UPDATE

Magazine

SINCLAIR for Computers

TS-1000 TS-2068 QL ZX-81 ZX-80

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* UPDATE COMPUTER SYSTEMS MAGAZINE *

UPDATE COMPUTER SYSTEMS is Edited and Published by Frank and Carol Davis of P.O. Box 1895, Peru, IN 46970 USA. The phone number is 317-473-8831 for both voice and fax, with normal phone hours being between 5 P.M. and 9:30 P.M. Eastern Time during the week and noon to 6 P.M. on weekends. Please use the answering machine if we are not home. Most answers to questions left on the machine will be by mail, long distance charges are too costly for a small magazine.

Mailing date of the magazine: all issues will be mailed out near the 20th of the months of October, January, April and July. All mailings within the USA are by bulk mail and may take a few weeks to reach you at the most. Those wishing to have faster service may pay $4 extra for First Class Mail. The present rate for North America is $18 in US$, and $22 for the rest of the world. Back issues of the magazine are available for $16 per year in North America and $18 elsewhere (it is cheaper to mail a bunch as opposed to one issue at a time). There are four issues to a year, with each year of a subscription starting in October and ending with the July issue, at which time your subscription renewal is due. Timely renewals are what keep us in business!

Assistance in publishing this magazine is provided by you the readers, many of whom have contributed often in the way of reviews and articles. We offer you our heartfelt thanks. Our main assistant locally is longtime friend and colleague, Eliad P. Wannum, Poet and Psychologist, as well as Sinclair computer user. Many thanks to our regulars such as Mike Felerski, Bill Cable, Peter Hale, Paul Holmgren, Al Feng, Don Lambert, Bob Hartung and many others. You are all welcome to submit material for inclusion in the magazine. Please make all hard copy submissions letter or NLQ; no draft print copies, as we do not have much time for re-typing. Send at least two copies hard copy and the article or artwork on disk where possible. No audio tape submissions, as we do not use tape as a media, please. Try to avoid flowery or hard to read fonts...unless you are showing us a sample of the output of a program. If artwork is to be included in the article, please let us know in what order you think it should be displayed.

Those wishing to place ads in UPDATE MAGAZINE: We have two ways of handling ads. ONE, we will do reciprocal ads for other publications (generally on a year for year basis, with you sending us a copy of the issues the ad is placed in). The other way is to purchase ad space from us, with the following rates in effect for now: $15 per quarter page; $25 per half page; and $40 per full page ad. This is per issue. For inclusion in all four issues, you pay for three issues, in advance, and get the fourth ad free. Should you have questions on this please contact Frank Davis, by mail or phone as listed above.

We hope to be of service to you. Thank you!

**** UPDATE COMPUTER PAGE DIRECTORY ****

The computer that an article concerns is marked by using the following mark in the first column of the directory: TS= article for the TS2068 or Spectrum; QL= article for the QL or QXL; ZX= article for the TS1000, ZX81, TS1500; 88= article for the Z88. GI means article of general interest.

Front cover art by Abed Kahale of CATUG, the Chicago Area Timex User Group.

GI-- Page 1: Directory of Articles in April Issue
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QL/88 Page 25: QL Survivors Source Book & Z88 Source Book- ad
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QL-- Page 27: QL Public Domain & Shareware by Paul Holmgren
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QL-- Page 29: Mechanical Affinity- ad
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QL-- Page 32: QLAMBer by Al Feng (new issue disk for $20)
QL-- Page 34: The QBox- USA BBS by John Impellizzeri (a tutorial)
QL-- Page 42: QLAMBer (continued from page 33) by Al Feng
88-- Page 43: Prime Numbers by Mike Fink of Domino Cubes
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Back Covers: Issue Disks for the QL and the TS2068 Computers. This is User generated software from North America for the rest of the world.

APRIL 1994 EDITORIAL BY Frank W. Davis

PLEASE, ALL SUBSCRIBERS TAKE THE TIME TO READ AT LEAST THE END OF THIS EDITORIAL *If concerns the future of publishing UPDATE! Magazine beyond the current subscription year.*

For now let us take a look at other business concerning the Sinclair and Cambridge computers that so many of us like to use, some of us even seem to treasure them as 'old friends'. For those who think of them as dead or limited in use, I can only say you are being too cheap or have not kept up with what is being offered for them right now, out there in the real world. In this editorial I hope to at least lightly touch on just what you can do with these little 'so-called ORPHAN computers'.

First let us look at the Cambridge Z88. The only full-service dealer for these in North America that I know of is DOMINO CUBES. All prices are retail, so expect to pay full price, but also expect to get service, as Mike Fink is one of the most knowledgeable people in North America on the Z88. You can expect to get everything from him for your Z88 in the way of memory, eproms, software, printers, disk drives, modems and mobile phones . All of this to use for your Z88.

Another choice for those who want to add on to their Z88, is my own company Mechanical Affinity. We do not have the full range of products that Domino Cubes has, but what we do have is at very reasonable prices. We have 128K and 512K add on memory, we have cables for hook up to MACs or to QLs for data transfer, we have soft carrying cases, we have (on QL or IBM format) disks with Z88 public domain and shareware software , and we have a program to allow you to transfer data and programs back and forth to a QL. What we do not have we will try to help you find or refer you to someone who can help, if we know of them.

To get a Z88 repaired we can recommend either Domino Cubes or Dan Elliott. Both are experienced in repairing the few things that go wrong with them. For parts to fix your own (should you be so brave) contact Mike Fink or join the Z88 Club (from the UK, but international in membership)listed in back issues of UPDATE. Dan Elliott has an ad elswhere in all issues of UPDATE!

Looking to add internal memory, get the latest ROM for the Z88, or buy the latest program?..... then continue to check out the European ads in each issue of UPDATE!, many of which are in the back part of this current issue.

For the TS2068, what is out there you can use to upgrade your current system? For the first thing I would suggest that you join a USER GROUP or CLUB. It will put you in better contact with people working on these little marvels, and let you know of more used equipment when it goes on the market. Even if there is no local group, join one as an out of town member. A great public domain library from a group can be very valuable. The Toronto Club has a very large library for members (thanks to George Chambers and Hugh Howie) and many out of town members (as well as an excellent newsletter edited by Jeff Taylor); the Chicago group has an excellent Library and newsletter and is very supportive of the Larken Interface; and the Oregon group is close knit and has a good library as well as the benefit of Rod Gowen, the owner of RMG, as a member (a very active member!). These are only a few groups, and I do not mean to slight any that have been left out (that includes my own Indiana group ISTUG). This is just to say...join a group and be active, learn desk top publishing, put

out a newsletter....just do something!

Any upgrade or repair you may have a kit or plans for can be done by Computer Classics to your TS2068 or TS1000 or QL. Dan is good at what he does. You can also get these things done by Eric Johnson or John Hamner . Send a SASE if you need more info on contacting these people.

The John Oliger Company, Mechanical Affinity, RMG, AERCO are a few of the companies still supporting the TS2068. From them you can get disk drives, disk drive interfaces, programs, extra memory, printers, monitors, dock boards for programs on eprom, printer interfaces, etc. The prices are reasonable and all have long reputations of dealing honestly with the customers. Most items are quickly available, and those that are not will still make their way to your computer station with a little patience.

For the QL, the computer that old Sir Clive Sinclair seems to have wished he never came up with, we seem to have a very bright future on new hardware and software. For very good prices on used hardware and software, contact RMG or Mechanical Affinity. For all of the new hardware and software for the QL, from anywhere in the world , then go to Mechanical Affinity. They have it all. Just what do we mean by all? The new Super Gold Card, the Falkenberg Hard drive, the QXL, Text87Plus4, LINEdesign 2, Digital Precision Software such as PC Conqueror and Perfection word processor, Page Designer 3, Qspread, Qdesign, the Painter, the soon to be released items such as the SCSI Interface, the QL graphics card to give us VGA graphics and the soon to be released IDE interface for hard drives. We try hard to have it all.

Now for the last item. This is the one I wanted you to stay tuned for. UPDATE! Magazine has been around for almost 7 years. That is a long time for any computer mag. In that time I have seen many mags go by the wayside, some of them I really liked. Carol and I need to hear from you as to whether you wish for us to continue after the July issue and go on for year number eight? We can get enough material and articles to do so, but we need your support to do so. We have already had some people send in their renewal early. Those checks have not been cashed, yet. I know we have many loyal subscribers, but we also lose a few each year. Some (actually most) of those we lose are due to the fact that they have passed away. Rarely someone moves on to a lesser computer system, lured by items such as CD ROM drives (you can have them on a QL with the SCSI Interface coming from Miracle). They go to a bad system that happens to have plenty of new software. We need to replace these people with new subscribers so that we can remain financially viable. Let us know if you want us to continue past this subscription year. It would also help if you got one or two new subscribers for us. No one has ever lost money from us, so any checks sent will be held till a decision is made. As they say in sports...'the ball is in your court'.

This may come as a surprise to most of you, particularly to those of you who have never actually met Carol and I, but we have really liked publishing this magazine. At least most of the time, and that is what counts. Given enough subscribers and material we would probably continue for another year or two. Help us out and yourself as well. Write or phone, please.

NOTICE TO FORMER SNUG MEMBERS

Here at UPDATE! Magazine, we recently received the following from Paul Holmgren, who was the last remaining officer of SNUG, our first known attempt at forming a national Sinclair users group here in North America. If you, or someone you know was a member of this group, then please have them contact Paul at the given address or phone number within the next 15 to 60 days and let him know where to dispose of your remaining membership funds. I know he wants to put this chapter to its final rest and do right by all involved, so your kind co-operation would be greatly appreciated. Some of the folks on his list are no longer alive or living at the same address, so if you know someone who may fit in this category, let them know about this offer. Most of those involved only meant to be of help and got involved with something that took up more time than they had free, but Paul has seen it through to the end.

" Greetings,

Our records show that you joined SNUG several years ago.
Only 2 issues of the Newsletter were ever done.
As the remaining person involved with this effort I am now prepared to close the books on this endeavour. For various reasons it proved to be a bigger job than most of those involved with its' inception were able to handle.

The treasury minus Expenses for the 2 issues of the newsletter and this offer are to be returned to the membership.
By agreement with UPDATE, IQLR & TSNUG, you may choose to have your existing subscription extended in these fine publications.
If you wish me to send a pro-rated refund check instead, PLEASE send a post card, letter or call me.

Paul Holmgren
5231 Wilton Wood Ct.
Indianapolis, IN 46254
1-317-291-6882 "

This is a sincere offer on Pauls part, so if you are one of these people, take advantage of this offer. I know that TSNUG, IQLR and my magazine, UPDATE would be willing to work with you and Paul on this offer. For those who choose to extend with UPDATE, or start a subscription, we will accept the refund check and you would then only owe the balance to either renew a subscription or to start a new one.

Most Sincerely,
Frank W. Davis
UPDATE Editor

"ZX81 TIC-TAC-TOE"
Copyright (C) 1983
Albert F. Rodriguez

DOCUMENTATION

PART I

Apart from its entertaining value, this program was meant to be an exercise in learning about the actual aspects, functions, and limitations of the Sinclair ZX81 microcomputer and its version of the BASIC language. It also provided a tool for finding if, given the technology of this machine, quality software could be produced and, if indeed so, how would someone do it.

First of all, a word of caution to the reader, about what lies ahead, is in order. Some of the concepts presented in this paper, which pertain to programming habits and techniques, were borrowed from works by other parties. Careful attempts in this work have been taken to clearly credit their ideas to each of them. However, the integration of these ideas into a concise whole, as well as any derivations of new ideas therefrom, it is only this writer who does accept full credit and responsibility for this work.

The game, in itself, is no novelty. There are other more exciting games that can be played. But considering what follows, an investment in this one might be more worthwhile. There are many programs available today that are fun to play, but few share with its owner an explanation about what was learned when they were written.

As a novice I must say that I was oblivious to the most basic aspects of writing a program using this machine: space and time. Both of these elements are usually, but not always, directly proportional. The less available programmable memory used, the less time it should take for a program to either execute or transfer from cassette to the computer. The load time for this program is 4.17 minutes, without any special hardware assistance. It is saved, self-runs, and executes entirely in FAST mode. The actual RAM occupied by the program is 10535 bytes. How this figure was determined reveals a relevant procedure about programming with this machine.

Both the ZX81 and TS1000 User Manual fail to discuss how a given amount of RAM programmable memory can be measured in order to determine the total amount of it available, used, and remaining for programming.

It is well known that a byte is a memory location that, when active, is holding either blank space, numerical or alphanumerical characters. Given, as an example, a machine with 16K of RAM that is turned on and is not exhibiting a program, plus the fact that 1K is equal to 1024 bytes, we would expect that its total available programmable memory is (16 x 1024) 16384 bytes. Yet, the display file constantly occupies 1K of memory, even when it is providing nothing but a blank screen with a cursor (for this piece of information I am grateful to Memotech Corporation, 7550 W. Yale Ave., Suite 200, Denver, Colorado, 80227). Hence, a blank screen actually represents 1024 bytes of memory occupied by character spaces.

If the programmable area of the screen consists of only 23 lines and 32 columns, then there are only (23 x 32) 736 programmable memory locations (i.e., only 736 programmable bytes) available in the display file. The other (1024 - 736) 288 bytes in the display file are found starting with the first line after the cursor line in the work space area and consists of (288/32) 9 lines, each having 32 columns. If, then, we subtract 288 from 16384 we obtain the total available bytes —16096— that can be used before the machine's entire programmable memory becomes full.

To determine the amount of programmable memory used by a program, the following expression should be placed as the last line of a program and executed with a GOTO from the immediate mode:

```
9999 Print Peek (16404) + Peek
(16405)*256-16597;"____ BYTES"
```

(In part, for this expression, I am grateful to Ms Toni Baker, Mastering Machine Code On Your ZX81, Reston Publishing Co., Inc., 1981, page 30). The figure 16597 was determined by taking the starting address of the program area (16509) then adding to it the bytes occupied by this expression (66) and 22 more bytes occupied by another expression (described below) that reveals the amount of programmable memory remaining.

In determining how many bytes of programmable memory remain during, or after, a program is being, or was, composed, the following expression should be placed as the first line of a program and executed from the immediate mode by the statement "Print USR 16514":

```
1 REM EØRNDLN ACS : FAST AT 5
= GOSUB PI FAST AT TAN
```

(For this expression I am grateful to Dr. Ian Logan, "Bytes Remaining—8K," SYNTAX, Vol. 2, No. 12, Dec. 1981, page 5). With this expression I obtained 5559 bytes of memory remaining after finishing my program. My memory used (10535), plus my memory remaining (5559), equals 16094. If, however, we add 2 bytes occupied by the cursor sign, then, we have the exact sum (16096) of the total available programmable memory for a 16K machine that was mentioned earlier.

Another pertinent phenomenon I realized about both time and space, while writing this program, was about how the ZX81 uses its available memory to store and manipulate data and the effect of same on processing time.

My primary concern while writing my program was whether I could fit it all within 16K of RAM. I strived to make my routines as concise and as frugal as possible with respect to the utilization of memory. Consequently, my programming impetus was to make a program that was primarily a space maximizer: "Do all that you have to do, with what you have, in the least amount of space that you can."

It was the inadvertent pursuit of this maxim and the fact that I happened to be reading Chapter 3 of Mr. Randle Hurley's book, The Sinclair ZX81: Programming For Real Applications (The MacMillan Press, Ltd., 1982, 164 pages), that made me become aware of the fact that less space utilization does not always result in less processing time required for a program or routine to execute properly.

It would be redundant (and beyond the scope of this work), to reiterate the fine explication that Mr. Hurley provides in his book, as proof, of why the ZX81 sacrifices processing time at the expense of storing and manipulating more accurate data than, say, its forebear the ZX80. It suffices to say that the ZX81 pays for these new capabilities in terms of more time and less speed during processing.

It should, therefore, be a priority of ZX81/TS1000 programmers, who use BASIC, to accomplish their programming objectives by using instruction-code techniques that minimize memory consumption while simultaneously maximizing (or at least not minimizing) processing speed.

In his book, Mr. Hurley identifies five important techniques that were helpful toward obtaining an optimum memory-cost-to-processing-speed (MC/PS) ratio when I wrote my program. Though I did use most of these techniques in writing my program, I cannot honestly claim that each part of my program represents the most optimal achievement of said ratio. Nonetheless, they were employed enough to make somewhat of a positive effect on processing speed and memory savings.

First, there is an advantage in using numerical variable names versus using numerical constants within code expressions. The savings in memory costs can be as much as 40% while still maintaining a faster processing speed. It is for these reasons that all of my subroutines, within the program, are called via a respective variable name. This technique also helps to easily access a particular routine in the program for purposes of editing or debugging.

Second, one of the most important aspects about my program is that it requires and makes plenty of use of For/Next loops. How these loops are structured can have a significant effect on the MC/PS ratio. How they can be made to optimize this ratio is a matter of determining the instruction-code placed inside this type of loop structure, which will use the least amount of memory to accomplish the necessary accurate manipulation of data with the least amount of loop repetitions. Specific examples illustrating this principle can be found in Mr. Hurley's book on page 36.

Third, another benefit regarding how to preserve processing speed while saving memory is in how values are calculated with For/Next

loops containing different arithmetic functions. For example, values determined by power functions tend to take longer to compute than if either multiplication or addition were used instead (Ibid, page 36).

Fourth, a substantial optimization of the MC/PS ratio results by initializing numerical variable name constants, in the immediate mode, versus listing them within the programming area. For both memory costs and execution time are augmented when these variables unnecessarily occupy space, both in the instruction area and the variable store. If entered via the immediate mode they will still be saved on tape; so, why list them in the instruction area again?

Finally, Mr. Hurley's book briefly mentions that where a subroutine is located in a program can affect the MC/PS ratio (Ibid, page 37). Routines (that differ only by the size of their line numbers) at the beginning of a program use less memory, but are slower in executing; whereas, those further down the program execute faster but use more memory.

