UPDATE!

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ZX-80/81 TS-1000

SINCLAIR

TS-2068 QL Z88

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* UPDATE COMPUTER SYSTEMS *

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

* * *

Assistance in Publishing this magazine is provided by Eliad P. Wannum, poet, computer user and all round good guy. The magazine is made possible by the regular contributors such as Paul Holmgren, Bill Cable, Andy Hradesky, 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 a 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 CPI. PICA 10 CPI 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 on the wafers from the Rotronics Wafadrive for the Spectrum. Z88 programs on disk may be in either IBM or QL format or hardcopy. TS2068 programs may be LLISTED in 32 chr. lines.

UPDATE DIRECTORY for JULY 1993

GI=article of general interest: QL=article for QL: TS=article for TS2068 or Spectrum: ZX=article for TS1000, ZX81, TS1500: 88=article for Z88.

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GI--Page 6:ZXir QLive Alive!-ad
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UPDATE MAGAZINE EDITORIAL by Frank W. Davis

The time has come once more to call the end of a subscription year. This is the last issue of this years subscription (each year begins with October and ends with the July issue of the next year). Carol, Eliad and I (Frank) have for the most part really enjoyed all of the issues of this year, and as I said in the last issue...we have decided to go on and publish for at least one more year. Beyond that point lies primarily in the hands of you the readers. Factors which will enter into whether we go beyond July 1994 are as follows: 1) the number of people who subscribe or renew 2) the amount of reading material which we have submitted to us by writers (When Bill Jones published this magazine he put a lot more of his personal material into the magazine than I have, but he was retired and had more time for that than I have. Thus I need to rely more on you the readers to also be the main writers.) I hope things go well enough that we feel compelled to go on for a 5th year. One thing for sure, if we go for a fifth year we will have to raise the price of a subscription a bit. We have gone for several years and kept the cost to you the reader even. If it was not for the sale of ISSUE DISKS and the occasional subscriber who gave more than the required price of a subscription, we would already have had to raise the price. Well, enough of this serious stuff, just please all of you go and renew now if you have not already done so.

As many of you know, the magazine is not the only service I offer to the Sinclair and Timex community. I am also a partner in Mechanical Affinity. I am in partnership in this with Paul Holmgren (Carol and Eliad are not part of this enterprise, except for the most needed help by Carol at computer shows and mailing out your orders). For those not familiar with us...☺we are the only QL Dealer in the world that offers merchandise to North and South America from all the ☺main hardware and software dealers, authors and manufacturers in the world. We also offer many items for the TS2068, Cambridge Z88 and some items for the TS1000. For the QL we make available all items that come from Dilwyn Jones Computing, Miracle Systems, TF Services, Jochen Merz, Jurgen Falkenberg, Progs, Text87, and of course Digital Precision to name just a few. We appreciate your support, Thanks!

We have other dealers who have stuck it out with us for the long haul and who are deserving of praise for what they have contributed to our community. One of them is Rod Gowen, of RMG, a staunch supporter of the TS1000, QL, and the TS2068. He has many of your old favorites in the way of hardware and software, and new items as well. He has recently moved to a new location and is now getting settled in to continue to give you great service.

Another person who has earned praise from me is Dan Elliott and his computer repair business. He has helped me more than once and the cost has been extremely reasonable, with quick turnaround. He also has some items for sale (see his ad this issue). He not only does repairs...he also will do modifications or upgrades on your computer. If it is broke and you cannot, or don't have the time to fix it, send it to Dan.

I have not tried to cover all of the dealers or services we have here, just make you aware of some of what is still out there, and in some cases still growing. An example is the QL. It is not dead; ☺as a matter of fact the level of hardware and software for it has been greatly improved and looks to continue to do so for some time. Any who think it is not on the move have failed to find out the facts. We now have reasonably priced tower cases, hard drives, QL cards to turn a humdrum PC into a QL, PC keyboard interfaces, great word processors, desk top publishers, C converters, databases, art programs, etc. Most can match or go one better than what is in the rest of the computing world. It even appears that the rest of the gaps are being filled. The future looks so bright I have to wear shades!

One note on the subject of courtesy that contains some gripes I hear from dealers in Europe as well as here in North America. Just about every dealer I know of in Sinclair products works another full time job, which means most of us are not available during the regular work day. Most are available during evening hours and weekends only (for some who works nights this may be reversed). Please take into account the hours at which you call your favorite dealer, most do not mind you calling, but not at 3 in the morning. You will also find that almost all have answering machines. I use to really hate talking to them and did not leave messages or felt slighted. It is a needed item by the dealer and is not meant to offend you, only to help . When you call a dealer, please leave a QUICK message, with the day and time you called and your address, as well as phone number. Many machines are limited to only 30 seconds, or 3 minutes, or they shut off when you pause too long. Also do not be greatly offended if you receive a letter rather than a phone call. If the item you called about only has a $2 to $5 profit margin, that can easily get eaten up in one short long distance phone call. Economics has to enter into the game at some point. Almost all of us are in business to support our hobby and that of our fellow users. None to my knowledge are getting wealthy. If we try to be helpful and nice to each other on both sides, we all can have more fun. This is not a list of things I am having a problem with, just general items I have heard from all dealers.

Last, but definitely not least. I myself have at times had as many as 200 letters and phone calls in a week. That may mean on occasion that some one has asked me for a favor, or to find out something for them, and then later wonders why I never got back to them. Overworked? Lost note? Just plain forgot? Did not get an address or phone number? All of the above and a few new ones. I always have good intentions, but have at times slipped. If you are one of these people, don't get angry at me, just politely remind me, preferably in writing, and I will eventually get around to it. I work in the system that those subscribing, writing or giving me a cash order take precedence over all favors. When those are caught up I then try to take care of all favors. Thank you all for listening.

A note from the publisher:
Renewal Form is on Page 50.

THE FUTURE OF THE TS2068 *BY FRANK W. DAVIS*

In this issue we have a few pages sent to us by Larry Crawford, one of our Canadian programmers and friends concerning a project that he and the late Bill Pedersen of WIDJUP were working loosely on. I too was working on this in another effort with Bill. Larry and I had not worked on this together, but may in the near future.

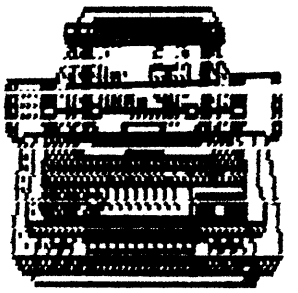
Bills ideas were to: (1) either bring the ROM operating system of the TS2068 out the back of the TS2068 in the form of either protected RAM (bank switchable) or in an easily changed eprom, (2) build a combo backplane (IBM used these in early days to configure and access peripherals for their computers) and motherboard that would allow us to do things such as add CGA or VGA graphics cards, SCSI, MFM, RLL or IDE hard drive interfaces, or most of all the other items that are used in the computing world of IBM, MAC and AMIGA. This would have been a great idea if it could have been cheaply implemented.

The reason I say cheaply implemented, was that most of us bought a TS2068 because it (1) did not cost a fortune,(2) AND WAS EASY TO USE! Most of the people I knew who have, or did have, a TS2068 liked the operating system. Most who left it did so in order to either find more complex or graphic oriented software and to gain access to higher tech peripherals. It would have been great to use a laser printer with the TS2068, scan in some graphics with a scanner (or text with an OCR scanner), or use a high speed fax/modem, just to name a few items. The operating system and the Sinclair Basic were what we wanted to keep about the TS2068 and the Spectrums. Old Sir Clive Sinclair did good in these areas. It just would have been nice to fire up the computer and select what you want to run from a menu on your hard drive!

The question now is...can this still be done? We still have motherboards available for the TS2068 from the John Oliger Company (as well as parallel printer interfaces, disk drive systems, dockport boards and eprom programmers). Can something be done with this and perhaps a board to tie into some IBM peripherals. A lot of this stuff has been dumped by the IBM compatible companies on the market dirt cheap right now. We need people to write software patches and drivers for this stuff. I have talked twice to John Oliger about the hardware end and he told me that getting the hardware of a hard drive to work on the TS2068 would not be real difficult. He did not seem to feel up to writing the software driver, and did not at the time feel that there would be enough demand to warrant his doing the hardware interface needed. It just may be that HE WOULD HELP SOMEONE ELSE IN THIS DIRECTION IF PROPERLY APPROACHED? Do we have enough qualified or energetic hardware hackers still left in our midst?

I still have fairly copious notes from Bill Pedersen on the necessary (but not complete) ROM changes he thought needed, and on directions for the hardware. I am willing to pass on copies of this data to people who feel like they are serious about pursuing this, but not to someone who will just collect and do nothing with the data. Perhaps Larry Crawford would also be willing to help out any such people . In this case we may still see the dream of Bill Pedersen come true. Those interested should call or write me care of UPDATE Magazine. Do not think that people are not using TS2068s anymore; in my Mechanical Affinity business we <u>do not</u> sell less TS2068s than QLs! We have still had new users.

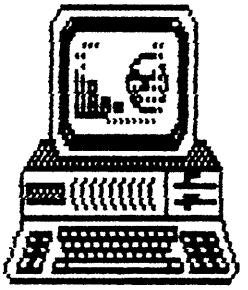
RMG ENTERPRISES



Supports Sinclair/Timex Users!

Send legal S.A.S.E. with request for price sheet. Specify model interest. Send $4 for GIANT GIFT catalog. (Includes ALL price lists) Phone or FAX for information on prices and availability.

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14784 South Quail Grove Circle
Oregon City, OR 97045
503/655-7484 * FAX 503/655-4116

ZXir QLive Alive! Newsletter

The Timex/SINCLAIR NorthAmerican User Groups

Treasurer



ABED KAHALE
335 W NEWPORT RD
HOFFMAN ESTATES IL 60195-3106

Dear Timex/Sinclair owner,

If you are still a user of a Timex/SINCLAIR computer, we would like to send you a complementary copy of our Newsletter. Please drop me a NOTE or a POSTCARD and a copy will be mailed to you free of charge. You can become a member, if you choose, after receiving your copy.

Our first quarterly Newsletter was mailed to members in the Spring of 1991. After it became apparent that Paul Holmgren of SNUG was too busy to keep the news flowing, retiree Don Lambert, with the support of Al Feng, Rod Humphreys, Bob Swoger and the North American User Groups carried the torch and established T/SNUG for the abandoned users of Sinclair computers.

Currently our membership is made up of 7 user groups and 40 individuals. Our membership is $10 per year. Back copies are available for 50¢ each including postage. We provide free ads for our members and for dealers/vendors/developers who support our computers; we also maintain a BBS.

SINCLAIRly,

Abed Kahale

Treasurer

Our purpose as is stated in our Newsletter :-

ZXir QLive Alive! is the newsletter of T/SUNG, the Timex/Sinclair NorthAmerican User Groups, providing news and software support to the T/S community in at least four newsletters per year.

It is our goal to build and maintain a Public Domain software library and develop a list of available software for all T/S computers showing the source.

T/SNUG wishes to have one chairman from every T/S user group who will take charge of sending us their group's newsletter and other correspondence for inclusion in the ZQA Newsletter.

We encourage your group to copy this newsletter and distribute it at regular meetings to all your members. If you cannot copy this newsletter, perhaps we can provide a disk with the articles on it.

T/SNUG Chairmen supporting ZX-80, ZX-81/TS-1000/1500, Z-88, TS2068, Spectrum & QL.

Don Lambert (Chairman)	1301 Kiblinger Pl., Auburn IN 46706-3010	219 925-1372
Dave Bennett (CATS/Z-88)	329 Walton St. Rear, Lemoyne PA 17043	717 774-7531
D.G. Smith (Tape & JLO Library)	R 415 Stone St., Johnstown PA 15906	814 535-6996
Ed Snow (ZX-81 Tape Library)	2136 Churchill Downs Cir., Orlando FL 32825	407 380-5124
Rod Gowen (CCATS)	1419 ½ 7th St., Oregon City OR 97045	503 655-7484
Rod Humphreys (VSUG TS2068)	10984 Collins Pl., Delta B.C. V4C 7E6 Canada	604 931-5509
Bob Swoger (Editor/BBS)	613 Parkside Cir., Streamwood IL 60107-1647	708 837-7957
Abed Kahale (Treasurer)	335 W. Newport Rd., Hoffman Estates IL 60195	708 885-4337

More INPUT on AUTOSTART and other LarKen Thoughts

Bob Swoger - 613 Parkside Circle - Streamwood IL 60107

In the January 1993 Update! Magazine page 20, Peter Hyman gave a good clue to writing a better AUTOSTART program for the LarKen disk system. Like Peter, I have seen AUTOSTARTs that use two tracks. They are usually made from another program on the disk, sometimes called Menu.B1. Menu.B1 is provided to allow changes to the AUTOSTART program and is, therefore, identical to it. Three tracks on the disk now contain the same program!

AUTOSTART programs instruct the computer what to do when the machine is turned ON with the ENTER key held down or when the RAND USR 100: NEW sequence is typed in on either the TS2068 or SPECTRUM systems. Here are a few simple rules:

RULE 1
The ULTIMATE AUTOSTART should do little more than reset RAMTOP, call another program from the disk (LOAD the program and RUN it) and save itself to that disk.

RULE 2
The ULTIMATE AUTOSTART should be 5089 bytes long. Using the CHAMBERS UTILITIES disk, you will find that an AUTOSTART made in both the TS2068 mode and the SPECTRUM mode will always start at address 22490 and contain 5089 bytes.

RULE 3
The ULTIMATE CLEAR number for both TS2068 and SPECTRUM is 27577. One need not execute the PRINT 65536-FREE misprinted in the UPDATE! article to find the lowest point to move RAMTOP, just use 27577 instead. The area saved will always be one track long, 5090-1 bytes.

Since many menu programs are too long to fit on a single track as an AUTOSTART SAVE in the TS2068 mode, (SPECTRUM gives us 2955 bytes more) I submit the following subprogram that could be included in any menu program to create AUTOSTART. Since this is the AUTOSTART program included within the lines of the LogiCall program, it is numbered accordingly:

```
 49 LET H=CODE "d": LET Z=PEEK (PI+PI)=CODE "1"
110 GO TO VAL "460-(30*Z)"
400 CLEAR VAL "65367"
410 REM RANDOMIZE USR CODE "d": OPEN # VAL "4","dd"
420 RANDOMIZE USR CODE "d": LOAD "L.B1"
430 DELETE RND,VAL "399"
440 DELETE VAL "461",VAL "9999"
450 DELETE VAL "421",VAL "459"
460 CLEAR VAL "27577": RANDOMIZE USR CODE "f": GO TO VAL "400"
```

In line 49, H is assigned the value 100 to save RAM space when subsequent needs for the value 100 are needed. The heavy use of VAL and CODE is to save RAM space and will be explained later in this article.

