UPDATE! MAGAZINE

JULY 1991
$ 4.95

Take it to the Limit

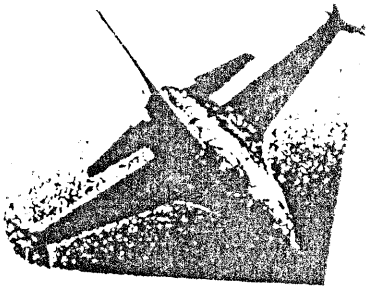
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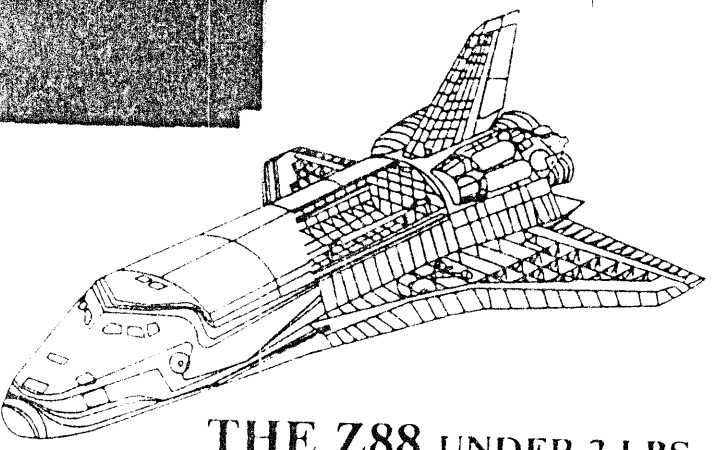
OF

SINCLAIR COMPUTERS

The Sinclair QL
-a 32 bit CPU Powerhouse!

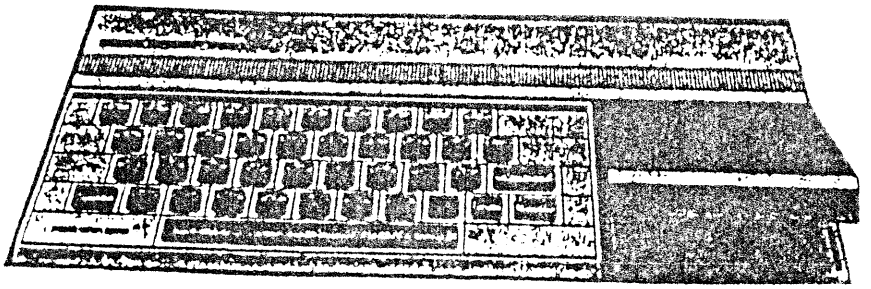




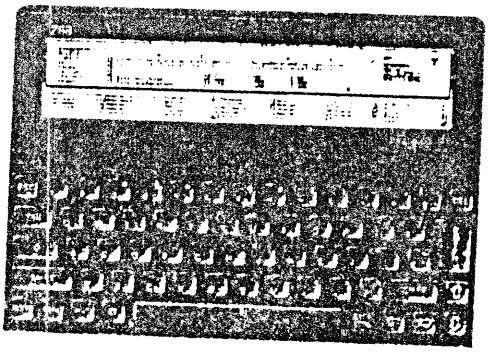


THE Z88 UNDER 2 LBS.

A Computer Without Compromise



The TS-2068 Workhorse



UPDATE COMPUTER SYSTEMS
P. O. Box 1095
Peru, Indiana 46970

NEWS AND NEW PRODUCTS

* 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. Unless urgent you will be answered by mail.

Mailing date for all issues is the fifteenth of the issue month.

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 $20.00 U.S. We accept personal and business checks, money orders and to obtain back issues prior to October 1990, please contact the former Publisher, Bill Jones at 1317 Stratford Ave., Panama City, Florida 32404. He will gladly provide you with the needed issues and information. The use of a Self Addressed Stamped Envelope would be appreciated and help to speed a reply.

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, Al Feng, 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 under any circumstance, disk or hardcopy only. Exceptions to this would be the wafers used on the Rotronics Wafadrive for the Spectrum or TS2068 with emulator. Z88 programs on disk may be in either IBM or QL format or hardcopy. TS2068 programs may be LLISTED in 32 chr. lines, but that is not solely necessary, just do not send a copy protected disk that needs to be LLISTED.

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

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Back Covers ---Issue Disks for TS2068 and QL

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EDITORIAL by Frank W. Davis

We have come to the end of our first year of publishing UPDATE Magazine, and will be continuing for at least another year. We urge everyone to renew and to get your friends to subscribe, as that will be what helps us decide whether to continue on into a third year for 1993. Please renew soon as your funds are what make it possible to put the magazine together and mail it out. As long as it pays its own way it stays. Now here are three literary items that should be of interest to all of you and I hope you will take the time and energy to check them out and give them your support.

The first is ZXIR QLIVE ALIVE, the Newsletter of T/SNUG, the group hoping to carry on from SNUG (perhaps merge SNUG into it). It is a quarterly newsletter supporting all Sinclair Computers. It is available for the price of membership, which is $12 for individuals and $15 for User Groups or Computer Clubs. It is available from Don Lambert at, 1301 Kiblinger Place, Auburn, IN 46706 and heavily supported by Bob Swoger of CATUG. They are soliciting material for their newsletter.

The second new publication on the scene comes from Seacoast Services, 15 Kilburn Court, Newport, RI 02840. It is called International QL Report, and truly does give one the needed information on what is available for the QL worldwide. I have received the first issue and the second is ready to be mailed. It will come out 4 to 6 times a year for the price of $10.00. It was packed with info on how to order the products reviewed, new products , upgrades and information on who is working to try to further improve the QL. As I am the UPDATE Editor (as well as the ISTUG group Editor), I do not see this newsletter as a competitor, but as complements UPDATE and makes another source of data available to QL users. I have already subscribed, and have placed a copy of the subscription form on page 51 for you to photocopy and send in.

The third new publication is the QL Survivors Source Book, which is a project of the Seacoast QL Users Group. It lists sources in the following four categories: all known QL HARDWARE SUPPLIERS, QL PUBLICATIONS (major), QL SOFTWARE SUPPLIERS, and QL USER GROUPS (or clubs for those who do not want to be called user groups) worldwide. Under each company/individual a number of their products (but not all) are listed. Due to changing rates on foreign orders, prices are not listed.

The SOURCE BOOK is available in AUSTRALIA, GERMANY, ITALY and the UNITED KINGDOM. In NORTH AMERICA it is available from UPDATE MAGAZINE, P.O. Box 1095, Peru, In 46970. The cost in North America is $5.00 plus $2.00 US shipping (rest of the world slightly more). It is 8 1/2 by 11 inches and bound in 65# paper. Carol and I have already started shipping to those who order it. It will be updated whenever necessary to keep up with the product scene.

That is what is on the scene for new publications. I would like to see more done in this area. I would like to see someone offering support for those who still use the ZX81, TS1000, and the TS1500. Perhaps someone is doing so, but it is not broadly known. I would also like to have more material to publish in UPDATE on the Z88....please. Carol and I want to thank each and everyone of our subscribers and we look forward to another year.

ERRATA: Peter Hale of EMSoft called to inform us of one small error on his ad on page 32. The Early Bird price for TAX-I-QL/91 should read $19.95, instead of $24.95.

THE DAYTON COMPUTERFEST- SINCLAIR SUB SHOW
by F.W. Davis

ISTUG has paid for a booth at COMPUTERFEST 91, so we are looking forward to seeing you there. UPDATE MAGAZINE and MECHANICAL AFFINITY have paid for two tables at the show. QUANTA will be represented by Paul Holmgren, the North American Librarian. The SMUG User Group from Milwaukee will be there, CATS from the D. C. area, CATUG, and Gary Ganger says he has also had word from West Virginia and Ottawa, Canada. Steve Spaulding of Sting Graphics tells me that he will be there along with a friend who has been upgrading the operating system of the Aerco Disk Interface. Paul Holmgren tells me that Eric Johnson hopes to be there with a table to sell parts and reconditioned units of Timex-Sinclair Computers. John Hammer (who repairs Timex computers) hopes to be there with Eric. SMUG will be bringing some more of what they have left of items formerly sold by ZEBRA. Paul Holmgren tells me that the Cleveland User Group will be there. I should also mention that the Dayton Micro Association Timex Sinclair SIG will of course be there. I hope that this is only the beginning of those who will show up.

This is the largest computer show in the Midwest, with thousands of attendees, but the Sinclair and Timex booths should be in the same area. The show will start on Saturday, August 24th at 10 AM and run to 6 PM and, conclude on Sunday, August 25th by running from 10 AM to 5 PM. Tickets will cost you less ($5.00 rather than $6.00) by ordering in advance. If we get a good turnout for this show it will probably be done again in 1992, etc. For those who are interested, there will be a banquet on Friday night before the show. Give Gary Ganger of the Dayton user group a call for more information. Call at a reasonable hour, 513-849-1483. See you at the show!

As it was Carol and I who instigated the original Timex-Sinclair Computerfest in Cincinnati; then produced the 2nd Annual T-S Computerfest in Indianapolis the next year, and lent a hand at the Sinclair Reunion in Cleveland the next year; I feel I have a strong tradition of my own to push these shows to the max. We had a lot of excellent help from the likes of Paul Holmgren, Jack Roberts, Tom Burt, Gary Ganger, Willie Jones, to name but a few. I believe that shows like these, and the ones produced out in the Northwest, Milwaukee, D.C. and Florida over the past few years have had as much to do with new hardware and software for our computers as anything else. These shows, User Groups, Computer Clubs and their newsletters are the lifeblood of the hobby of computing. Take the time to show up at this show and give your personal support. If you can not be there , then pass the news on to someone else who can go to the show. Get together at the show with old friends; make new friends; get questions answered; support the vendors with your purchases and have a bit of fun.

See you at the Dayton Computerfest. Further info on the show and who to contact for tickets is elsewhere in this issue of UPDATE Magazine.

By the way, there will also be about a hundred or so non Timex dealers at this show for printers, disks, computer paper, modems, cables, software, computers, meetings, seminars, etc.

Basic Programming with DEF FN()
And Boolean Logic

By: Bill Jones

Dont go away just yet! The program given with this article is a useful one. And it will work with whatever kind of computer you may have. So, lets see just what the program does first. Then you can decide whether or not to key it in and whether you'd like to explore the two subjects of discussion- Boolean Logic and the DEF FN() function.

NUMBER CONVERSIONS: The program takes any input of Decimal, Hex or Binary numbers and converts and prints all three equilivants.

MIXED MATH: Can you Multiply 110 hex times F hex? Can you Divide 104926 by FF hex? Can you subtract "FF02h - BIN 11110110"? Well I cannot do that. But this program eats it up. You can ADD mixed numbers, subtract mixed numbers, divide with mixed numbers, and multiply mixed numbers. The answers are given in all three number bases. But, when doing divisions, and the answer is a fraction, the HEX and Binary answers will be wrong. But not to worry, the given Decimal answer will be correct. Also, when doing mixed math, you can input the Decimal values as math expressions, ie: 2*PI*r, L*W, if such variables have value. You could even input as a decimal value "FN a()", making the computer solve a FN function for the input. For BIN inputs be sure to use the BIN token before the number.

BOOLEAN LOGIC is a natural for all computers. Boolean logic expressed in Basic Language allows us to "package" groups of both literal and math expressions in one line of programming. The capacity of the screen (for entering the program line) is the only limitation. Several program lines in the demo program would require up to 20 other program lines if the logicals were expressed in common Basic. And, not only does the program work faster with Boolean logic, but the amount of memory used for the program is reduced substantially. There are some good reference articles about Boolean in back issues of Update magazine that can serve as a primer on the subject. (July 1988 pg 13), (April 1988 pg 18)

Almost all computers provide some ability to use BOOLEAN expressions in Basic Language. Some computer's "syntax checking" are very liberal while others may trap out some perfectly valid Boolean expressions. One way of forcing the computer to process Boolean expressions is to Disable the computer's syntax checker. Almost all computers provide an address to be POKED to disable the syntax checking function. So, if your computer is one that disallows some variations of Boolean expressions then it might be worth while to explore the method of "forcing your will on the cantankerous beast" by simply by-passing the syntax checker for your lines of programming that contain valid boolean logic.

The Demo program does work. However, the TS-2068 is more liberal in allowing Boolean logic expressions than most other computers. So if yours balks at any of the programming it is a cantankerous charactistic of your computer's syntax checker and it would be worth while to find a by-pass.

DEF FN() and FN Functions

Several of my articles on the subject of DEF FN() have been leading up to this program demonstration. Particularily, the Jan. 1991 and April 1991 issues of Update are appropriate for background. This time the programming demonstrates the versatility of DEF FN() functions expressed in Boolean logic for both literal function definition and math definitions. Line #9700 concatenates Y$ to encapsulate the HEX value expression depending upon six possible situations. So, the upper limit of both Number conversions and

mixed number calculations are set at FFFFFF hex, or 16777215 decimal (16 megabytes). The limit is set by LEN FN x$(). This DEF FN x$() function in line #9700 should be proof enough of the vast powers of the DEF FN () function.

And, isn't it interesting that the DEF FN x$() can be concatenated just as if we were dealing with a string variable. Also, individual characters of the DEF FN x$() can be picked out in the same manner as characters in a simple string. But DEF FN x$() is NOT a variable. We can have "X$" and DEF FN X$() as separate and non associated entities. Then there are six numeric DEF FN() functions beginning at line #9710, all using Boolean logic. In these six cases the math formula (function) use FN to call up the solution of the DEF FN x$() function of line #9700. The main program then is responsible for setting the correct value of Y$ before the seven DEF FN functions are exercised.

Although the DEF FN() functions demonstrated are phenomonal, all were once in program lines of Boolean logic that dealt with the dimensioned X$. And the program worked faster that way. The logic was pulled out of program lines and installed in DEF FN functions just for Demo purposes. In some cases simple programming is better and in others the DEF FN function works better or exclusive for the purpose.

The use of DEF FN also avoids GO SUB branching. Instead one just uses FN to get the work that a sub-routine branch would otherwise provide. Complex calculations can be "in trains" of DEF FN functions where each succeeding DEF FN function requires the solution of the earlier functions. When FN is used, the protocol is "first line first" for the finding and solution of the DEF FN functions. I hope that these three articles (beginning with the Jan. 91 Update issue) will provide the enthusiasm for all to explore the power of both Boolean programming and the use of the DEF FN() function. Have fun! -BJ_

