

4) DOS EMULATOR COMPANION ISSUE DISK by Al Feng- Just released in Oct. issue. Makes better use of Solution, PC Conqueror, DisCover, XOVER, QLuster and scr_codes. If you are going to use the emulators, then check this out, you won't regret this buy.

5) QLuMSi DOS by Al Feng- a MSDOS simulator and front end program for the QL, also includes other programs by AL Feng for file management and cloning of programs. A Great Learning Tool

UPDATE COMPUTER SYSTEMS invites you to submit software programs that may become Issue Disks. Please submit program on disk, with documentation and article to accompany the program. We are here to get North American software available and known. We solicit programs, tips, reviews and utilities for future issues.

TS2068 UPDATE ISSUE DISKS

These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises thrown in. Half of the money goes to the author and is meant to encourage new programming for the TS2068 that makes use of the various disk drive systems. All are $20.00 per disk (add $1.00 Canada) except where noted in the listing. Postage and handling is included. Both 3 1/2 and 5 1/4, 40 and 80 track available. Please add $5.00 for mailing to other countries. We accept personal checks, company checks, money orders. No charge cards please.

1) Daisy Word Processor, now available for Aerco and Oliger.

2) Bob Hartung DOSDEX UTILITY ISSUE DISK, a complete disk management group of programs for the Oliger Interface only. This includes Multi-Manager for file handling. This collection has recently been updated and expanded.

3) MAIL MERGE ISSUE DISK, Oct 87 and Jan 88 issues of UPDATE utilities added to fill out this disk. Includes a tutor program for the Mail Merge program, List Looker, Purity, J-Utilities and Extra Memory Utilities. Larken, Oliger and Aerco versions.

4) WIDJUP'S CAD PROGRAM, this will give you professional results from your TS2068 for computer aided design. Authored by William J. Pedersen, perhaps the NO.1 authority on the inner workings of the TS2068. This program can be used to create user friendly printed circuit boards, computer art or desktop publishing files It does not need expanded memory cartridges and is available in four versions: (a) Oliger for either IBM compatible printers or for the Olivetti Ink Jet. (b) Larken for IBM compatible printers or the Olivetti Ink Jet printer. Please specify version. NEW!

5) OLIGER DISK DRIVE BBS PROGRAM, this allows users of the Oliger interface to be able to operate a disk based bulletin board from the TS2068. The disk is also filled with many other Oliger disk routines and tips on using the Oliger System. New by Paul Holmgren. Can use upto four DSQD disk drives.

6)The HYBISCUS ENSEMBLE, consisting of two separate, but complimentary sets of programs. A) Daisy.B6 Ensemble, and B) Udbm.B6 Ensemble. LKDOS only, $22 each or $36 for both. The best file and database available for Larken, by Bill Jones. The price remains the same on this one, no change. Wordprocessor included.

7) TS2068 Super Calc by Bill Jones. Available in both Larken and Oliger formats. Handles loans, amortization, savings and fixed investments, plus a calculator and all for only $15.

UPDATE COMPUTER SYSTEMS invites you to submit software programs that may become Issue Disks. Please submit program on disk, with documentation and article to accompany the program. Our goal is to get North American software available and known. We also solicit minor programs, tips and utilities for print in future issues of the magazine. Please do not submit unlistable programs or copy protected programs.