LET Z=PEEK(PI+PI)=CODE "1" reduces down to LET Z=(PEEK 6=49) assigning Z the value 1 if the software finds itself running on the TS2068 and 0 if running on the SPECTRUM. EXPLANATION: If the TS2068 ROM is operating the system, byte 6 hold the value 49. The SPECTRUM ROM holds 203. Therefore, if the TS2068 ROM is operating, the boolean operator (PEEK 6=49) will be true and Z will equal 1. If the SPECTRUM ROM is operating, the boolean operator (PEEK 6=49) will be false and Z will equal 0.

Line 110 bypasses lines 430 to 450 in the Spec'y mode thus avoiding a crash since the SPECTRUM does not have a delete command.

Line 400 sets RAM TOP to a place compatible to fonts and other favorite machine code. You may choose any other number you like up to 65535.

Line 410 is included in case one MUST open stream/channel 4. Since opening stream/channel 4 conflicts with ZEBRA Talkers and eats up precious RAM space, it is REMarked out. Opening stream/channel 4 really has no added programming value in most cases. Just edit REM out if you need to open stream/channel 4.

Line 420 calls the start-up program.

Lines 430 to 450 delete all un-needed lines on the TS2068 from the program which contained this AUTOSTART sub-program thus keeping the required space to one track. This is not required on the SPECTRUM because: 1) not having a DELETE command in its vocabulary it can't delete lines! and 2) SPECTRUM gives us 2955 more bytes of program space on an AUTOSTART save.

Finally, line 460 sets RAM TOP to the ULTIMATE value which will save exactly 5089 bytes, exactly the size of one LarKen track, the AUTOSTART save routine is called, and 400 is given to the AUTOSTART header as the line to auto RUN once this program is loaded.

To use this sub-program, simply merge it into your favorite menu program using the appropriate re-numbering of the statements and cause some keyboard action to send it to the beginning statement of this sub-program. If you use it as a stand alone program, the DELETE statements can probably be removed. When the sub-program is executed, the NMI tone will sound and you will either have to press the 'D' key to continue the save to disk or the 'A' key to interrupt the program to change 'L.B1' to 'Menu.B1' in line 420 if you want to call Menu.B1 instead of LogiCall when you boot the disk. Next type GOTO 460 <ENTER> and 'D' after the tone to save the modified AUTOSTART.

My concern, however, is that you have not yet discovered LogiCall! Many folks who now use LogiCall have discovered that without it on every disk, LKDOS is a 'NAKED' system which requires you to do a lot of typing (i.e. RAND USR 100: GOTO 1: RAND USR 100: LOAD "filenm.B1" as an example of LOADing "filenm.B1" on drive 1). LogiCall creates the ULTIMATE AUTOSTART for you simply by pressing the 'A' key <ENTER> and 'D' at the 'Program?' prompt. Get and use LogiCall!

Because the AUTOSTART programs others have written often use two tracks, I have usually been able to find room on even a full disk to add LogiCall (L.B1) by using LogiCall's embedded AUTOSTART program to call the other person's Menu.B1 program on boot-up and the disk still works the way it did before I added LogiCall!

Don Lambert wrote stating that being a less experienced programmer he could not understand why I used statements with RND, VAL and CODE in them. The answer, of course, is to save RAM space. Just a couple of bytes saved can sometimes save a whole disk track of 5090 bytes! My favorite example is opening up stream #4 to access LKDOS calls because PRINT # 4 is supposed to be easier to type [less key strokes] than RAND USR 100". [page 11 of the V3 manual] Larry Kenny suggested that it uses less RAM space in a program. The fact is it uses up MORE RAM space! (My

real problem with opening stream #4 is that it is also the stream assigned to my ZEBRA Talker.)

To illustrate the RAM savings, let us consider a short program to load LogiCall. Sit down at your machine and do the following:

Turn on your TS2068 and type PRINT FREE <ENTER> . You get 38652. This is our free RAM space. Now enter the following two lines:

```
10 RANDOMIZE USE 100: OPEN #4, "dd"
20 PRINT #4: LOAD "L.B1"
```

Now type PRINT FREE <ENTER>. You get 38600. Strange, 29 keystrokes used up 52 bytes!

Now EDIT the lines and put VAL with quotes around the 100 and the two 4s. The program now reads:

```
10 RANDOMIZE USE VAL"100": OPEN # VAL"4", "dd"
20 PRINT # VAL"4": LOAD "L.B1"
```

Now type PRINT FREE <ENTER>. You get 38609. Strange, you just added 9 keystrokes to the program and saved 9 bytes of RAM!

Now for the ultimate RAM saving trick. Most numbers over 31 can be expressed in the program as CODE. Let's change VAL"100" to CODE "d", the two are equivalent. (See page 242 in the TS2068 manual or type 'PRINT CODE "d" and check the response.) The program now reads:

```
10 RANDOMIZE USE CODE"d": OPEN # VAL"4", "dd"
20 PRINT # VAL"4": LOAD "L.B1"
```

Now type PRINT FREE <ENTER> . You get 38611. Losing the two zeros bought us two bytes. Notice that the following statements all mean the same thing.

```
RANDOMIZE USR 100
RANDOMIZE USR VAL "100"
RANDOMIZE USR CODE "d"
```

But what about OPENing stream #4 to save RAM space. Type in the program:

```
10 LET h=CODE "d"
20 RANDOMIZE USR h: LOAD "L.B1"
```

Now type PRINT FREE <ENTER>. You get 38624.

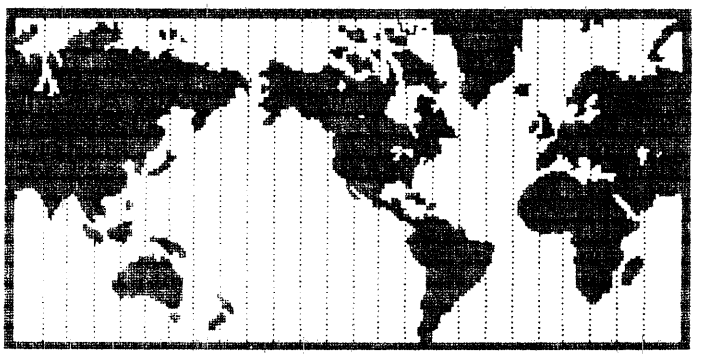
Both programs will LOAD LogiCall but the busiest stream #4 call uses 41 bytes while the USR call uses only 28. Also, for the record, RAND USR h is six bytes shorter than PRINT # 4 and just as easy to type, so,

WHY OPEN STREAM #4?

Here are a few of my favorite RAM saving Substitutes to ponder:

Instead of:	Try using:	Instead of:	Try using:
PRINT #0;	PRINT #RND;	GOTO 3	GOTO PI
PRINT #1;	PRINT #RND;	GOTO 6	GOTO PI+PI
0	NOT PI	GOTO 10	GOTO PI*PI
1	SGN PI	GOTO 8000	GOTO VAL "8e3"
100	CODE "d"	POKE 23658,0	POKE VAL"23658",NOT PI
INK 3	INK INT PI		

SINCLAIR WORLD GAZETTE



Those Mysterious USPS Barcodes

Have you noticed lately that more and more mail arrives at your house with that mysterious barcode printed beneath your address? Have you ever tried to "decode" it? Well, it is a tough nut to crack, so let's take a look at the code the USPS calls Postnet.

Postnet is a barcode which contains an addresses ZIP+4 Zip code and a Checksum digit. Each digit is represented by five short or tall bars as shown in the chart above. A complete Postnet barcode consists of the nine ZIP+4 digits, a Start and Stop (tall) bar and a Checksum digit. The Checksum digit is added to the end and is calculated as follows:

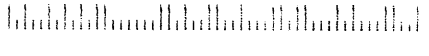
USPS Postnet Barcodes:

0	5	Start |
1	6	Stop |
2	7	
3	8	
4	9	

45014-8309

	20	4+5+0+1+4
	14	8+3+0+9
	34	20+14
Checksum	6	34+n=40 n=6

Result 4501483096

Postnet 

The first five ZIP code digits are added together along with the four "+4" digits. Next, we take this sum and find the difference between it and the next highest multiple of ten. Therefore, the Checksum digit for our example is 6.

Now, all we have left to do is concatenate the Start bar, ZIP+4, Checksum and Stop bar and there you have the Postnet code.

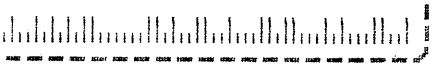
Now, let's put this to practical use using a graphics creation program. First begin by drawing out your Postnet code on paper using the codes to the left. Then create each bar pixel by pixel with your program.

I have found that for my printer each "Tall" bar needs to be 10 pixels high and 1 pixel wide. Each "Short" bar is 4 pixels high and also 1 pixel wide. The space between each bar is two pixels wide. This will produce a Postnet barcode that is within the 22 ±2 bars per inch which is specified by the United States Postal Service.

To create the Postnet barcode of my own ZIP code, I used The Print Factory's "Creator" program. The resulting graphic could then be added to a "First Edition" file or a "Labeler" label.

Here is a sample label I created using "Creator" and "Labeler":

Sinclair World Gazette
1580 Gelhot Drive
#234
Fairfield, OH
45014-8309



Finally, Postnet not only saves the US Postal Service money (which in turn keeps the price of stamps down) but it also helps businesses save money on bulk mailing costs.

For more information on Postnet rules and regulations, contact your local US Post Office and they will be happy to assist you.

--MJ Felerski

1993 DAYTON COMPUTERFEST

by Frank Davis

The last weekend of August on the 28th and the 29th, many Sinclair users will once again be making the trek from their respective homes to Dayton, Ohio, and will be meeting at Hara Arena. This is one, if not the largest computer show put on by a large user group, The Dayton Microcomputer Association. Last year it had a reported attendance of 27,500. Not too shabby for several SIGS banded together to explore the use of home computers! The Timex-Sinclair Sig there, headed up by Gary Ganger, has always played an active part in getting this show on the road and managing the DMA booth. This will be the 4th year that I have been present at this show. The first years was as a customer, and the last two years has been as a vendor. I will have my booths there for UPDATE MAGAZINE, MECHANICAL AFFINITY, and AMIGA UPDATE (a shareware, demo and public domain company for Amiga computers. Carol, Paul, myself, and possibly Eliad will all be there ready to wheel and deal to keep you supplied with ALL OF THE LATEST WE CAN FIND FOR THE Z88 AND THE QL. Paul will probably have his new version of the Z88 to show off (it has the version 4 operating system and came with 128K inside). For the TS2068, we will have some new stuff, the full collection of ISSUE DISKS from UPDATE, and lots of old favorites and used items. We will also have several stuffed boxes of TS1000 and TS1500 items for your use. At this point, I am not sure as to just who will be there. At the recent ISTUG (my user group) annual picnic, Don Lambert said that he and the CATUG, Chicagos user group would be sharing a booth, and I know that the Dayton Sinclair group will be there. In the past we have had the CATS group from the Washington, DC area there as well as the SMUG group from Wisconsin and many private individuals setting up booths.

Just what can you expect to find at this show? For starters let us look at the non-Sinclair specific items. In the way of monitors there will be just about any kind that is on the market (composite, CGA, RGB, VGA, SVGA, Multi-synch) and priced for both new and used from retail to 10% of new price. Many, but not all, dealers are willing to dicker on generic hardware. There will be all kinds of printers, including thermal, dot-matrix, bubble-jet, inkjet, lasers, plotters. This will be a great place to find ribbons of all sorts at fantastic prices. Disk drives and other assorted hardware can be had for less than half the regular retail or mail order prices. Much of this stuff will be used as well as a good assortment of new. On the used drives it is always best to ask for a warranty, and get an address and a phone number. If they are not willing to give you that...then pass that bargain up and go to the next table. If it is an item that you have a question on, head to the Sinclair table area and ask someone for advice. Always try not to be rushed by someone. I know what it is like to want someone to buy, (that is one of the two main reasons us dealers go to these shows) but we need to keep honesty as a primary goal. Few of the dealers at these types of show are dishonest, but caution is still a good idea. There will also be many other electronic items at this show, such as video equipment, sometimes robots, the best buys on pens and paper, and seemingly not enough hours in just two days to see all of this. There will be food available in the

building for those who do not want to step outside and go looking for the nearest restaurants.

Carol and Frank (me) Davis, will once again be staying at the RED ROOF INN at I-75 at Little York Road, exit 60. The local phone number there to make a reservation is 513-898-1054. You may also make reservations at their toll free number by calling 1-800-843-7663. With this large of a crowd in town I would suggest making reservations and doing it as soon as you know you are going. We will be arriving there in the afternoon on the Friday before the show, and any who care can come by and visit with us and perhaps go out for supper together. We will be staying on till Monday morning, so we should have plenty of time to visit. The last couple of years so many of us stayed at, or near the same motel that we had computers set up and running so many could visit and try out their latest purchase. Other nearby motels are as follows; Days Inn North, right next door to the Red Roof Inn, and it has a swimming pool. The phone number there is 513-898-4946, and it is located on Miller Lane. Also on Miller Lane is the Motel 6, same exit, and within walking distance of the other two motels. The phone number there is 513-898-3606. It also has a pool. Last, but not least at I-75, exit 60, you will find the Knights Inn at Little York Road. The phone number is 513-898-1212. These motels are about 15 to 20 minutes from the Hara Arena. For those not into afterhours comraderie, there are motels closer to the show, and you can find them through directory information or calling the DMA number. There is an ample supply of restaurants nearby. One evening last year about 60 of us had supper together at a nearby steak house. This has proven in the last three years to be the best place for a large group of Sinclair and Cambridge users to get together, relax, swap tips, and help each other to solve any hardware or software problems that they may have. It is also a great place to meet dealers and check out an item before mail ordering it. When you can see the quality of a piece of hardware, or check out a manual before buying an item...you should not pass up the chance.

I have long been known to many of you Timex-Sinclair and Sinclair users as someone who tries to promote such activities, and I shall continue to be as long as I see a need for it. From the first Midwest Timex-Sinclair Computerfest in 1986 to the Miracle in Newport, I have always loved these get togethers. Those silly enough to think that computers introvert people have never seen just how social a bunch of computer enthusiasts can be! Other information about this show can be found elsewhere in this issue of UPDATE MAGAZINE! On page 20 is a Dayton Area Map to help you to get around in the area. On page 28 is the Computerfest ad with more information and it tells you how to get advance tickets. The parking lot is large, so come early to get close to the doors.

I hope to be able to see as many of our UPDATE readers there as can possibly make it. We will be offering the QL Survivors Source Book, Back issues of UPDATE, Issue Disks and copies of our new book on the Z88 (compiled and edited by Tim Swenson, with accompanying disk). I honestly feel that we offer a quality product list to our customers and that makes me happy to be a part of these activities. See you at the show.

MIRACLE IN NEWPORT SHOW REPORT

Those who have not yet heard of the super time that was had by a group of North American QL users...prepare thyself! On the 5th of June was held the first ever all-QL show in North America, at the Salvation Army Headquarters in Newport, Rhode Island, U.S.A.