Simple Basic For Any Computer

DECIMAL - HEX - BINARY CONVERSIONS

DEMO OF BOOLEAN LOGIC WITH DEF FN()

```
9700 DEF FN x$()=("00000"+y$ AND LEN y$=1
)+("0000"+y$ AND LEN y$=2)+("000"+y$ AND
LEN y$=3)+("00"+y$ AND LEN y$=4)+("0"+y$
AND LEN y$=5)+(y$ AND LEN y$=6)
9702 REM
9710 DEF FN a()=(1048576*(CODE FN x$()(1)
-o) AND CODE FN x$()(1)<r)+(1048576*(CODE
 FN x$()(1)-p) AND CODE FN x$()(1)>q)
9712 REM
9720 DEF FN b()=(65536*(CODE FN x$()(2)-o
) AND CODE FN x$()(2)<r)+(65536*(CODE FN
x$()(2)-p) AND CODE FN x$()(2)>q)
9722 REM
9730 DEF FN c()=(4096*(CODE FN x$()(3)-o)
 AND CODE FN x$()(3)<r)+(4096*(CODE FN x$
()(3)-p) AND CODE FN x$()(3)>q)
9732 REM
9740 DEF FN d()=(256*(CODE FN x$()(4)-o)
AND CODE FN x$()(4)<r)+(256*(CODE FN x$()
(4)-p) AND CODE FN x$()(4)>q)
9742 REM
9750 DEF FN e()=(16*(CODE FN x$()(5)-o) A
ND CODE FN x$()(5)<r)+(16*(CODE FN x$()(5
)-p) AND CODE FN x$()(5)>q)
9752 REM
9760 DEF FN f()=(CODE FN x$()(6)-o AND CO
DE FN x$()(6)<r)+(CODE FN x$()(6)-p AND C
ODE FN x$()(6)>q)
9770 REM _____
```

```
9780 BORDER 1: PAPER 1: INK 7: CLS : POKE
 23658,8    Sets CAPS on
9800 CLS : LET xy=0: LET T=0: LET o=48: L
ET p=55: LET q=64: LET r=65: LET a=1: DIM
 u(24): FOR n=1 TO 24: LET u(n)=a: LET a=
a+a: NEXT n
9804 CLS : PRINT AT 9,0;"Select: 1. Conve
rt Hex-Dec-BIN          2. Mixed Math": P
AUSE 0: LET M=CODE INKEY$-48: CLS : GO TO
 (m<1 OR m>2)*9804+(m=1)*9812+(m=2)*9886
9812 DIM x$(6): PRINT AT 9,0;"1. Dec to H
ex, or 2. Hex to Dec 3. Quit?": PAUSE 0:
LET X=CODE INKEY$-48: IF X=1 THEN  GO TO
VAL "9822"
9814 IF x=3 THEN  GO TO VAL "9804"
9816 DIM x$(6): INPUT "HEX Group:";y$: IF
 LEN y$>6 THEN  GO TO 9816
9818 LET DEC=FN a()+FN b()+FN c()+FN d()+
FN e()+FN f(): LET x$=FN x$(): LET M$=FN
x$(): IF xy=1 THEN  RETURN
```

```
9820 GO TO 9826
9822 INPUT "Input Decimal OR BIN Number:
";DEC
9824 DIM x$(6): LET A=DEC: LET B1=INT (A/
1048576): LET A=A-B1*1048576: LET x$(1)=(
CHR$ (B1+O) AND B1<10)+(CHR$ (B1+P) AND B
1>9): LET b2=INT (A/65536): LET A=A-B2*65
536: LET x$(2)=(CHR$ (B2+O) AND B2<10)+(C
HR$ (B2+P) AND B2>9): LET B3=INT (A/4096)
: LET A=A-B3*4096: LET x$(3)=(CHR$ (B3+O)
 AND B3<10)+(CHR$ (B3+P) AND B3>9): LET B
4=INT (A/256): LET A=A-B4*256: LET x$(4)=
(CHR$ (B4+O) AND B4<10)+(CHR$ (B4+P) AND
B4>9): LET B5=INT (A/16): LET A=A-B5*16:
LET x$(5)=(CHR$ (B5+O) AND B5<10)+(CHR$ (
B5+P) AND B5>9): LET x$(6)=(CHR$ (A+O) AN
D A<10)+(CHR$ (A+P) AND A>9): LET M$=x$:
IF xy=1 THEN  RETURN
9826 CLS : PRINT "DEC=";DEC;TAB 15;"HEX="
;
9828 FOR n=1 TO 6: IF m$(n)>"0" THEN  FOR
 n=n TO 6: PRINT m$(n);: NEXT n: GO TO 98
32
9830 NEXT n
9832 GO SUB 9946: GO TO 9812
9886 LET xy=1: PRINT AT 9,0;"Select Choic
e:
          <1> Add       <2> Subtract
  <3> Multiply  <4> Divide        <5> Hom
e Menu ": PAUSE 0: LET g1=CODE INKEY$-48:
 IF g1<1 OR g1>5 THEN  GO TO 9886
9888 IF g1=5 THEN  GO TO 9804
9890 CLS : PRINT #0;"First Number HEX or
DEC/BIN?    <1> Hex   <2> Dec/Bin": PAUSE
 0: LET M1=CODE INKEY$-48:: IF m1<1 OR m1
>2 THEN  GO TO 9890
9892 CLS : PRINT #0;"Second Number HEX or
 Dec/Bin?   <1> HEX  <2> Dec/Bin ": PAUSE
 0: LET m2=CODE INKEY$-48: IF m2<1 OR m2>
2 THEN  GO TO 9892
9894 IF m1=1 THEN  INPUT "INPUT First Num
ber (HEX) ";y$: LET H$=Y$: IF y$="" THEN
 GO TO 9894
9896 IF m1=2 THEN  INPUT "INPUT First Num
ber (Dec/Bin)    ";y$: LET H$=Y$: LET n1=
VAL y$: IF y$="" THEN  GO TO 9896
9898 IF m2=1 THEN  INPUT "INPUT Second Nu
mber (HEX): ";z$: LET I$=Z$: IF z$="" THE
N  GO TO 9898
9900 IF m2=2 THEN  INPUT "INPUT Second Nu
mber (Dec/Bin):  ";z$: LET I$=Z$: LET n2=
VAL z$: IF z$="" THEN  GO TO 9900
9902 DIM x$(6): IF m1=1 THEN  GO SUB 9818
: LET n1=dec: LET x$=(y$ AND LEN y$=6)+("
0"+y$ AND LEN y$=5)+("00"+y$ AND LEN y$=4
)+("000"+y$ AND LEN y$=3)+("0000"+y$ AND
LEN y$=2)+("00000"+y$ AND LEN y$=1)+("000
000" AND y$=""): GO SUB 9818: LET n1=DEC
9904 IF M2=1 THEN  LET y$=z$: GO SUB VAL
"9818": LET N2=DEC
9906 IF G1=1 THEN  LET DEC=N1+N2: GO SUB
VAL "9824": PRINT H$;("h" AND M1=1)+("d"
AND M1=2);"+";z$;("h" AND M2=1)+("d" AND
M2=2);"=";DEC;"d";" and ";
9908 IF G1=1 THEN  FOR N=1 TO 6: IF M$(N)
>"0" THEN  FOR N=N TO 6: PRINT M$(N);: NE
XT N: PRINT "h"': GO TO 9912
9910 IF G1=1 THEN  NEXT N: PRINT "0h"'
9912 IF G1=2 THEN  LET DEC=N1-N2: GO SUB
9824: PRINT H$;("h" AND M1=1)+("d" AND M1
=2);"-";z$;("h" AND M2=1)+("d" AND M2=2);
"=";DEC;"d and ";
9914 IF G1=2 THEN  FOR N=1 TO 6: IF x$(N)
>"0" THEN  FOR N=N TO 6: PRINT x$(N);: NE
XT N: PRINT "h"': GO TO 9918
9916 IF G1=2 THEN  NEXT N: PRINT "0h"'
9918 IF G1=3 THEN  LET DEC=N1*N2: GO SUB
9824: PRINT H$;("h" AND M1=1)+("d" AND M1
=2);" * ";z$;("h" AND M2=1)+("d" AND M2=2
);"=";DEC;"d";" and ";
9920 IF G1=3 THEN  FOR N=1 TO 6: IF x$(N)
>"0" THEN  FOR N=N TO 6: PRINT x$(N);: NE
XT N: PRINT "h"': GO TO 9924
9922 IF G1=3 THEN  NEXT N: PRINT "0h"'
9924 IF G1=4 THEN  LET DEC=N1/N2: GO SUB
9824: PRINT H$;("h" AND M1=1)+("d" AND M1
=2);" / ";z$;("h" AND M2=1)+("d" AND M2=2
);"=";DEC;"d and ";
9926 IF G1=4 THEN  FOR N=1 TO 6: IF x$(n)
>"0" THEN  FOR N=N TO 6: PRINT x$(N);: NE
XT N: PRINT "h"': GO TO 9930
9928 IF G1=4 THEN  NEXT N: PRINT "0h"'
9930 GO SUB 9946: GO TO 9886
9932 GO TO VAL "9886"
9946 LET m=dec: DIM t(24): FOR n=24 TO 1
STEP -1: LET t(n)=(1 AND m>=u(n))+(0 AND
m<u(n)): IF t(n)=1 THEN  LET m=m-u(n)
9948 NEXT n
9950 LET t$="": FOR n=24 TO 1 STEP -1: IF
 t(n)=1 THEN  FOR y=1 TO n: LET t$=t$+STR
$ t(y): NEXT y: GO TO 9953
9952 NEXT n
9953 LET m$="": FOR n=LEN t$ TO 1 STEP -1
: LET m$=m$+T$(n): NEXT n
9954 PRINT '"BIN=";m$: RETURN
```

TS-2068 Tool to Convert Chr Strings

Often we get stymied by having a character array file having a wrong dimension for the job we want to do. This tool was made to convert TWO DIMENSION CHARACTER ARRAY FILES to THREE DIM FILES. With minor adjustments the program can be used to convert other dimensions to other dimensions.

The program was crafted in response to question from a User of the Dbx.B6 program (One of the programs in the Hybiscus Software). His problem was that he had many valuable record files that were in Character arrays dimensioned (500,32). He wanted to be able to LOAD the files to the Dbx.B6 program and then EDIT the files to be printed and managed by the Dbx.B6 program. The Dbx.B6 program creates and manages 3 dim files such as "O$(x,x,x)".

The transposition of character array files from one dimension to another requires one of two methods. 1. LOAD the file to memory, and then create another character array file. Then COUNT the first file to the new file. Then SAVE the new file. This process uses DOUBLE the memory required to store the first file.

OR- 2. Dimension the new file in memory. Then READ a sequential file into the new file via a counter. Since the question from the reader involved Character array files (not Seq files), the program was developed for that purpose.

The program limit then is the FREE memory (AFTER the File is LOADED). Then if the file to be converted is smaller than the remaining FREE, the new file can be extended to have more records. For example, the user's need was to convert character array files having the dimension (500,32). The program capacity, after loading one file, is a new file dimensioned (612,1,32). In other words, the program allows such a (500,32) two dim file to be transposed to a 3 dim file (612,1,32). Then there will be 112 new (blank) records that can be filled.

Line #9060 calculates the maximum number of Records for the New file and reserves 2000 bytes of FREE for after editing. One can fudge and input a slightly larger new file than the program suggests, keeping in mind that too large an input will bring an OUT of MEMORY report. The program will work with any DOS or Cassette by modifying the LOAD and SAVE syntax. Donated to Public Domain by Bill Jones.

```
9000 REM ** Character String
            Conversion.
            2 Dim to 3 Dim
   Donated to Public Domain By
   Bill Jones
9010 CLEAR : INPUT "Enter Data D
isk #";dd: RANDOMIZE USR VAL "10
0": GO TO dd: RANDOMIZE USR VAL
"100": CAT ".A$",
9020 INPUT "Enter File name + Ex
t"'m$: RANDOMIZE USR VAL "100":
LOAD m$ DATA f$()
9030 CLS : PRINT #NOT PI;"Loadin
g, Finding Dim . ."
9040 FOR n=1 TO VAL "999": ON ER
R GO TO VAL "9050": LET x=LEN f
$(n): NEXT n: STOP
9050 ON ERR RESET : LET a=n-SGN
 PI
9060 PRINT AT VAL "10",NOT PI;"T
here are "; FLASH SGN PI;a; FLAS
H NOT PI;" records in the"'m$;"
File."''"You may expand this fil
e to"'INT (( FREE -VAL "2000")/x
);" Records"
9070 INPUT "Enter # of Records f
or New File ";c: DIM o$(c,SGN PI
,x)
9080 PRINT #NOT PI;"Converting t
o new file . ."
9090 FOR n=SGN PI TO a: LET o$(n
,SGN PI)=f$(n): NEXT n
9100 INPUT "Enter File # only fo
r SAVE of  new file ";g: BEEP V
AL ".3",VAL "20": DIM f$(SGN PI)
: LET w$="m"+STR$ g+".A$": RANDO
MIZE USR VAL "100": SAVE w$ DATA
 o$()
9110 CLS : PRINT AT VAL "9",NOT
PI;m$;" File has been Converted"
'"to dimension (";a;",1,";x;") A
nd the"'"new file SAVED."''"The
new file name is ";w$''"ERASE th
e Old File? "''"<1> Yes <2> No":
 INPUT h: IF h=SGN PI THEN  RAND
OMIZE USR VAL "100": ERASE m$,
9120 CLEAR : CLS : INPUT "Do ano
ther File Conversion?     <1> Ye
s <2> No";i: CLS : IF i=SGN PI T
HEN  GO TO VAL "9010"
```

IF YOU HAVE A LOADING PROBLEM

TRY THESE SUGGESTIONS BEFORE YOU GIVE UP!

1. > Make sure the recorder/player is plugged into power.
2. > Check EAR and MIC cables, make sure they are in correctly.
3. > Check tape to be sure that it is in the player correctly.
4. > Check VOLUME and TONE controls on player/recorder- Make sure VOLUME is at FULL and TONE is FULL TREBLE. (Some players do not have a TONE control.)
5. > If all of these check out OK, go to the next section.

SETTING THE AZIMUTH (PLAYBACK HEAD ALIGNMENT) SCREW

1. > Unplug EAR plug from player/recorder.
2. > Locate the adjustment screw. It is usually found just to the left and toward you as you are facing the side of the player/recorder with the control buttons. It is only visible when the unit is in the PLAY or RECORD mode. If you have a Timex 2020 recorder, you will have to remove the cover before you can get to the screw. I have drilled a small hole in my cover to allow easy access. The screw is usually only about 1/8" from the play/record head. On some units the screw is accessed through a small hole at the location noted.
3. > Once the screw is located, it is time to make the adjustment so that the program can be LOADed.
4. > Get a small jeweler's screwdriver for this job.
5. > Put the tape that will not LOAD into the unit, press PLAY.
6. > Adjust VOLUME to a comfortable level.
7. > Put screwdriver into the slot in the adjustment screw.
8. > As you listen closely, turn the screw VERY SLOWLY first one direction and then the other while listening for the highest possible sound level. Stop when this is attained.
9. > Plug in the EAR plug, turn the VOLUME up full and try to LOAD the program or file.
10. > Once the difficult file has been LOADed, be sure to MAKE A BACKUP! That is, SAVE the file or program onto another tape or disk so that you can LOAD it next time without having to do this.
11. > Once the file/program has been LOADed and BACKED UP, you will have to insert one of your tapes (one made on this recorder) and go through the adjustment procedure again so that your tapes will LOAD properly.

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CHARACTER STRING EMULATION

IN HISOFT ® PASCAL VERSION 4

Article and Program By David Solly

One of the common gripes about *HiSoft Pascal Version 4* for the Timex/Sinclair 2068 is its lack of built-in operators for handling a dimensioned array of type CHAR, henceforth referred to as a string. The crux of the problem is that if a string is not completely filled by data or spaces, the remainder of the string is left filled with whatever garbage is in memory at the time. When a WRITE or WRITELN is called, the procedure attempts to print the entire contents of the string, which includes the garbage left in the unused portion of the string, plus all the data. This results in garbage characters being printed on the screen or printer if the system does not simply crash.[1]

Parser is a program which demonstrates how a record type -- called "word" in this example -- containing a string and an internal counter, which is used to keep track of the number of printable characters the string contains, can be constructed and used to solve this problem. Reading and writing information to and from this "word" type; however; also requires special modified versions of the procedures **READ()** and **WRITE()**, which in this program are called **StringRead()** and **StringWrite()**.[2]

---

[1] HiSoft has released several updates of its ZX Spectrum Pascal program since version 4 was converted and released for the Timex/Sinclair 2068. The latest ZX Spectrum version, (version 1.7M), features a 51 column mode plus the string handling capabilities we are trying to emulate here.

[2] For those of you who have additional questions, please feel free to write me at 1402-1545 Alta Vista Drive, Ottawa, Ontario, Canada K1G 3P4, or by calling *Sir Clive's Castle BBS* (8/1/N, 300/1200 baud) at (613)745-8838 and leaving your questions in the sysop's message area. The source code for this program is also available from the BBS. Download file *PARSER.PS*.

Program Listing

```
1000 PROGRAM PARSER;
1010
1020
1030 {
1040  The object of this program is to accept a
1050  sentence from the user then to break the
1060  sentence into its component words and to
1070  display each word on a separate line.
1080
1090  Program by David Solly.
1100
1110 }
1120
1130
1140
1150 CONST
1160
1170   maxword     = 15;
1180   maxsentence = 15;
1190   space       = CHR(32);
1200   first       = 1;
1210
1220
1230
1240 TYPE
1250
1260   string = PACKED ARRAY[1..maxword] OF CHAR;
1270
1280   word  = RECORD
1290
1300             body   : string;
1310             length : INTEGER
1311
1320           END;
1330
1340
1350 VAR
1360
1370   sentence                  : ARRAY[1..maxsentence] OF word;
1380   row, col, nextcol, count  : INTEGER;
1390   demarker                  : BOOLEAN;
1400
1410
1420
1430 PROCEDURE SpaceTrap;
1440
1450 {
1460  Insures that there is ony 1 space between
1470  words
1480 }
1490
1500   BEGIN
1510
1520     REPEAT
```

```
1530
1540        READ(sentence[row].body[first])
1550
1560      UNTIL sentence[row].body[first] <> space
1565
1570    END;
1580
1590
1600
1610 PROCEDURE StringWrite(VAR phrase : word);
1620
1630 {
1640  Writes only the required length of each
1650  character string.
1660
1670  This is required when using 32 col. mode.
1680 }
1690
1700    VAR letter : INTEGER;
1710
1720    BEGIN
1730
1740      FOR letter := first TO phrase.length DO
1745
1750        WRITE(phrase.body[letter])
1755
1760    END; {Procedure StringWrite}
1770
1780
1790
1800 PROCEDURE StringRead;
1810
1820
1830  VAR I : INTEGER;
1840
1850  BEGIN
1860
1870  {
1880   Intitialize the variables
1890  }
1900
1910     count     := 1;
1920     row       := first;
1930     col       := first;
1940     nextcol   := col + 1;
1950     demarker := FALSE;
1960
1970     FOR I := first TO maxsentence DO
1980         sentence[I].length := 1;
1990
2000     WRITE('Type a sentence >  ');
2010     READLN; {Clears the buffer of EOLN}
2020
2030         WHILE (NOT EOLN) AND (row < maxsentence) DO
2040
2050             BEGIN
2060
2070
```

```
2080
2090                READ(sentence[row].body[col]);
2100                IF sentence[row].body[first] = space THEN SpaceTrap;
2110                IF sentence[row].body[col] = space THEN
2120                   demarker := TRUE;
2130
2140                IF (NOT demarker) AND (nextcol < maxword) THEN
2150
2160                    BEGIN
2170
2180                      col     := col + 1;
2190                      nextcol := nextcol + 1
2200
2210                    END
2220
2230                ELSE
2231
2232                  BEGIN
2240
2250                    sentence[row].length := col;
2260                    count                := count + 1;
2270                    row                  := row + 1;
2280                    col                  := first;
2290                    nextcol              := col + 1;
2300                    demarker             := FALSE
2310
2320                  END; {If...then...else}
2330
2340    IF EOLN THEN sentence[row].length := col - 1
2341
2342    {Accounts for the last word entered less the EOLN marker.}
2343
2350            END {While loop}
2360
2370  END; {Procedure StringRead}
2380
2390
2400
2410  PROCEDURE PrintItOut;
2420
2430   VAR
2440
2450       subsequent : INTEGER;
2460
2470   BEGIN
2480
2490       subsequent := first + 1;
2500
2510       WRITE('Parsing > ');
2520       StringWrite(sentence[first]);
2530       WRITELN;
2540
2550
2560
2570       IF count >= subsequent THEN
2580
2590           BEGIN
2600
```

```
2610              FOR row := subsequent TO count DO
2620
2630                  BEGIN
2640
2650                      WRITE('          ');
2660                      StringWrite(sentence[row]);
2670                      WRITELN
2680
2690                  END
2700          END
2710
2720   END; {Procedure PrintItOut}
2730
2740
2750
2760 PROCEDURE SongAndDance;
2770
2780  BEGIN
2790
2800      PAGE;
2810      WRITELN('           Parser');
2811      WRITELN;
2820      WRITELN('    Program By David Solly');
2830      WRITELN;
2840      WRITELN('   The object of this program');
2845      WRITELN('is to accept a sentence from');
2850      WRITELN('the user then to break the');
2860      WRITELN('sentence down into its')
2865      WRITELN('component words and to display');
2870      WRITELN('each word on a separate line.');
2880      WRITELN;
2890      WRITELN;
2900
2910  END; {Procedure SongAndDance}
2920
2930
2940
2950 BEGIN {Main Program}
2960
2970 SongAndDance;
2980 StringRead;
2990 WRITELN;
3000 PrintItOut;
3010 WRITELN;
3020 WRITELN('End of Demonstration.')
3030
3040 END. {Main Program}
```

Ottawa, Canada, March 25, 1990.