From this observation I deduced that it would be prudent to locate my subroutines, as often as it was practicable, below and as near to the place that they have to be called from in order to achieve an optimal MC/PS ratio. This technique can best be implemented, given a program that is relatively as multi-functional as is mine, by using what I call: "drivers." (For this term, but not the meaning given to it below, I am grateful to Messrs. Frank L. Friedman/ Elliot B. Koffman, Problem Solving And Structured Programming in Fortran, Addison-Wesley Publishing Co., Inc., 2nd. Edition, 1981, page 299).

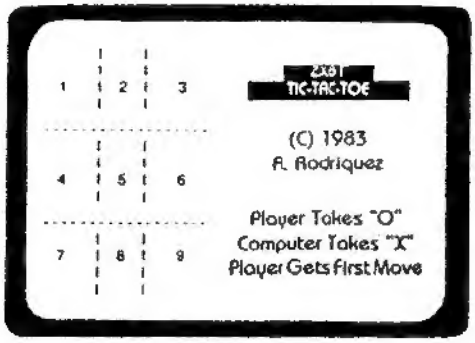
A driver is similar to a "main program" (to learn about the concept of a main program, see the Chapter on Subroutines in the User Manual). A driver calls one or more subroutines (or another driver(s)) within an overall program in a certain order, depending upon how its author wants them to be executed. Yet a driver differs from a main program in that is actually a subroutine that may be called by a main program (e.g., see the driver routine GAME in my program, which is called from line 119 and consists of lines 7001-7011).

There should be only one main program within an overall program, but there can be many drivers within an overall program. The unique value of a driver is that it allows a subroutine or another driver, far below in the overall program, to be nearer to the actual place from where it is being called within the overall program. And this, indeed, contributes to a better MC/PS ratio.

The procedural rules derived from structuring (as efficiently as possible) the main program (see lines 112-120), drivers and subroutines (see Declarations below for exact line numbers) within my overall program are, for convenience sake, referred to as "Rules of Top-Down Design," and can be summarized as follows:

1. A main program is placed immediately after the program's name and any commands/initializations, if any,that appear at the beginning of the instruction area.
2. A main program begins with either a subroutine or a driver call, and it ends with a GOTO statement.
3. A main program calls either drivers or subroutines; it best calls itself with a GOTO statement.
4. A driver or subroutine are located best when they are below and nearest to where they are being called.
5. A driver or subroutine are located, in an overall program, in the order that it is first called by a main program or another driver.
6. If a driver and main program both call the same driver or subroutine, then, this same driver or subroutine is located in the overall program in the order first called by the main program.
7. A driver calls either one or more drivers or subroutines.
8. A driver or subroutine should contain at least one RETURN statement.
9. A driver or subroutine best calls itself by using a GOTO statement.
10. A subroutine, to be considered as a subroutine, must not contain either a driver or another subroutine.
11. Both a driver and subroutine are best called by a GOSUB statement, unless they each call itself.
12. Always use the smallest line number possible when writing each line of a program.

So far I have been elucidating some of the procedural techniques used in writing and structuring my program. This presentation however, would be incomplete without an explanation of what each particular section (from top to bottom) of the overall program does and why it was written. It is toward this end that I dedicate the rest of this work.



ZX81 TIC-TAC-TOE™

Copyright (c) 1983
Albert F. Rodriquez

PROFILE

Price: $12.00 in cassette (domestic)
$14.00 (foreign)
With documentation

For: ZX81, TS1000, TS1500 ROM/RAM: 8K/16K
Written In: Sinclair BASIC Program Listable: No
Listings Available:
Yes, $6.20 (domestic)/$7.20 (foreign) with documentation
Syntactic Sum: 433, 255

This program was written to be both entertaining and educational to its user.

There are about 457 variations of this game that can be played, given how the program is written.

The computer plays an optimal game. It goes for a win when it can or it attempts to prevent from losing by yielding a draw. The challenge for the player is, of course, in trying to beat the computer or in not letting it beat him/her by forcing a draw.

The player is always allowed the first move; thereby, giving him/her five moves versus the four moves allowed the computer. The player and computer are preassigned the characters "O" and "X"; respectively, in inverse video.

The program is self-running. Within the program are instructions for exiting and re-entering the game (e.g., to exit press BREAK during execution; to enter key in GOTO 7). Never should the player enter either RUN or CLEAR; for this will erase all data pre-programmed into the variable store. If this should occur, reloading the program from cassette is necessary.

There are three distinct features of this program that make it very "user-friendly".

First, if the player makes a move with any type of data other than the single numbers 1 through 9, he/she will receive a prompt message that says: FALSE MOVE; TRY AGAIN.

Second, if during the course of a particular game a player makes a move already taken by either himself/herself or the computer, then, a prompt message will appear that says: REPEAT; TRY AGAIN.

Both of the above prompts appear for about two seconds, self-erase and then allow for a new move to be entered.

Third, in the event that the game ends either in a WIN or a DRAW, a prompt message is displayed informing the player of either outcome. In the case of a WIN an extra nicety is added: a thick, black line crossing through the row, column or diagonal in which three characters of the same kind appear.

When a game comes to an end the final outcome is displayed for about fifteen seconds, then the program loops back to the beginning and sets itself up for a new game.

Listings of the program are available for a said price, but without the necessary data pre-incorporated into the variable store it is non-functional. There is certain information that was put into the program via the immediate, input mode which is essential for the proper execution of this program.

A complete listing of the program, its arrays/variables and their respective values are for sale and may be bought for a very reasonable price. Along with this information the buyer will receive detailed documentation about how this program was made as a precise and interesting computer game that is fun to play and, hopefully, a worthwhile tutorial in computer programming.

If bought in cassette the above documentation comes with it, but the program is not listable on the screen. This was done to prevent any "bugs" from sneaking into the program inadvertantly that might cause the program not to execute properly. Thereby, this should allow the buyer to have full satisfaction about what he/she is buying for his/her money.

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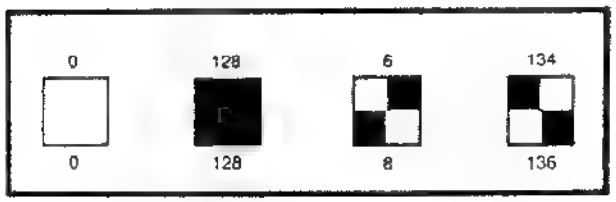

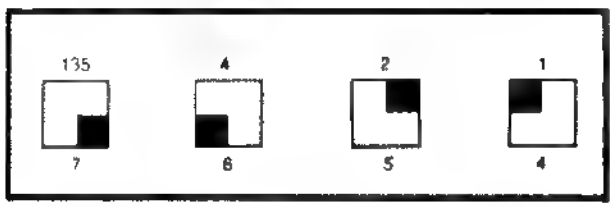

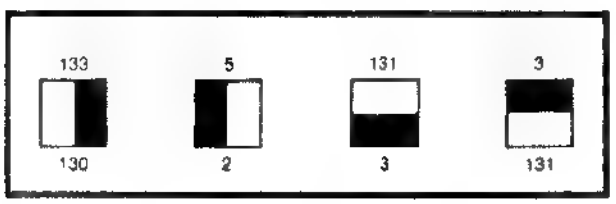

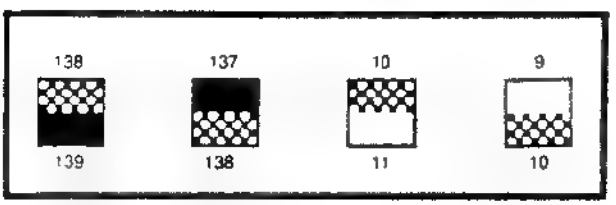

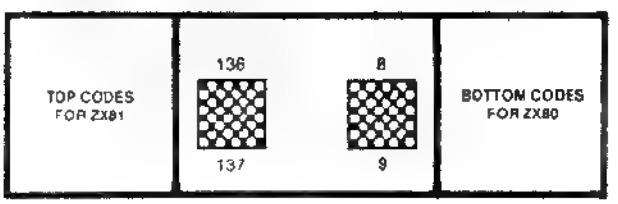

☆ = ZX80 ONLY — BASIC STATEMENTS — ★ = ZX81 ONLY

STATEMENT • DESCRIPTION
CLEAR • Clear all program variables.
CLS • Clear screen.
DIM *var (num)* • Define array "var" with "num" entries
★**DIM** *var (num [, num...])* • Define array "var" with "num" entries
FOR *var=num1* **TO** *num2* • Loop thru NEXT until var exceeds num2
★**FOR** *var=num1* **TO** *num2* **STEP** *incr* • Loop thru NEXT, stepping "incr"
GOSUB *line* • Perform rtn at "line" until RETURN.
GOTO *line* • Branch to "line"
IF *cond* **THEN** *action* • Execute action based on condition
INPUT *var* • Capture keyed reponse into "var"
LET *var=value* • Assign a value to variable
★**LPRINT** *item* [; [,][*item*. . .] • Print data
★**LPRINT TAB** *num;item* [; [, [**TAB** . . .] • Print with tabs
★**LPRINT AT** *line,col;item* [; [, [**AT** . . . • Print at position
NEXT *var* • End of FOR loop. Increment var
★**PAUSE** *frames* • Halt execution until time-out
★**PAUSE 40000** • Halt execution until key pressed
★**PLOT** *(horiz, vert)* • Turn on graphics block at this location
POKE *addr, num* • Store number at address.
PRINT *item* [; [, [*item* . . .] • Display data
★**PRINT TAB** *num;item* [; [, [**TAB** . . .] • Display with tabs
★**PRINT AT** *line,col;item* [; [, [**AT** . . .] • Display at position
RAND *num* • Re-seed random number generator
REM • Remarks follow this statement.
RETURN • Return from a GOSUB
★**SCROLL** • Scroll 1 line toward top of screen.
STOP • Interrupt program execution
★**UNPLOT** *(horiz, vert)* • Turn off graphics block at this location
PARENS NOT REQUIRED FOR PLOT/UNPLOT

☆ = ZX80 ONLY — BASIC COMMANDS — ★ = ZX81 ONLY

COMMAND	DESCRIPTION
BREAK	Interrupt execution until CONT
CONT	Continue after **BREAK** or **STOP**.
★**COPY**	Print screen contents on the printer
EDIT	Edit current program line
★**FAST**	Enter high speed execution mode
★**FUNCTION**	Enter function mode
★**GRAPHICS**	Enter or exit graphics mode
LIST [lineno]	Display program lines on screen
★**LLIST** [lineno]	Print program lines on printer
☆**LOAD**	Load first program found on cassette
★**LOAD** "name"	Load program "name" from cassette
NEW	Clear memory and restart
RUN [lineno]	Execute program
☆**SAVE**	Save program from memory to tape
★**SAVE** "name"	Save program called "name" to tape
★**SLOW**	Enter slow-speed execution mode

EDIT SUBCOMMANDS

→	Forward-space cursor
←	Backspace cursor
↑	Scroll up
↓	Scroll down
lineno	Delete line "lineno"
★**DELETE**	Backspace and erase
☆**HOME**	Move cursor to line 0
☆**RUBOUT**	Backspace and erase

CURSORS AND MARKERS

>	Current program line marker
▪	Function prompter
▪	Graphics prompter
K	Keyword prompter
L	Data/character prompter
?	Syntax error marker

☆ = ZX80 ONLY	BASIC FUNCTIONS	* = ZX81 ONLY
FUNCTION	**RETURNS**	
CHARACTER/STRING FUNCTIONS		
CHR$ (num)	Character whose decimal value is num ("A" = 38)	
*LEN (string)	Length of string	
STR$ (num)	Character string of num	
☆TL$ (string)	String without the first character	
*string ((n1 TO)n2))	Substr of string from pos n1 to n2	
NUMERIC FUNCTIONS		
ABS (num)	Absolute value of number (3.25 = 3.25)	
CODE (string)	Decimal value of first char in string	
*INT (num)	Nearest whole number after rounding down (2.5 = 2) (−2.5 = −3)	
*RND	Random number between 0 and 1	
☆RND (num)	Random number between 0 and num +1	
☆RND (0)	"	
*SGN (num)	0 (Zero), 1 (Positive), − 1 (Negative)	
*VAL (String)	Number extracted from character string	
MATH FUNCTIONS		
*ACS (num)	Angle whose cosine is num, in radians	
*ASN (num)	Angle whose sine is num, in radians	
*ATN (num)	Angle whose tangent is num, in radians	
*COS (angle)	Cosine of angle radians	
*EXP (num)	Inverse LN of num	
*LN (num)	Natural logarithm of num (Base 2.718281828)	
*PI	3.14159265	
*SIN (angle)	Sine of angle radians	
*SQR (num)	Square root of num	
*TAN (angle)	Tangent of angle radians	
Radians = Degrees/57.29577951	Degrees = Radians*57.29577951	
I/O AND OTHER FUNCTIONS		
*INKEY$	Character value of key pressed on keyboard	
PEEK (addr)	Decimal value of byte at location "addr"	
USR (addr)	Branch to machine language rtn at "addr"	
PARENS IN FUNCTIONS ABOVE ARE OPTIONAL IN MOST CASES		

DERIVED FUNCTIONS (X is in radians.)	
FUNCTION	**EXPRESSION**
SECANT	1/COS(X)
COSECANT	1/SIN(X)
COTANGENT	1/TAN(X)
INVERSE	
SINE	ATN(X/SQR(−X*X + 1))
COSINE	−ATN(X/SQR(−X*X + 1)) + 1.570796
SECANT	ATN(SQR(X*X − 1)) + (SGN(X) −1) *1.570796
COSECANT	ATN(1/SQR(X*X −1)) + (SGN(X) 1)*1.570796
COTANGENT	−ATN(X) + 1.570796
HYPERBOLIC	
SINE	(EXP(X) − EXP(X))/2
COSINE	(EXP(X) + EXP(−X))/2
TANGENT	−EXP(−X)/(EXP(X) + EXP(−X))*2 + 1
SECANT	2/(EXP(X) + EXP(X))
COSECANT	2/(EXP(X) - EXP(−X))
COTANGENT	EXP(−X)/(EXP(X) − EXP(−X))*2 + 1
INVERSE HYPERBOLIC	
SINE	LN (X + SQR(X*X + 1))
COSINE	LN (X + SQR(X*X − 1))
TANGENT	LN ((1 +X)/(1 −X))/2
SECANT	LN ((SQR(X*X + 1) + 1)/X)
COSECANT	LN ((SGN(X)*SQR(X*X + 1) + 1)/X)
COTANGENT	LN ((X + 1)/(X − 1))/2

ZX81 MEMORY MAP		
ADDRESS		
DECIMAL	**HEX**	**DESCRIPTION**
0	0000H	MONITOR ROM
8192	2000H	NOTHING (USED FOR ROM IN SOME ADD-ON DEVICES)
16384	4000H	**ERROR-CODE MINUS ONE.**
16385	4001H	*BASIC SYSTEM CONTROL FLAG BITS
16386	4002H	*ADDR OF NEXT INSTR AFTER RETURNING
16388	4004H	**ADDR OF LAST AVAIL BASIC BYTE +1**
16390	4006H	**CURSOR MODE** - K, L, , **OR** F.
16391	4007H	**CURRENT BASIC STMT NUMBER**
16393	4009H	ROM VERSION CODE (0 = 8K)
16394	400AH	**BASIC STMT NUMBER AT) CURSOR**
16396	400CH	***ADDRESS OF SCREEN.**
16398	400EH	**ADDRESS OF NEXT SCREEN PRINT POS.**
16400	4010H	*ADDRESS OF PROGRAM VARIABLES
16402	4012H	ADDRESS OF ASSIGNMENT VARIABLE
16404	4014H	*ADDR OF WORKING STORAGE (KEY INPUT)
16406	4016H	*ADDR OF BYTE AFTER PEEK OR POKE
16408	4018H	**ADDRESS OF MARK MINUS ONE.**
16410	401AH	*ADDRESS OF MATH CALC STACK
16412	401CH	*ADDR OF END OF MATH CALC STACK
16414	401EH	B REGISTER OF CALCULATOR
16415	401FH	ADDRESS OF CALCULATOR MEMORY
16417	4021H	NOT USED
16418	4022H	***NUMBER OF LOWER-SCREEN LINES**
16419	4023H	**NUMBER OF FIRST BASIC STMT ON SCREEN.**
16421	4025H	**LAST KEY PRESSED**
16423	4027H	KEYBOARD DEBOUNCE STATUS
16424	4028H	NUMBER OF BLANK LINES ABOVE AND BELOW MOVING GRAPHICS
16425	4029H	***ADDR OF NEXT BASIC STMT LINE**
16427	402BH	**NUMBER OF STMT TO "CONT"INUE AT.**
16429	402DH	SYSTEM FLAG BITS
16430	402EH	STRING-TYPE LENGTH IN ASSIGNMENT
16432	4030H	ADDR OF NEXT SYNTAX TABLE ENTRY
16434	4032H	**RANDOM NUMBER SEED.**
16436	4034H	SCREEN FRAME DISPLAY COUNT
16438	4036H	**LAST "PLOT" X-COORDINATE**
16439	4037H	**LAST "PLOT" Y-COORDINATE**
16440	4038H	**LSB OF ADDR OF NEXT "LPRINT" POSITION.**
16441	4039H	*"PRINT" COLUMN NUMBER.
16442	403AH	*"PRINT" LINE NUMBER.
16443	403BH	INTERNAL FLAG BITS
16444	403CH	PRINTER BUFFER
16477	405DH	CALCULATOR AUXILIARY MEMORY AREA
16507	407BH	NOT USED
16509	407DH	**USER PROGRAM AREA.**
17407	43FFH	END OF 1K SYSTEMS
18431	47FFH	END OF 2K SYSTEMS
32767	7FFFH	END OF 16K SYSTEMS
* = DO NOT POKE UNPREDICTABLE RESULTS		
Addr 16393 (4009H) thru 16506 (407BH) are always SAVEd with the program		

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FOR SALE: Attention T/S 1000 users groups! I have for sale my complete collection of T/S 1000 hardware and software including a workable robotic project with full documentation and all printed material. Would like to sell all inventory listed below for best offer plus shipping, but will split 30 days after this ad is published.