Paul Holmgren, my wife Carol, and I met in Indianapolis, Indiana, on June 3 and took off from there in Paul's van for a 20 1/2 hour non-stop (save for gas, food, and pit stops) trip to Rhode Island. The trip out was interesting in that we had a lot of rain and construction, as well as other folks accidents to figure our way around. We arrived in Rhode Island and made our way to the Carleton Motel, where Paul was to stay and be joined by his wife later. Here for the first time I met Bob Dyl in person. We had become close friends for several years on QL projects, and co-operation between our two magazines. Bob often lays the fault on me, at least partially, for him going ahead and publishing IQLR. If one is to be blamed for things, this is one I am proud of. He and Richard Taylor have done an excellent job.

A couple of hours later, Carol and I were picked up by our host for the show, Parker Lewis III, who had just recently finished his education as a minister. Congratulations, Parker. He took us to his house where we stayed for the next couple of days, and we met his wife, Cathy (I hope I got the spelling correct?). We settled in for a nap and getting cleaned up until we were called for supper. I speak fully for both Carol and I when I say they were excellent hosts and people you can proudly call good friends.

Earlier at the motel we had run into Hugh Howie from the Toronto Sinclair Club and Bill Cable of Wood and Wind Computing (as well as long time contributor to UPDATE Magazine!) and were soon joined by Mr. and Mrs. Mel LaVerne as well as Kenton Garrett from Kansas. Soon we were joined by Tim Swenson, recently having moved to Dayton, Ohio from the D.C. area. He is known to many of you for his fine publication, The QL Hackers Journal. I could tell that this was going to be an first class show, if only by the presence of the early participants.

Saturday, at about noon, Parker, Carol and I headed into Newport from Cranston to set up for the show. We got there and found a good sized group already gathering. I got to meet many people I had only talked to on the phone before, such as Al Boehm and his wife as well as Sherman Waterman, Richard Taylor, Will Horton, Ken Lang, Don Walterman and John Impellizzeri to name just a few. The fun had begun before the doors even opened.

We were very rushed to get set up, as we had only an hour for that, but were helped by people who had come to the show. Bob Diggs even went and got me some coffee, which was being supplied (as well as donuts, soft drinks, tea, etc.) by the NESQLUG group. They did an excellent job and it was most welcome by the attendees. I am told we had 60 people show up for the show, which was good when you consider that there was relatively short notice on setting this up. Those who came for the most part came to see what was new for the QL and to spend.

The stars of the show were the 3 Englishmen who made the trip across the big Atlantic pond to be with us and to ply their wares. Stuart Honeyball, of Miracle Systems LTD, was there to introduce the new QXL card that at long last allows the IBM to really multi-task.....as a QL running at 20 MHz with upto 8 meg of memory. Tony Firshman of TF Services was there and had an ample supply of the long awaited major upgrade on the Minerva ROM for the QL, version 1.97. Bill Richardson was there with an ample supply of QL membranes (he had single handedly undertaken to have a new lot of 5,000 manufactured. The price has gone up a bit, but at least thanks to

Bill they will still be there. He also had on hand a good supply of Keyboard 90 Interfaces, Hard Drive Interfaces from Falkenburg, Serial Mouse, etc.

Tim Swenson was there sharing a table with Hugh Howie. Tim was making available copies of his magazine, QL Hackers Journal. Hugh was showing off (with good reason) his new program that gives an excellent index of all QUANTA articles ever published. It has good cross referencing, and is easy to learn. I hope to soon have a copy of it for my own use.

Bill Cable was there showing off his new program QLERK, a financial program that has been a long time in the making. I did not get a chance to look at it myself, but those who did just plain liked it. I shall soon have to acquire this new item. He was soon joined by an old friend of both his and mine, Peter Hale of Boston. I was very pleased to see Peter make it to this show, as when he closed the doors of EMSoft I was afraid he would do as so many had done in the past..disappear. My fears were soon seen to be foolish; Peter is still here to give us his valuable support. Thanks.

Don Walterman and John Impellizzeri of Michigan were both there showing off the QL-2000 Tower Cased QL, they had put together. These items were not being offered for sale by them, yet they kept a busy table demonstrating this as well as other configurations. To find out more about these contact Falkenburg in Germany, W. N. Richardson in the U.K., or Mechanical Affinity in the Americas.

IQLR was there and was selling specially done-up back issues of IQLR, great T-shirts, Trump Card Manuals and QUANTA disks. He was of course (Bob Dyl) taking subscriptions to his magazine.

UPDATE Magazine was there selling back issues of UPDATE and taking subscriptions. Business was good. This was manned by the publisher and editor, Carol and Frank Davis.

The next group of tables was manned by the guys from MechanicaL Affinity, Paul Holmgren and Frank Davis. What did we have for sale? Software from Dilwyn Jones Computing, Software from Digital Precision, Software from Jochen Merz,COWO Software, CARE ELECTRONICS Software, Hardware from Miracle Systems (such as Gold Cards, QXL Cards, etc.), Minervas, Hermes, Falkenburg Hard Disk Interfaces, spare QLs, membranes, etc. Just about anything you can imagine for the QL, including the newest versions of LINEdesign and DATAdesign from PROGS, as well as the software from TEXT87 (including the new Publishers Pack for use with LINEdesign). The real question these days is.."Is there anything for the QL they don't have?"

The show was excellent. We enjoyed it, and met many people I have so far failed to mention, such as Roy Arsenault and his daughter Megan, as well as Fred Komer, Mike Jonas and many others. It looks like we will be repeating this show next year. Would any of you be interested in making the trip to Indiana to have the show there? Let us know so we can make plans. If not it may be back in Rhode Island, Long Island, or D.C. My hat goes off to Bob Dyl for this show. He as well as Stuart Honeyball of Miracle Systems were the ones who came up with the idea of this show.

From what I have heard ALL THREE of our English vendors enjoyed their visit to the States and found them to be more pleasant than they had been led to think. I guess we have a small image problem overseas. Perhaps people see a lot of our movies and TV programs and think that is reality? It is always nice when people go away with an improved opinion of you. It appears that all three are making plans to return if we have another show. I have myself talked to other dealers in Belgium, and Germany, and find that they are now expressing an interest in attending a future QL show in the States. We may even have a show to the north of here around Toronto, if Hugh Howie can talk his club into it. If so, it would be for all Sinclair computers. Should this show happen, then UPDATE Magazine will be there to cover it!

HELP/WANTED/FOR SALE

1) I am looking for a TS2050 modem. Please send me info and cost to Canada. I would be very interested in buying one. Jeff Millward, #4- 5124 57 St., Taber, Alberta, Canada T0K 2G0.

2) I have the following books and magazines I would like to trade for some I don't have:
(a)YOUR TIMEX SINCLAIR 1000 AND ZX81 by Douglas Hergert (b)THE ESSENTIAL GUIDE TO TIMEX SINCLAIR HOME COMPUTERS by Morse, Adamson, Azrep, Hancock (C) SYNTAX VOL #4 NO. 5, 6, 7, 8, 9, 10, 11, 12 AND VOL #5 NO. 1 to 11.
I also have the following equipment for sale or trade for a Gold Card. This is all new merchandise. (a)1 - ORG II MD1 CM VER.3.3 for $179. (2) 1 - 32K DATAPAK for $49.99 installed. (3) 2 - 64K DATAPAK for $89.99 each. (4) 1 - 32K RAM PAK for $89.99. (5) 1 - FINANCE PAK for $49.99. (6) 1 - SPELL PAK for $49.99 installed. (7) 1 - COMMS LINK (RS232) with IBM disk for $99.99. Contact A. Green, 4600 E. Hillsborough Ave., Tampa, FL 33610.

3) PLEASE, someone offer some help to James Kelly, 473 East 15th Street, Hialeah, FL 33010. He is having troubles getting his Panasonic 24 pin printer to print when used on his QL running PC Conqueror.

4) FOR SALE: One black QL Printer with ribbon for $70 which will include postage and handling. Call Paul Holmgren, evenings or weekends at 317- 291- 6002, or write me at 5231 Wilton Wood Ct, Indianapolis, IN 46254.

5) David Lassov, System Oriented Languages CORP., 2590 N. Jordan Dr., Tucson, AZ 85745- 1132, phone no. 602- 882- 6920, is in need of some help in setting up a BBS on a TS2068. He needs help with software and with getting a modem up and running at 1200 baud. Any help any of you can give him would be appreciated. Help out a fellow user!

6) For sale at an extremely reasonable price of $100, one Sony Trinitron RGB 9" Monitor. This is said to be one of the very best RGB monitors (also CGA) that ever hit the market and it is cabled for the QL. I have too many and need the space. Call Frank Davis, evenings or weekends at 317- 473- 8031. If not home leave a short concise message on my answering machine. You may also write me c/o UPDATE MAGAZINE, P.O. Box 1095, Peru, IN 46970.

Larry Crawford / 357 Reynolds Rd / London Ont / Canada / N6K 2P8

11 Jun 93

Frank Davis
P.O. Box 1Ø95
Peru IN USA
4697Ø

Dear Frank

Sorry to be so long in getting this off to you but things have been rather hectic around here.

You have Bill Pedersen's schematics, etc. He, of course, could not physically try them out so I tried out his ideas on my own bypass board until we got it working.

Enclosed are the schematics of my version. There doesn't seem to be any similarity between the two versions but in fact the logic is the same. A couple of years ago I hand-wired a board on perfboard and used switches to select internal or external ROM and EXROM with wires running from inside the 2Ø68 case to the board. It worked fine but was crude.

The schematic on page 1 uses Bill's logic and works fine and completely externally. I have removed my internal switches and wires out to the board. Bill was to have PCBs made up of his circuit and I was going to stuff them for him but alas, he passed away too soon.

In any case, his logic works and the boards would work. He was in the process of rewriting the ROM and EXROM codes but couldn't finish. I am completely ignorant of the internal workings so can do no more than I have.

Enclosed are copies of my latest version of Tasword which you may find of some interest.

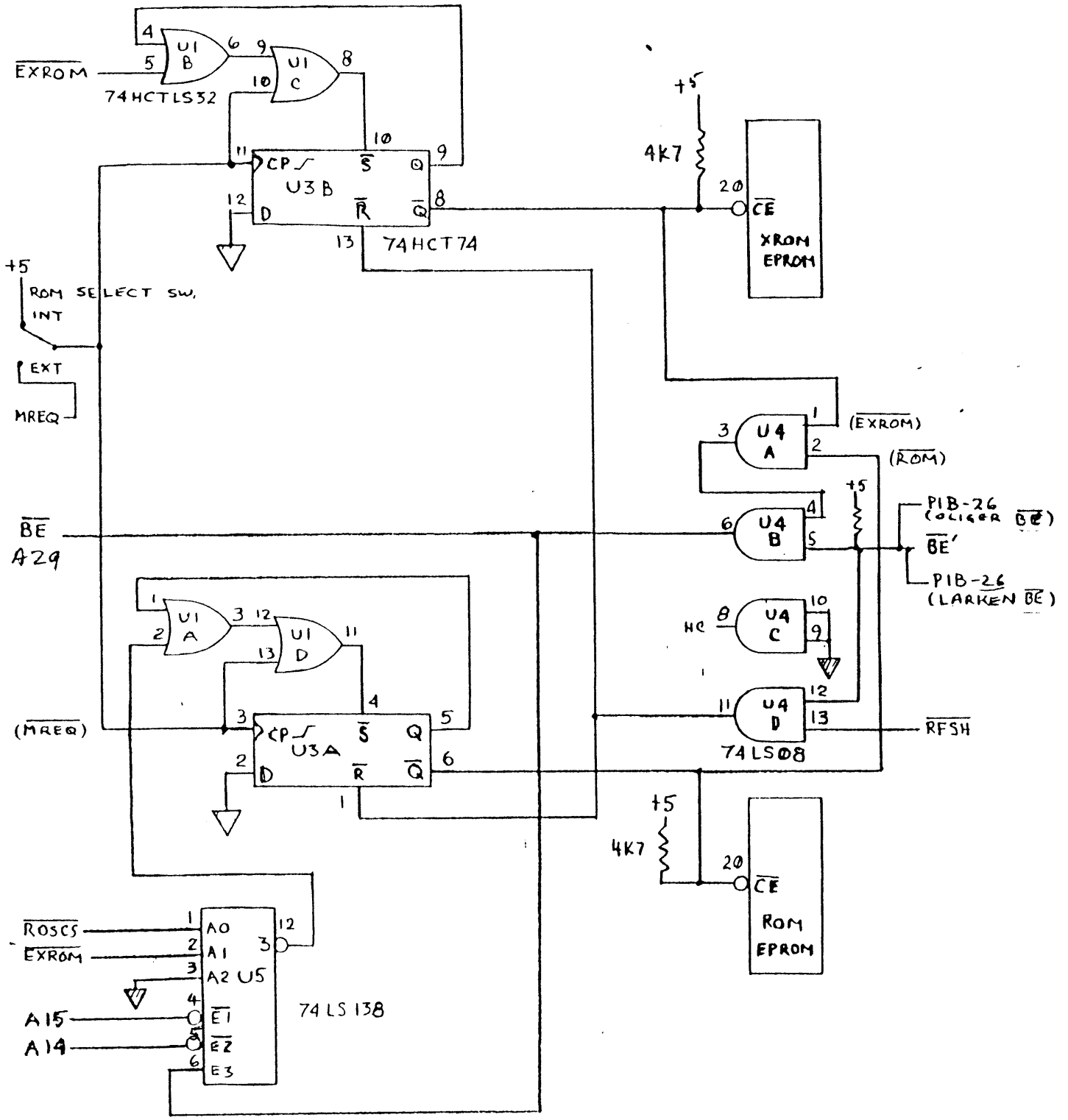
Best wishes,

Larry

Larry C.