SYNTWO (revised)

```
9300  RESET       DF          RST 24          24      IGN_SP
9301              FE2A        CP N            42:*:
9303              2024        JR NZ,+38       9341    TW_3
9305              CD2000      CALL NN         32      NXT_IS
9308              CD441B      CALL NN         6980    END?
9311              3E10        LD A,N          16                  Here for RESET * (END) (wildcard)
9313              21165C      LD HL,NN        23574
9316  TW_0        CDA813      CALL NN         5032    RSTSTR
9319              23          INC HL
9320              23          INC HL
9321              3D          DEC A
9322              20F8        JR NZ,-6        9316    TW_0        Reinitialize all STREAMS
9324              21F409      LD HL,NN        2548    BLDSCT      (EXROM) Reinitialize SYSCON
9327              E5          PUSH HL                             Target
9328  TW_1        01FEFE      LD BC,NN        65278               EXROM, CHUNK 0
9331  TW_2        C5          PUSH BC                             BANK#,MASK
9332              010000      LD BC,NN        0
9335              C5          PUSH BC                             PARM passed
9336  TW_X        C5          PUSH BC                             PARM ret'd
9337              CD5625      CALL NN         9558    CALL_B
9340              C9          RET

9341  TW_3        FE23        CP N            35:#:
9343              2809        JR Z,+11        9364    TW_4
9345              CD441B      CALL NN         6980    END?        Here for RESET (END)
9348              214C0C      LD HL,NN        3148    RESSCT      (EXROM) Reset SYSCON
9351              E5          PUSH HL                             Target
9352              18E6        JR -24          9328    TW_1

9354  TW_4        E7          RST 32          32      NXT_IS      Here for RESET #
9355              CDE51B      CALL NN         7141    TEM6        Numeric expression
9358              CD441B      CALL NN         6980    END?
9361              CD1E1F      CALL NN         7966    FIX_U1
9364              FE10        CP N            16                  Here for RESET # n (END)
9366              300D        JR NC,+15       9381    BAD_STRM3   ) 15
9368              87          ADD A,A                             0 to 15 -) 0 to 30
9369              C616        ADD A,N         22                  0 to 30 -) 22 to 52
9371              6F          LD L,A
9372              265C        LD H,N          92                  HL = 23574 + 2 * n
9374              5E          LD E,(HL)                           Get lsb offset code
9375              23          INC HL
9376              56          LD D,(HL)                           Get msb offset code
9377              7A          LD A,D
9378              B3          OR E
9379              2002        JR NZ,+4        9393    TW_5        Stream OPEN
9381  BAD_STRM3   CF          RST 8           8       ERROR       If 0 (CLOSED)
9382              17          DC              Invalid stream

9383  TW_5        7A          LD A,D
9384              D680        SUB N           128
9386              D8          RET C                               Local channel
9387              57          LD D,A
9388              2ABC5C      LD HL,(NN)      23740   SYSCON
9391              19          ADD HL,DE                           -) SC(c,0)
9392              23          INC HL                              -) SC(c,1)
9393              46          LD B,(HL)                           Get BANK#
9394              1600        LD D,N          0
9396              1E12        LD E,N          18
9398              19          ADD HL,DE                           -) SC(c,19)  RESET Routine lsb
9399              5E          LD E, (HL)                          Get RESET Routine lsb
9400              23          INC HL                              -) SC(c,20)
9401              56          LD D, (HL)                          Get RESET Routine msb
9402              E5          PUSH HL                             Target
9403              0E88        LD C,N          168:10001000:
9405              18B4        JR -74          9331    TW_2        B = BANK#, C = STD MASK

9407  NEWDEV      DF          RST 24          24      IGN_SP      SAVE, LOAD, VERIFY, or MERGE   (SLVM)
9408              FE2A        CP N            42:*:
9410              280B        JR Z,+13        9423    TW_6        For DISK, ETC.
9412              F1          POP AF                              Here for tape operations. Trash temp return
9413              01441B      LD BC,NN        6980    END?
9416              C5          PUSH BC                             Chain Return
9417              01AB01      LD BC,NN        427     SLVM        (EXROM)
9420              C5          PUSH BC                             Target
9421              18A1        JR -93          9328    TW_1

9423  TW_6        E7          RST 32          32      NXT_IS      Here for disk, etc.
9424              CDEF1B      CALL NN         7151    TEM10       String expression  $ (device char)
```

```
9427                FE2C      CP N          44:,:
9429                C2ED1B    JP NZ,NN      7149   NONSENSE
9432                CD8928    CALL NN       10377  INTPT?     Here for SLVM * $,
9435                2006      JR NZ,+8      9443   TW_7
9437                CD6925    CALL NN       9577   SKIPIT
9440                CD4418    CALL NN       6980   END?       ___!
9443  TW_7          3A745C    LD A,(NN)     23668  T_ADDR
9446                4F        LD C,A                           S=225, L=226, V=227, M=228
9447                2F        CPL                              S=30, L=29, V=28, M=27
9448                C6BA      ADD N         186                S=216, L=215, V=214, M=213
9450                FED7      CP N          215                L
9452                3806      JR C,+8       9460   TW_9        M, V
9454                2802      JR Z,+4       9458   TW_8        L
9456                C608      ADD N         8                  S=224
9458  TW_8          C618      ADD N         24                 S=248, L=239
9460  TW_9          4F        LD C,A                           S=248, L=239, V=214, M=213
9461                AF        XOR A
9462                47        LD B,A
9463  TW_10         C5        PUSH BC                          SAVE PARMS  (ENTRY FROM OTHER)
9464                CDAF2F    CALL NN       12207  POPSTR
9467                0B        DEC BC
9468                78        LD A,B
9469                B1        OR C
9470                C1        POP BC                           RECALL PARMS (EITHER)
9471                2015      JR NZ,+21     9492   BAD_I/O_DEV2
9473                1A        LD A,(DE)                        Here for SLVM * 'd', / CFME 'd',
9474                E6DF      AND N         223:1101111:       Force to caps
9476                4F        LD C,A
9477                CD7413    CALL NN       4980   SRCHSC
9480                300A      JR NC,+12     9492   BAD_I/O_DEV2
9482                E5        PUSH HL                          -) SC(c,1)
9483                111400    LD DE,NN      20
9486                19        ADD HL,DE                        -) SC(c,21)
9487                7E        LD A,(HL)                        Get SCFLAGS
9488                CB4F      BIT 1,A                          = 1 if SLVM capable
9490                2002      JR NZ,+4      9494   TW_11       Can do it.
9492  BAD_I/O_DEV2  CF        RST 8         8      ERROR
9493                12        DC            Invalid I/O device

9494  TW_11         E1        POP HL
9495                C5        PUSH BC                          PARMS (0,SLVM)|(CFME,0)
9496                EB        EX DE,HL
9497                CDA225    CALL NN       9634   PASSING
9500                EB        EX DE,HL
9501                56        LD D,(HL)                        Get BANK#
9502                1E88      LD E,N        136:10001000:      STD MASK
9504                010C00    LD BC,NN      12
9507                09        ADD HL,BC                        -) SC(c,13)
9508                4E        LD C,(HL)                        SLVM|CFME Routine lsb
9509                23        INC HL                           -) SC(c,14)
9510                46        LD B,(HL)                        SLVM|CFME Routine msb
9511                C5        PUSH BC                          Target
9512                D5        PUSH DE                          BANK#, MASK
9513                2A655C    LD HL,(NN)    23653  STKEND
9516                2B        DEC HL
9517                4E        LD C,(HL)                        Get PARM byte count
9518                0C        INC C
9519                22655C    LD (NN),HL    23653  STKEND
9522                0600      LD B,0        0
9524                C5        PUSH BC                          PARM passed
9525                010000    LD BC,NN      0
9528                C37824    JP NN         9336   TW_X

    [SERVICE CODE 48]
9531  CAT           06CF      LD B,N        207: CAT :
9533                1804      JR +12        9545 TW_12
    [SERVICE CODE 50]
9535  FORMAT        06D0      LD B,N        208: FORMAT :
9537                1806      JR +8         9545 TW_12
    [SERVICE CODE 51]
9539  MOVE          06D1      LD B,N        209: MOVE :
9541                1802      JR +4         9545 TW_12
    [SERVICE CODE 49]
9543  ERASE         06D2      LD B,N        210: ERASE :
9545  TW_12         xx00      LD C,N        0
9547                CD8928    CALL NN       10377  INTPT?
9550                20A7      JR NZ,-87     9463   TW_10
9552                CD6925    CALL NN       9577   SKIPIT
9555                CD4418    CALL NN       6980   END?       ___!
```

```
9558  CALL_B      F5        PUSH AF                              General purpose relocation call_bank
9559              3AC25C    LD A, (NN)      23746  VIDMOD
9562              A7        AND A
9563              2004      JR NZ,+6        9569   TW_V
9565              F1        POP AF
9566              C3D065    JP NN           26064  CALL_BANK
9569  TW_V        F1        POP AF
9570              C390FD    JP NN           64912  CALL_BANK'

9573-9576 4 bytes free

9577  SKIPIT      3AC65C    LD A,(NN)       23750  ARSFLG       (Kept here because of global calls)
9568              CB8F      RES 1,A                    :IN_"
9570              32C65C    LD (NN),A       23750  ARSFLG
9573              C5        PUSH BC
9574              DF        RST 24          24     IGN_SP       (Cannot be SLUG here)
9575  TW_13       FE22      CP N            34:":                (Could be in SLUG)
9577              280B      JR Z,+13        9590   TW_14
9579              FE3A      CP N            58:::                        ""
9581              2807      JR Z,+9         9590   TW_14
9583              FE0D      CP N            13:^M: (CR )                 ""
9585              2803      JR Z,+5         9590   TW_14
9587              E7        RST 32          32     NXT_IS       (Does not sense SLUG entry)
9588              18F1      JR -13          9575   TW_I3

9590  TW_14       FE3A      CP N            58:::                Here for ", :, (CR)
9592              2007      JR NZ,+9        9601   TW_15
9594              3AC65C    LD A,(NN)       23750  ARSFLG       Here for :
9597              CB4F      BIT 1,A                    :IN_"
9599              201C      JR NZ,+30       9629   TW_18        Inside quotes. Ignore it.
9601  TW_15       E5        PUSH HL
9602              0605      LD B,N          5:^E: (ENQ)          Test if ",:,(CR) in SLUG
9604  TW_16       2B        DEC HL
9605              7E        LD A,(HL)
9606              FE0E      CP N            14:SLUG :
9608              2814      JR Z,+20        9628   TW_17        It was in a SLUG. Ignore it.
9610              10F8      DJNZ -6         9604   TW_16
9612              E1        POP HL                               Here if not in SLUG
9613              DF        RST 24          24     IGN_SP       Recall char
9614              FE22      CP N            34:":
9616              200E      JR NZ,+16       9632   TW_19
9618              3AC65C    LD A,(NN)       23750  ARSFLG       Toggle in_quotes bit
9621              EE01      XOR N           1:00000010:  :IN_"
9623              32C65C    LD (NN),A       23750  ARSFLG
9626              1801      JR +3           9629   TW_18

9628  TW_17       E1        POP HL
9629  TW_18       E7        RST 32          32     NXT_IS
9630              188A      JR -68          9575   TW_I3

9632  TW_19       C1        POP BC
9633              C9        RET                                  CH_ADD -) : or (CR) at end of line

9634  PASSING     ED4B5D5C  LD BC,(NN)      23645  CH_ADD
9638              CD6925    CALL NN         9577   SKIPIT
9641              2A5D5C    LD HL,(NN)      23645  CH_ADD
9644              A7        AND A
9645              ED42      SBC HL,BC                            Length in bytes
9647              2B        DEC HL                               Adjust for branching
9648              7D        LD A,L                               A = LEN -1
9649              2A655C    LD HL,(NN)      23653  STKEND
9652              77        LD (HL),A                            Store LEN -1
9653              23        INC HL
9654              C1        POP BC                               Return addr
9655              70        LD (HL),B
9656              23        INC HL
9657              71        LD (HL),C                            Temporarily store it here
9658              23        INC HL
9659              22655C    LD (NN),HL      23563  STKEND
9662              2A5D5C    LD HL,(NN)      23645  CH_ADD
9665              2B        DEC HL
9666              CB47      BIT 0,A
9668              280C      JR Z,+14        9682   TW_21
9670  TW_20       3D        DEC A
9671              46        LD B,(HL)
9672              2B        DEC HL
9673              3D        DEC A
9674              FA7D0F    JP M, NN        9692   TW_22        Done or none
9677              4E        LD C,(HL)
9678              2B        DEC HL
```

```
9679              C5        PUSH BC
9680              18F4      JR -10          9670   TW_20

9682  TW_21       0620      LD B,N          32: :
9684              A7        AND A
9685              C8        RET Z
9686              4E        LD C,(HL)
9687              2B        DEC HL
9688              3D        DEC A
9689              C5        PUSH BC
9690              18EA      JR -20          9670   TW_20

9692  TW_22       2A655C    LD HL,(NN)      23653  STKEND     Here if done or none
9695              2B        DEC HL                            -) msb return addr
9696              7E        LD A,(HL)                         Get it
9697              2B        DEC HL                            -) lsb return addr
9698              22655C    LD (NN),HL      23653  STKEND     Adjust STKEND
9701              66        LD H,(HL)                         Get lsb return addr
9702              6F        LD L,A
9703              E5        PUSH HL                           Restore return addr
9704              C9        RET

9705  B_ENABL     F5        PUSH AF
9706              3AC25C    LD A, (NN)      23746  VIDMOD
9709              A7        AND A
9710              2004      JR NZ,+6        9717   TW_W
9712              F1        POP AF
9713              C39964    JP NN           25753  BANK_ENABLE
9717  TW_W        F1        POP AF
9718              C359FC    JP NN           64601  BANK_ENABLE'
```

9721-9730 10 Bytes FREE

SYNTW0 occupies 9300 thru 9730. It includes code for:

```
RESET                                                                   Reset all devices
RESET *                                                                 Reset all channels
RESET # n                                                               Reset device on stream n

SAVE f              LOAD f              VERIFY f            MERGE f     Tape program
SAVE f LINE n       ------              ------              ------      Program, autostart @ line n
SAVE f DATA a()     LOAD f DATA a()     VERIFY f DATA a()   ------      Numeric array a
SAVE f DATA a$()    LOAD f DATA a$()    VERIFY f DATA a$()  ------      String array a$
------              LOAD f CODE         VERIFY f CODE       ------      Get code @ location saved
------              LOAD f CODE n       VERIFY f CODE n     ------      Get code & relocate @ n
SAVE f CODE m,n     LOAD f CODE m,n     VERIFY f CODE m,n   ------      Get max n bytes code @ location m
SAVE f SCREEN$      LOAD f SCREEN$      (doesn't work)      ------      D_FILE1 & A_FILE1
```

(Except for SAVE, f can be replaced by "", in which case the first encountered matching type record will be accepted, regardless of name.)

```
SAVE * a,parmlist   LOAD * a,parmlist   VERIFY * a,parmlist  MERGE * a,parmlist      Expansion banks
CAT a,parmlist      FORMAT a,parmlist   MOVE a1,a2,parmlist  ERASE a,parmlist       Expansion banks
```

NEWDEV at 9407 was at 9426. This change must be entered at TEM11 as follows:

```
Was:  7238  TEM11   C3D224   JP NN    9426   NEWDEV
Is:   7238  TEM11   C3BF24   JP NN    9407   NEWDEV
```

Entries for CAT, FORMAT, MOVE, ERASE
were: 9672, 9676, 9680, 9684
are: 9531, 9535, 9539, 9543
These changes must be entered in the TEMPLATE TABLE as follows:

```
Was:  6666  204,37          Target 9676  FORMAT
Is:   6666   63,37          Target 9535  FORMAT
Was:  6671  208,37          Target 9680  MOVE
Is:   6671   67,37          Target 9539  MOVE
Was:  6676  212,37          Target 9684  ERASE
Is:   6676   71,37          Target 9543  ERASE
Was:  6681  216,37          Target 9672  CAT
Is:   6681   59,37          Target 9531  CAT
```

PASSEM was at 9657. It called PASSING at X3849 (wrong value) in EXROM. PASSING at X3907 in EXROM incorrectly calls SKIPIT at 9565 instead of 9577. The fix is to move PASSING from EXROM back into HOME ROM, eliminating the PASSEM calling routine -- which could not account for VIDMOD relocation anyway. Code in EXROM can be deleted.