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-6) Timex Modem Bd. only Untested
-1) T/S 1000 store demo ROM bd.
-2) T/S 1000 case only (No Computer)
-2) TI-99 key pads
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Books & Magazines:

-How To Build A Computer Controlled Robot by Tod Loofbourrow
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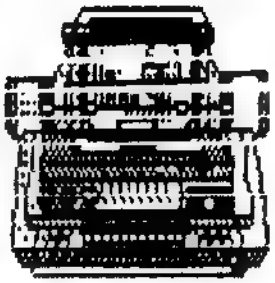

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BILL PEDERSEN'S DISKSPEED PROGRAM.

I had Bill's program to check disk speed using the T/S 2068 but I had it only for the Oliger SAFEDOS and it would not work with the Larken LKDOS. In August at the Dayton Computerfest Bill worked with me to try to convert it so it would work with Larken but he could not remember off the top of his head what the out port was for the Larken. For various reasons I did not get the information after Bill returned to his home.

Tonight 02 21 1993 I decided to use the notes that I had used with Bill at the Fest before I lost them again. And while I did not understand what I was doing I did get it to work. These are the notes that I took - and since my handwriting is bad I did refer to the Character Set in the the T/S 2068 manual to verify what I had wrote down:

Program LINE 101

```
243   di
33    ld hl,NN
72    ld c,b 72,156
1     ld bc,NN 143,0
62    ld a,N 208
237,121 bit 7 c
16    djnz DIS -2
205   call NN 56,156
205   call NN 56,156
48    jr nc,DIS -5
205   call NN 51,156
48    jr nc,DIS -5
205   call NN 51,156
56    jr c,DIS -5
115   ld(hl),e
35    inc hl
114   ld(hl),d
35    inc hl
193   pop bc
16    djnz DIS
251   ei
201   ret
```

Program LINE 102

```
6     ld b,N 1
16    djnz DIS -2
19    inc de
62    ld a,N 127
219   in a,N 254
```

Here is where I have:

```
      out 16, 208
      in 16
```

The 254 following 219 needs to be changed to 253 for the program to work on the Larken LKDOS. Bill had given 16 and that did not work.

So I started POKEing blind and changed the 16 to 15 and decreasing and got back to 12 and decided that maybe it should be at the high end. So I worked that end. 255 didn't work but 253 did. I don't know why 254 doesn't work nor why 253 does. For those that do not have a copy of the program here it is:

```
   5 RESTORE 101: FOR n=39936 TO
 40007: READ w: POKE n,w: NEXT n
 101 DATA 243,33,72,156,1,143,0,
62,208,237,121,16,-2,205,56,156,
205,56,156,48,-5,205,56,156,56,-
5,6,8,197,17,0,0,205,51,156,48,-
5,205,51,156,56,-5,115,35,114,35
,193,16,-21,251,201
 102 DATA 6,1,16,-2,19,62,127,21
9,254,246,224,60,40,2,207,20,237
,120,31,31,201,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0
 500 CLS : PRINT "  WIDJUP  DISK
TESTING SERVICES       DISK SPEE
D MEASUREMENT","""
 520 PRINT '"   The drive you se
lect will be  tested for acceler
ation and     sustained speed."'
"   Before proceeding, place a
  disk in your selected drive an
d close its door."
 530 INPUT "Which drive? (0 TO 3
) ";w
 531 OUT 183,0: PAUSE 60: OUT 18
3,2^W: OUT 143,0
532 LET w=USR 39936
 533 INK 1: PLOT 100,81: DRAW 15
0,0: PLOT 100,72: DRAW 150,0: pl
OT 100,63: DRAW 150,0: INK 0
 534 PRINT '" Turn  RPM": ON ERR
 GO TO 548: FOR n=40008 TO 40023
 STEP 2: LET w=PEEK n+256*PEEK (
n+1)
 535 LET w$=STR$ (1605000/w)
********NOTE!  LINE  535  is  in
inverse mode.**********************
 536 IF LEN w$>6 THEN LET w$=w$(
TO 6)
 537 PRINT "  ";N/2-20003;"  ";w
$
```

```
 530 INK 1: PLOT 8*(n-39994),70+
2.5*(VAL w$-300): DRAW 2,0: DRAW
 0,4: DRAW -4,0: DRAW 0,-4: DRAW
2,0: INK 0
 540 NEXT n: ON ERR RESET
 550 PRINT '"      PRESS ANY KEY
TO CONTINUE    ": PAUSE 0: GO TO
500
9999 CLEAR : SAVE //'DISKSPEED'
LINE 1
```

I tried to type this in accurately but if it doesn't work you can break the program at the first command by entering a letter at the DRIVE? prompt. If all else fails send me a SASE and I will send a LISTing. Please specify which version you want.

Bill said this will work with any disk interface that has a 1770 disk controller on the interface board. It should therefore work with the FDD disk drives (Zebra disk interface) but you will have to configure it yourself. The above should be a clue to how to do it.

When Frank Davis called me in January to inform me that Bill had passed away I was shocked and felt much sadness. In spite of Bill's disabilities he did a lot for the T/S 2068 and was still working on a lot of future projects.

NOTICE FROM ELIAD TO ALL:

I hope to be able to make it for at least a few hours to the upcoming Dayton Computerfest this year. At least for part of one day. I hope to meet many of our readers there at the show. Remember that it is the last weekend of August and is the largest club produced computer show in the Midwest. I know that there will be a Sinclair section again.

TIPS AND SMALL ITEMS
by Eliad P. Wannum

Every now and then we have short bytes of information that do not fill a page and try to put several of them together. Herein my good friends is such an animal.

Remember the VOTRAX TYPE'N TALK for the TS computers? Al Green tells us that this speech synthesizer, which used LPRINT commands to output speech, was taken over by the company: Vysion Inc., 30777 Schoolcraft, Livonia, Michigan 48150-2010. Al also says you can use a Radio Shack CGP-115 Color Graphic Printer with the TS2068. It has a serial and parallel ports on it which made it work for him on the Aerco and the serial port on the Zebra disk drives. No special interface needed.

From Basil Wentworth we heard the following: Thanks for your article on POKEs in the January 1993 issue. One thing has me stumped, though. On page 15, pgh (24) says to use OPEN #2 in order to get hard copy. I can't get my 2068 to accept the command. CLOSE #2 works perfectly. Any suggestions? There is a rather cumbersome way, of course, to get the same result: write every PRINT statement in the form PRINT #A; "......" and LET A=2 or 3, according to whether screen or hard copy is wanted.

Another byte of information from Basil Wentworth is: "Here's an optical illusion for you on the TS2068. Run this program and you will see a sort of propeller-like figure, moving. The illusion is as follows: are the left and right sides of the figure moving up and down, or are the top and bottom sliding from side to side? Blink your eyes a couple of times to shift your perception from one side to the other. Line 510 lets you exit from the program by pressing "ENTER". I hope it doesn't drive you completely nuts."

```
500 BORDER 0: PAPER 0: CLS: INK 7:
PRINT AT 10,15; FLASH 1; CHR$ 134;
FLASH 0
510 INK 0: BORDER 7: PAPER 7
```

Mr. Frank Davis 7/10/92
Editor UPDATE!
513 E. Main St.
Peru, IN 46970

Dear Frank,

I'm pooped! After many hours at the keyboard, and swearing at myself for clumsy goofs, the "fabled" TIMEX BEU has its start in the ROM BYPASS BOARD. This board will do the job but requires bringing the ROMCS signal out to A5. Later, I want to revise it to work without touching a screw. Time forces me to compromise.

Board "A" is an extender except for BE signal interruption. It hosts two dedicated circuit boards.

Board "B" carries the bypass memory in the form of battery backed static RAM. This includes 32k of EXROM, though another 32k is available as volatile memory to make a total of 64k! I have the code patches necessary to let the 2068 recognize this extra available memory.

Board "C" is the Expansion Bus Driver. Though a TIMEX type bus is a little simpler, going to the IBM AT bus is more practical because of the many bargain devices available for it. Some may point out that the bus frequency is different, not knowing that bus frequency variants already exist with no trouble. Some may argue that some signals are incorrectly used, forgetting that those signals address a motherboard that isn't there!

Reminiscing is nice. Remember Computer Trader Magazine? Here is a 3-d logo I did for him. Notice the tricky way that only the "T" is opaque. I have a graphics wire-frame program that lets you display anything you want in these windows. Its default is the three great pyramids of Egypt with Carmen Sandiego having stolen the SPHYNX. Only a flat runway remains.

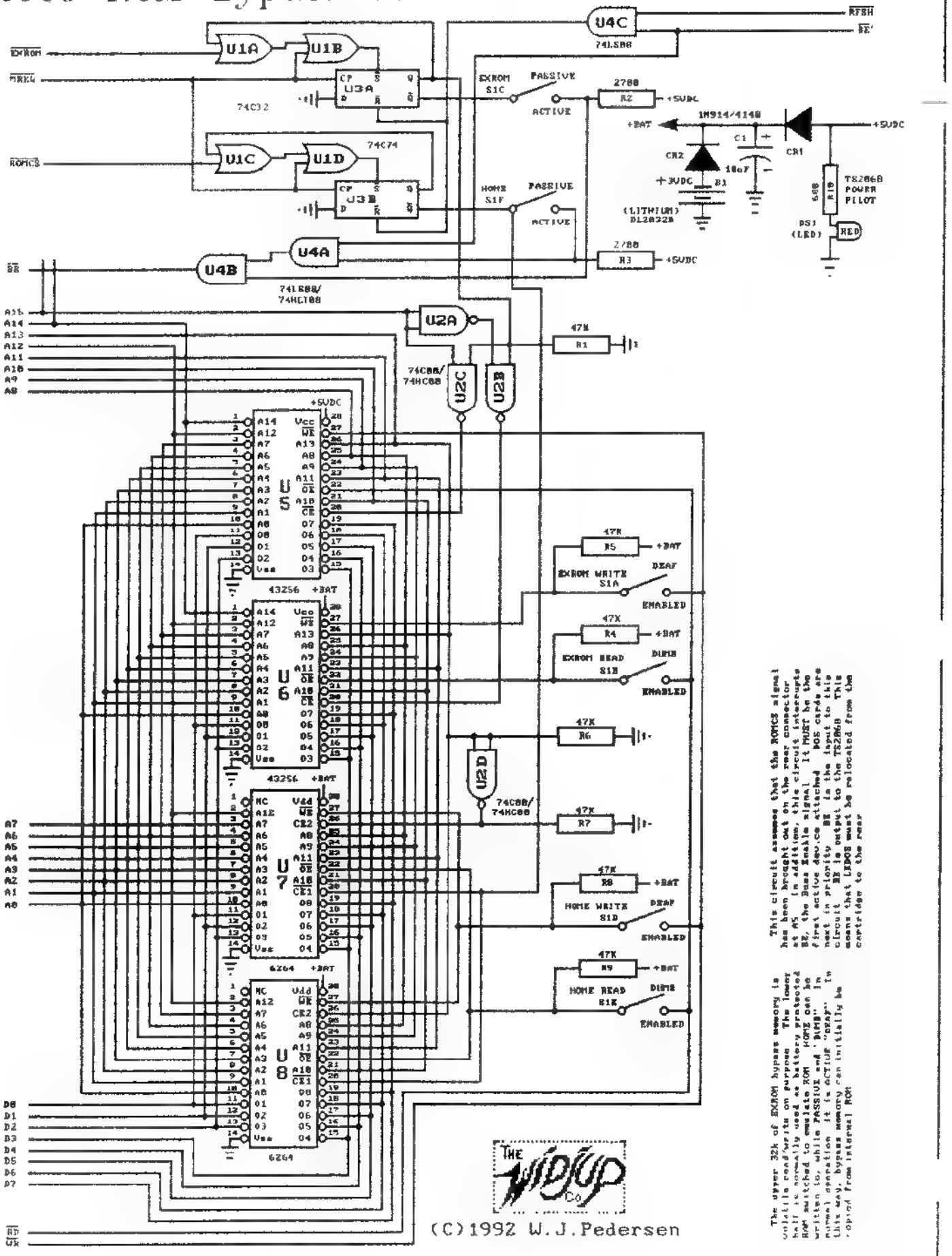
I need working boards to repair the TIMEX system to what it was. Only then will it be possible to use the crippled DOS commands as intended. I think John Oliger will jump at the chance to relocate his system into EXROM, where no illegal commands are needed to access it. All that nice buffer space could make his mouth water. There should be some constraints, however, so that future improvements are not blockaded. One of these is letting the system grow directory trees. Another is to provide 16 bit FAT table entries while keeping the ability to read disks of any format. Then, a hard disk will have the same parameters as most floppies. Command syntax would be identical.

The disks (IBM 360k) are .PCX files for the job. I cropped and sized four 1x etching masks so you can print them out on your ink-jet at 360 dots per inch using transparencies. The 2x paper masters included are 180 dpi.

In Dayton, if I'm lucky, I could demonstrate booting SPECTRUM into the 2068 on demand, and back out -- maybe a bit more than that if I get my new EXROM code debugged.

ZZZzzzz.....

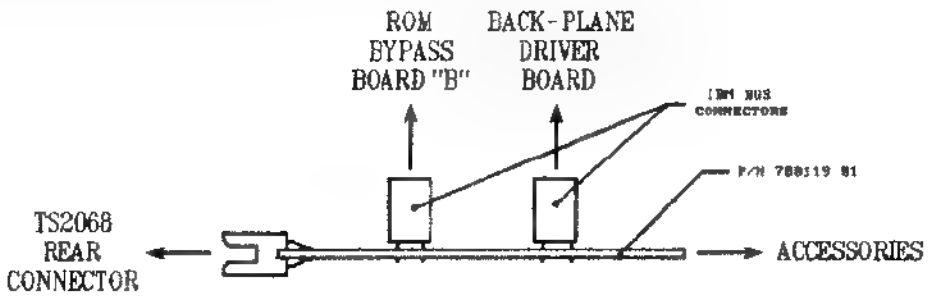
TS2068 ROM Bypass Schematic.

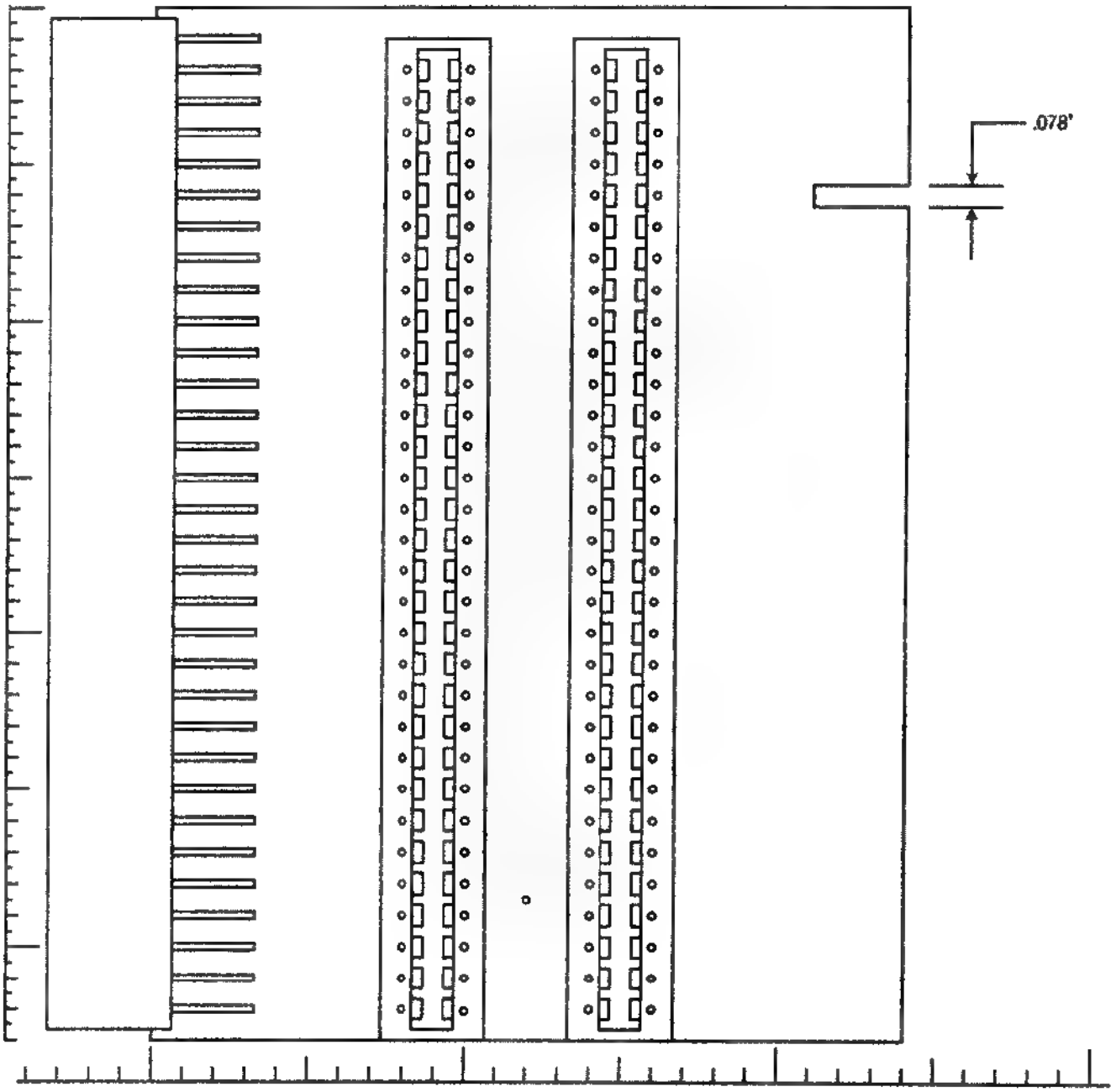


The upper 32k of EXROM bypass memory is volatile read/write on purpose. The lower half is normally used as battery protected RAM switched to emulate ROM. HOME can be written to, while PASSIVE and "DISA" in normal operation it is ACTIVE "DEAF". In this way, bypass memory can initially be copied from internal ROM.