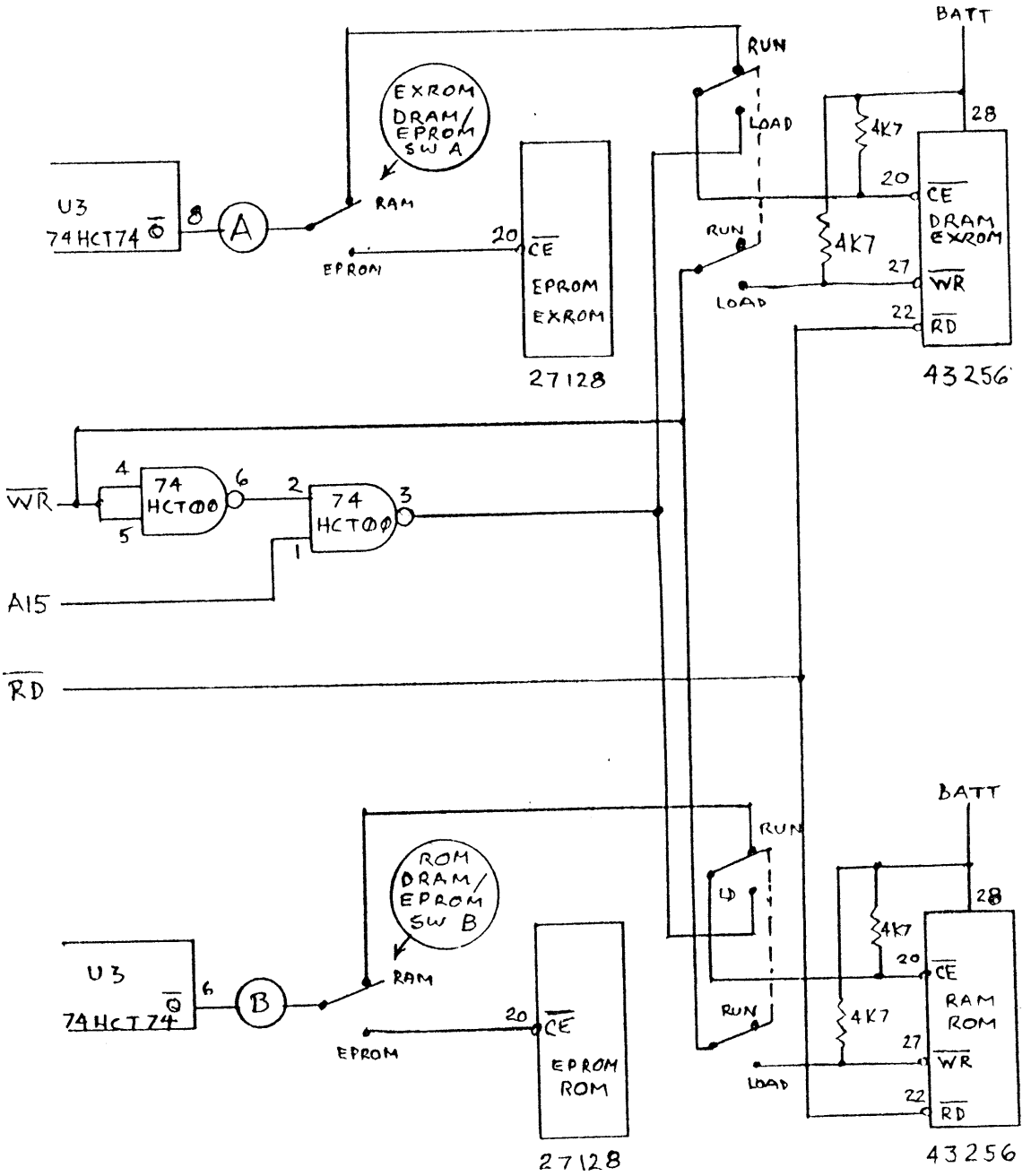
ROM/EXROM BYPASS BOARD FOR EXTERNAL EPROMS

21 SEP 92 LDC



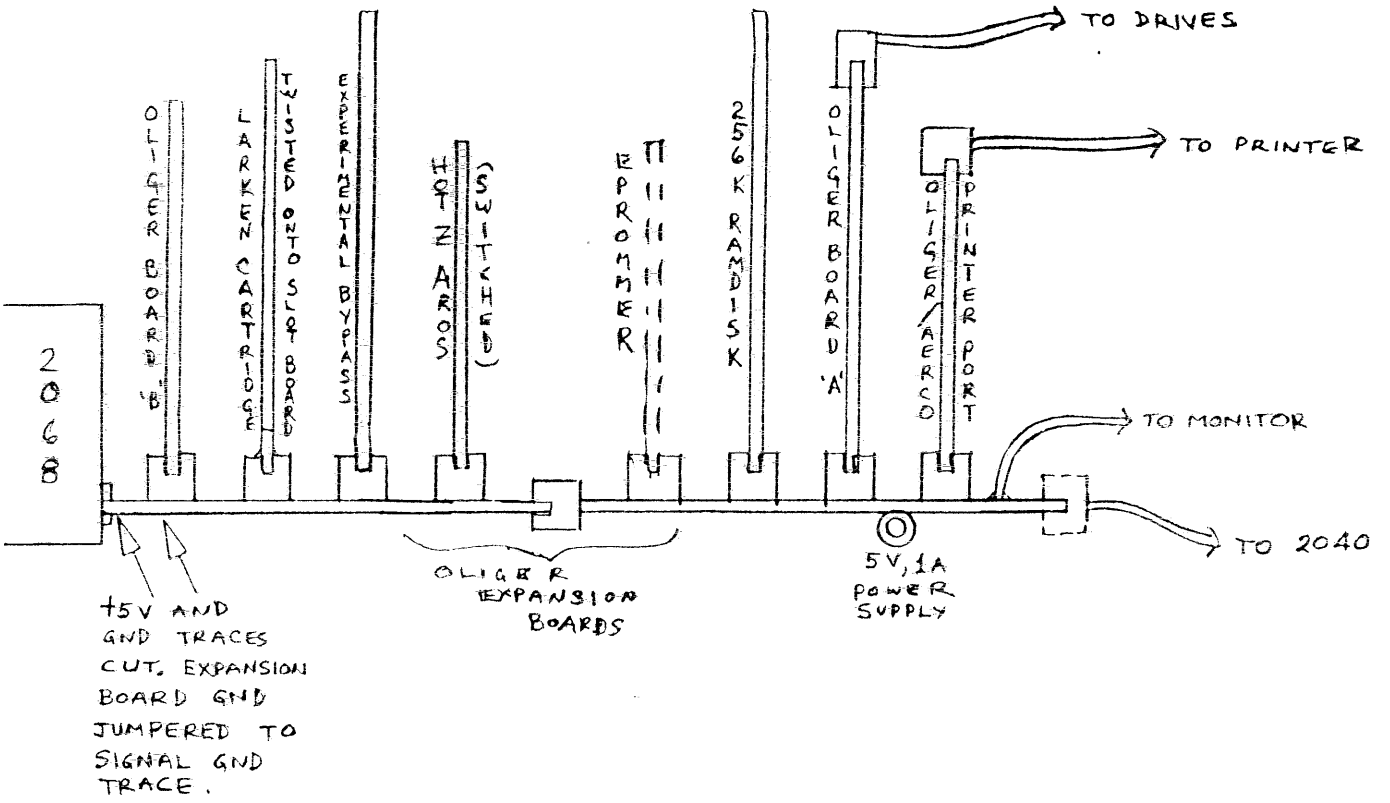
ROM/EXROM BYPASS BOARD DRAM FUNCTIONS

22 SEP 92 LDC



SWITCHES A & B MUST BE IN EPROM POSITION WHEN 2068 SWITCHED OFF TO MINIMIZE BATTERY DRAIN. (ABOUT 2 ma LEAKS BACK THROUGH THE '74).

DRAMS WILL NOT LOAD CODE CORRECTLY FROM DISK. CODE IS LOADED TO 40960 FROM DISK THEN MOVED TO 32768 WITH A LITTLE M/C ROUTINE.



LARRY C's SETUP 4 OCT 92

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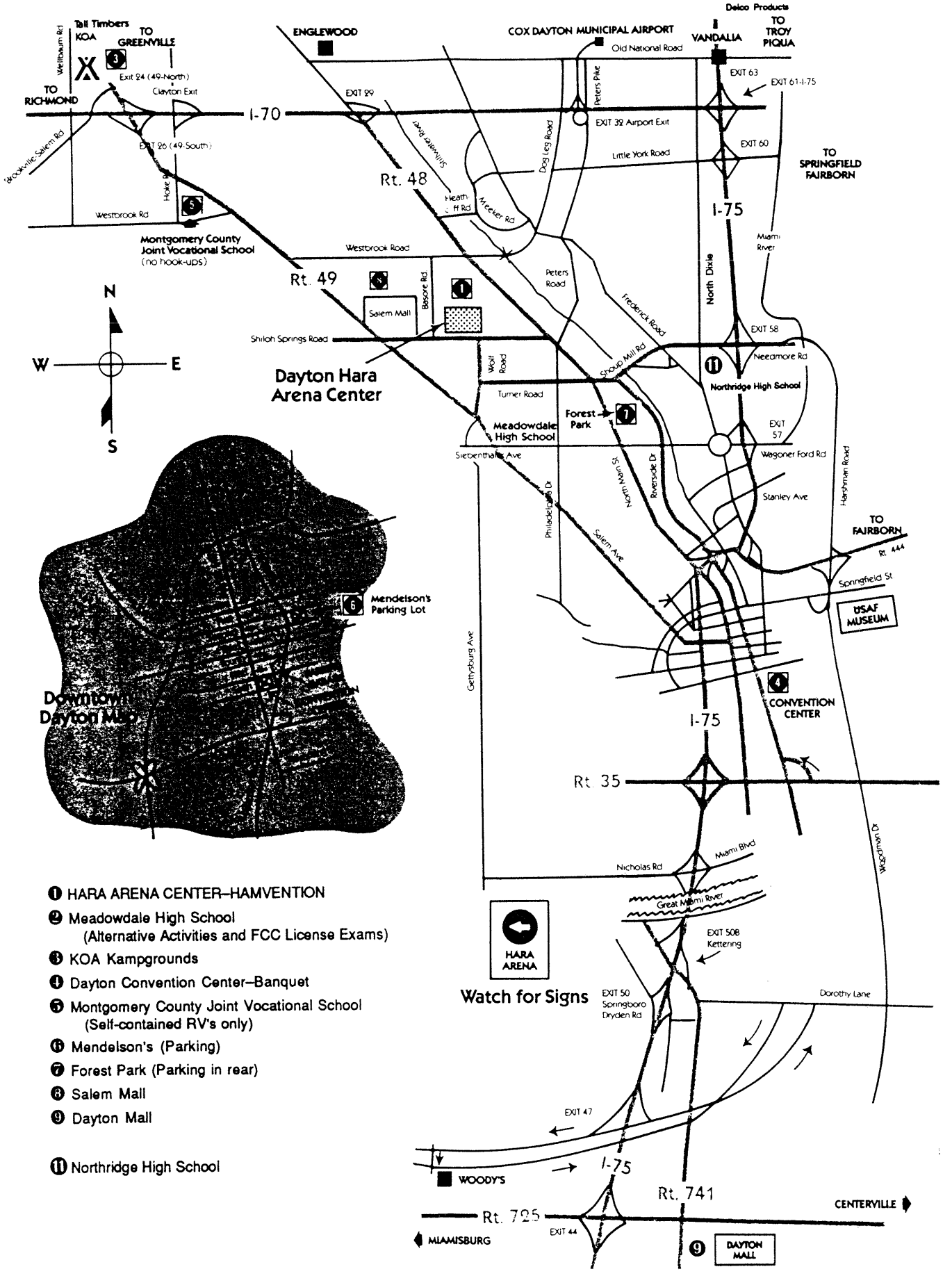
IBM XT COMPUTER $200 +shipping Includes 10 MEG hard drive, 640K RAM, 360K floppy, serial port and parallel port, monochrome monitor, and keyboard.

IBM 286 COMPUTER $350 +shipping Includes 20 MEG hard drive, 1MB RAM, 1.2MB & 1.44MB floppies, serial & parallel ports, keyboard, and monochrome monitor.

QUAD DENSITY 5 1/4 in. (720K) half height floppy drives $25 each or 10 for $150

IBM HARD DRIVES, CONTROLLERS, and RGB COLOR MONITORS
Write for prices

DAYTON AREA MAP



1. HARA ARENA CENTER–HAMVENTION
2. Meadowdale High School
   (Alternative Activities and FCC License Exams)
3. KOA Kampgrounds
4. Dayton Convention Center–Banquet
5. Montgomery County Joint Vocational School
   (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

Timex/Sinclair 1000 Emulator for MS-DOS
A Review by Tim Swenson

Jeff Vavasour (jeffv@physics.ubc.ca) of Vancouver, BC, has written an emulator for MS-DOS that emulates a T/S 1000 with a T/S 1016 16K memory pack and T/S 2040 printer. The program is freeware and is available on the Internet on simtel20.army.mil and oak.oakland.edu. Others can get it through Update or your local users group.

The emulator will run on any PC with CGA graphic or better. A 12 MHz system, or better, is recommended. The emulator executable is about 8K and the ROM is about another 8K. The zip file with the executable, the ROM, and a readme file is about 13K. In comparison to other emulators, this is very small.

The emulator emulates a full T/S 1000. The keyboard is mapped to feel like the T/S 1000 keyboard (delete is shift Ø not the delete key). The emulator does not have an onscreen display of the keyboard, so a manual would be handy.

The emulator does not support cassete loading (the LOAD and SAVE commands), but does support a "snapshot" type of saving and loading. Hiting the F3 key gives you the option to save the current computer setting or load one in. When loading a snapshot file, the emulator returns to the same state as when the file was saved. Essentially the file is nothing more than a memory dump. This means the each saved file is about 16K.

The emulaor supports the printer commands and provides support for Epson or Proprinter II printers. Not having one of these printers hooked two either of the two test computers I have not tried this option.

The emulator also comes with a built in debuger. F1 will bring up a main menu. The debugger options are: set a breakpoint, edit memory, load registers, view memory, reset the emulator, quit the emulator, and step through a Z80 instruction.

I have tested the emulator on a 33 MHz 386 computer and my 7 MHz 8088 laptop. On the 386 computer I found the emulator to be fairly slow. Having used XTender (another ZX81 emulator for MS-DOS) I expected it to be fast. I could not type in characters too fast, as they would be lost. The display worked like it was in fast mode, except that it would not blank the screen, but leave it unchanged before the results of a computation were finished.

I used an example program to test this out.

```
10 CLS
20 PRINT "TEST"
30 CLS
40 FOR X = 1 TO 1000
50 NEXT X
60 PRINT "DONE"
```

When this program ran, only DONE would be printed on the screen and the screen would not clear until the FOR..NEXT loop was complete. I tried the FAST and SLOW commands, but neither seemed to do anything. This may be fine for some programs, but it can be a serious handicap for others. Since a user will have to type in programs into the emulator, they could change the code to adapt to this problem.

Other than that, the display is fast. You don't see the individual lines be printed on the screen. They just all appear there.

When I tested the emulator on my laptop, I found it to be very slow. It took about 3 seconds for a key to register and it took just under a minute for the emulator to reset (memory check). Loading and saving files did not seem to be affected. Hiting any of the three supported function keys would bring an immediate response. It was only the T/S 1000 keys that were slow.

In summary, I find the emulator sort of usefull on a faster MS-DOS machine but almost unusable on a slower machine. In comparison with XTender, it does not fare too well. The only advantage TS1000 has is that it is free (XTender is about $25). I'm a big fan of Freeware and Jeff has done a good job in writing the emulator (and keeping it small). I think it's worth a look.

As a note of interest, in talking with Jeff (via e-mail) he mentioned that he wrote a basic program to dump the whole ROM, with checksums, to a printer, then the typed the whole thing into his MS-DOS computer. Quite a bit of work.

Also, Jeff has written an MS-DOS emulator for a TRS-80 Model I computer, his first computer. The code for this emulator was the base for the T/S 1000 emulator. The debugger works essentially the same on both emulators.