All routines have been revised to allow relocation of bank switching routines based on memory mapping plus fixes for many barriers to using bank switching and passing parameters.

With corresponding changes elsewhere, all peripheral operations should be restored. No new features have been added. It is recommended that SYNTW0 be used as the master location for CALL_BANK access, with or without the passing of parameters, or parameter lists.

A master location is also provided for BANK_ENABLE @ 9705.

FUNCTION DISPATCHER NUMERICAL LIST

SERVICE CODE	SERVICE	ADDRESS	DESCRIPTION	NOTES
1	W_TAPE	104	IX = ADDR; DE = LEN; A = 0 for Header, 255 for data block; NC = ERROR.	EXROM Based
2	RD_BIT	393		
3	R_EDGE	397		
4	SLVM	427		
5	LOAD	1484		
6	MERGE	1765		
7	SAVE	2129		
8	CHNG_V	3747 (3726)		Wrong addr
9	W_BORD	229		
10	(R_TAPE)	---- (252)	IX = ADDR; A = 0 for Header, 255 for data block; NC = ERROR	Proposed
11		----	NC for VERIFY; CY for READ	Spare
12		----		Spare
13		----		Spare
14	GET_STATUS	25605		RAM Based.
15	GET_NUMBER	25694		
16	BANK_ENABLE	25753		
17	GOTO_BANK	25969 (25970)		Wrong addr
18	CALL_BANK	26063 (26064)		Wrong addr
19	XFER_BYTES	26401 (26402)		Wrong addr
20	(GET_WORD)	[illegible]		Proposed
21	(PUT_WORD)	---- (25403)		Proposed
22	(GET_CHUNK)	---- (25677)		Proposed
23		----		Spare
24		----		Spare
25	UPD_K	737	Keyboard input	ROM Based.
26	PARP	1011	DE+1 Cycles, Period 8n+(235 TO 246) T-States; HL = n	
27	BEEP	1078	**BEEP**; Params on calc stack, exit via PARP.	
28	K_DUMP	2562	**COPY**; Primary screen dump to TS2040 printer	
29	SENDTV	1280	General purpose channel. Chars to screen or TS2040 printer.	
30	SETAT	1458	B = LINE # 0-23; C = COLUMN # 0-31 Print Cursor	
31	ATTBYT	1808	HL = ADDR; ATTR_T; MASK_T; P_FLAG: Attribute byte	
32	R_ATTS	2184	Permanent to Temporary Attribute data	
33	CLLHS	2217	Clear lower screen	
34	CLS	2282	Clear entire screen	
35	DUMPPR	2595	Print & Clear printer buffer	
36	PRSCAN	2634	Scan line (32 bytes) to TS2040 printer	
37	DESLUG	3341	Remove number slugs from EDIT buffer if found @ HL = ADDR	
38	K_NEW	3357	**NEW**	
39	INIT	3377	A = 0 for power on, 255 for **NEW**; DE = MAX RAM	
40	INCH	4577	A = char from current channel. NC = no input	
41	SELECT	4656	A = stream #; select corresponding channel	
42	INSERT	4795	Insert BC bytes before HL. Update sysvars. DE -) last inserted byte; HL -) first -1	
43	RESET	4948	**RESET** all; **RESET** * all expansion devices; **RESET** # n device on stream # n.	
44	CLOSE	5023	**CLOSE** # n; n on calc stack	
45	CLCHAN	5054	Close channel. Restore defaults if applicable.	
46	OPEN	5162	**OPEN** # n,"x"(,**parameter list**) Open or Create a channel. n,"x" on calc stack.	
47	OPCHAN	5221	Open channel if possible. "x" on calc stack.	
48	CAT	9672	**CAT** "x",(**parameter list**) Catalog of channel "x"	
49	ERASE	9684	**ERASE** "x",(**parameter list**) Erase selected files	
50	FORMAT	9676	**FORMAT** "x",(**parameter list**) Format media of channel "x"	
51	MOVE	9680	**MOVE** "x1","x2",(**parameter list**) Move or copy files between channels	
52	FLASHA	5645	A -) lower screen flashing. (cursor)	
53	FIND_L	5846	Find line HL (Z,HL = addr), higher (NZ,HL = addr or vars), DE = prev line or HL	
54	SUBLIN	5872	DE = (statement #,0) or (0,token), HL -) line. Results vary with conditions, request.	
55	RECLEN	5920	HL -) record. BC = length. DE = HL + BC	
56	DELREC	5968	Delete BC bytes @ HL. Update sysvars.	
57	PUT_BC	6024	BC -) ASCII -) current channel. "0" if minus.	
58	SYNTAX	6695	Edit buffer **command**(s) or line	
59	EXCUTE	6872	Edit buffer command(s)	
60	FOR	7288	**FOR**	
61	STOP	7257	**STOP**	
62	NEXT	7509	**NEXT**	
63	READ	7575	**READ**	
64	DATA	7810	**DATA**	
65	RESTBC	7882	**RESTORE** {Line#}. BC = line #	
66	RAND	7892	**RANDOMIZE** {seed}	
67	CONT	7908	**CONT**inue	
68	JUMP	7921	Jump to line.	
69	FIX_U1	7966	A = calc top unsigned	
70	FIX_U	7971	BC = calc top unsigned	
71	CLEAR	7990	**CLEAR** {addr} , BC from calc stack	
72	CLR_BC	7993	BC = new RAMTOP. Clears all but program.	
73	GO_SUB	8089	**GOSUB** Line#	
74	CHK_SZ	8123		

CODE	MACRO	SERVICE	ADDRESS	DESCRIPTION
75		RETURN	8148	RETURN
76		PAUSE	8171	PAUSE (frames). BC = frames
77		BREAK?	8201	SHIFT & BREAK keys pressed?
78		DEF_FN	8221	DEF FN
79		K_LPR	8533	LPRINT
80		K_PRIN	8537	PRINT
81		P_SEG	8574	
82		INPUT	8747	INPUT
83		I_SEG	8811	
84		NOTKB?	9088	Checks current channel device char. Z for "K"
85		COLOUR	9182	C = ink, NC =paper, D = color (0-9); ATTR_T; MASK_T; P_FLAG
86		HIFLSH	9245	D = 0, 1 or 8; ATTR_T; MASK_T
87		SCRMBL	9731	B = Y, C = X, A = bit # (0-7), HL -) primary file addr
88		PLOT	9781	PLOT (COLOR;) X,Y
89		PLOTBC	9790	Processes using BC & P_FLAG. Sets COORDS.
90		GET_XY	9824	B = TOP, C = SECOND, D = SGN B, E = SGN C, from calc stack
91		CIRCLE	9849	CIRCLE (COLOR;) X,Y,R
92		DRAW	9947	DRAW (COLOR;) dX,dY,(RAD)
93		DRAW_L	10256	Straight line
94		EXPRN	10324	Evaluate expression. Numeric, string, null string to calc stack
95		F_SCRN	10382	SCREEN$
96		F_ATTR	10455	ATTR
97		RND	10678	RND
98		F_PI	10725	PI
99		F_INKY	10738	INKEY$
100		FIND_N	11376	Find variable, CH_ADD -) char
101		PSHSTR	11888	AEDCB to calc stack, reset FLAGS bit 6 :NO (to string).
102		PAEDCB	11892	AEDCB to calc stack, no change to FLAGS
103		LET	11965	LET
104		POPSTR	12207	TOP -) AEDCB, lose TOP
105		DIM	12224	DIM
106		STKUSN	12377	A = first char, CH_ADDR -) ASCII string -) calc stack (unsigned floating point)
107		STK_A	12518	-) calc stack (unsigned floating point)
108		STK_BC	12521	-) calc stack (unsigned floating point)
109		ININT	12537	A = first char, CH_ADDR -) ASCII string -) calc stack (unsigned integer)
110		FP2BC	12640	calc stack (floating point) -) BC (rounded) NZ if negative
111		FP2A	12691	calc stack (floating point) -) A (rounded) NZ if negative
112		OUTPUT	12705	calc stack (floating point) -) ASCII string -) current channel
113	3	SUB	13262	- (HL)-(DE) in (HL), (DE) unchanged
114	15	ADD	13267	+ (HL)+(DE) in (HL), (DE) unchanged
115		MULT	13416	* (integer) (HL)*(DE) in (HL), (DE) unchanged
116	4	TIMES	13449	* (floating point) (HL)*(DE) in (HL), (DE) corrupted
117	5	DIVIDE	13678	/ (HL)/(DE) in (HL), (DE) corrupted
118	58	TRUNC	13779	(HL) -) closest integer to 0 in (HL)
119	61	FLOAT	13910	(HL) (integer)-) (HL) (floating point)
120	50	INTDIV	15035	/ TOP (X)/SECOND (Y) -) X MOD Y, INT (X/Y), DE -) TOP, HL -) SECOND
121	39	INT	15050	Integer part TOP -) TOP
122	38	EXP	15071	e to the TOP -) TOP
123	37	LN	15150	Natural logarithm TOP -) TOP
124	57	ANGLE	15262	TOP (radians) -) [-1 (= TOP =) +1]. Corresponds to quadrants 4 and 1
125	32	COS	15301	Cosine TOP (ANGLE) -) TOP
126	31	SIN	15312	Sine TOP (ANGLE) -) TOP
127	33	TAN	15349	Tangent TOP (ANGLE) -) TOP
128	36	ATN	15357	Arctangent TOP (ANGLE) -) TOP
129	34	ASN	15438	Arcsine TOP (ANGLE) -) TOP
130	35	ACS	15454	Arccosine TOP (ANGLE) -) TOP
131	40	ROOT	15461	Square root of TOP -) TOP
132	6	TO_THE	15468	SECOND to the TOP -) SECOND, SECOND = new TOP
133		RDCH	4559	Wait for char in A (- current channel. Loops through INCH.
134		SENDCH	4589	Char in A -) current channel.
135		WRCH	16	RST 16 jumps to SENDCH
136		K_SCAN	688	Scans keyboard.
137		P_LFT	1338	(- Backspace. S_POSN, SPOSNL or P_POSN effected
138		P_RT	1364	-) Space -) current channel
139		P_NL	1382	New line if screen (primary). Output printer buffer if TS2040.
140		PUTMES	1855 (1870)	DE -) ASCII message table base (80h). A = Message #. Message ends with bit 7 set.
141		K_CLS	2214	CLS
142		SCRL	2361	Scrolls entire screen up one line. (primary)
143		F_PNT	9764	POINT
144		DRAWLN	10259	DRAW_L except enter with B = Y, C = X.
145		PUT_LN	6037	Four digit ASCII (with leading blanks) -) current channel. HL -) msb line #, lsb next

---

Add 128 to SERVICE CODE if JUMP is wanted instead of CALL.
The address in the EXROM jump table is 8192X - 2 * SERVICE CODE.
The address for SERVICE CODE 140 PUTMES is in error. The specified location is that for ERROR messages which carry the message number in L not A. The correct address is 1870.
Three consistent errors in the location of bank switching routines exist. One remains in the location of CHNG_V in EXROM.
There is an apparent duplication for RST 16 and SENDCH. That for RST 16 is expendable and can be re-used.

ALPHABETICAL LIST

CODE	MACRO	SERVICE	ADDRESS	CODE	MACRO	SERVICE	ADDRESS	CODE	MACRO	SERVICE	ADDRESS
130		ACS	15454	114		ADD	13267	124		ANGLE	15262
129		ASN	15438	128		ATN	15357	16		BANK_ENABLE	25753
27		BEEP	1078	77		BREAK?	8201	18		CALL_BANK	26063 (26064)
74		CHK_SZ	8123	8		CHNG_V	3747 (3726)	91		CIRCLE	9849
45		CLCHAN	5054	71		CLEAR	7990	33		CLLHS	2217
44		CLOSE	5023	72		CLR_BC	7993	34		CLS	2282
85		COLOUR	9182	67		CONT	7908	25		COS	15301
64		DATA	7810	78		DEF_FN	8221	56		DELREC	5968
37		DESLUG	3341	105		DIM	12224	92		DRAW	9947
93		DRAW_L	10256	144		DRAWLN	10259	35		DUMPPR	2595
49		ERASE	9684	159		EXCUTE	6872	22		EXP	15071
94		EXPRN	10324	96		F_ATTR	10455	99		F_INKY	10736
98		F_PI	10725	143		F_PNT	9764	95		F_SCRN	10382
100		FIND_N	11376	70		FIX_U	7971	69		FIX_U1	7966
52		FLASHA	5645	119		FLOAT	13910	60		FOR	7288
50		FORMAT	9676	111		FP2A	12691	110		FP2BC	12640
(22)		(GET_CHUNK)	--- (25677)	15		GET_NUMBER	25694	14		GET_STATUS	25605
(20)		(GET_WORD)	--- (25366)	90		GET_XY	9824	73		GO_SUB	8089
17		GOTO_BANK	25969 (25970)	86		HIFLSH	9245	83		I_SEQ	8811
40		INCH	4577	109		ININT	12537	39		INIT	3377
42		INSERT	4795	121		INT	15050	120		INTDIV	15035
82		INPUT	8747	68		JUMP	7921	141		K_CLS	2214
28		K_DUMP	2562	79		K_LPR	8533	38		K_NEW	3357
80		K_PRIN	8537	136		K_SCAN	688	103		LET	11965
123		LN	15150	5		LOAD	1484X	6		MERGE	1765X
51		MOVE	9680	62		NEXT	7509	84		NOTKB?	9088
47		OPCHAN	5221	46		OPEN	5162	112		OUTPUT	12705
137		P_LFT	1338	139		P_NL	1382	138		P_RT	1364
81		P_SEQ	8574	102		PAEDCB	11892	26		PARP	1011
76		PAUSE	8171	88		PLOT	9781	89		PLOTBC	9790
104		POPSTR	12207	36		PRSCAN	2634	101		PSHSTR	11888
57		PUT_BC	6024	145		PUT_LN	6037	(21)		(PUT_WORD)	--- (25403)
140		PUTMES	1870	32		R_ATTS	2184	3		R_EDGE	397X
66		RAND	7892	(10)		(R_TAPE)	--- (252X)	2		RD_BIT	393X
133		RDCH	4559	55		RECLEN	5920	43		RESET	4948
65		RESTBC	7882	75		RETURN	8148	97		RND	10678
131		ROOT	15461	7		SAVE	2129X	142		SCRL	2361
87		SCRMBL	9731	41		SELECT	4656	134		SENDCH	4589
29		SENDTV	1280	30		SETAT	1458	126		SIN	15312
4		SLVM	427X	107		STK_A	12518	108		STK_BC	12521
106		STKUSN	12377	61		STOP	7257	113		SUB	13262
54		SUBLIN	5872	58		SYNTAX	6695	127		TAN	15349
116		TIMES	13449	132		TO_THE	15468	118		TRUNC	13779
25		UPD_K	737	9		W_BORD	229X	1		W_TAPE	104X
135		WRCH	16	19		XFER_BYTES	26401 (26402)				

Z88 RAM

The Z88 has 32K of built in RAM (Random Access Memory) of which about 20K is free for use. This may be increased by adding extra RAM cards in the slots along the front. There are three slots, each of which may take upto 1 Megabyte of RAM although it is advisable to use slots 1 and 2 for RAM leaving slot 3 available for EPROM. This is because slot 3 is the only one which can be used to record data onto EPROM. Also RAM cards will consume more power in this slot than in slots 1 and 2 and therefore reduce battery life.

Inserting a RAM card

1) Make sure that the Z88 is switched ON and the INDEX is displayed.

2) Open the perspex flap at the front, the Z88 will give a short beep and the screen will go blank.

3) Push the RAM pack into the slot making sure that the label is facing outwards and is the correct way up. Make sure that the card is pushed in as far as it will go.

4) Close the flap. The Z88 will turn itself back on and re-display the INDEX. You can check that the card has been recognised by typing <>CARD.

If you remove a RAM pack from the Z88 any data held in it will be lost instantly. Do not remove a RAM card unless you must. If you do have to remove a RAM card, the Z88 will display 'FAIL' in the top right hand corner of the screen. You will have to perform a soft-reset on the Z88 and any suspended activities will be lost.

Z88 ROM

ROM cards are used to contain extra data or applications programs such as databases, communications program or spelling checkers.

The procedure for inserting a ROM card is very similar to that for inserting a RAM card. First turn the Z88 ON and enter the INDEX. Open the flap and push the card into a free slot. Close the flap. The Z88 will take note of the new card, check this by typing <>CARD from the INDEX.

To remove a ROM card the Z88 must once again be ON and you must be in INDEX. You must not have any suspended activities which are making use of the card. To check this look at the list of activities on the display and see if any of them have a number in the rightmost column. If they do, and this is the slot number which holds the card in question, then that activity must be killed (using <>KILL) before the ROM card is removed.

If you remove a card that is in use the Z88 will sound a warning when you close the flap and display the symbol CARD at the top right of the screen. You must then replace the card in the same slot that it came from and kill all remaining activities.

If you remove a card whilst you are not in the INDEX the Z88 will sound a warning when you close the flap and display the symbol INDEX at the top right of the screen. You must return the card to the original slot, close the flap and return to the INDEX. You will then be able to remove the card normally.