This circuit assumes that the ROMCS signal has been brought out on the rear connector at A5. In addition, this circuit interrupts B2, the Bus Enable signal. It MUST be the first active device attached. BOS cards are next in priority. BE is the input to this circuit. BE is output to the TS2068. This means that EXBOS must be relocated from the cartridge to the rear.

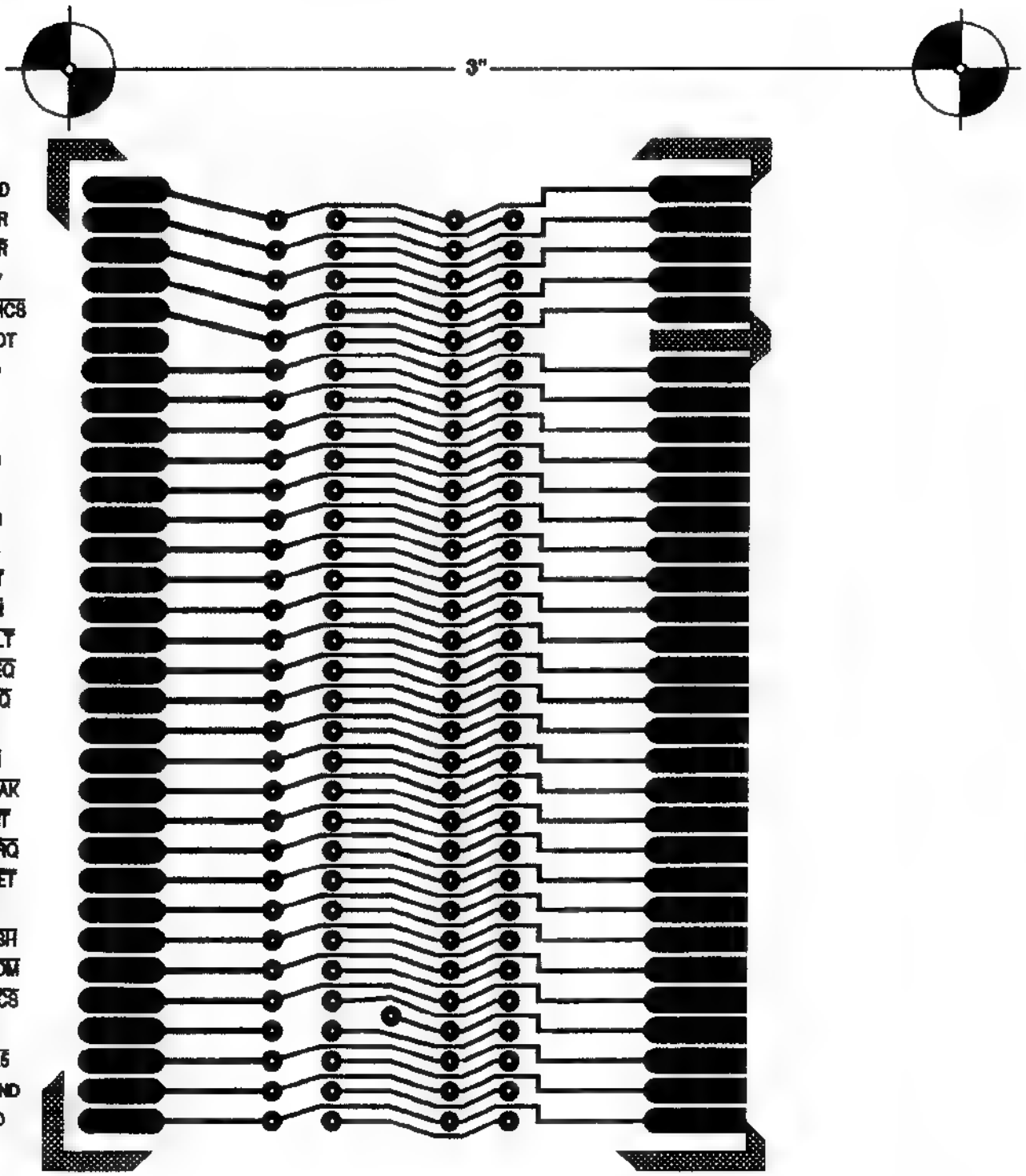
ROM BYPASS BOARD "A" ASSY RBP-A 7/92





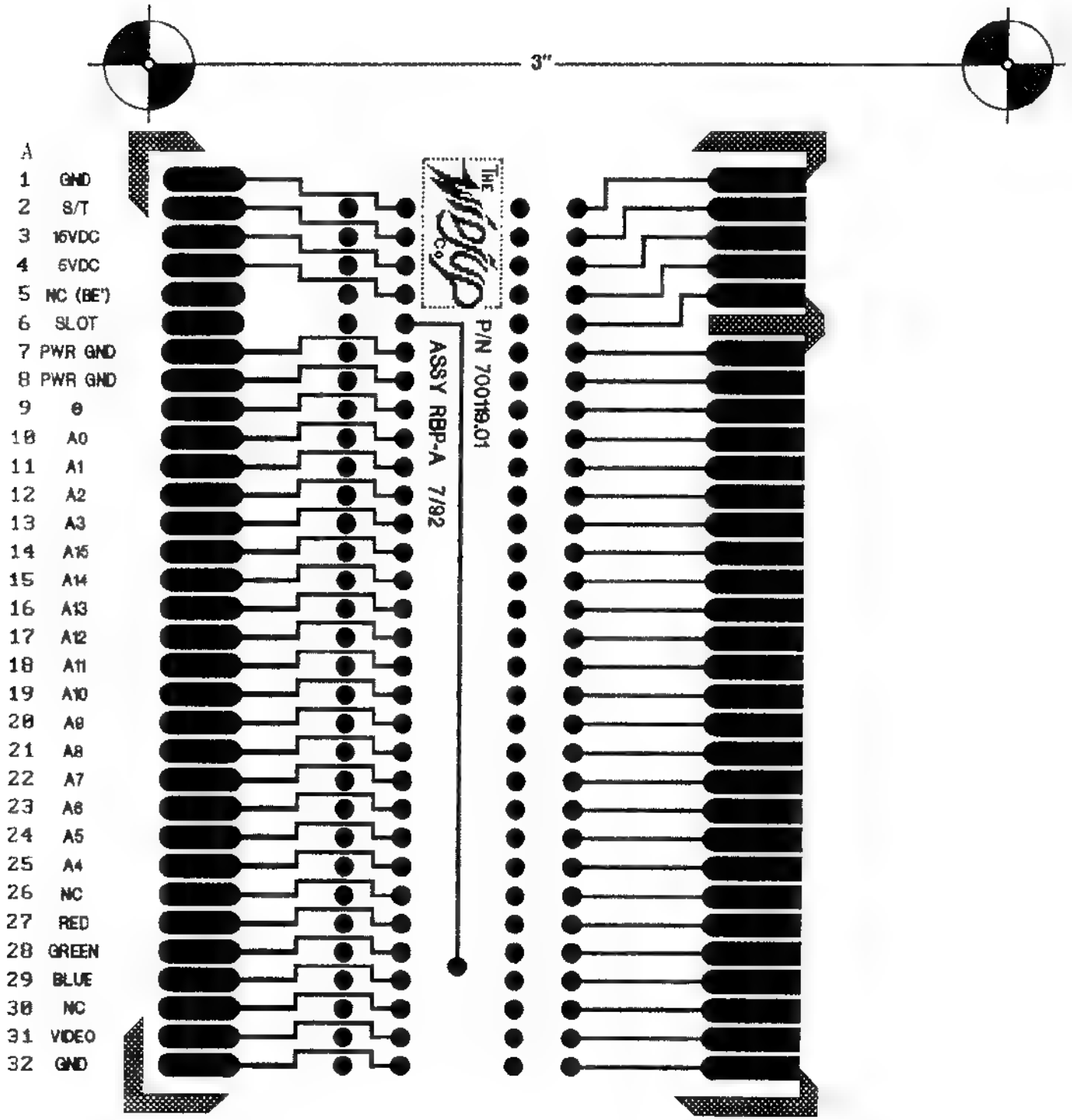
ROM BYPASS BOARD "A"
COMPONENT SIDE

ASSY RBP-A 7/92
P/N 700119.01



ROM BYPASS BOARD "A" ASSY RBP-A 7/92
P/N 700119.01

SOLDER SIDE



WANT ADS FOR APRIL 1994 (free to all subscribers)

1) FOR SALE: CLIP ART for the QL, imported from IBM, MAC and AMIGA computers to the QL. Ten disk set at $5 a 3 1/2 DSDD disk, or all ten for $40. This covers all types of clip art that can be used in your art or DTP programs. They can be used with Text'N'Grafix, LINEdesign, Professional Publisher, Page Designer 3, etc. Send check or money order to: Frank Davis, 513 East Main St., Peru, IN 46970.

2) FOR SALE: From Al Feng, PLATYPUS Software, 914 Rio Vista Circle SW, Albuquerque, NM 87105 PH 505 843-8414.

MIRACLE 512K EXPANDERAM.....$60.
MIRACLE DISK CARD w/ FLP/RAM (no memory).....$85.
Both for $125. Includes "free" copy of QLUSTer and QLuMSi.
Olivetti PR2300 w/ extra ampules.....$55.
w/MIRACLE 512K EXPANDERAM & DISK CARD.....$165.
286-10 w/640K motherboard (no documentation).....$50.
ST-4096 MFM harddrive (80 mb)
w/16 bit 1:1 controller.....$200.
w/286-10 motherboard (above).....$225.

3) DELTA-DISK Interface with parallel printer port for the QL allows you to have a disk interface and use a parallel printer at a low cost, for only $60 from: Paul Holmgren, 5231 Wilton Wood Court, Indianapolis, IN 46254
PH 317-291-6002.

4)HELP WANTED: Many of you will have noticed Al Feng's DooDah front end program for the ZIPed files on the QL. He has asked us (due to time constraints) to have someone incorporate zip.exe, by amending the DooDah.BAS program and sending it in. Would someone please tackle this for us here at UPDATE! Magazine?

5) PRINT FACTORY on DISK for the TS2068 Larken and Oliger disk interfaces. This is for those of you who own the tape version and want to have it on disk, send $5. For those who have ordered it long ago and never received it, please contact me on this; you should get what you ordered. Frank Davis, c/o UPDATE Magazine, P.O. Box 1095, Peru, IN 46970. We can also supply for those who want them the Lemke Pixel Print DTP program on disk with manual for $10 (this is in the public domain, the charge is for copying, manual and postage).

6) FOR SALE: TS2050 Modem for $35; ROTRONICS Wafadrive (2 stringy floppy tape drives that are fast and can give over 128K max on the large tapes per drive), a parallel and a serial port for your Spectrum emulated TS2068 or Spectrum. You need to have a twister board on your TS to use this. I will throw in lots of tapes of various sizes, plus programs on wafer, all for $60 and this includes postage. Send to Eliad Wannum, c/o Update Magazine, P O Box 1095, Peru, IN 46970 and they will get your order to me.

MIRACLE IN NEWPORT TWO AND OTHER STUFF
by Frank W. Davis

First of all the other stuff. Sometimes in the Sinclair computer users community there is so..so..much going on that I need to make notes so I can keep the rest of you informed. Why do I try to keep all of you informed? Well, for everyone of you that is well connected up and in personal touch with all of the worldwide dealers and programmers, there are at least three people who are not. This comes in various degrees as to how much of all the new stuff you would ever even hear about if it were not for UPDATE, IQLR, TSNUG quarterly and the user group and club newsletters. That is a large part, if not the only reason to be for these publications.

You QL users will notice in this issue that we have a new program by Al Feng. It is a very good program, and Al is trying to keep up to date on new developments in hardware to keep his programs useful. He supports his own work. His address is in the article and he is willing to answer questions and listen to suggestions. How about taking some time to show him we appreciate his work. I do. This is a new issue disk and goes for the usual $20. It is called QLAMBer.

We have an ad in this issue for the 1994 Dayton Computerfest. This is the show that also supports the TS1000, TS2068, Spectrum, Z88, as well as the QL. There will not be a show in Toronto this year. I wish there was. I used to live in Toronto, and have many fond memories of the time spent there. This, so far, leaves us with Dayton as our best chance to get together on a large scale basis. I hope to see more of you there than ever before. Let us show the rest of the computer users we are still kicking. This means let me know what I can do to get all of you to make plans now to be there. Carol and I will once again be at the Red Roof Inn North in Dayton, last weekend in August.

We will soon have a second edition of the Z88 Source Book, thanks to the work of Tim Swenson, and some assistance in DTP by a great new acquaintance of ours named, just, Crosby. I will probably have copies of it available at the Miracle in Newport for those wanting to get it, and of course by mail. I have not seen it yet, but Crosby tells me it is even better than the first (else, why put out a second edition).

Now for some information on the 2nd Miracle in Newport. The location has been changed, due to the fact that we could not get the Salvation Army Building for the time span we wanted, as they had a partial prior commitment. The show will now be held at the Howard Johnson Lodge, 351 West Main Road (the main road into Newport), Middletown, RI 02840. Their telephone number is 401-849-2000. It will be held on Saturday, the 14th of May 1994, and will run from 10 A.M. till 6 P.M.. The vendors will have access to the Meeting Room at 8 A.M., which should resolve one of my major gripes of last year, trying to set up tables to sell while everyone else is coming into the place at the same time. It just does not work, even with the best of friends.

Many of the guests for this show, myself included will be staying over at the Motel 6, 249 Connell Highway, Newport, RI 02840. The phone number is 401-848-0600. If you make a reservation there tell them you are with the IQLR group. They appear to have given us a special rate of $38.07 for singles and $42.55 for doubles, and this includes tax. This is per day. Carol and I will be staying through at least Monday after the show, so that we can get a chance to sample some of the sights and good restaurants on Rhode Island and Cape Cod. Feel free to join in with us. Newport is also quite famous for its jazz bars and festival.

On the Saturday after the show there will be a Dutch treat dinner at the Newport Beach Club once again. I found this to be a nice restaurant last year with good food. This dinner will start at 7:30 P.M. Saturday. Don't start without me as I will have to close up after the show in order to join you. You can get directions from others at the show as to how to find this fine restaurant. The service and food last year was good enough that many of us asked to have the dinner there again. It is not a fast food restaurant, so expect to spend a modest amount for the meal.

Bob Dyl and IQLR also tell me that there will be a Sunday Brunch on the 15th at the Motel 6 starting at 9 A.M. Coffee and doughnuts will be served. Those wanting a complete breakfast before this time join me in the lobby by 7 A.M. and we will be back in time for the Brunch. This will give all of us more time to mingle and ask questions and share experiences with each other, as well as the dealers from Europe.

Those of you wishing to register for this event in advance should contact Bob Dyl with $5 per person, as it will cost you $7 at the door. Those wishing to get a table for this event should shell out $25 per table in advance or $30 at the door. He says the tables are either 6 or 8 feet, so bear in mind the tables are not very large. There seems no way around this as they are supplied by the motel. There is no admission charge for the dealers.

If you should have any questions about the show then give a call to Bob Dyl at 401-849-3805. He will be more than happy to help you. He can even tell you about the several new products and demos planned for the show. There are many chances to learn at this show and to see new technological advances for the QL and get some of your long unanswered questions answered. I may even get a few of mine answered.

If there is a particular software or hardware item you may wish to purchase from Paul Holmgren or myself, give us a call in advance of the show so that we can be sure to bring it with us. There is just so much that we seldom bring everything. Paul Holmgren and Tim Swenson will be arriving on Friday with his van loaded with QL goodies (they kind of sound like Santa Claus in May) and Carol and I will not be far behind. I hope to see most of those I met last year as well as a few dozen or more new faces.

See you at the show. And later in the year at the Dayton show.

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To reserve your space(s) at Computerfest® 94 complete the Vendor Registration form on the next page and return with your check in the correct amount for the space(s) and services, and mail to:

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LATE BREAKING NEWS FROM MECHANICAL AFFINITY

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317-473-8031

PAUL HOLMGREN
5231 WILTON WOOD CT
INDIANAPOLIS, IN 46254
317-291-6002

EXTRA! EXTRA! The Miracle Gold Card has been improved upon. We now have the SUPER GOLD CARD from Miracle. It has all of the great features of the original Gold Card, but with the following changes:

It now has 4 Megs of RAM, a 68020 processor, runs 3 times faster than the original Gold Card, has two double disk drive ports so you can use 4 floppy drives with it, and to top it off it comes with a built in parallel printer (centronics) interface. We throw in for free a parallel printer cable! Other improvements are a socket to optionally connect 5V, and a virtually crash-proof clock (some rare events could on occasion crash the orignal Gold Cards clock), and comes with our TWO YEAR WARRANTY.

We have a trade in program for those wishing to do so. The price for the new Super Gold Card is $475, and of course includes all shipping and handling. You can trade in a fully working original Gold Card for a credit of $150; or trade in a fully functional 896K Trump card for a credit of $75.

We will of course be lowering our price on the original Gold Card to $300 for new ones; $225 for used ones (when in stock, with new eproms and manuals), and keeping our price for used Trump Cards at $100; while offering Trump Cards with the Level 2 ROM upgrade (many improvements in speed, sub-directories, Atari/IBM disk read write) at $140.

What else is new? We plan on soon offering IDE Hard Drive Interfaces from the UK, just as soon as the software is finished; as well as continuing to offer the J. Falkenberg Hard Drive Interface for MFM and RLL hard drives (check with me on these as we have lowered the prices and sweetened the deal, Frank). We also have some MFM hard drives in stock as well as cables for them. We now offer all the software from ERGON of Italy and SPEM hardware from Italy as well.