The Journal Covering Amateur Radio and Sinclair Computers
ZX80; Micro-Ace; ZX81; TS1000, 1500, and 2068; QL; Z88
Alex F. Burr, K5XY, Publisher
2025 O'Donnell Drive
Las Cruces, NM 88001
1993 July 7

QZX is a monthly newsletter publishing articles of a technical nature of interest to Radio Amateurs and other technically oriented people from all over the United States and some overseas countries. The articles relate to any of the Sinclair computers. The US subscription rate is $15.00 per year. For a sample issue please send $1.00 (postpaid).

QUANTA's Apr. 1993 revisions of the Library added 4 new disks and files to 2 other disks.

Disk Name	Contents	Free Sectors
GUIDE	(Archive based Library Guides)	597
C.A.D_1	(Computer Aided Design)	312
CT_1	(Communications/Transfer).revised Nov 91	309
CT_2	(a BBS program).....revised Nov 91	429
DEMO_1	.....New Apr 93	6
DEMO_2	.....New Apr 93	60
DEMO_3	.....New Apr 93	48
DEMO_4	.....New Apr 93	396
EDUC_1	(EDUCational).....revised Nov 90	345
EMACS_1	(Micro EMACS V3.9p SOURCE FILES)..Dec 92	3
EMACS_2	(Run version. NON-SOURCE + new doc's)...	18
GG_1	(General Games)	222
GG_2		330
GG_3	.....revised Dec 92	675
GS_1	(Games advent/Strategy)	108
GS_2		105
GS_3		75
GS_4	.....revised Feb 92	468
GRAF_1	(Graphics programs)	231
GRAF_2	.....revised Nov 90	435
KERMIT_1	(Kermit for the QL)	99
KERMIT_2		825
KERMIT_3		354
LANG_1	(Forth, C, etc).....revised.Jan 92	138
MAND_1	(MANDELbrot programs).....revised Nov.90	138
MAND_2	.....New Nov.90	12
MAND_3	.....New Nov.92	9
MATHS_1	(Maths, etc)	186
MATHS_2	.....revised Feb.92	831
MD_1	(Misc & Demonstration)....revised Nov.92	345
MD_2	.....New Nov.90	87
MD_3	.....revised Nov.91	228
PAGE_DES	(Version 1)	60
PF_1	(Printer utilities & Fonts)	243
PF_2		222
PF_3	.....revised Nov.92	234
PSION_1	(PSION utilities etc)	144
PSION_2	.....revised Nov.92	93
PSION_3	.....revised Nov.92	201
PSION_4	.....revised Nov.92	588
QDJM_3	(revised QDJM_1)	45
QDJM_4	(revised QDJM_2)	225
QDJS_1	(JS ROM)	459
SP_0	(Reserved - T. TEBBY + TRAPS ONLY)	1032
SP_1	(Specialist programs)	255
SP_2	.....revised Jan.92	18
SP_3	.....revised Apr.93	159
SP_4	.....New Nov.90	315
SP_5	.....New Nov.91	330
SP_6	.....New Jun.92	960
SP_7	.....revised Apr.93	414
UD_1	(Dir & copy Utilities)....revised Feb.92	546
UG_1	(General Utilities)	144
UG_2	.....revised Nov.90	96
UG_3	.....revised Feb.92	162
UG_4	.....revised Jun.92	309
UG_5	.....New Nov.92	75
UG_6	.....New Dec.92	1104
UT_1	(ToolKits/MachineCode)	201
UT_2	.....revised Nov.90	903

QUANTA members may get any of these disks by sending a formatted disk for each disk requested, enough funds to cover return postage, and proof of membership to the U.S. Sub-Librarian.

If you wish, I can provide disks at a cost of $.50 per disk. Order 3 or more disks and postage is free. Of course, any questions, you may call 1-317-291-6002.

Paul Holmgren, 5231 Wilton Wood Ct., Indianapolis, IN. 46254

CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 13 : ENTERING PROCEDURES USING THE ARCHIVE PROGRAM EDITOR - SECOND GROUP

We have one more procedure (by_arrow) to be added to the ones entered last time. It allows for selecting among options displayed on the screen by moving an arrow to the desired option and then pressing <ENTER>. The arrow can be moved by the arrow keys (up, down, right, left) or by the number keys (1-9) or by a designated character for each option. This will give a quasi graphical face to our ARCHIVE programs and completes our basic user interface module we will call group2 to be used with all programs to follow.

Before getting into that I want to share my impressions of the "MIRACLE in NEWPORT" event that I just returned from. For those of us QL people lucky enough to be there it was very sweet. There was an impressive collection of talented people from all over the US and Canada and the UK right there in one spot for a period of several days. You could walk right up to the expert in whatever field interested you and start asking questions. I arrived on Friday and regrettably had to leave after the Saturday night dinner but I am sure much fun was had during the following day or so. Bob Dyl and the IQLR Group did an excellent job in planning and support. The number of people attending was not large (I heard estimates of about 60 people) but it was the most dense QL atmosphere ever to occur in North America. There is talk of doing it again and I hope it becomes a yearly event.

Most of my effort during the festivities went into demonstrating QLerk (my home and small business financial program for the QL (written in ARCHIVE naturally). It is now officially for sale although I am going to remain low key about it for a couple of months until I get more feedback from those now in possession of it and have time to expand the users manual. Eventually I will send out a mailer and advertise widely. For anyone who can't wait and wants to be among the first to use it, you can order it from me : Bill Cable, Wood and Wind Computing, RR3 Box 92, Cornish, NH 03745 for $75.

PREPARATION

Start ARCHIVE in your customary way so you see the ARCHIVE command prompt (>). We will not need to access a database. You will start the editor and load the group of procedures entered last time and saved in a file called "group1". Then we will start the editor and begin entering the new procedure called "by_arrow". And we will also enter a testing procedure called "test" to illustrate how the new procedure can be used. If you make a mistake while entering the listing below the editor may not accept the line and you will have to spot the mistake and correct it (like unmatched quotes). Also the indention's should match the listing if there are no mistakes. Type in as much as you wish at one time and exit the editor and save the file with the name group2 and save a second copy somewhere else. Remember to load group2 when you are ready to continue your work. Notice that in the "test" procedure the screen is first setup then the "by_arrow" procedure is called with the necessary information on where the arrow can be moved to make a choice. The "by_arrow" procedure returns a value in the variable "ans" which will indicated which choice was made. If a 0 is pressed no <RETURN> is needed and it can be treated by the programmer as desired. Most likely you will have mistakes to correct (debug). The basic steps are :

load "{}group1"<ENTER>	Load previous work {}=device
edit<ENTER>	Start editor
<F3>n	New procedure
by_arrow;sl,nl,sc,nc,bw,s$,ap<ENTER>	New name
{enter lines of by_arrow listed below}	
<ESC>	Exit adding new procedure
<F3>n	New procedure
test<ENTER>	New procedure name-
{enter lines of test listed below}	
<ESC> <ESC>	Exit adding and editor
save "{}group2"<ENTER>	Save work {}=device
test<ENTER>	Try test procedure (play)

BY_ARROW AND TEST PROCEDURE LISTINGS

```
proc by_arrow;sl,nl,sc,nc,bw,s$,ap
 rem
 rem  Choose by moving arrow over options drawn on screen and pressing <ENTER>
 rem
 rem Passed arguments defining screen area in blocks of rows and columns
 rem  sl - start line, nl - number of lines
 rem  sc - start column, nc - number of columns
 rem  bw - block width for choices on screen
 rem  s$ - string of key characters, ap - at position (between 1 and nl*nc)
 rem
 rem Local internal variables
 rem  nl - becomes end line number, al - at line (current line)
```

```
rem  ac - at column (current column), ll - last line position
rem  lc - last column position, es - length of key string
rem  i$ - key press character,  i - key press character ASCII code
rem  k - acceptable key press flag
rem
rem Global returned variable
rem  ans - returns choice value as position in s$ or 0
rem
local al,ac,ll,lc,es,i$,i,k
let nl=sl+nl-1
print rv$;
let al=sl+int((ap-1)/nc): let ac=sc+((ap-(al-sl)*nc)-1)*bw
let ll=al: let lc=ac: print at al,ac;chr(14);"→";: let es=len(s$)          *** right arrow is <CTRL> ]
let k=0: while k<>30 and k<>48: let i=0: let i$=upper(getkey())
  if ap<es: let k=instr(s$(ap+1 to es),i$): else : let k=0: endif
  if not k: let k=instr(s$,i$): else : let k=k+ap: endif
  if not k: let i=code(i$): if i>48 and i<58: let k=i-48
     if k>len(s$): let k=0: endif : endif : endif
  if k: let al=int((k-1)/nc+1): let ac=(k-(al-1)*nc)*bw+sc-bw: let al=al+sl-1
    else : if i=30 or i=48: let k=i
      else : if i=2: let k=i: let al=al-1
        if al<sl: let al=nl: endif : else : if i=3: let k=i: let al=al+1
          if al>nl: let al=sl: endif
          else : if i=4: let k=i: let ac=ac+bw
            if ac>sc+bw*(nc-1): let ac=sc: endif
            else : if i=5: let k=i: let ac=ac-bw
              if ac<sc: let ac=sc+bw*(nc-1): endif
              endif : endif : endif : endif : endif : endif
  if ll<>al or lc<>ac: print at ll,lc;" ";: let ll=al: let lc=ac: endif
  let ap=(al-sl)*nc+(ac-sc)/bw+1
  if k: print at al,ac;"→";: else : print at al,ac;"?";: endif : endwhile          *** right arrow is <CTRL> ]
if k=48: print at al,ac;"0";rv$;chr(15);
  else : print at al,ac;"+";rv$;chr(15);: endif
let al=al-sl+1: let ac=(ac-sc)/bw+1:rem let ans=10*al+ac
if k=48: let ans=0: else : let ans=ap: endif
endproc

proc test
  mode 0:setup
  let x$=" Apple    Banana   Cherry   Corn     Eggplant "
  let y$=" Carrot   Peach    Lemon    Beet     eXit     "
  print at 10,1;rv$;"Food : ";x$; at 11,8;y$;rv$;
  by_arrow;10,2,8,5,10,"ABCCECPLBX",2
  if ans=10 or ans=0: mode 1: stop : endif
  let x$=x$+y$: let i$=x$((ans-1)*10+1 to (ans-1)*10+10)
  acky;14,"You picked option "+str(ans,2,0)+". Yummy"+i$
  test
  endproc
```

You should do some experimentation with the procedures introduced so far to make sure you understand how they work. Remember to activate the "setup" procedure first either in a procedure as I have done in "test" or directly at the command prompt. Debugging your typos can be time consuming but the error messages are good. Refer to their descriptions in your manual. Giving incorrect arguments for procedures also leads to errors.

The ARCHIVE Language once learned is fast for program development but has relatively slow screen displays. I have found the "by_arrow" procedure to be one way to have a nice prompting screen that works quickly. If you have any suggestions for improving these procedures please let me know. Until next time when we finally introduce a complete program, Happy Archiving!

MECHANICAL AFFINITY SUMMER SALE

This is our Golden Opportunity Sale! For a limited time only, as we made a great deal at the recent Miracle in Newport Show and are passing on the savings to you. When this special purchase sells out we will go back to our regular prices for these items. This offer expires August 15, 1993 or when supples run out, at which time prices will revert to normal (though we always try to have some great prices).

MINERVA MK1 the ultimate ROM upgrade for the QL plus the HERMES 8049 co-processor replacement chip (normally $105) now only $75!

MINERVA MK2 the same ROM chip and board as above, but with a battery backed clock and RAM plus the HERMES 8049 replacement chip (normally $143) now only $100!

GOLD CARD running at 16 mgh and with 2 meg of memory plus Slowgold Software to control the speed of programs that run too fast, for only $360!

GOLD CARD plus both the MINERVA MK1 and the HERMES for only $396!

GOLD CARD and the HERMES for only $375!

GOLD CARD with the MINERVA MK2 and the HERMES for only $420!

We have also added many new products to our range of QL hardware and software. At this point in time we at Mechanical Affinity feel we have the largest range of both hardware and software of any dealer. Please request a copy of our newest catalog.
To show you some of the new products we are now carrying in our stock, please see below.

QL CENTRONICS INTERFACE for both SER1 or SER2 to parallel printer. Newly redesigned to take up less room. It defaults to 9600 baud, but is able to switch baudrate and comes with a 3 meter long cable. It is available for $44.

FALKENBERG HARD DISK DRIVE CARD for the QL. This will allow you to use a MFM or RLL hard drive, upto 416 meg with your QL. For the HDD interface with either an MFM or RLL controller the price is $310. We also have available the HDD card, controller, case with power supply and 40 meg hard drive for $475. This interface requires that you have a separate BUS EXTENDER CARD to allow you to have more than one peripheral out the expansion slot.

QL-BUS-Driver for the Trump Card based QL, gives you a 5 slot expansion board that follows the QL standards for expansion. This is available for $75. The 2 slot version for the Gold Card is $45.

Also new to our stock are the following items. The longer we do this the better we seem to get. With the support of our customers this is a true statement.

QL KEYBOARD-90 INTERFACE now

MECHANICAL AFFINITY SUMMER SALE

QL KEYBOARD-90 INTERFACE now on sale at $98. This allows you to replace the keyboard that came with your QL by using an IBM XT/AT keyboard externally. This is great for those who want to place their QL in a tower or desktop case, or for those who have just gotten tired of replacing membranes every few years.

QUALSOFT TERMINAL SOFTWARE is the best commercially available terminal program for the QL. It comes on disk or MDV. It can multi-task with all popular QL front end programs, it has a simple text editor to help with uploads/downloads and with your E-mail. It allows you to do screen dumps while online, and if you combine it with a HERMES then you can reliably use it with all known high speed Hays compatible modems as well as Tandata, etc. We have it for only $45.

QXL CARD for the IBM. This simple plug in card for the IBM and compatibles allows you to turn a mundane IBM into a full blown super QL. This can give you from 1 to 8 megs of memory, improved graphics capability, and more speed than the Gold Card. Call us to discuss your needs on this and let us work out a deal you can be pleased with. This allows you to run the QL card as a simple application program on the IBM, giving you the best of two worlds. We have them in stock as of now.

Other new items we have added to our inventory include the following:
TEXT87 PLUS4, QL word processor; 2488 DRIVERS for the 24 pin printers and bubblejets; TYPESET90-DESKJET drivers for all HP deskjets; TYPESET90-EPSON drivers for Epson lasers; FOUNTEXT88 + FOUNTED89 optional dot-matrix drivers; PLUS4 PUBLISHER (the publisher pack) to allow you to combine PLUS4 and LINEdesign to make the best use of text and graphics; LINEdesign and DATAdesign from PROGS are the new top of the line vector drawing package for the QL (a massive new product that enables you to draw, print, scale, rotate any picture or text, and will look crisp and sharp), and the newest version of DATAdesign (which has been completely rewritten so that files can be disk based and larger than available memory, with the bonus that all files are now multi-user).