Do not remove ROM cards while the Z88 is switched OFF.

A REVIEW OF "MANUAL A" FOR THE Z88

by Eliad P. Wannum

This issue I want to review a manual written by Mike Fink, of Domino Cubes , a Z88 hardware and software vendor. This manual can be purchased from Domino Cubes for $10.00, or can be gotten free with the purchase of a Z88.

The Manual A starts out by telling you that it is written for people that know nothing about computers. This is not quite true, as he does use terms almost immediately that are not in the jargon of the non-computer literate. Examples are cursor, reset, word processing. This may seem minor, but it is the area where most texts that claim to be for the absolute beginner fall down. A glossary should be available at the beginning, or each new term (new to non users) defined as it is first used, possibly with an example given. With this done I would have much more faith in manuals. Aside from this point, the manual assumes only that you can read and understand English. With the manual that comes from Cambridge when you buy your Z88, I believe that the learning curve (amount of time it takes to assimilate data) can be shortened for new users of the Z88.

The manual starts out by getting you to get the computer turned on and introducing you to the uses of the various keys on the keyboard. By the time you are done you will have learned the rudiments of navigating the keyboard and the various menus. You are started off in Pipedream, and cover how to use it as a word processor, and then briefly what to do to use it as a spreadsheet. Where necessary, you are referred back to the Cambridge manual and given the page numbers to use.

The manual then goes on to cover the Diary, Printer Editor, Panel, and then BBC Basic. For those raised on Sir Clive's other computers, the coverage of BBC Basic is necessary, as there are changes, but not so many that this can not easily be overcome. This was necessary as Sinclair gave up his own Sinclair Basic and QL Super Basic to Amstrad a few years back (not that they have done anything with Super Basic since then). At this point Mike goes on to cover the Calendar, the Alarm, and Formatting. This covers the original part of the manual.

The rest of the Manual A consists of excerpts from various sources, such as Cambridge Z88 NewsNotes, Z88 EPROM (a small English magazine and club devoted to the Z88) and PIPELINE (a short lived magazine started by Time Designs Magazine and Paul Bingham).

Would I say that the Manual A was worth $10.00? Definitely yes, particularly for someone new to computers. I have been a computer user since 1974 and managed to learn things about the Z88 that were not readily apparent with the material that came with my Z88. It is not perfect and has a few minor misspellings, but the data on how to use this little portable computer is what we are after, not an "A" on a book report!

I inherited my review copy of this manual for the Z88 from a friend, and am glad I got the chance to see it. Mike Fink of Domino Cubes also has a Manual B for the more advanced user of the Z88. I hope to get a chance to review it in a future issue of UPDATE Magazine, the best source for Sinclair users in North America.

This manual can be obtained from Domino Cubes , 1800 7th Ave. Suite 1-C, New York, New York 10026. The phone number is 212-749-7061.

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For All Computers

EXPLORING DEF FN and FN

There are many amongst us who could broaden our MATH by use of the DEF FN and FN functions. DEF FN gives us 52 FORMULA storage slots to be exercised by a simple use of the FN command. Most of us have to really search the TS-2068 keyboard to find the appropriate Key. (under the 1 and 2 keys). For the Ql and Z88 we simply type the DEF FN and FN commands.

There are 26 possible numerical expressions of the DEF FN command, one for each letter of the alphabet. There are 26 more for literal expressions. In each case we can think of DEF FN as "holding a formula". And, we can think of FN as a command to execute the formula. A typical numeric formula is given as: 200 DEF FN a()=200/PI. To execute the formula: PRINT FN a(). OR <LET x=FN a(). You can even <LET a=FN a()> as the FN letter is not a variable. The formula MUST be in a LINE of PROGRAMMING, because each usage of FN causes a search of program lines for the formula to execute.

A LITTLE PROGRAM DOES a LOT of THINGS: The following little program demonstrates several ways of using DEF FN and FN. Note at line #100 that we assign the FN values to variables to use within the DEF FN formula. This works because none of the variables are required in line numbers "lower than 100". The reason for using variables is because we cannot use FN "within a DEF FN formula". Example: 200 DEF FN a=DEF FN b()*10. That wouldn't work. So, to use DEF FN b() in the formula we must first assign a variable to carry the value. Example: LET y=FN b(). Then: 200 DEF FN a()=y*10. There isn't any other restrictions. In fact, DEF FN is somewhat similiar to the QL's Super basic "Procedures", except less restrictive.

Now to explain the little Demo Program. There are 7 examples of DEF FN Formula or expressions. These are in lines 20, 40, 45, 50, 55, 127, and 128. The first 5 are explained with REMarks in the program line. Incidentally, the program lines could be any number high or low. And the lines can contain both the DEF FN formula and programming to be executed.

INPUTS begin at line #40 for the needed variable assignments for the DEF FN Formula to work. Then at line #105 we demonstrate that a new variable (width) can be input and the other new parameters of the formula can be gotten via the FN command.

Line numbers 30, 40, and 125, go together to demonstrate several unique ways of using the DEF FN function. At line #30 we initialize a String Variable. Then at line #40 we use DEF FN a$() to slice the string's first five (literal) numbers. Then at line 125 we use VAL to convert the literal string into a number, and multiply the number by 2.

Line #127 assigns the DEF FN d() formula in an unusual way, using Boolean Logic. Then the logic value is printed.

Line #128 uses the Boolean logic of line 127, and another Boolean evaluation to assign the DEF FN c$() formula. Then line 128's FN command gets the solution and prints it ("Hello or Goodbye"). Obviously, looking at the Boolean examples, the power of DEF FN is expanded tremendously over simple mathematics formula resolution. Boolean logic can tie in several differential equations and select the proper one for execution, depending upon a variety of possible circumstances.

For example, line #127's Boolean logic could make DEF FN d() equal as many as 20 or more different values, just by adding more logic to the bracketed evaluations. Then line #128's Boolean evaluators could be as many conditons as line 127's formula could produce. The only real limitation of the number of Boolean formula would be the capacity of the screen to key in the program line's logic. I often use as many as 12 Boolean conditions in one program line formula. I'm not trying to dazzle, but to say that there is no maximum limit to the way that DEF FN can solve both pure math formula and LOGIC itself.

Lets look at a long but simple formula assignment for DEF FN a(). The senario is, a menu is used to elect the type of math formula to solve: 1. Area of Rect. 2. Width of Rect. 3. Length of Rect. 4. Area of Circle. 5. Circumference of circle. (we could add a dozen more). Variable Z is assigned the number touched after the menu. ie, z=1 if item #1 is elected.

The DEF FN formula would be: DEF FN a()=(l*w AND z=1)+(a/l AND z=2)+(a/w AND z=3)+(PI *r^2 AND z=4)+(PI *d AND z=5). Then <PRINT FN a() > would produce the solution for any of the five math problems. Of course, the needed inputs of variables would preceed the solve line. SO, if a dozen or more math problems can be solved by one

DEF FN a() formula, the limitation of 52 DEF FN's does not seem to be a limit at all.

I believe that the little program demo will give enough examples to whet anyone's appetite to make use of the DEF FN and FN functions. There isn't much text written about these functions that are present in most computers. The manuals wont even give an inkling of the versatility that the functions have, nor how to use them. Experimentation is the only way to develop one's prowess. If Einstein had had DEF FN he would have produced a formua for "anti-gravity. Try your luck and you may do that. Have fun! -BJ_

```
  5 REM ** Applicable to ALL
  TS-2068, Z88, and QL
  6 REM
  7 REM Adjust syntax for QL / Z88
 10 REM "Demo of DEF FN and FN"
Type RUN
 15 REM
 20 DEF FN a()=PI*r^2: REM Triangle Area

 30 LET k$="1234567890"
 40 DEF FN a$()=k$(1 TO 5): REM Slices k
$
 45 DEF FN b()=l*w: REM Area of Rectangl
e
 50 DEF FN w()=x/l: REM Width  of Rectan
gle
 55 DEF FN l()=x/w: REM Length of Rectan
gle
 60 INPUT "Input radius ";r: PRINT "The
Circle area is ";FN a()
 65 INPUT "Enter Rect Width/Length";w,l:
PRINT "The Rect Area is ";FN b()
 100 LET x=FN b(): LET y=FN w(): LET z=FN
 l()
 105 INPUT "Enter New Rect Width ";w: PRI
NT "The New Length is ";FN l()
 125 PRINT "FN a$()*2=";VAL FN a$()*2: RE
M converts slice to number, times 2
 127 DEF FN d()=(0 AND w<20)+(1 AND w>19)
: PRINT "FN d() Boolean logic=";FN d()
 128 DEF FN c$()=("Hello" AND y<1)+("Good
 Bye" AND y>0): PRINT FN c$()
```


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QL_GENEALOGIST

Reviewed by Gary Norton
43 Richardson St., Billerica, MA 01821

QL_GENEALOGIST by Chris Boutal is a program that allows the user to prepare a family history.

It is one of the best looking and operating programs that I have seen for the QL or any other computer. Although more than 107K bytes long, it loads in only a few seconds.

The Configure section offers several choices for paper and ink colors to allow for individual tastes. Also, several variables and printer settings can be altered to customize the program.

The program is multi-menu driven. When a selection is made on the initial menu, a second menu appears beside the first, and so on, until all selections are chosen.

A menu feature that I especially like is the option either to use cursor keys and ENTERing or to simply enter the first (or in some instances the capitalized) letter.

Several types of reports can be generated and sent either to the screen or to a printer for a hardcopy record. There is an Export option so files can be used in Archive.

An added feature is a demonstration file of the British Royal Family from William I, born in 1027, to the present Queen Elizabeth II.

In comparing the ease of use, the features offered, and the reports provided, I do not think there is another genealogy program for any computer that can out-perform the **QL_GENEALOGIST**.

I compared it with Andy Carmichael's **RELATION** program, at least as much as I have been able to get it to work, as well as to a genealogy program for IBMs. **QL_GENEALOGIST** is a hands-down winner against the Archive based **RELATION**, which is very slow, limited in output and much more confusing.

The IBM program, **FAMILY TREE, ETC.**, from Pinecone Software, is as good as **QL_GENEALOGIST** in report output but has fewer options. It does not have the type of Research section available in the QL program nor does it have the Spelling option, to accomodate variations in surname spellings.

On the other hand, when the IBM program prints out the family tree report, it includes full date for birth, marriage and death, as well as the location of each.

USER FRIENDLY

As previously mentioned, **QL_GENEALOGIST** is very user friendly. The manual has a tutorial. If you use it and follow what is happening, by the time you complete it, you are ready to begin.

The 35 page manual is well structured, includes an index for quick referencing, and with only a few minor exceptions, is very concise.

The best part of the program is the way it walks you through each phase of operation with its multi-menu format.

Another excellent feature is the ability to design report outputs. For example, the user can order the report alphabetically or chronologically. There is even a cross-reference feature to see the relationship between any two people and who their closest common ancestors are.

While no program is 100% perfect, this one comes close. The only faults - and I'm nitpicking here - are the following:

1. Intentionally, to save memory, there is no specific gender recognition as in the **RELATION** program. This rarely presents a problem except in the case of cross-referencing with a childless person. If a person and his/her childless aunt are selected, the relationship is identified as Uncle/Aunt of the person being cross-referenced. However, if the aunt has a child she is also identified as being a Mother, specifying the gender. This is a minor feature, but one that would help clarity.

2. The program can crash if an empty drive is referenced. If you have been updating the database, and haven't saved it at this point, all that was updated will be lost. The author explained that the absence of error trapping for this was a consequence of decision not to use any toolkit extensions so that the program would be compatible with all ROMs.

3. Hardcopies of some reports, such as the single line Royal-names demonstration, are very paper intensive. The Pedigree and Tree reports of the Royal Family have many pages of wasted paper. When collatoral relations are included,

the space is filled.

The full-blown **QL_GENEALOGIST** requires at least 256K memory. For those with unexpanded QLs, there is a microdrive version to use with only 128K memory. It offers the same multi-menu screen, but in order to fit into memory several features were eliminated.

Only the Family Tree report can be generated. Both the Research section and the Notes section were left out, but the Export mode is retained.

Even cut-down it is still a useful and easy-to-use program for anyone with an unexpanded QL who is interested in mapping out a family history.

QL_GENEALOGIST is certainly an outstanding program. I cannot begin to give sufficient accolades to Chris for his effort. If one is contemplating the task of preparing a family tree, s/he will be well served by this program. Until now, nothing available for the QL fit the need. Now, thanks to Mr. Boutal, anyone would be hardpressed to come up with a program for any computer that does a better job than this one.

QL_GENEALOGIST is available in North America for $40.95 (mdv = +$8.00) from EMSoft, P.O. Box 8763, Boston, MA 02114. Phone (1-617) 889-0830.

Justified TRANSLATES

-- Bob Hartung --

One objection to the imbedding of TRANSLATE characters in QUILL text is that right-hand justification is altered. For example, if a character is inserted before a word or phrase to change to italics and another is inserted to end italics, the justification would be off by two character-spaces at the end of the printed line. One could substitute the italic ON/OFF codes for those used in the High/Low definitions for superscript and subscript in Typeface. If an entire paragraph is to be affected by the command codes, they could, of course, be inserted into the blank lines preceding and following that paragraph.

Another approach (which may also be used in Tasword 2068 graphics definitions) is to insert code 32 (for space) ahead of the ON code-sequence and following the OFF code-sequence. For example, in INSTALL_BAS I used the character obtained by CTRL SHIFT I so the TRANSLATE sequence (in Epson code) is CTRL SHIFT I,32,27,52 as the ON-italics sequence and CTRL SHIFT O,27,53,32 for OFF-italics. This works OK as long as the affected word or phrase is not at the very beginning or end of a printed line, which may require some re-phrasing of a sentence or paragraph.

Z88 Using Extra RAM

When you insert a RAM card the extra memory space which it provides will be instantly available to activities such as Pipedream. However, files which are saved in RAM must be specifically directed either to the original internal memory or to the extra memory provided by the card. For example, if you insert a RAM card in slot 1, in order to cause it to be used for files you will need to alter the default device setting in the Z88's Panel utility.

To do this enter the Panel utility by typing

[]S

Then move the cursor to the default device and change the value to

:RAM.1

Any new activities which you start will then save their data in the new RAM card.

Existing activities will still save data files in the old RAM. To cause an existing activity to use the new RAM, go into it and then enter the filer by typing []F. Use the select device option to select the new RAM card and then return to the activity by pressing ESC.

If you have RAM cards in more than one slot you may wish to save files to each of them explicitly. To do this you should use the device name :RAM.1/ or :RAM.2/ when specifying the filename where the number refers to the slot in which the RAM card has been placed. The original memory of the Z88 can be referred to as :RAM.0 in all cases.

Z88 EPROM

EPROM cards can only be used in slot 3. They are designed to be used for long-term storage of important data or programs. Unlike RAM, EPROMs will retain information even when removed from the Z88. Thus, in addition to providing a means to make back-up copies of valuable data, EPROMs provide a convenient means for transferring data between Z88s.

One important fact to note about EPROMs is that data cannot be changed once it is recorded into them. If you record a file onto EPROM and then make some changes you will be able to record a complete new copy of the file but this will use up more space within the EPROM. The space occupied by the original version will not become available again. When an EPROM becomes completely full in this way you will only be able to re-use it by erasing ALL the data which it contains. EPROMs cannot be partially erased.

EPROMs may be inserted or removed at any time, except when they are actually being read or written to. They do not consume much power except when being written to, at which time the Z88's screen will be switched off to conserve power.

Note – It is important to remove any EPROM card from the Z88 if you have to re-power a Z88 which has been left without power. Otherwise there is a small risk that data on the card may be corrupted. If the EPROM becomes corrupted it will need to be fully erased and all the data will be lost.

WHEN TO UPGRADE: THE QL IN TRANSITION
by Al Feng

Shortly after I bought my first QL, I learned about both the THOR and the FUTURA. I thought: "Gee, I wish own about the THOR ..." Consider that I was just "graduating" from the TS-2068; and, I was still faced with the (then daunting) task of adding a disk drive interface, the actual drives, et cetera. The THOR would have provided a "clean" package -- sort of like going into a local computer shop and coming out with a (gasp) IBM-PC or APPLE.

Wouldn't you know it, about a year later and the month AFTER I finally decided to add a 512K memory expansion, disk interface and disk drives, the TRUMP CARD was announced.

Timing is everything!

In the intervening years, I've added-and-swapped "real" keytops onto the QL's keytiles; swapped one of my 5.25" 720K drives for a 3.5" 720K drive; upgraded the ROM code a few times (currently: MINERVA); and, changed to a "real" Power Supply (I "wired" my board a bit differently than Dan Elliott had described; but, either way, worth the effort/expense).

By the time you read this, the first of the GOLD CARDs (MIRACLE SYSTEMS) should be in service in New England and environs. The information on this is that this is THE UPGRADE that many of us were clamoring for a couple of years ago. I understand [from Peter Hale] that the board is a disk interface with a 68000 and about 1.8+ meg of RAM memory running at about 4x the speed of a QL (the memory is tied to the "new" processor) and capable of FORMATting/READing/WRITing 1.44 meg disks on an appropriate drive. The UK price: 330 British Pound Sterling.

Where was this WUNDERKARD two years ago when my entire QL system shorted out? Based on my previously established acquisition time-table (and, "LUCK"), MIRACLE SYSTEMS should have announced the GOLD CARD the month AFTER I had replaced everything. More to the point: Am I (still) standing in line for the opportunity to rejunvenate my QL?