Now for a few questions to you the readers of UPDATE! and the customers of Mechanical Affinity. We feel that we have done a better than average job of making available to North and South America the vast majority of the hardware and software from all over the world for the QL. We ask for your support in this matter so that we can continue to do so and even expand. Do those of you with TS2068s and Spectrums want us to do some of the same for Spectrum hardware and software for you? Do you want us to enlarge our offerings of items from this hemisphere for these machines? Will you help us make it worth our while to do so?

Every business has to rely on customers to stay in the business. This means having for sale products that people are willing to pay a fair price for. I have had folks tell me of items they would like to offer for the TS2068 and the Z88 here in the Americas, but were unsure of whether it was worth the effort. Write or call and tell us your views.

QL SURVIVORS SOURCE BOOK

2ND EDITION -- This book contains worldwide lists of all QL BOOKS; PERIODICALS; BULLETIN BOARDS; USER GROUPS; HARDWARE and SOFTWARE DEALERS; PUBLIC DOMAIN and SHAREWARE SUPPLIERS Nowhere else can you find all of this data in one easy to use source. This is a work of art by the same great folks that brought you IQLR, and offered by UPDATE Magazine. When we sell out of current stock it will be gone It is now available for only $10.00 US$, and this now includes all postage and handling in the North and South American areas. Order now and it will be shipped to you by either First Class Mail or Priority Mail; no more waiting around for slow UPS delivery! Whatever it is you are looking to buy for your QL, this will tell you where to look for it, along with phone and fax numbers, as well as addresses.

Z88 SOURCE BOOK

This book was compiled by Tim Swenson and published by UPDATE Magazine, and was designed to be a good and concise reference book on the Z88, how to interface it with the rest of the worlds computers; what products are available for it and where to find them. It will not replace your Z88 user guide, but will instead supplement it, and fill in areas that were missing by putting all this information in one easy to use book. When you order it we also include a disk of utilities and programs that are discussed in the book. This is available in the following formats: QL in 3 1/2 1440 or 2880 sector disks; QL in 5 1/4 720 or 1440 sector disks; IBM 360K 5 1/4 disks, IBM 720K 5 1/4 disks, IBM 720K 3 1/2 disks; IBM 1.4 meg 3 1/2 disks. Please let us know with your order which type and size of disk you need. The price for all of this is $7.00 US$, which includes P. & H. in North America, and elsewhere $7.00 US$ plus $2.00 US$ for the additional postage we have to pay. We will accept for foreign orders the cash equivalent, plus 10% for conversion, if you are unable to obtain a money order or travelers check in US$. We want to make this information widely available, so we are trying to be as flexible as possible.

DooDah Correction

by Al Feng

LINE 700 of the DooDah_BAS listing should be amended to ensure that the program does not come back with an error message.

```
700  If K<c THEN
     EXEC_W flp1_unzip;""&t$&W$&"_"&ZIP$(1 to LEN(ZIP$)-4)
```

where *flp1_* is the location of the unzip file.

If you have enough memory, you can load the unzip file from a ram8_, for example. If you have dynamic ram disking (on most MIRACLE disk interfaces), then add this LINE to the program:

```
145  COPY flp1_unzip to ram8_unzip: DLINE 145
```

and, then indicate in LINE 700 to "EXEC_W ram8_unzip; ..." This will, essentially, make the unzip code "resident" in your computer's memory.

Of course, if you are using Unzip30, use the appropriate filename or RENAME accordingly.

Sorry for the inconvenience.

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Psst!! Looking for more Programs?? Cheap??

Here is a very small list of what can be found out there in the world for the QL if you have a modem and can call a BBS. For those of you without a modem, think about it. There are several BBS's in the USA that cater to our line of computers. There is also INTERNET. A world wide method of communicating via computer.
They offer programs and an opportunity to actively exchange electronic correspondence with other QL users.

These programs have all been uploaded somewhere out there for QL'ers to use.

ABAtra_exp	Psions' Abacus file format explained
ANSISR_zip	strip ANSI codes from log files, uses TK2 and Qlib
BASCON_zip	SB Extension for Linking in QJump Configuration Blocks
C68d1_zip	C68 4 12 disk 1. 'C' for the QL Main system disk, The current "STANDARD for 'C'" on the QL
C68d2_zip	C68 4 12 disk 2. 'C' for the QL Extras, utilities, add. libs
C68d3_zip	C68 4 12 disk 3. 'C' for the QL Master doc disk for C68
CFG_zip	place QPTR configuration blocks into 'C'
CHECK_zip	SB extension to check for (non) numeric INPUT
CIRCUI_zip	Miscellaneous circuit diagrams and connector pin-outs
CRITMS_BAS	Critical Mass Game (1 or 2 players) from Dec. 88 QL World
DISKS_TXT	Text file describing using Teac 2.88Mb disk drives
DJEP_zip	DeskJet printer utility, prints envelopes
DJWDEM_zip	Demo copies; DiscOVER, MULTI-DiscOVER, TexTIDY & FLPClone
EMAIL_txt	Known INTERNET addresses of other QLers
FILEIN_zip	Pointer environment utility
FNTSRC_zip	source files (SB and Metacomco Assembler) FontEditor v.2.3
FONTED_zip	QL FontEditor v.2.3 for the Sinclair QL
HDRRST_bas	needed to restore file header of some transferred files
HISTDV_zip	Last line recall/history device for QL jobs
IBMDSK_zip	Lets QL with TK 2 and 3.5 inch drives access IBM disks
LHQ_zip	LHQ v1.0 for the QL. Another file archiver and extractor
MAIL_zip	mail list program for ARCHIVE
Minnie_zip	Text file detailing the Minerva ROM 1.93+ features
MODPSI_zip	Some mods for the PSION suite of software
POINT_zip	Description of setting up as QL FidoNet Echo Point
PullDown_zip	This is a method of creating PULL-DOWN/POP-UP screens
QED_zip	QED 1.01 A general purpose editor for the QL
QEM_zip	first? version of QeM
QEM24_zip	QEM v2.4 early version of QEM
QEMV32_zip	QEM v3 2 An excellent terminal program for the QL
QEM35U_zip	QEM v3.5 upgrade files. upgrade QEM 3.0+ to 3.5
QEM36U_zip	QEM v3.6 upgrade from v3.5
XPRLIB_zip	XPR libraries for QEM v3.5. needed for 3.5 & 3.6
QEM40_zip	QEM v4.0 latest version of QEM?
QEM040doc_zip	Doc files for QEM v4.0
XPR210_zip	latest file transfer protocalls for QEM v4.0
QLGIF_zip	Utilities to code and decode GIF files. by Carlo Delhez (1993)
QLHD_zip	Information on hooking up an IBM type MFM/RLL hard drive to a QL
QLIBRT_zip	Qliberator runtimes version 3.36
QLSPIT_zip	ZM-1 Spectrum Emulator for the QL. working demo
QPACER_zip	QPACER QPac2 Boot Generator Issue 1.1

QSI_zip	Determine speed of your QL, compared to QXL, Gold Card
QUADRI_zip	Quadric Equation Plotter
QUILtra_exp	Psions' QUILL file format explained
RDS_zip	3 SuperBasic programs to make random dot stereograms on the QL
RELYQL_TXT	A reliable QL! Text describing modifications to the QL
RESCUE_zip	Floppy Disk Rescue & String Search Utility
Ruleta_zip	Roulette game
SAVER_LZH	Pointer environment screen saver. Set up as a hotkey
SPECTATR_zip	Spectator v1.00 - A Spectrum emulator for the QL
SPECKE_zip	4 graphic files of the Spectrum Computer keyboard layout
VERS_zip	determines program info about other QPTR progs.
VIEW_LZH	Pointer environment utility
XCHANG_zip	Psion's QL Xchange v3.90 is now public domain (Quill, Archive, Abacus, Easal in one package)
ZXTRICA_zip	Xtricator v1.10 - ZX81 emulator for the QL
UNZIP9_EXE	QL UnZip program Ver 0.96. by Jan Bredenbeek, exe form (early version)
ZIP_22	Zip/Unzip version 2.2 for the QL. (revised)
ZIPUTIL_zip	Zip Utilities v3.0. utilities for dealing with zip files
ZIP30_exe	Zip version 3.0 for the QL. (The \"ES\" version) (revised, revised)
Unzip30	Unzip version 3.0 for the QL, latest one **NEEDED FOR THESE FILES**
Ziptxt_txt	Revised Docs on using Zip/unzip programs **(READ THIS** if you have not used Zip on the QL yet)
FNxxx x_zip	QL InterNational FidoNet Echo Mail messages, 8 merged files so far
Quanta1/2_zip	QL Quanta BBS Messages from the UK, 2 merged files so far

Spectrum/QL related files for the PC/Clone

ENV_bin	ENV_bin code compatable with QXL and SMSQ
JPP_zip	Excellent Spectrum Emulator for 386SX or greater PC
Make_C_zip	C68 files MAKE & CCP for the QXL
QDIR_zip	Looks at QL disk DIRs on a PC
QLSCR_zip	PC program to view QL screen files, can convert to GIF
QLTOOL_zip	Lets a PC look/examine QL disk
QXLfmt_zip	for the QXL card. Convert a disk to QDOS format (same as FORMAT?)
Z80V201A_zip	128K/48K ZX Spectrum Emulator V2.01 by Gerton Lunter
Z80V201B_zip	LATEX and POSTSCRIPT DOC files for V2.01 Z80 Spectrum

QL related file for the MAC

CP2MC1_zip	convert text/Quill files to be used on the MAC

These programs and files fill 9 720 disks and are available for $9.00 (postage paid) from;

Paul Holmgren
5231 Wilton Wood Ct.
Indianapolis, IN 46254

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PERU IN 46970
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OR

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We want to provide service to you the customer. Need something, give us a call. Make all checks or money orders out to either "Frank Davis" or "Paul Holmgren". Thanks! Payment in US$.

Have you ever wondered about a program you have read about? We have a solution to that! We have many programs available on disk that are demo. Usually they will have one or two functions disabled, but give you enough to find out if the program is what you want. We have :TEXT 87, PAGE DESIGNER 3, QUICK MANDELBROT SCREENS, QRACTAL SCREENS, BANTER, IMAGE PROCESSOR, DISCOVER, TEXTTIDY, S-EDIT, THE GOPHER, CONVERT PCX, THE ERGON DEMOS, FLEET TACTICAL COMMAND, TEXT'N'GRAPHIX, WINBACK 2, ADDRESS BOOK & LABEL PRINTER, SCREEN COMPRESSION. All of these are available on disk for $3 each...and if you decide to buy the actual program, you can take this $3 off the full program price.

EXTRA! EXTRA! WE ARE NOW THE NORTH AMERICAN REPRESENTATIVE FOR ALL THE ERGON, from Italy, PROGRAMS! We are also offering for sale the SUPER GOLD CARD, and we have a trade- in program for working Trumps and Gold Cards.

QBox-USA

810-254-9878

24 hours a day, 300/1200/2400 baud
(a new high speed modem, up to 14400 baud will be online soon)

QBox-USA is a BBS set up by QL enthusiasts for QL enthusiasts. The sytem runs entirely on a Sinclair QL. We maintain a link (Fidonet) with European BBS's that carry QL related message areas. With QBox-USA North American QL users can keep in touch with our fellow QL users in Europe and keep up with the latest developments for the QL and QDOS. We are currently carrying the following message areas: INTERNATIONAL QL, MINERVA, QUANTA and QBOX. There are also file areas that contain many programs available for download. Just a few of the files available are: QIFI, QFAX, Zip/Unzip, QLTerm, QLGIF and many more! There is no charge to use QBox-USA other than normal phone call charges. Please give QBox-USA a try! We look forward to your call!

produced using Page Designer 3

CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 16 : A REVIEW - DESCRIBING HOW TO USE SOME RECENTLY INTRODUCED PROCEDURES

The procedures listed last time when merged with our previous procedures made a program, QUERY. It can be used to interrogate any ARCHIVE database with its simple standardized menu interface. QUERY makes extensive use of the recently introduced procedures. Perhaps now is the time to describe how some of these procedures work. If you haven't had time to type them in yet or have been stumped by all that I have introduced so far now you have time to catch up. Or to avoid the typing send me a formatted disk and return postage and I will send you a copy of query_prg or order the CABLE ARCHIVE ISSUE DISK from UPDATE and you will get lots of ARCHIVE goodies including query_prg.

In the PC World the user interface is all the rage now with the introduction of Windows and OS2. Besides multitasking (which they still can't do as good as QDOS) their main claim to fame is the Graphical User Interface (GUI) The most important aspect being a standardized user interface. In my opinion the mouse is a totally overblown device. In novice situations it is good and for certain positioning tasks it is superior but as a general device to choose options for experienced users of a program it is cumbersome. The best method for choosing options, I think, is to take advantage of the mind's ability to easily remember an option-character connection. If I want to print something then pressing a P is much quicker and faster than trying to move a little arrow to an arbitrary place on the screen with a mouse. Programming in ARCHIVE can't be too graphical but these procedures standardize the user interface and work well with the option-character method for selection options..

I would like to encourage you to try and make the Miracle in Newport II on Saturday, May 14. I will be there and it would be nice to talk with readers of this column. I will be demonstrating my QLerk program and will be looking forward to visiting with fellow QLers and ARCHIVErs. The QL has been given a new lease on life with the Miracle GOLD CARD, QXL CARD, and now the SUPER GOLD CARD. It has been especially nice for us ARCHIVE programmers because although ARCHIVE is a nice language for developing database applications it runs somewhat slow on your basic MHZ QL. But when you increase the speed of the QL by a factor of 12 like the QXL CARD does ARCHIVE programs blaze across the screen. Hope to see you at Newport.

PREPARATION

Start ARCHIVE in your customary way so you see the ARCHIVE command prompt (>) What you need to type will be in *Italics* and don't forget the <ENTER>. First we load the procedures saved as query_prg.

load "{}query"<ENTER> where {} = device where query_prg is (flp1_,mdv1_,etc)

Now set the screen and initialize needed variables

mode 0 setup<ENTER> always initialize setup first

You now have the procedures introduced in the last year loaded. Below I will describe them and give examples that illustrate how they work The examples will be given to the ARCHIVE command prompt (>) but will activate procedures we have loaded with query_prg.

When giving the procedure name there is often a semicolon (;) followed by a list of variables separated by commas(,). This is how procedures are activated (called). The names of the variables following the procedure are descriptive of what they do. What you actually include when you call a procedure may be real numbers and literal text in quotes or variable names depending on the situation

SIMPLE PROMPTS

Much of what I have tried to do so far is to introduce procedures to standardize simple program interaction with the user. The procedures in this category are :

acky;ln,mess$: Acknowledge procedure is used to get the user to read a message (mess$) printed on the screen at line ln and press enter to continue. It does not return anything. Example :

cls:acky;10,"We are done now"<ENTER>

defy;ln,ques$,def$: Default procedure asks the user a question (ques$) at line ln and suggests a default answer (def$). The user presses <ENTER> to accept the suggested answer (def$) or \<ENTER> to give a null answer or enters their own answer. The answer is returned in lower case in global variable ans$ Example :

cls defy;12,"Your name","bill"<ENTER>

answer defy prompt then print result

print ans$<ENTER>

inpy;ln,ques$: Input procedure asks the user a question (ques$) at line ln and waits for the answer to be entered. The answer is return in lower case in global variable ans$. Example :

cls:inpy;12,"Your name"<ENTER>

answer inpy prompt then print result

print ans$<ENTER>

msg;ln,mess$: Message procedure prints a message (mess$) in brackets at line ln. It returns nothing Example :

cls:msg,20,"testing msg"<ENTER>

yorn;ln,ques$. Yes or No procedure asks the user a question (ques$) that can only be answered by a yes or no answer. The answer is returned in global variable ans$ which will either be "y" or "n". Example .

cls:yorn;12,"Are you ready"<ENTER>

answer yorn prompt then print result

print ans$<ENTER>

SINGLE LINE PROMPT WITH MULTIPLE OPTIONS

Often it can be handy to display multiple options on a single line and allow the user to choose one option by pressing a single key corresponding to the actual option desired.

key_choice;ln,mess1$,mess2$,options$,keys$: Key choice procedure allows several options to be displayed on a single line (option line) and the user can make the choice by pressing a single key. If global variable ke=1 then an <ENTER> must also be pressed but if ke=0 then it does not. When ke=1 is set then set ke$=" KEY+ENTER " (done already in setup) and if ke=0 then set ke$=" PRESS KEY " This is a way to have a single procedure work in a quick mode (ke=0) where no <ENTER> is needed or a slower more friendly mode (ke=1) where <ENTER> needs to be pressed before action happens. The message on the line ln appears as :

mess1$ + ke$ + mess2$ +"=>" + options$ + " . "

The list of acceptable keys are passed in the text variable called keys$ above and need to be in lower case .

Suppose we wanted the user to answer a question about a choice of colors we could use a call to key_choice :

cls:key_choice;14,"","Color","Black Red Green White", "brgw"<ENTER>

answer key_choice prompt and print ans$

print ans$<ENTER>

Now you can test to see whether ans$ is equal to "b" or "r" or "g" or "w" to see what was chosen.

PROMPT WITH OPTIONS SET IN ROWS&COLUMNS

Sometimes we have a situation that has many options and in order to sensibly display them I have a special procedure that uses an arrow that points to options set up in rows and columns and can be positioned to select an option. It also works nicely if the options can be laid out in just a single line like with key_choice above.

by_arrow;sr,nr,sc,nc,cwd,optlist$,strtpos : By arrow procedure where selections are made by positioning an arrow on the options displayed in a row/column format (option matrix) and pressing <ENTER>. The arrow can be moved with the arrow keys or by pressing characters corresponding to the option which will move the arrow to the option. The options need to be displayed to the screen in exact row and column format before the procedure is called The arguments passed include :

1 sr : the starting row on the screen (0 to 23)
2 nr : the number of rows
3 sc : the starting column (0 to 80)
4. nc : the number of columns
5. cwd . the column width
6 optlist$: a list of characters fixing which option the arrow should go to when a character is pressed. There should be nr*nc characters in optlist$ and columns are first so for a 3 row and 4 column option matrix the 6th character of the 12 characters in optlist$ would be row 2 and column 2. All characters in optlist$ must be upper case but numbers and other keyboard symbols are okay.
7. strtpos : starting position to have the arrow in when prompt starts up A number from 1 to nr*nc.