We also now have available for sale the latest version of QTOP, the program that many call the definitive front end for all QDOS compatible machines. It now offers an icon based FILE-MANAGER such as is found in Windows. We have it for only $52.

TO ORDER FROM US SEND CHECKS, MONEY ORDERS, CASH (foreign add $3), or C.O.D., PAYABLE to Frank Davis or Paul Holmgren to

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513 EAST MAIN ST.
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WHY BUY A QL?

(or in the end, keep one)

by Peter Hale

Back in 1984 I was the last person in North America to pay full retail list to Sinclair for a QL - $499.95 + $10.00 s+h. I bought it because I had a ZX-81 and trusted Sir Clive.

The question is why have I kept it, despite real world needs to move to a MAC or MS-DOS clone - aka mainstream computer.

The answer is that keeping and improving the QL has been cheaper and simpler (and in many respects better) than any alternative. It has always given me the performance I have needed. Note that I write needed, not wanted.

Except at its inception, the QL has never been state-of-the-art. It has, since then, been at least a step or two behind the mainstreams, but my needs have always been at least three steps behind s-o-t-a.

In 1991, I nearly moved to an MS-DOS platform because of the sizes of my databases, but the Gold Card arrived on cue.

Over the years the cost of upgrading a QL has always been cheaper than buying a mainstream computer. I have further avoided the emotional strain and intellectual costs of transfering to a different operating system.

My real world QL			Hypothetical MS-DOS	
11/84	QL	510.00	XT	2500.00
03/85	RGB monitor	345.00	CGA mon	450.00
02/86	CST controller	150.00		0.00
	Twin drives	250.00		0.00
04/86	TK2	30.00		0.00
06/86	Backup QL	90.00		0.00
09/89	MGUS rom	35.00		0.00
06/90	Vision Monitor	250.00		0.00
12/90	4 bay drive case	150.00		0.00
11/90	Coleco Pwr Sup	25.00		0.00
02/91	3.5 drive	60.00		0.00
02/91	5.25 DD drive	60.00		0.00
05/91	Gold Card	450.00	386SX+VGA	1995.00
06/93	Hermes chip	43.00		0.00
		2448.00		4895.00

Repairs have been omitted as they are probably a wash between the two systems; my QL repairs - membranes, drives, 8301 chips - have come to about $250 over the years.

I don't have high resolution graphics or GUI, but my needs are primarily text based. I might think differently if I were into graphics/CAD, etc.

Until I got the Hermes chip, telecommunications were definitely flakey. Some special purpose mainstream software would have been nice, but without it the quality of my life has not been significantly diminished.

Mainstream applications packages such as spreadsheets and wordprocessors would have cost 3 to 10 times those of QL programs, without significantly improving the output to hardcopy. My greatest expense has been for text87 in its various releases, but in sum no more than one release of an MS-DOS wordprocessor.

What have I gained - aside from a computer hardware budget half that of my neighbor's?

1. A firmware operating system (Q-DOS) and programming language (SuperBASIC) that compares favorably with all but a few in size, efficiency, ease and reliability.

2. I have passed by the expense and frustration of a hard disk. Because of operating system efficiencies, 90% of my needed software fits on a single disk and is always available in a multi-tasking environment. Data disks take little more time to swap than hard disk directories take to manage - and with a hard disk I would still be wise to back up to floppy.

3. Getting started or rebooting takes less than a minute for Taskmaster with 7 applications. How long in MS-DOS, Windows, PS/2, etc.

My QL is first and formost a tool. That sets me apart from many for whom it is also a hobby and a joy, which does not mean that I don't enjoy my QL, too.

Would I start with a QL today? Probably not because the cost of entry to my current system is more than some mailorder 486SXs with SVGA monitor.

Will I stay? Yes. Simple economics aside, it is familiar and comfortable and I trust it.

If it ain't broke, don't fix it.

IN MEMORIAM
by Peter Hale

Ernie died on May 31, 1993, Memorial Day in the United States, the day we honor those who died in defense of our liberty.

He died of cancer after a long, hard struggle to beat the odds. He beat them - by all accounts by more than five months - because he had things to do.

In the end he was surrounded by his family at home. His daughter, Jennie, called me within the hour.

I write this because he was special to me, but I also write for the Sinclair computer press because the QL was special to him.

In his obituary, after the account of his career and his work with his church, it said that he was president of the New England Sinclair QL Group (NESQLUG).

Ernie rarely ventured outside the Psion suite that came with his QL; half the lines of programming he wrote were dictated over the phone, and he struggled to key in every line of SuperBASIC from QL World. But he was the only person I know who had working skills with all four applications.

When he worked with the New England Telephone Company, he fought the trend and made the company get him a Thor. His boss justified it on the grounds that Ernie was more productive with a Thor than any two other employees with IBMs. Besides, Ernie told me, his files were too important to be subject to the viruses and security leaks that plagued the networks at the time.

He was a deeply spiritual man of a faith rarely found in the world today. From the day he learned he had cancer, and even when he learned his odds, he did not fear death. As a youth he had made the nine First Fridays, and knew that if he died in a state of grace he would go straight to Heaven. "And that's what life is all about anyway", said Ernie.

He set about putting his affairs in order and teaching his children to use the QL. In February he bought a Gold Card, to aid in that task.

By April he was bedridden, and had the QL moved to his bedside. Each stroke was painful, either from the cancer, the paralysis or the frustration of trying to think through a cloud of painkillers. In the end his son had learned enough to keypunch from dictation.

Ernie did not suffer fools gladly; indeed he suffered them not at all, himself the least. He never complained that the cancer would cheat him.

Many his age become fixed in their ways and ideas, but he was always open to new ideas.

Several years ago Ernie told me about a financial planning program he was involved in. I bit my tongue, but suggested what I felt was a more appropriate avenue.

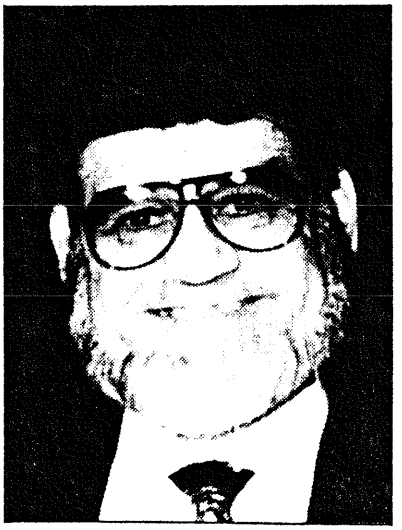
At first he resisted the notion and I let it drop. But eighteen months later he had the grace to tell me that not only had he followed up, but had spent some of the profits on an IBM so his wife could take work home from the office.

In consequence I became privy to and part of his planning.

Ernie was not unlike many people whom I have met through a shared interest in the QL. He differed only in that he was my friend.

Oh, God! Ernest Wider, I miss you.

Obituaries



ERNEST J. WIDER

Ernest J. Wider, 60

Was engineer for telephone firm

Ernest J. Wider of Dover, a retired civil engineer with New England Telephone Co., died Monday at his home of cancer. He was 60.

He was born in Port Chester, N.Y., and lived in Dover for 26 years.

Mr. Wider retired from New England Telephone in 1992 after 36 years there.

He was active in the Church of the Most Precious Blood, in Dover, serving as the head of the lectors and the Eucharistic ministers. He also taught religious education classes to eighth graders.

Mr. Wider was also president of New England Sinclair NESGLUG, a professional association.

In 1991, he formed a stained-glass window company, Helvettia Glass Works.

He leaves his wife, Irene (Appiarius); three daughters, Katherine of Medfield, Barbara Bell of Bellingham and Jennifer DeLuca of Medway; two sons, Timothy S. of Norfolk and Christopher of Bellingham; and eight grandchildren.

A funeral Mass will be said tomorrow in the Church of the Most Precious Blood at 10:30 a.m. Burial will be in Highland Cemetery in Dover.

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QL CORNER by Bob Gilder

I would like to discuss an additional operation for printing documentation from within Quill. I have recently received requests from some of our corresponding LIST members; "How print large documents, say 10 pages or more, back-to-back".

What I mean by 'back-to-back' is that page two is printed on the back of page 1; page four is printed on the back of page three, and so on....

Before you start printing document pages singly, make a list of the pages; both odd pages and even pages and as you start to print each individual page cross out that page number on your list so that you will not become confused when it is time to print the next page.

ODD	EVEN
1	2
3	4
5	6
7	8

and so on.....

When you're ready to print out your document, press F3, P, ENTER.
The command line will state Print, current,- press ENTER.
The command line will state Print, current, whole, - press 1, ENTER.
The command line will state Print, current, 1 to end,.- press 1 again and then press ENTER.
The command line will state Print, current, 1 to 1, to printer,.
To print out the page to your printer, press ENTER and the page will be printed.
The next page to be printed should be page 3. Just repeat the above sequence by entering 3 instead of 1, and so on...

Remember to print out ALL odd pages, in their normal sequence as the above table illustrates; then remove the printed pages from your printer and turn the printed paper over and reinsert the paper into your printer. Note that the printed matter on the printer paper NOW faces up. Make sure that you installed the printer paper with the top of page 1 first and ensure that the top of the page is in the proper alignment so that the document header and/or footer will be in the approximate place as is the page 1 side.

This sounds like a lot of work.. it really isn't. Your documents will now be professional looking and as an added benefit, you have only used half the amount of printer paper that you would normally use.

Since the beginning of the year, the German QL market seems to have exploded! Both suppliers have wide variety of new hardware and software for sale. Hard disk drives interfaces for an assortment of small to large capacity hard drives, a QL computer TOWER case, and so much more.

It is my understanding that Mechanical Affinity will also be handling one of the German suppliers software and hardware, contact:

MECHANICAL AFFINITY
c/o Frank Davis
513 East Main Street
Peru Indiana 46970
Tel: 317-473-8031

MECHANICAL AFFINITY
c/o Paaul Holmgren
5231 Wilton Wood Court
Indianapolis, Indiana 46254
tel: 317-291-6002

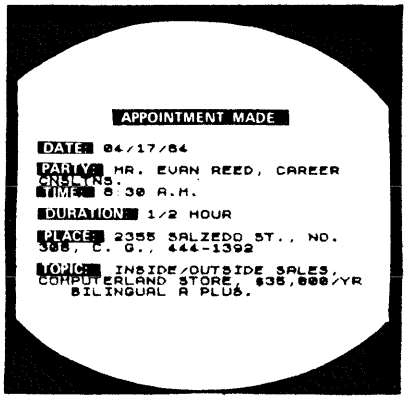
Albert F. Rodriguez
1605 Pennsylvania Ave.
No. 204
Miami Beach, FL 33139
(305) 531-6464

Also Available For T/S2068

ZX81 Appointment Calendar
Copyright (c) 1983
Albert F. Rodriguez

$19.95 : On Cassette
For : Sinclair ZX81/TS1000
Language : Sinclair BASIC
ROM/RAM : 8K/32K
Load Name : "APTCAL"
Load Time : 7.30 Minutes
Program Listable : No
Program Listings : $6.50
Extras : Printer & Recorder
Syntactic Sum : 441,292

ZX-CALENDAR



"A Personal Time Management Program"

The practical benefits and tutorial aspects of this program are evident by knowing what it does, what it can be used for and how it is written. The reader can begin to know all of these things by having nearby a listing of the program along with its declarations (see Listings 1 and 2). It is preferable if the program was loaded into the computer before reading any further.

The program is self-running. This prevents the user from erasing any data contained in the variable store by entering "RUN". If this accident occurs, then, reloading the program is recommended. If the program is stopped from executing by pressing "BREAK" it can be restarted by entering "GOTO 20".

The program is driven by a main-program that consists of lines 20-31. This feature of the program lets a programmer outline his entire work before he dedicates his efforts to writing the specific details of each section of the outline.

The use of variable names instead of line numbers within subroutine call-statements enhances the composition and readability of the program. It helps the programmer to quickly access a given section of the overall work for editing or debugging; it helps the user to keep better track of what the program does. Both the use of a main-program and assigning variable names to subroutines also simplifies the following explanation.

While writing this program it was assumed that it should be highly interactive, user-friendly and that it provide a good display. Together, these traits make the program fun and easy to use. To see how these traits are exhibited by the program it should be executed in "SLOW" mode until the user obtains familiarity with how the program works.

The first view the user will have of the program is a graphic FRAME which lists the name of the program and all of the options that a user can exercise while working with the program. This MENU informs a user that he has five options about what to do with an appointment: enter it, check it, change it, save it or clear and reset the storage area of the program from the beginning.

The user makes a CHOICE about what to do with an appointment by entering a designated number. If he accidently enters any data other than the numbers 1-5, inclusive, then a prompt message will appear informing him that a false entry has been made; it will later self-erase and allow another entry.

The option CLEAR should be executed immediately after the program is loaded from cassette for the first time. This will cause the storage area of the program to start accepting appointments from the beginning. To see what happens when the entire storage area is full, enter "LET I = 50" in the immediate mode and key in "GOTO 20". Later be sure to exercise the option CLEAR again to reset the storage area from the start.

By exercising the option ENTER a user now has 50 possible appointments that he can create. Under these circumstances the program occupies 19.5K bytes of RAM. To increase the number of possible appointments all numerical and alphanumerical arrays would have to be changed to reflect the new total of appointments and line 204 would need to be changed accordingly.

To enter an appointment the user supplies an answer to six questions. These questions are about: the date; the party with whom an appointment is being made; the time an appointment starts; the duration of time occupied by an appointment; the place where it will occur; and the topic of discussion.

It is the date and party with whom an appointment is made that establishes a permanent identification of a given appointment in the storage area. It is through them that any given appointment will later be recalled or adjusted by the options CHECK or CHANGE, respectively. Consequently, the standardization of the length and content of these two pieces of data must be fixed and adhered to so as to avoid what is referred to in computer jargon as GIGO (garbage in-garbage out).

Thus, any data that is entered must be left-justified (i.e., first column-first character). Spaces and punctuations must also be considered. Eight character locations are allowed for entering the date. The format for entering the date should always be: 00/00/00. The party name has 32 character locations available. Time and duration permit 10 locations each. Place provides 64 while the topic lets 96 character locations be used in recording input data.

After an appointment is entered the program presents a summary of it to the user via the routine DISPLAY (lines 600-608). This routine lets the user obtain a hard-copy of an appointment if he so desires. Whether or not the user elects to make a copy of an appointment the program, afterwards, returns to menu.

After an appointment has been made a user can verify that

it is stored by the program by exercising the option CHECK. Checking an appointment can be done in either of four ways. First, the name of a party can be used to retrieve from storage and put on display any and all appointments made with that specific individual or entity, regardless in what order these appointments are made. Second, a user may determine any and all appointments he has on a given day by entering the entire date. Third, a user may find what appointment(s) he has for a given month and year (in chronological order) by entering the pair of digits that denote a given month and year. (If a user tries to check an appointment by any of these methods when in fact said appointment was never made, then, a prompt message will appear informing the user of this fact.) After displaying every appointment, by any of these methods, the program then returns to menu. Fourth, if a user wants to view (in sequential order) every appointment that was ever entered, he may do so by entering 1 or 2, while in the CHECK sub-menu, and afterwards keying "ENTER" until the program returns to the main menu.