First, at 330 BPS it is a relative bargain when compared with the TRUMP CARD (around 300 BPS) if -- and, let's make that a BIG IF -- you are living in the UK and know someone willing to give you real money for your half-way-to-obsolete, RAM-populated floppy disk (only) interface.

While the 330 BPS sounds pretty reasonable, the initial

US price is in the $700-- range. WEE-OH! Who said that New England was going through a recession?

If you haven't already upgraded your QL, and you aren't one of those "gotta be the first on my block to have the new toy" people, then the odds are that you won't allocate 330 quid for your computer (if you live in the UK), much less 700 American dollars.

MEGA-STE [with Jochen Merz board] notwithstanding, there are at least two-or-three alternative 68000 platforms in various stages of development that could be a new home for QDOS.

The advantage of breaking-away from the original QL platform to one of the (forthcoming) alternatives is (presumably):

a) better video; and,
b) (probable) hard disk support.

The GOLD CARD maintains the QL's current video output; and, doesn't have hard disk support [I presume that MIRACLE has only sold about a dozen of the 1000-or-so hard-disk interface boards that they probably made (to date) ... that is, they want you to buy the hard-disk interface in addition to the GOLD CARD].

HMMMmmm. Let's see: 700 + 250 = 950. If we allow the numbers in this simple equation to equal dollars (my understanding is that a MIRACLE hard disk interface costs about $250), then we have the price of an AT-class clone; and, the clone will have the physical hard disk installed for that price whereas the "700 + 250" is just for the two interfaces.

Yes, I like my QL (very much). And, I suppose if the price of the GOLD CARD were only $330, I'd really give it some serious consideration.

But, while the TRUMP CARD was a winner in its time, the GOLD CARD is something you'll probably be paying for over time.

HAPPY TRAILS,
AND COMPUTING,
TO YOU ...

ERRATA AND ADDENDA

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

USING LOOPS IN QL DO FILES

Thanks to Peter Hale for pointing out to me that I should clarify and expand on the comments I made on using loops in DO files (p. 28, April UPDATE). Only a simple FOR loop is given as an example in section 6.1 of the TKT2 manual. Both the simple and the FOR/NEXT type of loop, as well as the REPeat loop, will work as one-line multi-statements in a DO file, as they do in a direct-command multi-statement or in a numbered program listing. However, neither the END FOR nor the END REPeat will work if placed in a separate line-statement from the one used to initialize the respective loops.

MOVING TS2068 CODE BLOCKS

For anyone not familiar with the procedure for relocating blocks of code from one TS2068 address to another, my references in the April UPDATE, p.16, and in the January issue, p. 31, to installing code for printer drivers may also need some clarification. If stored in a first-line or last-line REM, relocatable machine code for a printer driver or other routine may be merged with a program listing rather than being loaded separately.

Using Tom Woods' 117-byte printer driver from his ProFile 2068 as an example, first load in the program, then make a save of just this block of code by using SAVE "filename"CODE 63672,117. The original beginning address for the block is 63672, and 117 is the number of bytes in the block.

Before the move can be made to the REM statement, the statement must first be padded out to the required number of bytes by typing in 1234567890...etc. to exactly 117 bytes for a first-line REM or 121 bytes for a last-line REM. Once this is done, the saved code block is transferred by the command LOAD "filename"CODE m,117. If moving the block to a first-line REM, then use PEEK 23635+PEEK 23636*256+5 for m. For a last-line REM containing 121 bytes use PEEK 23627+PEEK 23628*256-121 for m.

If desired, a first-line REM may be renumbered as line 0 by POKE 26711,0. To tell the system pointers where to find the start of the printer routine in a first-line REM, include on another line in the listing POKE 26703,PEEK 23635+5: POKE 26704,PEEK 23636. For a last-line REM use LET loc=PEEK 23627+PEEK 23628*256-121: LET msb=INT(loc/256): LET lsb=loc-msb*256: POKE 26703,lsb: POKE 26704,msb. If a save is made of just the REM definition and the system variable POKEs it may then be merged with a program listing as desired or else used alone as driver routine.

Note that because the Profile 2068 driver uses address locations 63672-4 to store variable data there may be a conflict if any other code routine in your program uses these same addresses. One way around this would be to POKE these three addresses back to their original values immediately after any use of LPRINT.

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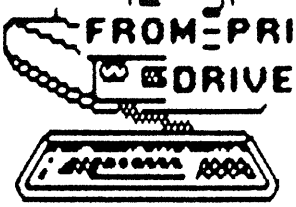
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FILES 2

Reviewed by Peter R. Hale
P.O. Box 8763, Boston, MA 02114

One problem with the QL is that file handling - copying, backing up, deleting, identifying files on media, etc. - is a chore without an expensive multi-tasking front end like QRAM or TASKMASTER.

Even Toolkit II requires SuperBASIC and familiarity with the file handling extensions.

When Peter Jeffries developed TASKMASTER several years ago, it had a versatile file handling facility (FILES) with many unique features.

Now comes **FILES 2**, an updated, improved version of FILES that works WHETHER or NOT TASKMASTER is installed and can be hot-keyed from within ANY program, PSION included. It takes less than 25K.

The beauty of **FILES 2** is its versatility, power, flexibility and error trapping.

When **FILES 2** is hot-keyed with ALT F2, a window offers nine file handling functions. Choose one then select the drives applying to the function.

FILES 2 now supports two hard disks and two ram drives, as well as a two floppies, two mdvs and a designated alternate device.

Six of the functions are: COPY (selected files), BACKUP an entire medium, DELETE or RENAME a file, and read the DIRECTORY. The FORMAT function error traps against erasing a formatted medium.

New to **FILES 2** is the option to COPY a file TO a NEW NAME, even on the same medium.

Two specialized file handling functions report that they work can only under TASKMASTER if it is not installed: ADD ANOTHER executable PROGRAM to a multi-tasking environment and CHOOSE A FILE to load into a program (such as Quill) - a good sales pitch for TASKMASTER itself.

But all other features and the many enhancements are available with or without TASKMASTER.

Some nice added touches are that the ESC key halts a full backup; if adding a multi-tasking program to the environment, only executable files are presented in the window; the file length (in bytes) is now consistent with Toolkit II's WSTAT.

The Delete File function now inserts DELETED for the deleted file name so that file numbering is unchanged. The file's date is kept when copied; under FILES a copy acquired the computer's date.

Two major enhancements are worth the price alone:

When a medium has more than nine files, the universe can be shrunk by entering non-number characters. Without scrolling through a directory you can quickly verify the presence of "fred_aba" by pressing 'f' then 'r'. The odds are that one of the short list now offered will be fred_aba. If not, press 'e', 'd', '_', 'a', etc.

The other great enhancement is that file contents can be viewed. When the window shows one or more files, press CTRL and the file number to display the file contents one screen at a time. Press any key (except ESC) to page through the file; ESC exits viewing the file.

ALL ABOUT FILES 2

FILES 2 replaces the existing FILES on TASKMASTER by overwriting; or it can be independently EXECuted from a PSION (or any other) program boot.

On the surface, **FILES 2** seems to do little more than TK2 (but without leaving an EXECed program.)

BUT, after pressing ALT F2, pressing F2 opens a second level window with a number of parameters for each option.

For example, files to be copied can be limited to _doc files created or updated since boot-up of a session or to only files that have 'abc' (case in-sensitive) anywhere in the name. This is true wildcarding and is impossible even with Toolkit.

It expands the ability to select files based on the date stamp. A list can be restricted to those modified since boot-up, since last backup, in the past 24 hours or in the past 7 days.

Files can be selected on type: All files, non-executable, Executable, or Sinclair Relocatable.

FILES 2 is an great improvement, with features long on loyal users' wish lists. If there is any complaint, it is that it has changed its colors.

Windows have black paper. The borders are still red, but functions and many file particulars are now in green ink, which I find as hard to read as QUILL. It is, however, restful ... ZZZzzz ....

FILES 2 is £12 (+£10 s+h/order): Sector Software, 39 Wray Crescent, Ulnes Walton, Leyland, Lancashire PR5 3NH, UK, Tel 0772 452414, and other UK dealers. In North America it is $26.95 ppd (mdv = +$4.00) from EMSoft, P.O. Box 8763, Boston, MA 02114-8763. Phone (1-617) 889-0830.

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Boutal, Chris

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CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 5 : ALTER and DELETE COMMANDS

So far in this series I have tried to spark reader interest in using computer databases while slowly introducing details of the ARCHIVE database system for the QL. We still have a few more Parts to go just covering the most important ARCHIVE commands. But by now anyone following the series should at least have enough information to create any sort of database they may be interested in and enter data into it. Getting the data in is half the battle. Soon we will tackle getting sensible information back out.

The recent introduction of the Miracle System's Gold Card is the most exciting QL event in years. It will help even out the great speed disparity between the QL and PC machines. In all respects except one, I am happy programming in ARCHIVE on the QL. My one frustration is the somewhat slow screen handling. It is adequate but not fast enough to be impressive. I am hoping the GOLD Card will change that. One report said that a QL with GOLD Card running QUICKEN under PC Conqueror ran faster than QUICKEN on an XT. That certainly raises my expectations since anything run on a standard QL under PC Conqueror is painfully slow.

PREPARATION

In preparation for discussing the commands below have a copy of the GAZET_DBF as supplied with your ARCHIVE program handy. Make sure it is not your only copy because we are going to alter and delete records on it. Start up ARCHIVE. Have it ready to accept your input. Have the GAZET_DBF ready in a device. In the description below what you should type will be underlined and I will bracket special keys like <CTRL> for the control key. The arrow keys will be identified as <up>,<dwn>,<rgt>,<lft> and hyphen means a two key press like <CTRL-rgt> for hold the control key and press the right arrow key.

ALTER COMMAND

The ALTER command works on the current record (see DISPLAY command Part 3) of your currently opened database. It is activated by typing alter<ENTER> at the ARCHIVE prompt (>). It presents an editing screen just like the INSERT command discussed last issue except the field values are set to the current record values instead to being empty. You will see the cursor at the first field when first activated. You are able to edit the record field by field. The current field is where the cursor is located.

Once you start an alter (or inserting) you enter a special editing mode and there are special keys to do the editing. Any standard (non-editing) keys you press will be taken as data to be put at the current cursor position.

The special keys for exiting are <F5>, <F4>, <ESC> and sometimes <ENTER>. Where <F5> means exit and accept record as displayed. <F4> means exit and keep record as it was before altering. <ESC> means abort command. <ESC> is a powerful key in ARCHIVE. It is better to use <F4> if canceling an alter. <ENTER> will exit you from an alter and accept alterations as displayed if you press it when the cursor is at the last field of the record. At any other time it just moves you to the next field.

The special keys for moving to new field are <TAB>, <SHIFT-TAB> and usually <ENTER>. You move forward to a different field with <TAB> or backwards with <SHIFT-TAB>. <ENTER> works like <TAB> except at the last field you will exit and accept the record as displayed if you press <ENTER>. If the first and last field are displayed on the screen <TAB> and <SHIFT-TAB> will take you in continuous circular path from field to field with no exiting.

The special keys for moving within a field or deleting are the four arrow keys <UP>, <DWN>, <RGT>, <LFT>, and standard QL deleting keys <CTRL-RGT>, <CTRL-LFT>. The <UP> key moves you to the first character of the field. The <DWN> key moves you to the last character of the field. The <RGT> key moves one character to the right. The <LFT> key moves one character to the left. The <CTRL-RGT> deletes the character at the cursor. The <CTRL-LFT> deletes the character to the left of the cursor.

When the cursor first moves to a new field while altering (or inserting) you must be careful not to press any keys unintentionally. If the first key pressed is a non editing key (displayable character) ARCHIVE clears the field and replaces it with the character you typed, even if you just press a <space bar>. Pressing any of the field editing keys will turn off that sometimes helpful sometimes not clear field action. How do you add something to the beginning of a field without changing the rest of that field? Move to the field and press <UP> key. This puts you at the first character of the field (where you were anyway so you don't see anything happen) and being an field editing key it turns off the clear field function while you remain at that field. Now you can type in whatever you like at the beginning of the field without affecting the rest of the field.

Except for the clear field quirk any non-editing characters you type will be inserted at the cursor and move anything behind it further out. If you are using the default display screen each field is defined out to the far right hand column. If the field gets enough characters in it you will reach the limit of available space and you won't be able to

add anything more. You will have to move the cursor somewhere else in the field and delete something then move back and add the rest. There are ways to put up to 255 characters in a text field but we will discuss that some other time.

Numeric fields behave a little differently than text fields. First of all if what you type is not a valid numeric statement it will be rejected and you will not be able to leave that field by anything except <ESC>. There is no explicit error message but none of the editing keys work. One nice feature is that you can type calculations or even use the ARCHIVE mathematical functions in your field entry for numeric fields. So .05*102 or 12.43+13.12 or 123/45 or 156-79 or sin(45) are all valid entries. If your entry is a calculation and you move to another field the result of the calculation (the actual entry value) won't be shown even though if has been calculated but if you move the cursor back to that field then it will be visible.

Once you get use to these special editing keys used with the ALTER Command you will find they are quick and effective. The exact same keys are used with the INSERT Command except <F5> inserts the record as displayed and readies a new one and <F4> exits inserting. One thing to avoid is putting spaces at the end of fields or clearing fields with spaces. Since spaces are not visible you may have unexpected behavior if you think there is nothing there and there is actually a space. After all a space is really a character that is not visible. A good general policy in computing is never put spaces where they could be confused with nulls (being empty).

In order to ALTER an ARCHIVE database you will have to access the database with the OPEN command. To prove that to you let us first try to do it when we have accessed it with the LOOK command :

look "{}gazet_dbf"<ENTER> (look,{}=device)
alter<ENTER> (alter)

Notice that the standard display screen appeared and the special editing key uses are described in the help box
test<ENTER> (make change)
<F5> (done with change)
Got error 101 : write to read only file. Look only allows us to read the database we must open it to change it :
close<ENTER> (close our looking)
open "{}gazet_dbf"<ENTER> (open, {}=device))
alter<ENTER> (alter)
<TAB><TAB><TAB>
<TAB><TAB> (move to pop field)
20.5 (enter new value)
press <SHIFT-TAB> repeatedly (see cursor go in a circle)
<F5> (exit alter)

Let's try aborting an alter
alter<ENTER>
<CTRL-rgt> (delete a character)
<F4> (abort alter)
Notice country$ field still seems to equal "FGHANISTAN"
next<ENTER> (move ahead a record)
back<ENTER> (move back again)
Now we see that country$ is really "AFGHANISTAN"
The displayed values don't always equal the real record values depending on what we have done. (a little tricky)

DELETE COMMAND

The delete command is very simple. Whatever record is our current record is removed from the database. If there are any other records in the database then the next record becomes the current record after the delete. The deleted record is gone for good. An ARCHIVE database has to be "OPENED" before a record can be deleted. Continuing from above :

delete<ENTER> (the record is now gone)
close<ENTER> (necessary when done)

Next time we will cover the FIND, SEARCH, and CONTINUE commands. Until then Happy Archiving.

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BAD QL MEMBRANES CRISIS INTERVENTION

by Peter R. Hale, P.O. Box 8763, Boston, MA 02114

If you are like most QL users, your QL has been running pretty well for some time now, once you got the bugs out of it. For some time now it has been a reliable computer that you depend on.

Then DISASTER strikes! One or more of the keys doesn't respond when you press it.

Under the worst of circumstances it won't respond to either the F1 or F2 key and you go into a panic, because that report is due tomorrow or you are absolutely flummoxed as to how to fix it.

You may even think of getting another computer!

But unless there has been a lightening strike or a major electrical problem and lots of smoke, don't think of the computer being wiped out. If it was working yesterday, it will probably do so well into the 21st century.

Your first thought should be that there is a crack in one or more of the keyboard membrane traces.

The membrane is a piece of laminated plastic with silk-screened traces that connect a key press to the computer. Each key is at the junction of two traces. Pressing a key makes a unique connection between two traces.

The original QL membranes were made of plastic that becomes brittle with time. At two points in the connections inside the QL the membranes are curled in a tight radius. That's where a crack is most likely to develop. New membranes are made of better materials and the fix is easy.

If neither the F1 or F2 key works, you can be pretty sure it is a membrane problem. Most likely one of the other keys fails to respond.

First, press every key and make a list of which ones fail to respond. If one goes, then probably others went, too.

Then look at the KEYROW MATRIX chart in the KEYWORDS section of the QL User Guide.

Note the location on the chart of each key that fails to respond. All offending keys should appear in the same column or row. If one or more of the blocks in a row or column is not on your list, double check the key.

If the problem passes this test you need a new membrane.

KEYBOARD MATRIX

COLUMN / ROW	1	2	4	8	16	32	64	128
7	SHIFT	CTRL	ALT	X	V	/	N	.
6	8	2	6	Q	E	O	T	U
5	9	W	I	TAB	R	-	Y	
4	L	3	H	1	A	P	D	J
3	!	CAPS LOCK	K	S	F	=	G	;
2	|	Z	.	C	B	£	M	"
1	ENTER	·	up	ESC	→	\	SPACE	down
0	F4	F1	5	F2	F3	F5	4	7

You can temporarily fix the problem by carefully opening the case and examining the traces for a crack.

If the crack is in the loop where the membrane exits the keyboard, you can sometimes make a mechnical fix by loosening the membrane from the sticky tape that attaches it to the shield under the keyboard, then reattaching it with a slightly greater radius to the loop.