When I display the option matrix I capitalize one character in each option which is the character to press to move the arrow to that option. Sometimes 2 options might be strongly tied to the same character like Flp1 and Flp2. That is okay. You can put 'f' in the Flp1_ position and 'f' in the flp2_ position of optlist$ Pressing 'f' once will reach Flp1_ and pressing it again will reach Flp2 and pressing it again returns back to Flp1_. Pressing a character not in optlist$ will cause a '?' to appear in place of the arrow and it won't move. When <ENTER> is pressed whatever option is currently selected will be returned as a number in global variable ans. It will be between 1 and nr*nc. If the number zero (0) is pressed at any time before <ENTER> then by_arrow will return with ans=0 no matter which option the arrow was on. When displaying the options the block on the screen where the option matrix is displayed should be done in reverse screen (by using the special rv$ character initialized in the setup procedure). All this makes for a well behaved procedure that handles those many option situations.

Setting up a by_arrow call first requires printing an option matrix on the screen in reverse characters. Suppose we wanted to have the user choose among several colors. Everything has to be typed in one long line since we are working from the ARCHIVE prompt. In a program you could use several lines. Press <F5> if you have an error so you can edit the line :

cls:print at 10,1;"Choose a color : ";at 11,1;rv$;" Red Green Blue ";at 12,1;" Indigo Violet Black ";rv$;: by_arrow;11,2,2,3,8,""RGBIVB",1<ENTER>

If error <F5> else answer by_arrow prompt then print ans

print ans<ENTER>

Inside your program you would check the value of ans which would range from 1 to 6 or 0 if the user pressed 0. Red=1, Green=2, Blue=3, Indigo=4, Violet=5, Black=6. It takes a little fussing to get the spacing right in the option matrix. Notice my by_arrow call specifies an 8 character width for each option starting at column 2 and row 11

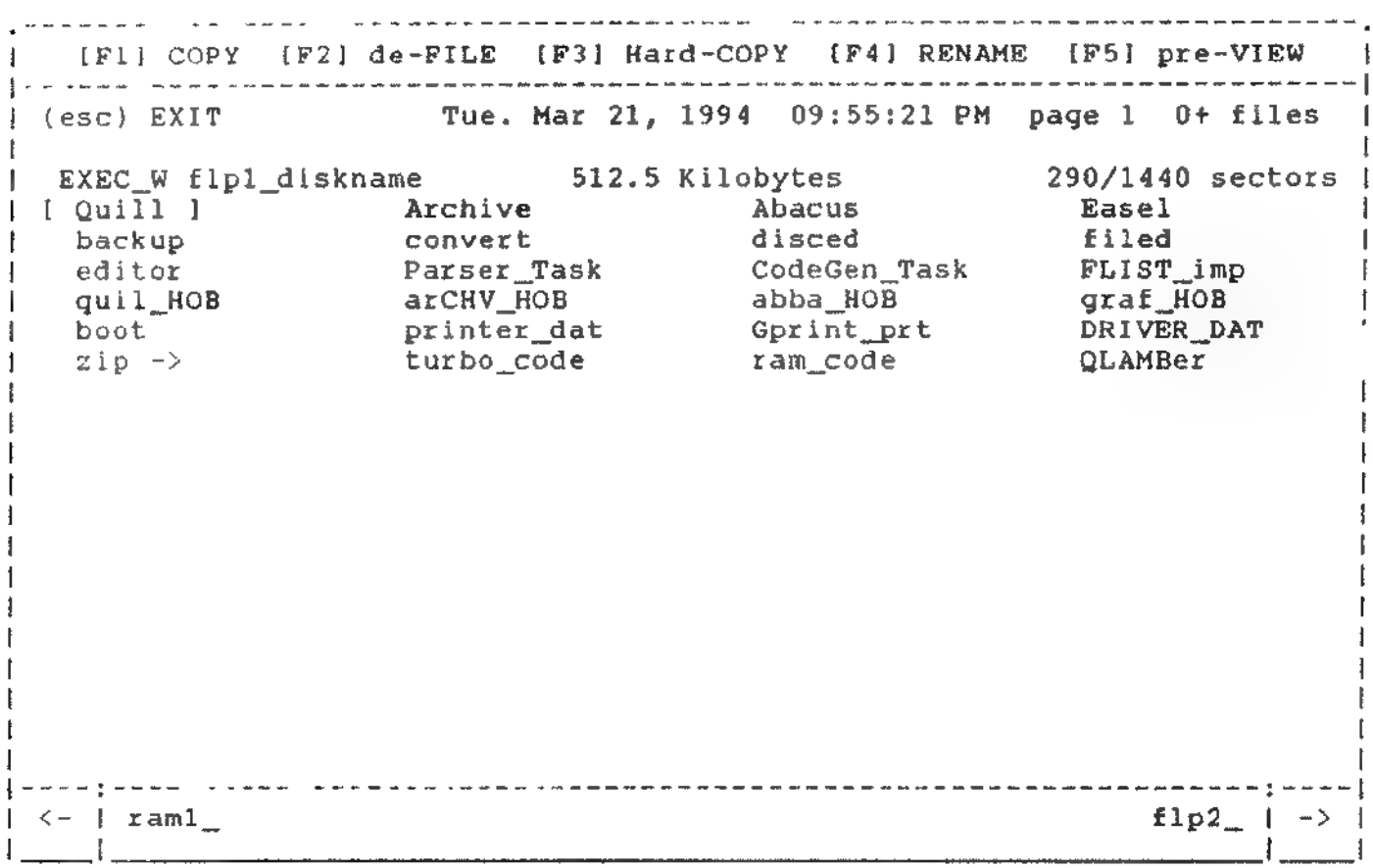
Notice how procedures like **device** and **directory** we used in the QUERY program Next time more explanations and new procedrues Until then or Newport, Happy Archiving!

QLAMBer
[QL_A_Moving_Box/enhancedrelease]
by Al Feng

QLAMBer continues in the tradition of its forerunner, **QLUSTer**, by extending the selective file management capabilities of the **QLUTter** program(s) by additionally accessing six SuperTOOLKIT2 keywords [WCOPY, WDELete, SPooL, RENAME / WREName, WSTATus] while reducing its code size to less than that of the original **QLUTter** program.

QLAMBer 2.*nnn* supports easy sub-directory access.

The SCREEN



The "absolute" number of files on a disk are not indicated. Only the number of files NOT visible on the current screen. If you have more than 76 files on the disk, the number is indicated after the current page number and followed by '+ files'. A number greater than zero indicates that another 'page' may be accessed.

Serial port output is changed simply by pressing the ["] key when in the **'Hard-COPY'** routine.

As with **QLUSTer**, you move from "standard" functions to TK2_based functions by simply pressing the [/] key.

A screen page is "shifted"/changed (if applicable) by simply pressing a [shift] + [cursor] key combination.

If you have more than 76 files in a single directory, then simply press the [shift] key in tandem with the down arrow /[cursor_down] key.

If you want to "page" to flp2_ from flp1_ then simply press the [shift] key in tandem with a right arrow key.

To "page" back to flp1_ from flp2_ then simply press the [shift] key in tandem with the left arrow key.

Using the [ConTRoL] key with the left arrow key will access a different type of device of like numerical value (that is, from flp2_ to ram2_; mdv2_ to flp2_; mdv1_ to flp1_; ram1_ to flp1_; win1_ to flp1_; and, so on).

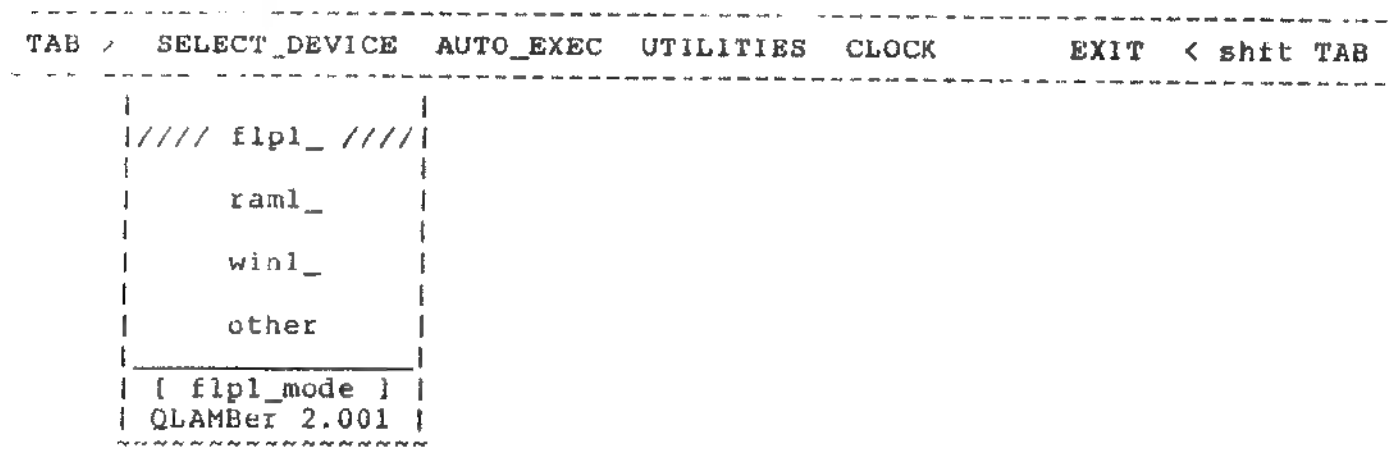
Sub_DIRectories are accessed when the [filename] selected is appended with the ' ->' suffix. When the program encounters an "empty" sub_DIRectory, you will be given the option of DELeting it.

SELECT_DEVICE is used to RETurn to the main directory.

Filenames longer than 32 characters are NOT recognized by the program.

The **QLAMBer** program's SELECT_DEVICE also has been modified to use a highlighted moving_box/shaded_bar; and, for those who prefer the *traditional* single_key selection method, a version with this format is retained as **QLAMBer_EXE**.

The new 'SELECT_DEVICE' option is illustrated below.



CONTINUED ON PAGE 42

THE QBOX-USA BBS

by

John J. Impellizzeri - Utica, MI, USA

QBox-USA is a computer bulletin board system (BBS) set up by QL enthusiasts in the US for all Sinclair enthusiasts in North America (although we welcome callers from anywhere). We maintain a link (Fidonet) with European BBS's that carry Sinclair related message areas. While the majority of the messages are QL related, we do carry a Spectrum message area. There are also file areas with many programs available for download. There is NO charge to use QBox-USA. Your only cost is the phone call to the system.

To borrow a line from an old song, 'What a long strange trip it's been...'

That pretty much describes getting QBox-USA set up and running from the first time it was considered and talked about in Newport, Rhode Island, in June 1993 until the system that is online today.

Long because it seemed like forever trying to learn the software which is scattered among about a half-dozen different programs that make up the various parts of the QBox system. Strange because most of these programs are still in a 'beta' test state with limited or outdated documentation. Strange also due to a few problems that snuck in during a mail exchange with our host BBS in England. To paraphrase Murphy: 'The programmer will have never seen a bug quite like yours'.

The system runs entirely on a Sinclair QL. One of the easier parts was getting all the hardware set up and going. With a few modifications a standard QL can run reliably for long periods of time although there have been a few system crashes. A few due to me learning by experimenting and a few that I can only chalk up as random glitches.

All of the hardware that makes up this sytem was extra or surplus equipment that was donated by people who wanted to take part in the European Fido echos. Before setting up this system, we had been individually calling the European BBS's. Besides duplicating efforts it was expensive. About the only cost involved so far has been the telephone line installation and of course the monthly phone bill. This is still much cheaper than before due to the fact that the mail files are sent compressed and late at night. Currently we call our host BBS in England (TF Services) once or twice a week to exchange mail using a high speed modem. Most calls take just a few minutes to transfer 100K bytes or so of messages.

Since the system runs from floppy disks, storage space can be a little tight. (We had no extra hard drives or interfaces laying around). While QBox-USA was intended primarily to take part in the message exchange with QL users in Europe, we also wanted to try and maintain a few file areas containing useful public domain software available for download to North American users. We are investigating a few ways of cheaply and simply adding more storage space.

We try and keep the latest PD stuff online here. If there is

something you have heard about and it is not here, whether new or old, leave a message to me or Don Walterman and we'll see if we can get a hold of it or maybe we already have it and can make it available here for you.

For now though most of the confusion has cleared up, Mr. Murphy has been banished (or least kept at bay) and I'm settling into a regular routine maintaining the system and starting to have fun with it. Despite the confusion, hair-pulling and cursing of the computer gods it has been worth it. Comments, good or bad, are always welcome!

I do have to thank the following people, without them the system wouldn't be running and you wouldn't be reading this!

Don Walterman
Tony Firshman
Jan Bredenbeek
Bob Dyl
Lester Wareham
Chris Fowler

In this part of the article I will attempt to explain how to use, and some of the features of, the QBox-USA Bulletin Board System (BBS). As the System Operator (sysop), I hope to be able to explain this without hopelessly confusing a brand new user. I apologize if this is extremely boring to an experienced BBS user. What I won't be describing is how to use a communications program to connect with QBox. That is the subject of another article. I will start with once you have made a successful connection and take it from there. Also please note that while there are quite a few BBS's using the QBox software (mostly in Europe, I believe we're the first in the USA), I will only be describing the system that I am the operator of. Other QBox systems will be similar but may have more or fewer, or different options and commands, depending on how the sysop has set up his system and what hardware he has. However, once you learn to use one Qbox BBS, you should have no trouble using any other.

Okay, so you've dialed QBox-USA and the modems have connected. A few seconds after the 'CONNECT' message appears on your screen, QBox will start and send a logon screen. This screen will identify the system, and provide some general info about the BBS and then ask you to enter your first and last name (first name, a space, and last name). Note that it is not necessary to capitalize the first letter of each, QBox will do this automatically, and will recognize you on subsequent logons whether you capitalize or not.

QBox will search through its list of users for your name. If it recognizes you (meaning that you've called before), it will ask you to enter your password. If it can't find your name in the list, it will ask if you are a new user or if you have perhaps entered your name incorrectly. If you're a new user, answer 'Y'. Qbox will greet you as a new user and ask which town you are calling from. I would like to ask North American users of QBox-USA to enter their town or city followed by their state or province. It's nice to know what part of the country everyone is calling from! The BBS will ask for confirmation of the town entered and then ask for the password that you wish to use on this system. Your password

keeps someone else from logging on under your name. I won't go into the subject of choosing passwords or their security as that could also be another article. Qbox will ask you to reenter the password you just typed so that it can verify that what you entered the first time was what you really intended. Note that what you type is not displayed for security reasons. If the two don't match, you will have to start over entering a password.

For new users, there may be a questionaire displayed next asking you to enter some information. Otherwise a message stating no questionaire today will be displayed.

Once your password has been verified, QBox will display some statistics about your call and then display a bulletin. This bulletin is used to inform users of anything about the system that the sysop wants users to know. It may detail new features, new files available, changes or just news in general. At this point I should explain about a prompt that you will see at certain points while using QBox. This is the 'More? (Y/n)' prompt. Qbox will display this when it has filled your screen and pauses to let you read. It is asking do you want to see more? You can press 'Y' to see more or 'n' to stop. You can also just press Enter which will be accepted as a 'Y'. At any place in QBox where you see a prompt with a choice such as Y/n, the option that is capitalized is the one that will be assumed if you just press Enter. Also, at almost any point in the BBS, you can control the output of the BBS by pressing 'P' to pause the BBS, and 'S' to stop. If you have paused the BBS, just press any key to continue. If you have stopped the output, you will be returned to the menu from where you came.

After the bulletin is displayed, QBox will scan the message areas for any new messages for you, any new messages in any of the areas since your last call, and if there have been any new files uploaded since your last call. From here you will be presented with the main menu. You can select any of the options on the main menu by pressing the letter in the brackets [ ]. What do all these options do? We'll take each one individually and explain it.

Since the Mail and File options are a bit more involved and have menus of their own, we'll leave them for later and explain the others first.

Pressing 'B' for [B]ulletin will redisplay the bulletin screen that you saw when you logged on. Qbox will also scan the mail and file areas again for you.

[E]ditorial will display just that, an editorial written by (at least for now) me, the sysop. Currently this a little history story about how and why we set up the BBS.

[I]nfo will present you with a list of information items available on the system. Simply enter the number of the item you wish to read or just press enter to quit this option. After the info is presented, press enter to get back to the Info list and read another or quit back to the main menu. Some of the current info available is a list of other known QL/QDOS BBS systems, a list of newsletters & magazines supporting the QL and QDOS and a list of the hardware and software used on QBox-USA.

[S]tatistics gives you a report of your status such as how long you've been online this session, how much time you're allowed per day, the time you have left, the last time you logged on and the number of times you've called this sytem.

[G]oodbye is what you use to log off the system. It will ask for confirmation that you really wish to leave and if so, ask if you wish to leave the sysop a message. A logoff screen will be presented and the times that you logged on and logged off shown. Please use the Goodbye option to log off rather than just hanging up. Logging off properly will ensure that your statistics on the BBS and messages that you've read are recorded properly. It will also ensure that the BBS resets itself for the next caller. If you simply hang up, it will take the BBS a while to realize that you're not there anymore and needlessly ties up the system preventing someone else from using it. Every sysop realizes that there will be occasional problems due to a bad phone connection or a hardware or software problem or crash on your end (or even mine!) that will cause you to be disconnected improperly. Don't worry about it if it happens. But please, always try and log off properly! There! I've said please! (Sysop's everywhere will appreciate it!)