After an appointment is entered a user may want to modify it in whole or in part. He may do so through the option CHANGE. (Yet, before a user tries to change an appointment he should <u>always</u> check it first. For it may have never been made.) This section of the program was designed with the assumption that a user can only make a single appointment on a single given date with the same party. If a user will be meeting with the same party more than once on the same date, he may reflect this by altering the time or duration part of the appointment that was made once with this same party. Hence, there is no need to make more than one appointment with the same party on the same date.

If an entire appointment is elected to be changed this can be done, but without using additional storage space. That is, the same storage space already occupied can be rewritten all over again. If an appointment is elected to be changed only in parts, the program will allow it until the user decides that all necessary changes in a given appointment have been made. Afterwards, the program returns to menu. (At this time a user may exercise the option CHECK to verify that the changes made in a given appointment have been properly recorded.)

After a user finishes using the program he can save it, in its updated form, by exercising the option SAVE. It is also this option that lets the program self-run after it is loaded again.

%%%%%%%%%%% <u>Listing 1. Declarations</u> %%%%%%%%%%%%%%

1. <u>Character Arrays</u>

```
L$(50,8)  :  Stores complete date of appointments
M$(50,32) :  Stores names of parties
N$(50,10)  :  Stores time of appointment
O$(50,10)  :  Stores length of time of an appointment
P$(50,64)  :  Stores places where appointment will occur
```

Q$(50,96) : Stores topic for discussions

2. Number Array

K(50) : Stores cell numbers (1-50) of alphanumerical arrays

3. Character Variables

A$: Holds numbers 1-5 for comparison
B$: Inputs dates
C$: Inputs menu options
D$: Inputs party names
E$: Inputs times
F$: Inputs durations
G$: Inputs places
H$: Inputs topics
I$: Inputs "yes" or "no" replies
J$: Logical operator "NSORT"
K$: Inputs 2-digit month
R$: Inputs 2-digit year
S$: Inputs "A" for all, "P" for part. Also inputs new data during change.
T$: Inputs "yes" or "no" replies
U$: Holds load/save name "APTCAL"
V$: Inputs which part of an appointment to change
Z$: Inputs choice to check an appointment

4. Number Variables

A : Holds code numbers for numbers 1-5
B : Control counter, searches for correct input in routine CHOICE
C : Control counter, flashes message that calendar is full
D : Control counter, searches for an appointment in routine CHECK
E : Temporary store of value for cell counter I in routine CHECK
F : Temporary store of value for cell counter D in routine CHANGE
G : Temporary store of value for cell counter I in routine CHANGE
H : Temporary store of value for array K(50) in sort routine lines 770-780
I : Control counter for number of appointments entered
J : Control counter for cell number of appointments being sorted
K : Temporary store of value for array K(50) in sort routine
N : Temporary store of value earliest appointment made in a given month
P : Temporary store of value of length of date to change an appointment
Q : Temporary store of value of length of party name to change . . . .
T : Control counter that acts as a flag to indicate if an

appointment exists
X : Pixel position on a column
Y : Pixel position on a row
SAVE : = 900; routine to save program

* 5. Subroutines

ENTER = 500; originates appointments
DISPLAY = 600; gives copy-ready report of an appointment
CHECK = 700; checks appointment by date, party, month/year
CHANGE = 800; changes appointment by date and party
FRAME = 100; draws graphic frame around screen
MENU = 200; displays menu options
CHOICE = 300; validates option-input
CLRS = 400; clears screen
CLEAR = 1000; resets storage area

*Note: All Subroutines (including SAVE) are assigned their address in immediate mode.
Note: Listing 2. Program (obtain print-out of the program from tape cassette).

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INSTRUCTIONS

HOW TO FIT A NEW QL KEYBOARD MEMBRANE.

Disconnect everything from the QL. Turn the QL upside down with the the Microdrives on the left. Unscrew the four short screws along the front edge, and the four long screws along the back.

Turn the QL over into the normal position. and carefully. lifting the front, open the case pivoting it against the back. It helps to have something like a few books to lean the opened top against before continuing.

Using both hands gently ease out the two membrane tags. Avoid disturbing the six LED wires which are locked into a connecter block. (If one or more become disconnected it is necessary to release them all by pulling up the body of the block. then reinserting them and pressing the block down again. The sequence of the leads from the back is- Red; Black: White: Black; Grey: Black. Each coloured lead has its own black lead which can be traced back to its LED.)

Once the tags have been released it is a good idea to fold the QL keyboard back so that it rests between the back edge of the QL base and a book about 2-3 ins thick, so that the keys to hang free.

The next step is to remove the QL keyboard alumimium backing plate. Gently peel away the old membrane tags from the double-sided tape. Mark the positions, then remove the six screws that fix the aluminium backing plate to the QL top. Remove the backing plate and then the membrane. The rubber bubble-mat should be flat, not pushed up by any of the keys. Make sure that it is located correctly on the six dowel pins.

Take the new membrane and locate it over the bubble-mat on the same six dowel pins. Replace the alumimium backing plate on the dowel pins. When the assembly is correctly positioned replace the six screws in the previously marked holes starting with the two centre ones.

Take the two membrane tags back up over the backing plate and secure them with double-sided tape, Do not bend them too sharply, and avoid creasing any part of the membrane.

Prop up the keyboard again in a vertical position. Take the larger membrane tag with the thumbs and fingers of both hands and carefully press it into the larger socket. Do not kink it, it should go in about 1/8in. Repeat the action with the other tag. (If necessary practice with the old membrane)

Lower the keyboard on to the base, and test the keys. If satisfactory replace the eight body screws.

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THIS LEAFLET WAS PRODUCED USING A Sinclair QL AND QUILL.
THE PRINTER USED WAS A MANNESMANN MT81 9-PIN PRICED £130 INC VAT.

QZX INDEX

Alex. F. Burr

QZX is the oldest Sinclair newsletter established in the United States (or anywhere else for that matter). It is a specialized newsletter designed for those interested in using their Sinclair Computers in radio communications. It has been published for well over 10 years and the types of articles and the computers about which they were written illustrate the development of the Sinclair computers. Now a complete index is available.

The index itself is a 59 page book with heavy red covers and plastic comb binding so that the pages easily lie flat. The main part consists of four separate indices, a Subject Index, an Author Index, a Computer Index, and a Title Index, The last eight pages contain articles describing the index organization, issue corrections, Sinclair computers in general, some author addresses, back issue availability, and QZX history.

The organization of the index was more complicated than anticipated. Part of the difficulty was that two new programs, the database program and a desktop publishing program had to be learned. The database holds the basic information on each article and prints it out in four different formats to create the four indices. The database program also combines the article authors with the appropriate address from the QZX subscriber database to create the author address printout.

It took a bit of experimentation with type size to get an index which was readable yet did not take too many pages to print. It was not until just before the final print out that it was discovered how to remove excess space between each line in the index. Page numbers were made to come out correctly by making use of an undocumented feature of the page numbering system.

Most people know the general subject of the article for which they are looking, hence the first index is the subject index. Each article was assigned to one of 16 subjects. Some articles deal with more than one subject, but it would have required considerably more programing to have listed some articles under more than one subject (to say nothing of increasing the length of the index). In a few cases a secondary subject follows the main subject in the listing. Fortunately most articles dealt with only one subject and the title is informative enough to convey some subject information too. The 16 subjects are listed later in this article.

Everybody has a favorite author or at least knows what many authors prefer to write about, so the second index is an Author Index. Occasionally articles were taken from other magazines. If an author was not given, the name of the magazine is used as the author. If the information in the article is just a compilation of widely known information sometimes no author is listed.

If you are interested in a particular Sinclair computer the third index will be most useful. There the articles are listed under the specific computer most closely associated with the article.

Occasionally a second computer is listed if the article applies to it too.

There are some subtle differences between the computer labeled All and Other. 'All' means that the article is general enough to apply to no specific computer. 'Other' means that the content refers directly to a non-Sinclair computer.

The last index is based on the title of the article. It is the most complete listing as there is a column which tells the reader whether or not the article contains a schematic. The other columns are the same as the previous indices but are a little narrower (hence contain less information) to allow space for the schematic column.

Selecting the subjects to index was the most difficult decision to make when designing the index, and assigning one of these to each article was the most time consuming task when building the data base upon which this index is built.

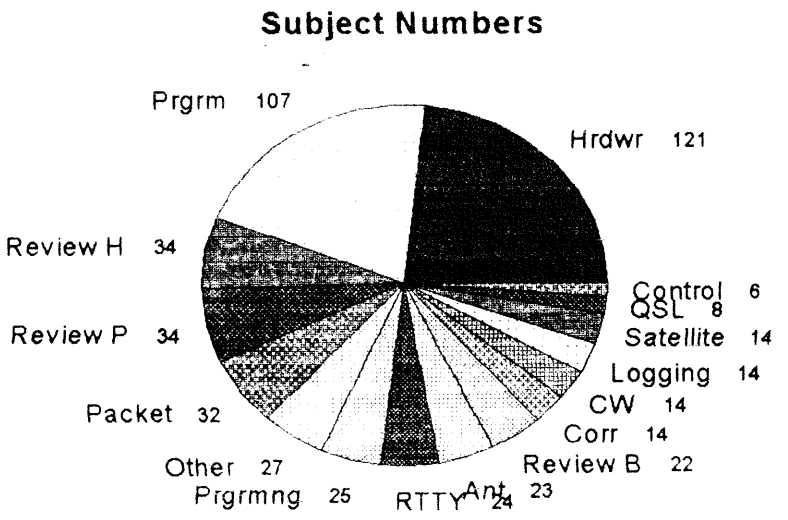
Not all articles were suitable for indexing. There is no need to index the Editor's Notes because they appear in each issue. Furthermore, they and a number of other articles, contain information which becomes dated rapidly, so that there is little utility in looking them up; hence they are not included.

Most of the other articles are divided up into 16 different subject areas. The following table lists all these subjects and shows the number

Subject Table

Subject	Article #
Antennas	23
Control	6
Corrections	14
CW	14
Hardware	121
Logging	14
Other	27
Packet	32
Program	107
Programing	25
QSL	8
Review Books	22
Review Hardware	34
Review Program	34
RTTY	24
Satellite	14

Figure 1



of articles assigned to each area as of the April 1993 issue. Figure 1 shows the assignments in a graphical form.

There are really quite a few computers which can be classified as Sinclair computers. A short article with more details of their differences appears in the index. But it is easy to classify all of them into one of six groups listed in the following table. The table also shows the number of articles in each group and is followed by Fig. 2, which displays the same information in graphical form.

Computer Table

Computer	Article #
All	67
Other	5
QL	47
TS2068	85
Z88	4
ZX81	311

The ZX81 group is the biggest. It also contains articles written for the very closely related TS1000 and TS1500. Also appearing in this group are articles discussing the predecessor ZX80 and Microace. The TS2068 group includes those very few articles which deal with the Spectrum series of computers. The Spectrum computers come in a number of models and were quite popular (especially as a game machine) in Europe, but were rarely sold here. Hence almost no QZX articles involve only these computers. The QL is a very capable computer. The Z88 is a really small lap top but is not used much by the amateur community. The Other category includes MSDOS computers and such unusual models as the PC8300, a Chinese distant relative of the ZX81 that will run some of the same programs. Some articles cover topics like programing hints applicable to all of the Sinclair computes and are not indexed under any specific one.

The index is being sold for $9.00 postpaid by QZX, 2025 O'Donnell Drive, Las Cruces, NM 88001. Subscriptions to the newsletter are available from the same address for $15 for 12 monthly issues (to addresses in the US, Canada, or Mexico).

Computer Articles

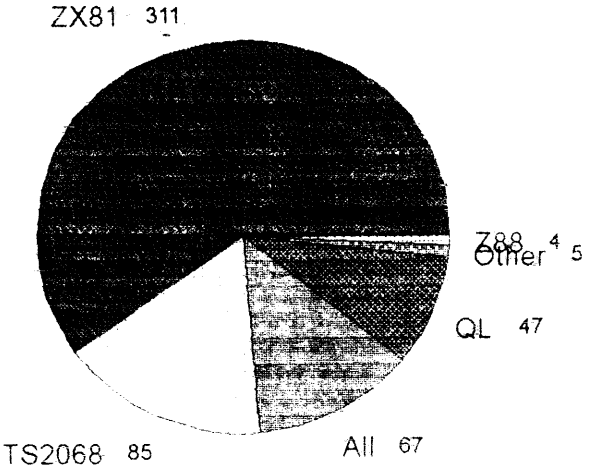


Figure 2

INDEPENDENT SUPPORT FOR YOUR Z88

Z88 USERS' CLUB

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Z88 EPROM

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Text in BBC BASIC
Memory Paging
Password
BBC File Transfer
CLI from BASIC

ARTICLES:

Inside your Z88
Book Reviews
Undocumented Features
Mailmerge
Directories on the Z88
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HARDWARE REVIEWS:

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TURN OVER FOR DETAILS ON HOW TO JOIN

The Z88 Users' Club Magazine

Z88 USERS' CLUB

If you own a Cambridge Z88 portable computer, or are thinking of buying one, then the **Z88 Users' Club** is for you! The Club was established in 1987 to help users get more out of this powerful laptop computer, and from modest beginnings has grown to encompass the combined experience of around **2000** members.

BENEFITS OF MEMBERSHIP

● **CLUB MAGAZINE:** Called **Z88 EPROM**, this is the only U.K. magazine dedicated to Z88 Users. Printed in a handy A5 format, each issue normally has 36 pages packed with news and views about the machine, members' letters, hints and tips, articles and of course in-depth reviews of all the latest hardware and software for your Z88. The magazine is sent by post six times each year to all members.

● **SOFTWARE LIBRARY:** As well as short programs printed in **Z88 EPROM**, the Club has an expanding Library of about 200 programs and applications written by members. These range from the BASIC Patch, which implements a line editor and graphics commands within Z88 BBC BASIC, to QL, ST and PC file transfer programs. Available FREE to members through the Club Library Service, the programs are copied onto your own EPROMs or disks. Also, for a small charge which covers p&p, we are able to combine several 32k application ROMs onto a larger EPROM. Full details when you join the Club.

● **PROBLEM HELP:** We can help with your Z88 queries in two ways; the regular Queries Hints and Tips section in most issues of **Z88 EPROM** will answer many of your questions, or alternatively you can call on the expertise of our network of Helpliners - members with particular experience in certain subjects, who will assist other members with their problems.

● **SPARES SERVICE:** By arrangement with Cambridge Computer Ltd, the Club sells a wide range of Z88 spare parts to members, all of which are supplied with easy fitting instructions.

● **CLUB DISCOUNTS:** The Club occasionally negotiates Special Offers for members on certain Z88 products.