If the crack is where the membrane is connected to the motherboard, a sharp pair of scissors can cleanly cut the trace above the crack.

Both fixes are temporary to get you by until you can order a new membrane which will cost $17.00 to $20.00. (I still have the original membrane on my first QL; the "temorary fix" described here was done two and a half years ago! ... but I have a spare membrane for the next time!)

If opening your case scares you to death, there is at least one member of your user group who can change the membrane in a few minutes.

Both Sharps and Mechanical Affinity stock membranes.

MECHANICAL AFFINITY CATALOG

The following are now available from Mechanical Affinity for your Sinclair home or business computer. All items listed are available in quantity. Orders may be placed by check or money order to either Paul Holmgren,5231 Wilton Wood Ct., Indianapolis In, 46254 317-291-6002 , ...or to Frank Davis, 513 East Main St., Peru, In 46970 317-473-8031. Do not make the check out to Mechanical Affinity. All Prices include Postage already!

BOOKS

SYNCWARE NEWS Vol. 1 $8 All volume 1 issues bound in one book
TOURING THE TS2068 ROM OPERATING SYSTEM by WIDJUP $15
QL TECHNICAL GUIDE $15

SERVICES and PARTS

QL Internal ROM board- this allows you to put your favorite ROM version (JM, JS, JSU, MGUS, MGUK, etc.) on an eprom. This will lower power consumption by the QL by about 20% & drop the internal heat by close to 50 degrees fahrenheit. There is also room on the eprom for us to include one of the following programs if you are an owner of one of them: ICE, QFLASH, TKII, SPEED SCREEN, TKIII. Brd & eprom $40 -- Board alone $15 -- Custom eprom alone $25. Let us know which ROM version you want us to supply, or you can supply.

Speedscreen supplied on your ROM or for ROMport $25. For ROMport you need to have CARE eprom brd or similar plug in brd.

Internal battery backed clock for QL, uses lithium battery, so should be good for far longer than ordinary batteries. This plugs in where the 8032 goes, and the 8032 is then installed in it. $20 for brd & battery, or $26 installed.

Replacement or backup power supply for the QL, no serious user should be without one (personal opinion). $15

QL case, contains keys and bare motherboard, no microdrives. Can be used to replace bad case, keytops, or bad motherboard, or even as a start on building your own spare QL. $20

Keytops for QL $7.50 Use to replace broken or missing keys, or the whole set, if need be. These are originals.

Micro Drive Cartridges $5 each, till supply improves for ones with the tab. $4.00 without the tab, each.

MDV labels, 3 sheets for $1.25. For the QL.

QL membranes, from Paul for $15.

TS2068 dock eprom boards, bare $10.00. These can be used for a TS2068 program on an eprom or can be configured to use for Non-Volatile memory boards (32K to 128K), or as RAM Disk.

Tom Bent's improved 8K TS1000 ROM on eprom. $10.00 Requires at least 16K RAM expansion to operate, but bug corrected. $12 if we supply the special socket.

Disk Drives, half height 3 1/2 and 5 1/4. Order from Paul at $55 @ for 3 1/2 or 5 1/4, or $165 for dual 3 1/2's w/ case & power.

Spectrum B ROMs, on eprom,bug corrected w/ additional characters set on the eprom for $10.

We can supply for those who are owners of the tape programs the following programs on eprom: ZXLR8 for the TS1000, PROFILE for TS2068, MSCRIPT, HOT-Z AROS for TS2068, MTERM II for the TS2068 and DELPHI UTILITIES for the TS1000. $10 for the eprom.

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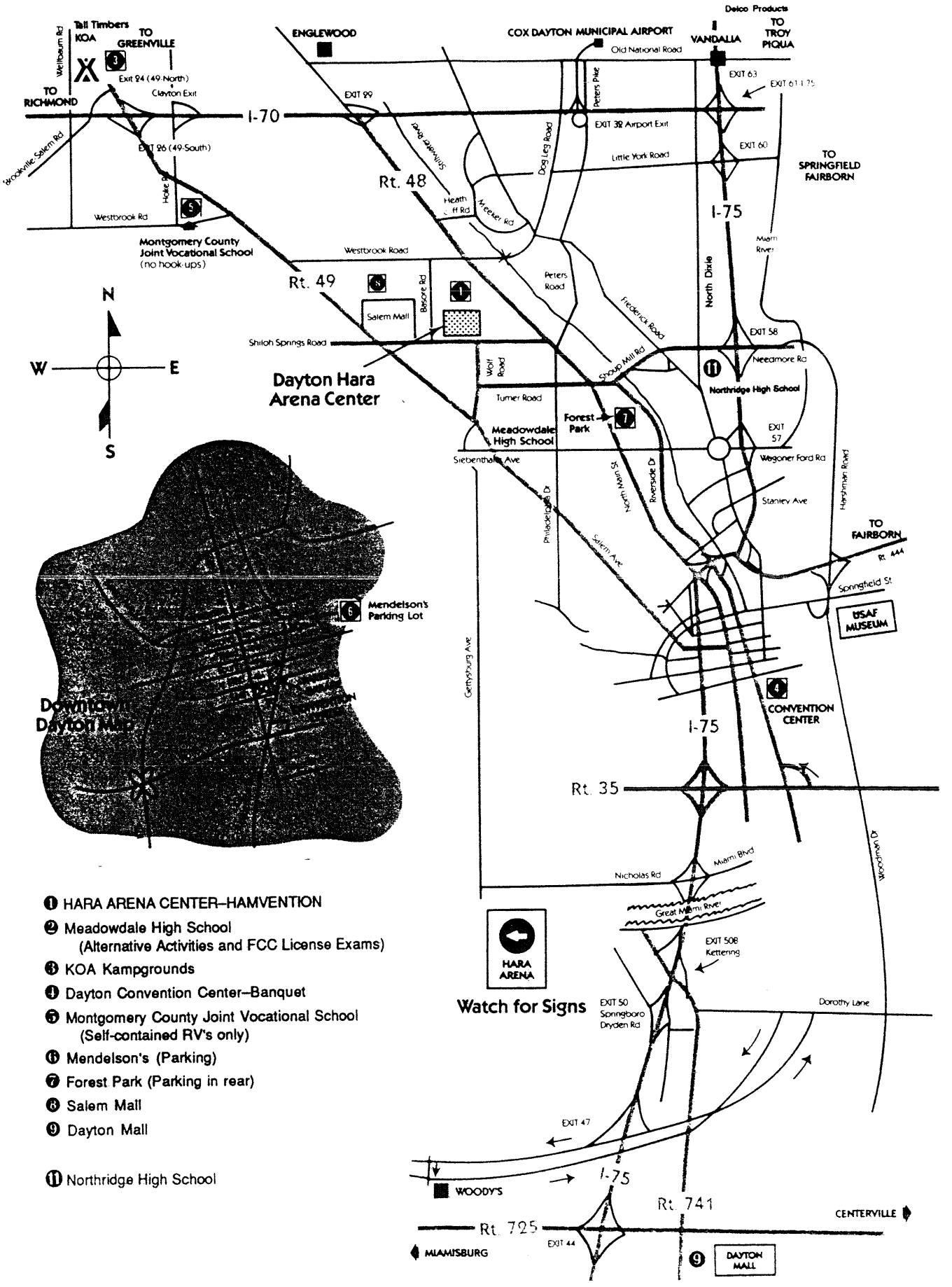
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   (Self-contained RV's only)
6. Mendelson's (Parking)
7. Forest Park (Parking in rear)
8. Salem Mall
9. Dayton Mall

11. Northridge High School

The Sinclair Desktop Publishing Journal

Volume 2 Issue 2 Spring 1991
Edited By Mike Felerski

Two Evenings with Mike Hawks' Master-Scribe

From the Editor

System: TS1000
Required: 16K or more RAM,
TS2040 Printer
or Aerco Printer I/F and
EPSON Compatible Printer

Let's face it, the world of ZX81/TS1000/TS1500 desktop publishing is very, very limited. As a matter of fact, Mike Hawks' Master-Scribe is the only TRUE desktop publishing package available. The only other thing which even comes close are some of the more powerful word-processing packages for the TS1000, some of which allow some limited graphics.

Master-Scribe was written by Mike and Denise Hawks for the TS1000 family of computers running at least 16K of RAM. In my case I chose to use my 32K TS1500. Text data I/O is done via cassette and operates in a manner similar to the TS2068. A special routine was written to accomplish this because the TS1000 family does not directly support "CODE" saves.

The printer driver works with AERCO's CP-ZX or AERCO's CP2068 parallel printer interfaces connected to an Epson compatible dot-matrix printer.

(See "Master-Scribe" on page 2)

In This Issue:

- o 16 Point Font Patrol,
- o Two Evenings W/Master-Scribe,
- o Where to Write,
- o And The Great SDPJ Product Roundup...

16 Point Font Patrol

System: TS2068
Product: Enhancement,
Pixel Print or
The Print Factory

In the Winter 1991 issue of the SDPJ we talked about font packages available for the TS2068/Spectrum. These fonts could be loaded and displayed on screen or used in program packages such as Pixel Print or The Print Factory. In the second paragraph of the article, we promised to discuss larger point fonts in a future article. This article intends to discuss 16 Point fonts which can be used with Pixel Print or The Print Factory.

The largest source for 16 Point fonts is Mountaineer Software. Mountaineer provides not only the fonts but also a 16 Point Font Designer program.

The 16 Point Font Designer program uses pull-down menus and "point and click" cursor control to make menu selections and to turn on/off pixels. The created fonts are 16 pixels high by 8 pixels wide. The program SAVEs and LOADs via BASIC and comes ready for BASIC modification for the users specific DOS (the menu provides a Cassette or Disk option so only the Disk specific BASIC code needs to be altered for the users particular DOS).

Along with the package are twelve 16x8 point fonts, and thirteen 16x16 point MEGAfonts. The 16x8 point fonts can be directly LOADed into Pixel Print's LOAD FONT menu choice. When the font's name is saved (on cassette or disk) correctly with the first character of the name being a ! than Pixel Print automatically knows that it is a 16 point font and adjusts the program for it.

Before LOADing a font into The Press, the user is asked if the font to be LOADed is a single or double height font. A double height font is a 16 point font, and it is loaded into the FONT 2 and FONT 3 memory locations within The Press.

But so far all we have talked about is the 16x8 point fonts...so how does the user LOAD and use 16x16 point MEGA fonts? It is all done using a little trick to fool the host program. For the 16x16 point MEGAfonts to be printed, we need to use two key presses.

(See FONTS on page 2)

SDPJ Product Roundup

This issue introduces the Sinclair Desktop Publishing Journal's Product Roundup for Spectrums and TS2068s. The Roundup is a chart (created using Print Factory's "First Edition") listing eleven of the hottest products available for and related to desktop publishing for ZX Spectrums and TS2068s.

The chart indicates if the product is ZX and/or TS compatible, if it supports Disk I/O, who it is available from, a short description and the approximate price.

In coming issues we hope to publish Roundups for TS1000, QL and Z88 desktop publishing products. So check out page 4 of this issue, and look out for future "Roundups"!

Fonts

from front page...

The first half of the MEGAfont character is the CAPS SHIFT or shifted character and the second half is the un-shifted character key press. Of course this means that the user can only have the uppercase or the lowercase character set in memory at one time.

Conclusion: 16 point and 16 point MEGAfonts provide better character resolution for large point fonts. This makes them excellent for headlines over the conventional method of using a "Double" function to double the height of 8x8 point fonts (as per Pixel Print). They are also an excellent enhancement to The Print Factory's: The Press.

Now, for an actual Pixel Print look at Mountaineer Software's 16 point and 16 point MEGAfonts, turn to page 3.

Master-Scribe

from front page...

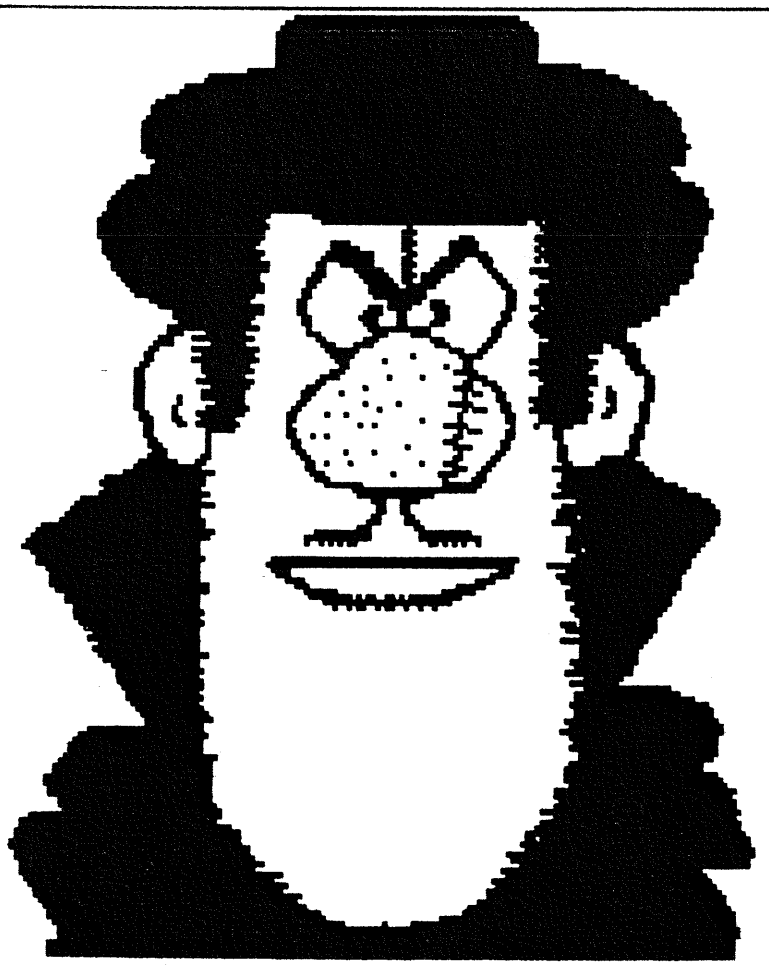
Master-Scribe was originally sold through E. Arthur Brown company until Brown stopped carrying Timex Sinclair products. I also belaive that the authors sold the product directly. Numerous sinclair users, including myself have tried to contact the Mike and Denise Hawks about purchasing copies of the product. In each instance, there was no response at all.

I was able to obtain a copy of the program and the user manual from a member of my user group. All I can recommend is that you try to find a copy (to make a copy from). If you are unable to obtain a copy, the SDPJ will provide a copy of the program(s) and the documentation for $10.00 which will cover the cost of tape and documentation duplication.

Now let's take a look on page 5 at my initial two nights exploring Master-Scribe!

This issue was created using Word-Master for pages 1 and 2, Pixel Print for page 3, The Print Factory's First Edition 1.0 for page 4, and Master-Scribe for pages 5 and 6. All original printing was done on a Panasonic KX-P1091 9 pin dot-matrix printer.

Where to Write for Products Mentioned in this month's Sinclair Desktop Publishing Journal



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DATEL Electronics Ltd.
Govan Road
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England
0782-744707 (24 Hr. Order Line)

Ed Grey Enterprises
P.O. Box 2186
Inglewood, CA 90305
(213) 759-7406

Mountaineer Software
749 Hill Street £9
Parkersburg, WV 26104
(304) 424-7272

RMG Enterprises
1419 1/2 7th Street
Oregon City, OR 97045
(503) 655-7484

Romantic Robot UK Ltd.
54 Deanscroft Avenue
London NW9 8EN
England
081-200-8870 (24 Hr. Order Line)

Since a picture is worth a thousand words (or so they say), let's take a look Mountaineer Software's 16-Point fonts:

HEADLINE
ABCDEFGHIJKLMNOPQRSTUVWXYZ

IBM
ABCDEFGHIJKLMNOPQRSTUVWXYZ

MICR
ABCDEFGHIJKLMNOPQRSTUVWXYZ

ADVENTURE
ABCDEFGHIJKLMNOPQRSTUVWXYZ

OUTLINE
ABCDEFGHIJKLMNOPQRSTUVWXYZ

GATSBY
ABCDEFGHIJKLMNOPQRSTUVWXYZ

This now brings us to the Mountaineer Software MEGAfonts. These are 16x16 pixel characters which are created using two Key presses. The first half of the character is the "Caps Shift" of the character, and the second part is the un-shifted character key.

HELVETICA
helvetica

TIMES
times

OUTLINE
outline

OXFORD
oxford

STREAMER
streamer

HELVETICA
ABCDEFGHIJKLMNOPQRSTUVWXYZ

TIMES
ABCDEFGHIJKLMNOPQRSTUVWXYZ

BOXBLOCK
ABCDEFGHIJKLMNOPQRSTUVWXYZ

RITZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ

SINCLAIR
ABCDEFGHIJKLMNOPQRSTUVWXYZ

GRANDPRIX
ABCDEFGHIJKLMNOPQRSTUVWXYZ

Thus we have them, all 12 of the 16-Point (8 pixel wide) fonts. Any of the above fonts may be LOADed directly into Pixel Print or Print Factory's "The Press"!