[C]hange user settings takes you to a screen showing your current settings and a menu of items that you can change to customize the way that QBox presents itself to your system. This will also allow you to change your password if you wish. Press the letter of the setting you wish to change. City and password are self explanatory, width is the number of characters per line across your screen you wish and terminal lines is the number of lines down the screen. These should be set to match the terminal software you are using. Usually the default settings are fine for most QL terminal programs. Once you get more accustomed to using the system you may wish to save time by turning off the menus, select help level to do this. There are three levels of help; full menus, brief menus, and no menus. More will toggle the More prompt on and off. If off, QBox will not pause at the end of a screen but will continue displaying until the end. You can still control the output using the P and S keys as explained earlier. If you've made some changes and decide you don't want to change them, press R to return without updating anything. If you're satisfied with your changes, press Q and the changes will be saved and take effect.

[U]sers will allow you to search for a name to see if that person is a user on this system. You can also get a list of all the users if you wish. The list will show the name, city, and the date and time of each users last logon.

[A]nswer questionaire will, (if there is currently a questionaire set up), display the same questionaire you would see if you were a new user logging on for the first time.

[Y]ell is an option used to call the sysop. It will sound a beeper on the QL running the BBS to call the sysops attention. Please note that the sysop can control whether or not the beeper will sound. If I am going to be nearby the BBS and won't mind an interruption, I will turn it on. However if you try to Yell at 3 AM my time or when I am at work, chances are very good I won't hear it! (It's turned

off!) If the beeper is turned off or the sysop doesn't respond, you will get a message saying 'Sysop not present'. If he does, you will enter 'Chat' mode. In this mode, anything that the sysop types on his keyboard will also show up on your screen and vice versa for anything that you type. An electronic conversation!! The sysop can also initiate the chat. You will see a message on your screen saying 'Sysop breaking in for a chat'. When the chat is ended (only the sysop can end the chat), you will be returned to the main menu. You may have to press any key to get the menu redisplayed.

[V]ersion will simply display the revision level of the Qbox BBS software running. We are currently using QBox version 1.191.

Pressing 'M' for [M]ail will take you to the message section. There are currently seven message areas on QBox-USA, each with a different subject or category. In these areas you can exchange messages (mail) with other users. Ask a question about that new software or hardware you just got and need help with, leave a note about a programming problem, or just make a comment about the QL world in general. Two of the areas are local, in other words they exist only on QBox-USA. The others are known as echomail areas. Echomail is a system where messages are echoed or passed between BBS's allowing your messages to be seen by a far greater number of users than they would normally be seen by. A message left by you in one of the echo areas will be echoed among other BBS's carrying the same echo. A reply or message to you entered on another BBS will be seen by you on this BBS. The two local mail areas on QBox-USA are NOT echoed and messages entered here will only be seen by someone calling QBox-USA directly.

When you enter the mail area you will be in the area you were in the last time you called or area #1 if this is your first call. The area number and name will be displayed along with two numbers showing the last message number you have read and the total number of messages in this area. QBox will also scan the area and report (by message #) of any new messages to you, old messages to you and messages you have entered. A sub menu of options in the mail area is displayed next. To read a specific message, simply enter its number and press enter and it will be displayed. Other commands are explained below:

[A]rea change allows you to change message areas. Enter the area you wish to go to, or enter a '?' to see a list of available areas.

[N]ext will display the next message (by number) after the last one that you have read. Note that the last message # read will change as you read messages.

[P]revious will do the opposite and show one message before the last one you read. Note that this will also change the last message read #.

Also note that by using either of these two commands, you can continue reading in the same direction by simply pressing enter.

[.]Current will redisplay the last read message for you.

[-] and [+] allow you to read either the previous or next reply to the current message (if there is one) rather than reading messages sequentially using Next or Previous, above.

[C] for read [C]ontinuous will simply display each message in order without stopping after each one. This is handy to use if your communications software lets you open a capture or log file. Open the file just before you select this command and all the messages will sent without stopping. When it finishes, close your file. You can then log off and read the messages at your leisure without being online (and running up your phone bill). Note that this command will send messages in the same direction as you have been reading messages (Next or Previous, as above).

[L]ist will present a brief account of the messages by showing the message number, the date it was entered, who it's from, who it's to, and the subject. You can select the starting number to list from or press enter for the current last read message.

[Y]our mail will rescan the mail area and redisplay for you the message numbers of new messages to you, old messages to you and messages you have entered.

[D]elete allows you to delete a message that you have entered. To be deleted, the message must be the current last read message and have been entered by you. For obvious reasons you cannot delete a message entered by someone else.

[S]tatistics and [G]oodbye are the same commands as in the main menu.

[Q]uit will take you out of the mail area and back to the BBS's main menu.

[E]nter message does just that, lets you enter a new message. QBox will print who the message is from and fill in your name for you. Next you will be asked for the name of the user you are sending the message to. If you are entering a message in one of the echo areas, the name will be accepted as is, so be careful of the spelling, otherwise the user may not be notified that there is a message for him. When entering a message in a local message area, the name will checked against the list of users on the system. If the name is not found, you will be given some choices: Abort the message entry, retry entering the name, ignore the warning (if, for example, you wanted to enter a message addressed to: all), or to see the user list to see how the name is spelled. After this, if you are in a local area, you will be asked if this is to be a private message (only readable by the person it's addressed to, note: the sysop can also read private messages). Private messages are not allowed in the echo areas. Next you are asked for the subject of the message. You can then begin entering your message. Note the prompt from the BBS, that words will wrap automatically and to press enter on an empty line to indicate that you are done.

When done entering a message you can [L]ist the message to proofread it, [A]bort the message entry, change the name of the person it's [T]o, change the sub[J]ect, change the

[P]rivate status (local only), [C]ontinue entering the message, [E]dit a line, [I]nsert a line, [D]elete a line or lines, or [S]ave the message. The message will not be put on the system until you select the Save message option. You can use any of the above options to get your message looking the way you want before actually placing it in the mail area for others to read.

[R]eplying to a message is very similar to entering a new message. You will see the same prompts and have the same options. The BBS will offer a suggested name for the 'To user:' prompt and for the subject prompt. The name will be the name of the person who wrote the message that you are replying to and the subject will the same subject as the original message. You can accept these suggestions by pressing enter at each, or you can enter your own. There is one additional option when replying. You can quote text from the original message if you wish. This might be used to make sure that your reply is understood by having some (or all) of the original message as a part of your reply. If you do select the quote option, all of the original message will placed at the start of your reply with a '>' character at the beginning of every line signifying the original text. You can then edit the lines as necessary and add your reply.

From the Main menu you can press 'F' for access to the [F]ile areas. The file areas contain many programs that you can download. Note that a download is from the BBS to your computer. Uploads (from your computer to the BBS) are also gladly accepted! When you enter the file area, it's number and name will be shown. The name is simply the general category of the files contained in this area. There are currently the following areas on QBox-USA: General Files, Communications, Utilities, Archivers, Pointer Stuff, and Emulators. A further menu of options available in the file areas is displayed.

[A]rea change allows you to change file areas. Simply enter the number of the area or a '?' to see a list of available areas.

[F]ile list will give you a listing of file titles, size in bytes and a short description of each program available in this area.

[V]iew will let you look at a text file online without having to download it first. It will ask you for the filename you wish to view. View only works on files that are text! These are usually signified by an extension such as '_txt'.

[S]tatistics, [Q]uit and [G]oodbye are the same as explained earlier.

Pressing 'D' for [D]ownload will start the download procedure. You will be asked to choose a protocol. QBox currently supports Xmodem, SEAlink and Telink transfer protocols. Your terminal software will need to support at least one of these in order to download files. If you select Xmodem you will be asked to enter the name of the file you wish to receive. Since SEAlink and Telink allow multiple files to be transferred (batch), you can enter more than one name. As you enter the name (be careful of spelling, use the File list command to see how the names are spelled), the

BBS will display it's size in bytes and an estimated transfer time based on your connection baud rate. For batch protocols, simply press enter at a filename? prompt to indicate no more files. The BBS will then prompt you to start downloading now and instruct you on how to cancel the transfer if necessary. At this point you should start the download portion of your terminal software. Depending on your software, you should see some type of progress report as the transfer proceeds. After the transfer has completed you will be returned to the File menu.

[U]pload will allow you to send a file from your system to the BBS. Please do not upload commercial or copyrighted programs (unless you own the copyright and wish to place the program in the public domain). You will be asked to choose a protocol and the amount of disk space available on the system for uploads will be shown. QBox will then ask for the filename or names if a batch protocol was selected. After you enter this you will be prompted to begin the transfer from your end and how to cancel if you wish. After the transfer has completed the BBS will ask you to enter a short description of the file or files you just uploaded (79 characters maximum).

Just a few more general notes on using QBox-USA: First, for doing file transfers using Xmodem, QBox requires 128 byte blocks. It cannot (currently) handle Xmodem 1K byte blocks. Please make sure that your terminal software is set for 128 byte blocks if using Xmodem for file transfers. Second, the BBS has a three minute inactivity timeout. This means that if the BBS detects no response from you after waiting three minutes, it will disconnect you and reset for the next caller. Don't wait too long while deciding what to do while online. (Hopefully this article will prevent this by explaining what all those commands do!).

Third, I have modified the BBS software so that it will send the 'ENQ' character at logon. What this means is that if your terminal software supports an auto logon sequence by responding to the 'ENQ' you can automate logging on to QBox-USA. Fourth, once you have logged on to a QBox system for the first time, if you do not log on again within 30 days, your name will be automatically deleted from the system. Once you log on the second time, your name will only be removed if you do not log on for over 90 days.

Finally, I hope this article will prompt you to give QBox-USA a try! If you do call, please leave me or my co-sysop, Don Walterman, a message. Let us know what you think of the system. Let me know what you think of this article. Comments, criticism, and suggestions are always welcome!

QBox-USA can be reached at 810-254-9878. (Detroit, Michigan area). 24 hours a day. 300/1200/2400 baud. A new high speed modem (up to 14400 baud) should be online soon.

The default medium is "flp1_" and this will be activated if you simply PRESS the ENTER key. If you wish to select another option, then PRESS another letter_key to indicate the storage device which you wish to access (the medium must NOT be write protected).

If you wish to access another type of device other than your floppy drives, then you simply press either the up_cursor/down_cursor key to move the (green) shaded_bar visible within the SELECT_DEVICE box.

To change the drive number (1 to 3) simply press the left_cursor or right_cursor key until the desired numerical value is realized.

For drives 4 and above, use the "other" option.

QLAMBer requires SuperTOOLKIT coding installed via ROM (or, RAM) prior to LOADing.

QLAMBer easily multi-TASKs using either the QRAM environment or within TASKMASTER.

Send comments, questions, or queries to:

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HAPPY TRAILS,
AND COMPUTING, TO YOU ...

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THIS SHOULD BE READ BY BIOLOGISTS AND GENETICISTS

I HAVE SPENT 27 YEARS OF MY LIFE SEARCHING FOR THE ANSWER TO THE QUESTION, IS THERE A FORMULA THAT WILL GENERATE ONLY PRIME NUMBERS OR IS THAT IMPOSSIBLE?. MANY PEOPLE SINCE TIME BEGAN SOUGHT THE ANSWER AND NONE HAVE FOUND IT; WHICH IS WHY I BEGAN THE SEARCH. IN MY WARPED SENSE OF MY EGO-AT 17 YEARS OF AGE, I THOUGHT I COULD DO ANYTHING SINCE I HAD NEVER FAILED AT ANYTHING YET AT THAT AGE.

IN 1972 I FOUND THE PATH TO THE SOLUTION, AND AFTER SEVERAL YEARS OF TRYING TO GET RECOGNITION AS THE FIRST PERSON ON THIS PLANET TO FIND A SOLUTION, I FAILED TO GET PUBLISHED, AND WAS REBUFFED BY THE ACADEMIC AND MATH COMMUNITIES, EVEN THOUGH THEY GAVE NO EXPLANATION FOR THEIR REFUSAL TO EXAMINE MY WORK. FINALLY, I JOINED MENSA, AND PUBLISHED THE ESSENCE OF MY WORK IN THE NOVEMBER 1975 ISSUE OF MENSA'S JOURNAL.

I HAVE NOT LEARNED VERY MUCH SINCE BEING 17, AND I AM STILL SO VAIN THAT I BELIEVE THAT I AM A SPECIAL HUMAN BEING WHOSE DNA SHOULD BE SAVED AND EXAMINED FOR POSTERITY.

WHETHER OR NOT THAT IS TRUE, IS IRRELEVANT TO THE FOLLOWING TRUE STATEMENTS:

1. ALL PRIMES (EXCEPT 2,3 and 5) END IN 1,3,7 OR 9.
2. ALL PRIMES EXIST IN ONE OF 24 FAMILIES.
3. THE 24 FAMILIES ARE THE RESULT OF MY RESEARCH.
4. THE SIMILARITIES IN THE 4 BUILDING BLOCKS OF DNA AND RNA PLUS THE 24 CHROMOSOMES OF MAN, TO THE 4 BUILDING BLOCKS OF PRIMES AND ITS 24 FAMILIES, HAS LED ME TO CONCLUDE THAT THERE EXISTS A DEFINITE RELATIONSHIP TO THE SECRETS OF PRIMES AND THE SECRETS OF DOUBLE SPIRAL HELICES.
5. I AM NOT KNOWLEDGEABLE ENOUGH TO ENTER THE FIELD OF BIO-GENETICS, AND MAYBE I AM NOT SMART ENOUGH ANYMORE TO FIND THE CONNECTION. I AM CONVINCED THAT MY CONJECTURE AS TO THIS RELATIONSHIP IS OF SUCH IMPORTANCE, THAT SOMEONE IN THE BIO-GENETIC-MATH COMMUNITY SHOULD PURSUE THIS PREMISE. ALSO, I AM GETTING TO OLD FOR THIS DEPTH OF REASONING AND DISCIPLINED LOGIC.

THE FOLLOWING PAGES GIVE THE FRAMEWORK OF MY RESULTS, BUT FIRST LET ME EXPLAIN A FEW THINGS;

1. THE LEVEL OF MATHEMATICS REQUIRED TO UNDERSTAND MY STATEMENTS, REQUIRES ORDINARY HIGH SCHOOL STUFF.
2. THE LEVEL OF LOGIC AND REASONING IS A LITTLE HIGHER.
3. ALL NUMBERS DIVISIBLE BY 2,3 AND 5 HAVE BEEN ELIMINATED FROM THE V NOS. GENERATED BY EQ.2,P.3, WHICH MAKES THE SAMPLE TO INVESTIGATE MUCH SMALLER.
4. THE COMPOSITES ARE ALWAYS MADE FROM 2 OR MORE PRIMES.
5. COMPOSITES THAT ARE SQUARES CAN ONLY OCCUR IN V_A NOS. ENDING IN 1 OR 9.

IN 1988 I BOUGHT A TWO POUND COMPUTER POWERED BY 4 AA BATTERIES, WHICH ENABLED ME TO TAKE MY WONDERFUL FORMULAE AND CREATE A SIMPLE PROGRAM TO ALLOW THE COMPUTER TO TEST ANY NUMBER LESS THAN A BILLION, FOR ITS FACTORS OR PRIMALITY IN A FEW SECONDS!! I CAN TAKE THIS WITH ME ANYWHERE. THIS HAS NOTHING TO DO WITH DNA, BUT IT IS FASCINATING, AND A RESEARCHER MAY USE THIS AS A TOOL. MY PROGRAM CAN BE MADE AVAILABLE TO ANY QUALIFIED RESEARCHER.

ELITE; BIO-PRIMES.LTR; MATH ± INSTR

PRIME NUMBERS by MIKE FINK

(C) JAN 1966, MAY 1973, MAR 1990

PREMISE: A FORMULA (OR FORMULAE) WHICH WILL ALLOW A NUMBER N TO BE INVESTIGATED TO DETERMINE IF IT IS A PRIME - - IS POSSIBLE.

ATTITUDE: IF A FORMULA IS FOUND THAT GENERATES ALL PRIMES BUT CONTAINS A FEW NON-PRIMES THAT SMELL DIFFERENTLY, AND A TEST TO REMOVE THE SMELLY ONES IS AN EASY TEST, THIS WOULD AND SHOULD SATISFY THE CONDITIONS FOR A VIABLE SOLUTION. WHAT REMAINS THEN IS A DEFINITION FOR EASY.