● **EPROM ERASURE SERVICE:** Why pay £40 for an EPROM eraser, only to use it every few months? Send your EPROM to the Club Software Library with the 50p service charge and return postage, and we will erase it and return it to you.

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Membership of the Club is by subscription to the Club Magazine, **Z88 EPROM**. A current subscription to **Z88 EPROM** also entitles you to the other membership benefits listed above.

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● **HOW TO JOIN:** Select the correct subscription rate for your address, fill in the application form below and send it with the correct payment to the Club Address. We will process your application and send you your Membership Pack, which includes your first issue of **Z88 EPROM** together with details of back numbers, Software Library, spares service etc.

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Z88 Prime Number Benchmark
By Timothy Swenson

A couple of years ago in the Captial Area Timex/Sinclair (CATS) Newsletter, Duane Parker ran a Prime Number benchmark on the QL using different languages. Later, Herb Schaaf converted the benchmark to C and ran it on a number of different computers.

This benchmark provides a fair measure of how each computer compares with each other or how various languages or compilers compare on a computer. To compare computers, it only works using like languages on the different computers. A compiled C program on a VAX can not compare with an interpreted program on a QL.

To get an idea of how fast the Z88 is, I ported the Basic version of the benchmark for the QL and ran it on the Z88. On the QL using SuperBasic, it took 245 seconds. On the Z88 it took 326 seconds. Since the QL is fairly slow in it's printing of text on the screen, I ran a version that did not print out the prime numbers. The QL dropped it's time down to 229 seconds. I ran the same version on the Z88, but it still took it 326 seconds. From this we can conclude that printing text does not affect program speed.

Using the QL's faster number, the results show that the QL is 1.4 times faster than the Z88. Considering that the Z88 is running a Z80 (8-bit) at about 3 MHz and the QL is running a 68008 (32-bit with an 8-bit bus) at about 7 MHz, the Z88 is not doing too bad.

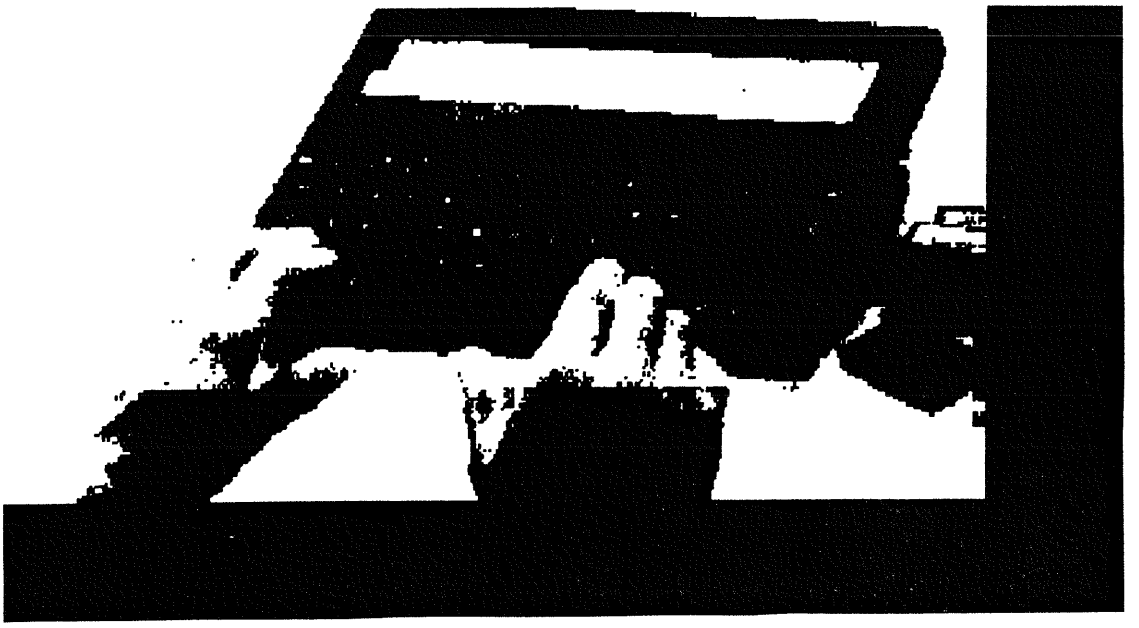
The prime number benchmark determines all of the prime numbers from 32767 to X, where X is less than 32767 and greater than 0. In the benchmarks that I ran, I had the program determine the primes from 32767 to 29000. This was the same numbers used in the original comparisons.

Just for the record here are the results from the previous benchmarks.:

QL	Forth79	23 Secs.
	QL Pascal	27 Secs.
	Computer One Pascal	67 Secs.
	SuperBasic	245 Secs.
	Small-C	16 Secs.
PS/2-30 w/ Turbo-C		6 Secs.
IBM w/ MIX C		5 Secs.

```
10 PRINT "Stop Calculations at what value less than 32767?"
20 INPUT V
30 P = 32767 DIV 100
40 IF V>32767 OR V<0 THEN PRINT "INVALID": GOTO 10
50 PRINT "Primes < 32767 & > ";V
60 A$ = TIME$
70 FOR I = 32767 TO V STEP -2
80   FOR J = 3 TO 191 STEP 2
```

```
 90      IF ( I MOD J ) = 0 THEN GOTO 140
 95    NEXT J
100    IF (I<P*100) THEN PRINT : P=P-1
110    PRINT I;" ";
140 NEXT I
150 B$ = TIME$
160 PRINT A$
170 PRINT B$
```



SPECIAL Z88 SUMMER SALE from the folks at MECHANICAL AFFINITY

FOR A LIMITED TIME ONLY (till August 30, 1993) YOU CAN CATCH A REAL BARGAIN FROM PAUL HOLMGREN OR FRANK DAVIS on some of your Z88 COMPUTER needs. Call Paul at 317-291-6002, or Frank at 317-473-8831 to see if we can fill your needs when it comes to your Z88.

We have 512K and 128K RAM cartridges on sale for 10% off. This means you can add 128K for only $45, and 512K for only $148.50. This is the best commercial price in North America. QLINK software to link up your QL and Z88 is now on sale for only $30. We have also temporarily reduced the price of our great soft carrying cases for the Z88 to $8. These prices can not last for long, so take advantage of them now. Talk to Frank about other deals for your Z88!

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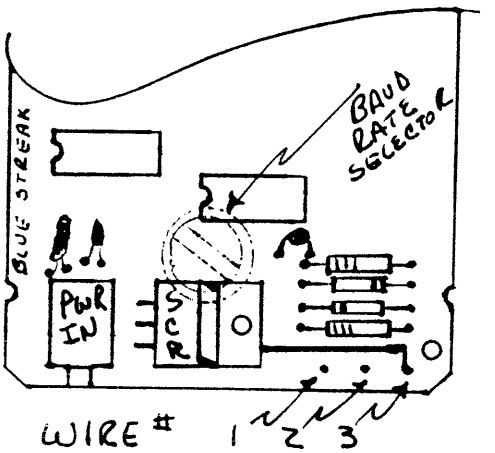
j. shepard

I HAVE MENTIONED BEFORE OF MY RESISTANCE TO PAYING MORE FOR AN ITEM THAN I THINK IT'S WORTH.

I FEEL THIS WAY ABOUT THE PRICE OF CURRENTLY OFFERED PARALLEL TO SERIAL CONVERTORS

ESPECIALLY, THOSE OFFERED FOR THE Z-88. SO, I WAS DOING WITHOUT UNTIL MY FRIEND, BOB SWOGER, WHO FORTUNATELY DABBLES IN OTHER COMPUTERS, LIKE COCOS, TOLD ME OF A CONVERTOR FOR A COCO THAT COULD BE HAD FOR $40. I ASKED THE NAME OF THE FIRM HANDLING THIS JEWEL. DAYTON ASSOC.,9644 QUAILWOOD TR., SPRING VALLEY, OHIO 45370, PH. (513) 885- 5999. THEY CALL IT THE BLUE STREAK ULTIMA. THE COST IS $29.95 IF YOUR PRINTER PROVIDES +5 VOLTS DC ON PIN 18 OF THE PRINTER CONNECTOR, IF NOT THEN FOR $6.00 MORE, THEY'LL INCLUDE A WALL PLUG POWER SUPPLY. IT COMES WITH A DIN PLUG, WHICH WILL HAVE TO BE CONVERTED TO A DB-9 TO BE ABLE TO HOOK UP TO THE Z-88'S SERIAL PORT, BUT IT'S ONLY THREE WIRES, SO EVEN IF YOU DON'T HAVE THE EXPERTISE TO HANDLE A SOLDERING IRON, YOU CAN FIND SOMEONE TO DO IT USING THE FOLLOWING INSTRUCTIONS FOR WIRE PLACEMENT.

SEPERATE THE PLASTIC CASE BY CAREFULLY PRYING IT APART AT THE SEAM WITH SOMETHING LIKE A SMALL SCREWDRIVER. YOU'LL HAVE TO DO THIS BECAUSE THE PEOPLE WHO PUT THESE TOGETHER DON'T OBSERVE A COLOR CODE AND YOU'LL HAVE TO DETERMINE WIRE LOCATION VISIBLY. ONCE YOU'RE INSIDE, HOLDING THE CASE WITH THE PRINTER CONNECTOR END AWAY FROM YOU, WHICH IS THE SERIAL PORT WIRE ENTRANCE END TOWARDS YOU, YOU'LL SEE THE THREE WIRES OF THIS SERIAL CABLE SOLDERED TO THE PCB IN A ROW.



IF YOU'LL NUMBER THEM FROM LEFT TO RIGHT AWAY FROM THE SCR, THEN THEY CONNECT TO THE DB-9 CONNECTOR AS FOLLOWS:

WIRE NO. 1 -- DB-9 PIN NO. 2
2 -- " " " 5
3 -- " " " 7

WHEN THIS IS DONE AND YOU PUT THE PLASTIC CASE BACK TOGETHER WITHOUT CATCHING THE WIRES ON TOP OF THE BAUD RATE SELECTOR, YOU'RE IN BUSINESS.

THE DB-9 CONNECTORS SOLD BY RADIO SHACK (276-1403) HAVE GOOD HARDWARE FOR CAPTURING THE WIRE. YOU WILL HAVE TO GET THE PIN CRIMPING TOOL.

BEFORE YOU TRY TO PRINT OUT WITH <> PO, YOU SHOULD FIRST MAKE SURE YOU SELECTED THE 9600 BAUD RATE ON THE PANEL. YOU GET THERE BY KEYING []S. THEN, OF COURSE, YOU SELECT THAT ON YOUR BLUE STREAK, ALSO.

I FOUND THE WAY THIS UNIT IS SHAPED GETS IN THE WAY OF MY PAPER PATH SO I GOT A CABLE EXTENSION TO GET IT OUT OF THE WAY. DO NOT USE AN EXTENSION LONGER THAN 24 INCHES, IT WILL DELAY THE BYTES AND MANY DROP OUT. I USE A RADIO SHACK (26-2867). IT'S $10.95 IN THE STATES. OTHER THEN THAT IT WORKS AS IT SHOULD,
SO ENJOY

TIMEXERS CAN SURVIVE WITH HELP!

Z88 SOURCE BOOK

Compiled by Tim Swenson Published by UPDATE Magazine

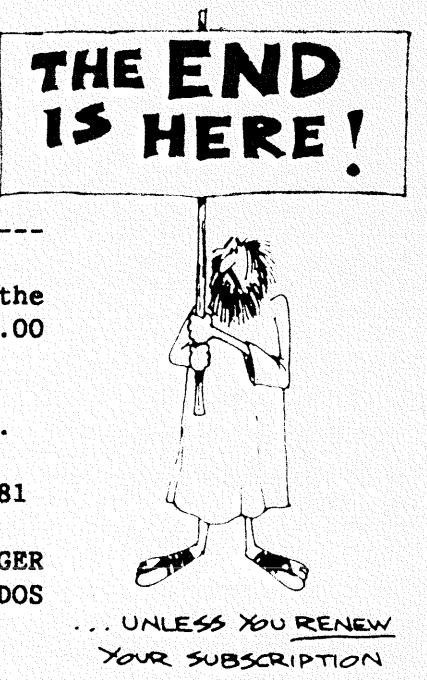
'The Z88 Source Book is designed to be a good reference on the Z88, how to interface it with the world, what products are available, and what dealers carry them. It is not designed to be a replacement for the Z88 User Guide, but as a supplement to it, filling in areas not covered by the User Guide.'

Thus do we at UPDATE Magazine introduce to you, our readers, one of the first books on the Z88 by North Americans. The book does what it says above, thus we at UPDATE are proud to offer this to you. It comes with a disk of utilities for the Z88. The utilities are offered on disk in any of the available disk formats for the IBM (3 1/2 720K and 1.4 meg; 5 1/4 360K) and for the QL formats (3 1/2 360K, 720K, 1.4 meg). All utilities are either shareware, Freeware or are Public Domain and may be freely distributed.

The price for all of this, including postage and handling (First Class Mail!) is $7.00 US$ in North America. Outside of North America please add $2.00 US$ to help cover costs of additional postage. We feel that you will find that this nominal charge for the book and disk to be well worth the cost. We thank you for your support. Send all orders to: UPDATE Magazine!, P.O. Box 1095, Peru, Indiana 46970. For those wishing to buy in larger numbers of copies for resale or for User Groups or Clubs, please contact Frank Davis at UPDATE to make arrangements. We love getting the word out as far as is possible.



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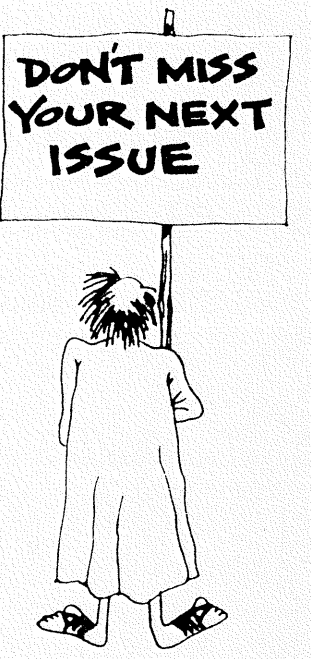
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These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises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

1) NEW! PAYROLL by Jim Bretz. Payroll record program for employers,for the Larken System. Allows for accurate processing and use of employee earnings and tax records, etc.

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

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

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

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. Written 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.

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UPDATE COMPUTER SYSTEMS invites you to submit software programs that may become Issue Disks. Please submit program on disk, with documentation and article to accompany the program. Our goal is to get North American software available and known. We also solicit minor programs, tips and utilities for print.

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 programs for the QL. Some of the programs take advantage of Tool Kit 2 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

6) QL COMPENDIOM- a three disk collection of utilities for the QL, taken from the various short programs in UPDATE, plus file compression, decompression, E_Forth for the QL, C utilities such as FLEX and YACC, Tcopye, Quad format,etc. All for only $20.00

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