NEW YORK
new york

BIGBLUE bigblue

FLAPPER
flapper

MARQUEE marquee

ART DECO
art deco

GRANDPRIX
grandprix

Both upper and lowercase fonts are LOADed separately, as individual fonts. The fonts below are supplied in uppercase characters ONLY:

BRISBANE

BROADWAY

THE GREAT SINCLAIR DESKTOP PUBLISHING JOURNAL PRODUCT ROUNDUP FOR SPECTRUMS AND TS2068s

	SPECTRUM	TS2068	DISK I/F	RAM	ED GREEN	MOUSE/TRACKER	ROM/RAM BOOT	OTHER	Description	Price
Print Factory	◆	◆		◆					A Create just about anything with this package of programs	$27.95
Word-Master	◆			◆		◆	◆		Most flexable and professional DTP package for Spectrum	$70.00 3 pgms +fonts
Pixel-Print		◆		◆		◆		◆	B The original heavy duty DTP program. Not a flexable as WM	C
OCP Art Studio	◆			◇					D The BEST graphics pgm. for Spectrum. DATEL Ltd. includes Genius Mouse & I/F.	£49.99 + S&H
VideoFace	◆	◆		◆				◆	Excellent Spectrum video digitizer. Some report it works with Std. TS2068.	£29.95 (Sale) + S&H
Pix-FX		◆		◆			◆		E One of a Kind SCREEN manipulator for DTP. Great for special effects. Menu driven	$25-30 (Disk vers. more)
Print Factory Companion Series	◆	◆		◆					A Lots of neat stuff to compliment your Print Factory Pkg., a MUST HAVE!	$29.95
First Class Fonts II	◆	◆		◇					28 Super fonts+ manager & word proc.	$22.95
Pixel Print Font Pkg.		◆		◆		◆		◆	19 nifty, unique fonts & manager pgm.	Varies
Jack Dohany Font Mgr.		◆		◆		◆			Great font manager utility + nice fonts	$20.00
Pixel Print and Zebra Icon Pkgs.		◆		◆		◆		◆	You might as well sell your system if you don't own these!	Varies

NOTES:

The SDPJ is NOT responsible for chart errors.

A: Available from Byte Power Magazine Only.
B: Public Domain, if you cannot find a copy, contact SDPJ.
C: Public Domain, price depends on postage & copying cost.
D: Available from DATEL, Ltd., England.
E: Also VectorWare 4128-1/2 Calif. Ave, Seattle, WA 98116.
◆: Is Supported, or can easily be converted via BASIC.
◇: Is NOT Supported, although there is an Art Studio to Larken conversion by a third party. There is no known disk conversion for First Class Fonts II.

Master-Scribe, The First Evening

After looking over the users manual, I decided that my first goal was "Type and Print". I decided to start with version 1.1 which drives Epson compatible printers through the Aerco parallel printer interface (I really wanted to see some full-size printer output through my Panasonic). So, I slapped in the version 1.1 cassette and Master-Scribe 1.1 LOADed **THE FIRST TIME!**

Next, I decided to follow the tutorial. I know...most of us are "If all else fails, read the instructions" type people, but in the case of Master-Scribe, it is a good idea to at least browse through the owners manual as I did. You see, Master-Scribe is not only a multi-program set, but it also operates in a multi-mode environment. Things are not exactly "What you see is what you get"!

The first feature which impressed me was the documentation. It was completly produced using the Master-Scribe software itself. The output for the manual is very impressive from both TS2040 and full-size dot-matrix printers.

The second feature I was impressed with (and I thought would win the hearts of many a TS1000 user) was the swift speed of the keyboard entry. Screen jump was also minimal except during deletes and cursor movements. I was also pleased with the ease at which "modes" are changed to access special features. But before we start looking at the different "modes", let us take a look at the five (yes I did say five) different programs that make up the Master-Scribe collection.

The Five Programs of Master-Scribe

Keep in mind that the TS1000 and TS1500 computers are not the most memory wealthy computers. Therefore, in order to

provide numerous features in such a restrictive system, five seperate Master-Scribe programs were developed:

Version 1.0	TS2040/Bold Font
Version 1.0A	TS2040/Slim Font
Version 1.1	Full-Size printer/Bold Font
Version 1.1A	Full-Size printer/Slim Font
Version 1.2	Full-Size, Non-Grapics printer

So to sum up, we have two versions of the program which will work with the TS2040 printer, and three versions for driving full-size printers through the Aerco printer interface. Thus we have five programs with the exact same feel in editing and operations, but each with different output drivers and fonts.

The Second Evening, Graphics

One of Master-Scribes better features is its ability tr print graphic characters within text (except version 1.2). My second evening was "In Search of Graphics"! This second page is an example of using TS1000 graphics to create a box around text. The box was much more difficult than I thought it was going to be, but the graphics below were much easier. Let's take a look at a sampling of the graphic characters available:

TS1000 Block Graphics: ▘ ▝ ▀ ▖ ▌ ▞ ▛ ▗ ▚ ▐ ▜ ▄ ▙ ▟ ▜ ▙

Card Symbols: ♠♥♦♣

Misc. Punctuation: ' ! " ₤ [∞] $ ( ) " @ ( ) \ % # - + = : ; ? / * < > , £

Misc. Symbols: ΘΨΤΩΦ©ΣΔ®ΓΛ~Ξ←↓↑→Π

Finally...

Our final page for this issue is a special appendix for the commands/features available from Mike Hawk's Master-Scribe for the TS1000 family...

A List of
Master-Scribe Commands

Left Justification
Right Justification
Center Text
Full (Left & Right) Justification

Start/Stop Underline
Inverse Printing
Subscript
Superscript
Normal Characters
Tall Characters (Double Height)
Page Start (Formfeed)

Single Space Linefeeds (Graphics)
Double Space Linefeeds

And in addition to these, there are Main Menu commands to Copy, Move, Delete, Print and Save (to cassette) "Marked" sections of text/graphics. You can even Define words for creating form letters. Lastly, there are commands for jumping to the Beginning and End of the file and Search for words.

Look for more articles on Master-Scribe in future issues of the Sinclair Desktop Publishing Journal!

This issue I want to take a look at Page Designer, the DTP program offered by QUANTA. For those interested in actually playing around with this program, contact the North American QUANTA Librarian, Paul Holmgren at 5231 Wilton Wood Ct., Indianapolis, IN 46254. If you get this from him, make sure you also get Ron Dwight's screen handler, also in the library. This is needed in order to use Page Designer. Next issue we will be at least doubling the QL DTP section so we can get more data on these programs to you at a faster rate.

You will need expanded memory to handle the screens you create using this program. All DTP programs use more memory for a page than a word processor does. This program can be configured to run from either disk or from microdrive cartridge.

This program allows you to create large pages of mixed graphics and text, in columns, for the production of newsletters, magazine pages, posters, banners (with a program such as Writeturn) or advertising layouts. The limits are those you place on the program, combined with your literary and artistic talent. Computers help in this area, but only so much...sigh!

The program comes equipped with several text fonts (styles of print and sizes) and also has a program to create additional fonts of your own. You may also import fonts created by others. There is a separate high resolution character set to be used for detailed enlarged text such as titles and headings. Graphics can also be stored and called up by this utility. The character editor is easy to use.

There is no 24 pin printer driver for the program; instead we are limited to the 8 pin bit image mode. I have 24 pin printer drivers, but have not hacked around trying to use one of them with this program. Despite this fact, I feel that this is an excellent way for the QL owner to get involved with desktop publishing. The only other things I was disappointed in was that there is no text editor and that the program runs in monochrome (though stippling allows grey shading to be done during printout).

I mentioned that there is no text editor, however you may use any file that is available to you in a QL text editor or word processor program. This means that you can create your files in Quill, The Editor, etc. and then import them, assign a font and size, and use them in an assigned column. Any ASCII file can be imported.

The entire program is menu driven, and the manual for the programs come as Quill doc files, so you can print them out for future use. You will have 6 supplied fonts, 9 hi-res fonts. You will find it can lift and save part of a screen for use later for cut and paste to create new pages. There are a number of graphic screens that come with the program, such as a silly lion, flower pot, camera, teapot, the boss, etc. Anything that can be found on a QL screen should be able to be lifted and saved, so you should soon, with a little effort, have a large library of graphics to use in your desktop publishing . You can also create your own graphics screens, by the use of lines, sketching, circles, rectangles, arcs, polygons, ellipses, etc. These can then be filled or painted. This rather reminded me of Tech Draw Jr. for the TS2068.

Please take the time to obtain this program and check it out. You will find out how much fun desktop publishing can be.

QLUSTer_LITE
by Al Feng

QLUSTer 4.350 (aka "_LITE") is the latest version of the program which evolved from QLUTter (and previously, the SuperBASIC program: QL_AutoDirectory 1.9).

The sequence of the program's "options" on the COMMAND page has been altered to:

```
-------------------------------------------------------------
CHANGE_DEVICE  AUTO_EXEC  UTILITIES  CLOCK          EXIT
-------------------------------------------------------------
```

These options appear in a "line" near the top of the COMMAND page. A highlighted bar is moved to the right by pressing the 'TAB' key or using a 'shift TAB' key combination to move the bar to the left. The 'Space_Bar' is then pressed to "open" the option.

Those familiar with the program will note that the "HELP" page is no longer available from the COMMAND page. The HELP page has been removed to reduce the program size, but is still available in an expanded form by EXEC_Wing the HELP_EXE program from within QLUSTer or as a stand-alone program.

Removal of the "HELP" page and re-coding has resulted in a program whose TURBO-compiled size is 5K smaller than the more recent versions. At the same time, an additional ERRor TRAP for insufficient disk space has also been incorporated.

"FLIST_imp" (FileLIST_imp) file replaces the "FILE.DIRectory" as the dynamic, program file and can be IMPORTed directly into QLWP/Quill for printing in a columnar and/or condensed format; thereby, eliminating the need for the supplemental SNAPSHOT program.

Unlike other utility programs, QLUSTer uses the "full" screen for displaying filenames; so, instead of watching ten-or-so files scroll by, you can view up to 76 filenames per page (608 total capacity). While this number may be overwhelming at first, you will probably find it more convenient to review a lot of filenames at a time when scanning a "mystery" disk.

QLUSTer's "VIEWing" feature is "full" screen rather than a " bunker" window. This makes "reading" true_txt files convenient compared with COPYing to screen or IMPORTing into QUILL (a very slow process for long document_txt files).

The "VIEWing" feature can be interrupted prior to reaching the end of the file. Any file can be "VIEWed"; but, files will have less meaning.

QLUSTer provides a fast and convenient DATE$ setting mechanism. (W)COPYing, (W)DELeting, "PRINTing"/SPooLing & RENAMing files is equally convenient. Any valid medium can be easily FORMATted. Determining file "WSTATus" is provided as an as needed feature, rather than occupying the directory window.

QLUSTer provides access to all drives via either the cursor keys or a few easy key strokes.

QLUSTer can be used to EXEC_W or EXECute (as within QRAM); but, TASKMASTER users must sacrifice 32K for a screen-save or LOAD via FILES after the TASKMASTER's autoload sequence.

QLUSTer is designed to be convenient for everyone; and, touch-typists should find it particularly convenient when compared with most other utilities.

Not convinced that QLUSTer is the utility for you to use ?
If you do want a sense of where QLUSTer came from, you can preview an older version of QLUTter intended for use on a TV or "short" monitor is on the CATUG PDL Disk 1 (this is also T/SNUG Disk 01). Send a $2.00 check made out to ----------
"Al Feng" and you will get not only the disk (specify format),!!!!!!!----------
but a coupon for $2.00 off a direct PLATYPUS Software purchase; or, a future CATUG PDL disk (if we ever expand our QL library, that is!).

All current and previous versions of QLUSTer (and, QLUTter) are compatible with the MINERVA ROM code, so no excuses.

All "registered" QLUSTer and/or QLUTter users (PDL version does not qualify) can get the most recent copy of QLUSTer by sending only $2.00 to:

Al Feng
15 Wake Robin Court
Woodridge, IL 60517

Don't forget to specify your disk format (5.25" or 3.5").

NOTE: Microdrive users should

(1) send a check for $2.50;
(2) supply/send a good microcart;
(3) specify the disk format that you think you may use in the future; or, request the 'coupon'.

CHECK BOOK BALANCER

Bill Woodward

After struggling for years with unfriendly ´canned´ checkbook programs on the Sinclair cumputers, I decided that if ever to find one that was USER FRIENDLY, I would have to take Ben Franklin´s advice and write it myself.

The advent of the QL with Abacus (spreadsheet) program made this job about as simple as a dream. If one can read one´s bank statement and enter numbers in a computer one can ´reconcile´ one´s bank book.

Since I am no programmer, but a plumbing instructor, I will present the steps of in a way that should be easy for us, both. I am assuming that you are as unfamiliar with the Spreadsheet program as I was at first, even, maybe a little afraid of it.

Set your fears at rest, QL ABACUS is the easiest to use of the 4 Psion programs. You will be pleasantly surprised with the routine jobs that can be programmed on the ABACUS.

In the program that follows, F3(the COMMAND key) and F5(the GOTO key) apply to the function keys. Press the keys in the order given.

Load Abacus into your QL. That was simple, wasn´t it. The rest will be just as easy. You will, also, be shown a couple of short-cuts that I have learned the hard way.

First, we need a title. F5-C1-ENTER-CAPS LOCK-"-CHECK BOOK RECONCILATOIN-ENTER-CAPS LOCK.

Underline the title with a row of "=". F5-C2-ENTER-rept("=", len(C1))-ENTER.

Write ´month´ in ´C´ column row 4 and the name of the month asked for in ´D´ column. F5-C4- ENTER-"-Month-ENTER-F5- D4-ENTER-askt("month")-ENTER. You will see ´month?´ in the input cell. Hit ENTER. Write ´Opening balance´ in A6 and the amount in C6. F5-A6-ENTER-"-Opening balance- ENTER-F5-C6-ENTER-askn("opening balance")-ENTER. You will see ´opening balance?´ in input cell. You cannot get away with ENTER this time. You will have to enter a number, 0 will do.

On the next line, write the column headings. F5-A7-ENTER-"-Date-ENTER-A5-B7-"-Check-ENTER-F5-C7-"-Name-ENTER- F5-D7-ENTER-"-Deposit-ENTER; F5-E7-ENTER-"-check no.- ENTER; F5-F7-ENTER-"-Amount-ENTER; F5-G7-ENTER-"-Balance- ENTER. Right justified the heading titles. F3-J-ENTER-ENTER-R- A7:G7-ENTER.

Underline the headings. F5-A8-ENTER-rept("=",78)-ENTER. Seventy-eight "=" will be typed in row 8.

Put a zero in G9. Then F3-E-G9-ENTER (change range to D10:G60) ENTER. To put the opening balance cell G9. F5-G9-ENTER-C6-ENTER. To make 0 into 0.00-F3-U-ENTER-ENTER-ENTER-D10:G60. Do the same for C6.

Initialize row 10. F5-C10-ENTER-askn("check number")-ENTER; F5-D10-ENTER-0-ENTER.

The expression in G10 that differentiates between a check and a deposit is similar to the IF...THEN...ELSE... of superbasic. (See page 44 of your Abacus user's guide.) IF(expression,true, false). IF the 'F' column has a number in it, to the computer it is a 'DEPOSIT' and 'THEN' adds the amount in F# to the previous balance in G-1#. IF the 'F' column has a zero(0.00) in it, the computer assumes a 'CHECK' and 'ELSE' subtracts the amount in column 'E#' from the previous balance in G-1#.

For a deposit, ENTER sum in column 'F' and "dep in column 'C' in place of the next check number. ENTER the next check number in C column, next row. F5-G10-ENTER-IF(F10, G9+F10,G9-E10). ENTER a check number counting expression in C11. F5-C11-ENTER-10+1-ENTER.

The short cut I promised is next. I found this quite by accident when I first Echoed the number counting expression down the D column. Imagine my surprise when the row numbers aligned themselves. The same event happened in the G column. F5-D10-ENTER-F3-E-ENTER-D11:D60-ENTER; F5-G10-ENTER-F3-E-ENTER-G11:G60-ENTER. We have used the E(cho) command to echo part of row 10 all the way to row 60. The serendipitous part of this is that each command automatically changes the row number to its present row number.

A little 'dolling up' will finish the spreadsheet. F5-E9-ENTER-F3-U-ENTER-ENTER-ENTER-E9:G60-ENTER will give two decimal places to all money cells.

The one final command embeds a printer command in cell B61. F5-B61-ENTER-CHR(0)+CHR(12) gives us a FORM FEED to expel our statement from the printer. When your curser is in cell B61 the CONTENTS cell shows (" ").

SAVE your CHECK BOOK BALANCER!

MACro Systems 'Personal Assistant'
2 pound computer Special Prices:

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640K	989.00	640.00
1056K	1045.00	775.00
2080K	1539.00	1225.00

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Leather Case with retractable handles and MACro Power battery palm rest (2-6 months on disposable alkaline batteries)	250.00 / 150.00
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Rechargable Battery Pack built into the Leather palm rest (2 weeks use before needing a 3 hour charge) add to the above prices:	85.00 / 40.00

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Compressed Scriptures and other books soon available on ROM cartridges.

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This is the Cambridge 2881

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. Presently we are offering disks for the Larken and Oliger Interfaces, but have programs available for the Aerco (just as soon as I hear that there is a demand to have available). All are $20.00 per disk (add $1.00 Canada) and include postage and handling. The programs have been Temporarily lowered in price to make them more widespread among the TS2068 Users! 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 as well as International Postal Money Orders. We do not have facilities for charge cards.

1) MITCHELL BUDGET DISK, with wide spreadsheet printer driver, MS-TAS and various other utilities. Available as either Larken or as Oliger format.

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.

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.

4) MITCHELL VIEW CALC ISSUE DISK, forget the old slow VC for tape! The rest of the disk is filled with other utilities plus some Public Domain for fillers. At this time for Larken format only.

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.

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 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.

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.