1. ALL PRIMES BEYOND 2,3 and 5 HAVE THE UNITS DIGIT = 1,3,7 or 9.
2. EQ. 2 P.3, GENERATES ALL PRIMES, PLUS A SMALL GROUP OF NON-PRIMES, AND 1(ONE) IS CONSIDERED A PRIME FOR PURPOSES OF FAMILY IDENTIFICATION, OR MAYBE IT IS A PRIME!
3. IN EQ. 2, ALL PRIMES HAVE THE FACTORS OR ROOTS OF R_1=1 AND R_2=N; FOR THE NON-PRIMES R_1=7 OR LARGER IN THE FORM OF R_1=V+90C (SEE EQ. 7and 8).
4. Σ_M SIGNIFIES THE SUMMING OF THE DIGITS IN A NUMBER TO A SINGLE DIGIT. THIS DIGIT, FOR NOS. GENERATED BY EQ.2, CAN ONLY BE 1,4,7,2,5 or 8. (6 CHOICES)
5. POSTULATE: Σ_M of N = $(\Sigma_M R_1)(\Sigma_M R_2)$ = $(\Sigma_M V_1)(\Sigma_M V_2)$!!!
6. POSTULATE: ALL NOS. GENERATED BY EQ.2 FALL INTO 24 FAMILIES, ie: Σ_M HAS ONLY 6 POSSIBILITIES (1,4,7,2,5,8) AND THE UNITS DIGIT OF N HAS ONLY 4 WAYS TO HAPPEN (1,3,7,9) CREATING (6x4) 24 FAMILIES.
7. THE FIRST 12 NOS. GENERATED BY EQ.3 and EQ.4, (SEE TABLE 1-P.3), YIELD "V" NOS.; 12 V_A and 12 V_B.
8. HYPOTHESIS: TO FIND A FORMULA TO SATISFY THE PREMISE CONSIDERING ALL POTENTIAL PRIMES AT ONCE IS DIFFICULT IF NOT IMPOSSIBLE; BUT BY BREAKING THE POTENTIAL PRIMES INTO THE 24 FAMILIES, ORDER CAN BE FOUND WITHIN EACH FAMILY.
9. AXIOM:
   - A. ALL NOS. GENERATED BY EQ.2 ARE EITHER PRIME OR NOT.
   - B. ALL NON-PRIMES GENERATED BY EQ.2 HAVE ROOTS THAT CAN BE FOUND BY EQ.'S 16,17 and 18 - - or EQ.'S 9 and 10.
   - C. THEREFORE IF B IS TRUE, ALL OTHER NOS. ARE PRIME.
10. PROOF THAT B IS TRUE:
    - A. TABLE 2, PAGE 3, SHOWS ALL THE COMBINATIONS OF $(V_1)(V_2)$ THAT WILL SATISFY POSTULATE 5.
    - B. FOR ANY N IN A GIVEN "V" FAMILY, THERE ARE EITHER 12 OR 14 COMBINATIONS OF $(V_1)(V_2)$ TO BE INSERTED INTO EQ.'S 16,17 and 18.
    - C. IF N IS NOT PRIME, INTEGER ROOTS OTHER THAN R_1 = 1 WILL APPEAR; THEREFORE B OF 9 IS TRUE!!

ELITE-PRIMES.PED; PRIMES-P2.- MATH ± INSTR

PRIME NUMBERS by MIKE FINK

(C) JAN 1966, MAY 1973, MAR 1990

TO PROVE WHETHER A NUMBER IS PRIME, OR FIND ITS ROOTS IF IT IS COMPOSITE, THE FOLLOWING FORMULAE ARE REQUIRED:

EQ.	1	$N = V + 90C$ SEE EQ.5
EQ.	2	$N = 6n \pm 5$ WHERE $n \neq 5k$ $1 \leq k \leq \infty$
EQ.	3	$N_A = 6n-5$ SEE TABLE 1
EQ.	4	$N_B = 6n+5$ SEE TABLE 1
EQ.	5	$N_A = V_A+90C_A$ $N_B = V_B+90C_B$ SEE EQ.1
EQ.	6	$C = (N-V)/90$ SEE EQ.1
EQ.	7	$N = R_1R_2$ R_1 and R_2 = ROOTS or FACTORS
EQ.	8	$N = (V_1+90C_1)(V_2+90C_2) = V+90C$
EQ.	9	$N_A = X^2-9Y^2$
EQ.	10	$N_B = 9X^2-Y^2$
EQ.	11	$N_AN_{A1}=N_{A2}$ $N_BN_{B1}=N_{A3}$ $N_AN_B=N_{B2}$
EQ.	12	$X_A = (R_1+R_2)/2 = 3(n_1+n_2)\pm 5$
EQ.	13	$X_B = (R_1+R_2)/6 = (n_1+n_2)$
EQ.	14	$Y_A = (R_2-R_1)/6 = (n_2-n_1)$
EQ.	15	$Y_B = (R_2-R_1)/2 = 3(n_2-n_1)\pm 5$
EQ.	16	IF $C_1=0$, $(N-V_1V_2)/V_1 = 90C_2$
EQ.	17	IF $C_2=0$, $(N-V_1V_2)/V_2 = 90C_1$ SEE EQ.8
EQ.	18	WHEN C_1 or $C_2 \neq 0$; $(N-V_1V_2-90V_2C_1)/(V_1+90C_1) = 90C_2$
		$(N-V_1V_2-90V_1C_2)/(V_2+90C_2) = 90C_1$

TABLE 1

n	V_A	V_B
1	1	11
2	7	17
3	13	23
4	19	29
6	31	41
7	37	47
8	43	53
9	49	59
11	61	71
12	67	77
13	73	83
14	79	89

TABLE 1

TABLE 2 VALUES FOR V_2

V_A 1 V_B						V_A 3 V_B						V_A 7 V_B						V_A 9 V_B						
1	4	7	2	5	8	1	4	7	2	5	8	1	4	7	2	5	8	1	4	7	2	5	8	$\Sigma_M R_2$
01	91	31	61	11	41	71	73	13	43	83	23	53	37	67	07	47	77	17	19	49	79	29	59	89	
73	37	67	07	47	77	17	91	31	61	11	41	71	19	49	79	29	59	89	73	13	43	83	23	53	1 $\Sigma_M R_1$
37	73	13	43	83	23	53	19	49	79	29	59	89	91	31	61	11	41	71	37	67	07	47	77	17	
19	19	49	79	29	59	89	37	67	07	47	77	17	73	13	43	83	23	53	91	31	61	11	41	71	
31	61	91	31	41	71	11	43	73	13	23	53	83	07	37	67	77	17	47	79	19	49	59	89	29	
13	07	37	67	77	17	47	61	91	31	41	71	11	79	19	49	59	89	29	43	73	13	23	53	83	4 $\Sigma_M R_1$
67	43	73	13	23	53	83	79	19	49	59	89	29	61	91	31	41	71	11	07	37	67	77	17	47	
49	79	19	49	59	89	29	07	37	67	77	17	47	43	73	13	23	53	83	61	91	31	41	71	11	
61	31	61	91	71	11	41	13	43	73	53	83	23	67	07	37	17	47	77	49	79	19	89	29	59	
43	67	07	37	17	47	77	31	61	91	71	11	41	49	79	19	89	29	59	13	43	73	53	83	23	7 $\Sigma_M R_1$
07	13	43	73	53	83	23	49	79	19	89	29	59	31	61	91	71	11	41	67	97	37	17	47	77	
79	49	79	19	89	29	59	67	07	37	17	47	77	13	43	73	53	83	23	31	61	91	71	11	41	
11	41	11	71	91	61	31	23	83	53	73	43	13	77	47	17	37	07	67	59	29	89	19	79	49	
83	77	47	17	37	07	67	41	11	71	91	61	31	59	29	89	19	79	49	23	83	53	73	43	13	2 $\Sigma_M R_1$
47	23	83	53	73	43	13	59	29	89	19	79	49	41	11	71	91	61	31	77	47	17	37	07	67	
29	59	29	89	19	79	49	77	47	17	37	07	67	23	83	53	73	43	13	41	11	71	91	61	31	
41	11	71	41	31	91	61	83	53	23	13	73	43	47	17	77	67	37	07	29	89	59	49	19	79	
23	47	17	77	67	37	07	11	71	41	31	91	61	29	89	59	49	19	79	83	53	23	13	73	43	5 $\Sigma_M R_1$
77	83	53	23	13	73	43	29	89	59	49	19	79	11	71	41	31	91	61	47	17	77	67	37	07	
59	29	89	59	49	19	79	47	17	77	67	37	07	83	53	23	13	73	43	11	71	41	31	91	61	
71	71	41	11	61	31	91	53	23	83	43	13	73	17	77	47	07	67	37	89	59	29	79	49	19	
53	17	77	47	07	67	37	71	41	11	61	31	91	89	59	29	79	49	19	53	23	83	43	13	73	8 $\Sigma_M R_1$
17	53	23	83	43	13	73	89	59	29	79	49	19	71	41	11	61	31	91	17	77	47	07	67	37	
89	89	59	29	79	49	19	17	77	47	07	67	37	53	23	83	43	13	73	71	41	11	61	31	91	

14 14 14 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 14 14 14 12 12 12 POSSIBLE PAIRS

LEFT-MOST COLUMN CONTAINS V_2 NOS. SQUARES CAN ONLY EXIST WHERE LITTLE NOS. ARE SHOWN

ELITE-PRIMES.PED; PRIMES-P3.~; MATH ± INSTR

PRIME NUMBERS by MIKE FINK

(C JAN 1966, MAY 1973, MAR 1990

MIKE FINK'S REMARKABLE METHOD FOR FINDING PRIMES WITHOUT DIVIDING!!!!!!

1. CHOOSE ANY FAMILY; N=V+90C, SAY, $N_B=V_B+90C$, (EQ.8, P.3)
2. THE LARGEST COMPOSITE NO. IN THAT FAMILY IS ALWAYS KNOWN.
3. CHOOSE N_{BE} LARGER THAN N_B.
4. IS N_{BE} A PRIME?
5. THE BIGGEST COMPOSITE LESS THAN N_{BE} IS KNOWN, ie; N_B
6. THE SMALLEST COMPOSITE BIGGER THAN N_B CAN EASILY BE GENERATED; SEE EXAMPLE BELOW.
7. EVERY NO. IN THIS FAMILY BETWEEN THESE TWO NON-PRIMES, IS, BY DEFINITION, A PRIME !

EXAMPLE: N_B = 77 + 90C = 707 =77+90(7)..LARGEST KNOWN NON-PRIME

LET N_{BE} = 1067; (C_E=11), IS 1067 A PRIME?
ALL NON-PRIMES, IN THIS FAMILY, HAVE ROOTS = R_1R_2= $N_{AX}N_{BX}$= $(V_{AX}+90C_{AX})(V_{BX}+90_{BX})$
R1 MUST BE EQUAL TO OR GREATER THAN 7; SEE TABLES 1 OR 2.

$(V_{AX}+90C_X)(V_{BX}+90C_X)$ = R_1 R_2 = N_{BX}

(91+90Cx) (77+90Cx)	= (91) (77) =	7007	
(07+90Cx) (11+90Cx)	= (97) (11) =	1067	**
(13+90Cx) (89+90Cx)	= (13) (89) =	1157	
(19+90Cx) (23+90Cx)	= (19)(113) =	2147	
(31+90Cx) (17+90Cx)	= (121)(17) =	2057	
(37+90Cx) (41+90Cx)	= (37) (41) =	1517	
(43+90Cx) (29+90Cx)	= (43) (29) =	1247	
(49+90Cx) (53+90Cx)	= (49) (53) =	2597	
(61+90Cx) (47+90Cx)	= (61) (47) =	2867	
(67+90Cx) (71+90Cx)	= (67) (71) =	4757	
(73+90Cx) (59+90Cx)	= (73) (59) =	4307	
(79+90Cx) (83+90Cx)	= (79) (83) =	6557	

** = THE SMALLEST NON-PRIME BIGGER THAN 707 AND LESS THAN OR EQUAL TO 1067. THEREFORE ALL FAMILY NUMBERS BETWEEN 707 AND 1067 MUST BE, AND ARE PRIMES! !

797, 887 AND 977 ARE PRIMES!

THE NOS. USED ABOVE ARE FROM TABLE 2,P.3, AND SHOW THE 12 POSSIBLE V NOS. THAT WILL SATISFY EQ.11,P.3, AND POSTULATE 5,P.2. THE Cx NOS. ARE CHOSEN TO BE IN THE RANGE OF THE PROBLEM.
IT IS NOW OBVIOUS THAT IT IS POSSIBLE TO DEDUCE MULTIPLE PRIMES WITHOUT DIVIDING !!, FOR EACH AND EVERY FAMILY. THE TIME AND EFFORT REQUIRED IS LESS THAN FOR ANY OTHER KNOWN METHOD!!
SOME FAMILIES HAVE 14 COMBINATORIAL PAIRS FOR Σ_M, THE REST HAVE 12.

MIKE FINK
484 W. 43rd ST. 27Q
NY 10036 NEW YORK
212 971 0368 (ring six times)

```
200 *NAME PRIMES-FINKS.BAS
220 A$="PRIMES-FINKS.BAS"
240 REM  SAVED ON A:A1,G:B2
260 REM THIS PROGRAM ASCERTAINS THE PRIMALITY OF ANY NO, LESS THAN A
      BILLION
280 REM TO PRINT PROGRAM ON PAPER, CHANGE W. TO 69
300 REM (C) 1988 MIKE FINK with help from robert fink (saskatoon)
320 INPUT"           N = "N
340 REM
360 REM
380 DV=0:TIME=0
400 IFN = 2 OR N=3 OR N=5 THEN760ELSE480
420 REM
440 REM
460 REM
480 IFN/2 =INT(N/2)ORN/3=INT(N/3)ORN/5=INT(N/5)THEN840
500 DIM X(24)
520 G=SQR(N)
540 X(01)=07:X(02)=11:X(03)=13:X(04)=17:X(05)=19:X(06)=23:X(07)=29:
    X(08)=31:X(09)=37:X(10)=41:X(11)=43:X(12)=47:X(13)=49:X(14)=53:
    X(15)=59:X(16)=61:X(17)=67:X(18)=71:X(19)=73:X(20)=77:X(21)=79:
    X(22)=83:X(23)=89:X(24)=91
560 C=0
580 FORY=1TO24
600   V1=X(Y)+90*C
620   IFV1>G THEN800
640   V2=N/V1:DV=DV+(24*C)+Y-1
660   IF V2=INT(V2)THENPRINT"      V1 = ";V1;"    V2 = ";V2:RUN
680   REM
700 NEXTY
720 C=C+1
740 GOTO580
760 PRINT"           N = ";N;"  IS A PRIME!!";"      NO. OF DIVISIO
NS= ";DV;"  SECONDS=";TIME/100
780 RUN
800 PRINT"           N = ";N;"  IS A PRIME!!";"      NO. OF DIVISIO
NS= ";DV;"  SECONDS=";TIME/100
820 RUN
840 PRINT"     N = ";N;"   IS NOT A PRIME"
860 RUN
```

```
   N = 117   IS NOT A PRIME
         N = 119
    V1 = 7    V2 = 17

   N = 1119   IS NOT A PRIME

         N = 11119  IS A PRIME!!      NO. OF DIVISIONS= 351  SECOND
S=1.52
         N =
```

```
  N = 966666661 IS A PRIME!! NO. OF DIVISIONS = 34,357,905
                             NO. OF SECONDS   = 206.06
```

THIS PROGRAM RUN ON A 2 POUND PORTABLE THAT I SELL, YOU NEVER NEED TO LOOK FOR WALL ELECTRICITY....IT RUNS FOR A WEEK ON 4 DUBL A'S AND CAN RUN FOR 3 MONTHS WITH MY 1 POUND BATTERY PACK!!

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1) CABLE ARCHIVE ISSUE DISK - Written by Bill Cable. Contains many useful ARCHIVE programs that work on any ARCHIVE database. The titles include: DIR (directory within ARCHIVE), SCAN (quick database display and print), FREQ (Frequency distribution of a field), SPLIT (split 1 database display and print), JOIN (join 2 databases into 1), REFIELD (redefine field names), REPLACE (replace text within a database), MATCHER (find duplications in a database), WINDEX (word index any text file), GROUP1, GROUP2, GROUP3 (useful procedures from UPDATE articles), QUERY (interrogate any database). Also included are extensive DOC files about the programs and about ARCHIVE in general. The price is $20.

2) QLUSTER 5s109 ISSUE DISK - This great program by Al Feng provides you with many utilities to handle and unclutter your disk and microdrives, and it now supports sub-directories. Some of the features concern COPY, DELETE, FORMAT, VIEW, as well as extended use of some TK2 commands (needed for this program). These are TURBO compiled to add speed to the program. It will multi-task and allows you to use minimal keypresses to get the job done. This program has had some major upgrading and bug fixing over the years and is Minerva compatible. The price is $15.

3) QLuMSi DOS 4.30 ISSUE DISK - Al Feng also extensively updated this recently. This is both an MSDOS simulator and a front end program for the QL. It also has other programs on the disk to enhance file management and the cloning of other programs. Educational as well as useful. The price is $20.

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We here at UPDATE encourage all of you programmers out there to submit to us possible future Issue Disks, with DOC files. You won't get rich, but you will possibly make some money and get to help others. Royalty payments are usually twice a year, based upon previous sales.

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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 usually filled with various utility programs taken from the issues of UPDATE, shareware or public domain. On most of these, half 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. To have your particular disk system supported here requires that someone write or alter the software from one system to the other. We are always open to your help and suggestions, but have limited time and programming resources available here. The prices are as listed beside each piece of software. We can provide all but 3" disk formats as far as size and disk density. We accept cash, checks, money orders and C.O.D.

1) THE WIDJUP COLLECTION, contains most of the popular programs formerly offered by WIDJUP and written by the late Bill Pedersen. This is a two disk set, and does not include his CAD Program. It contains editors, printer drivers, games,TS2068 tutorials, etc. This is a new release and we will have more about it next issue. In Oliger or Larken disk formats. The price is $20.

2) WIDJUP'S CAD PROGRAM, a long time favorite that will give you professional results from your TS2068 in the area of computer aided design and the development of printed circuits. With the right graphics it has been also used to print a page for desk top publishing, or computer art. It requires no expanded memory and is available for the following setups: (a) Oliger, for either the Olivetti Ink Jet printer, or for IBM compatible printers. (b) Larken for IBM compatible printers or for the Olivetti Ink Jet printer. Please specify disk size, format and printer type. The price is $20.

3) OLIGER DISK DRIVE BBS PROGRAM, this creates a single user BBS program, with several message bases, E-mail, and SYSOP Chat area. We have also added many other Oliger disk programs to this collection, as well as some playtime. This was written by Paul Holmgren. The price is $20.

4) 24-PIN BIT IMAGE GRAPHICS FOR 24-PIN OR BUBBLE JET PRINTERS, for Epson emulation modes, by Larry Crawford. This program takes the mystery out of graphics and some of the newer printers out there on the market. We also include some extra software with this one, and for just $15. It is available in Larken and in Oliger disk formats.

Needless to say we are always interested in a new issue disk we can present here for our readers, so those who are out there writing programs, send them to us to look at. This helps to keep the TS2068 alive. It is also a way to pick up some pocket money. We usually make royalty payments twice a year based on previous sales.