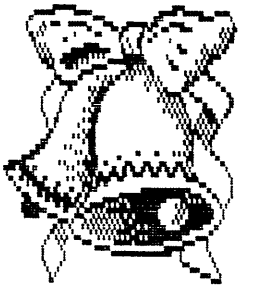
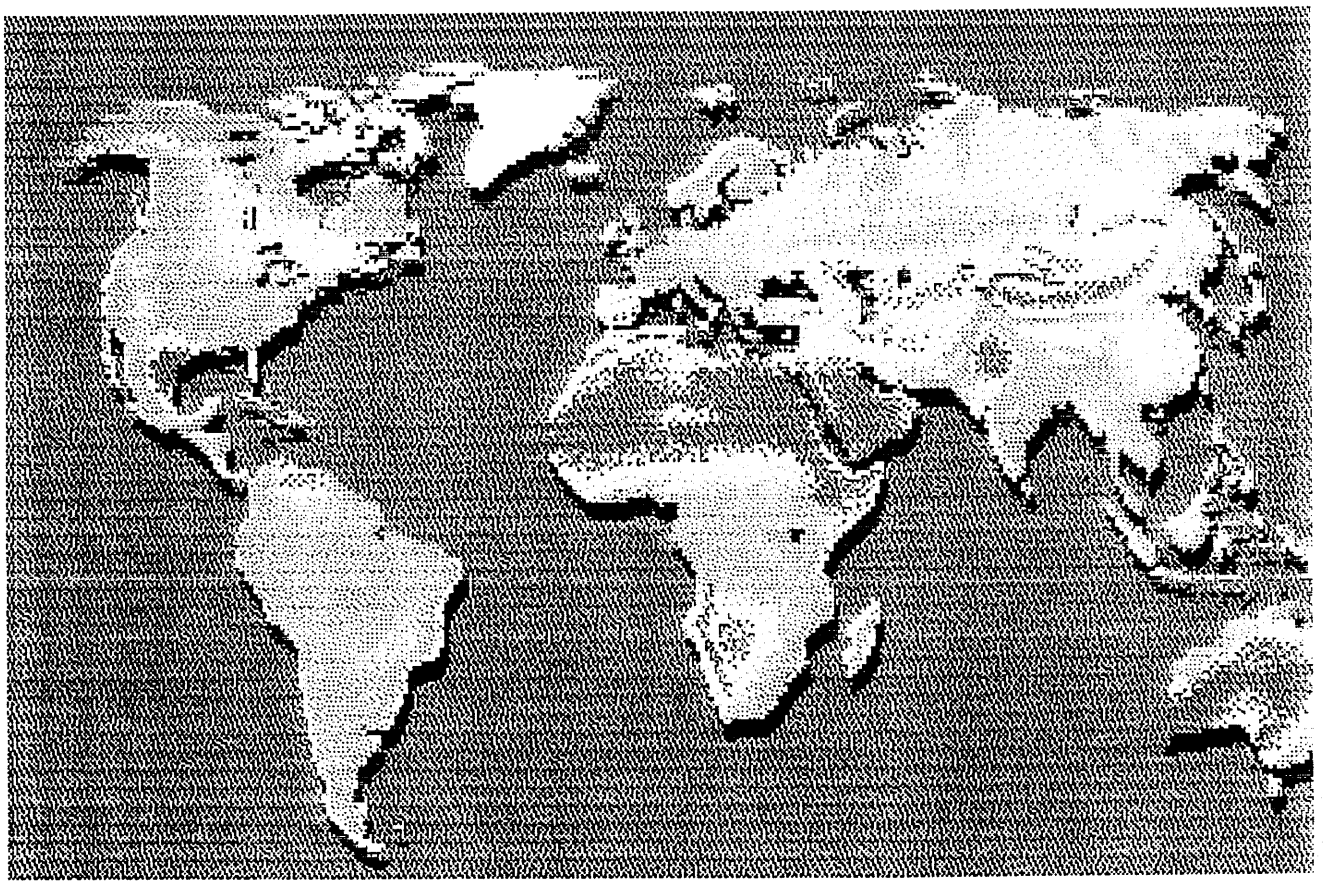
SINC-LINK



NOV-DEC '92 VOL 10-6



1992 HOLIDAY ISSUE

TORONTO TIMEX-SINCLAIR USERS CLUB

SINC-LINK

NOV-DEC '92 VOL 10-6

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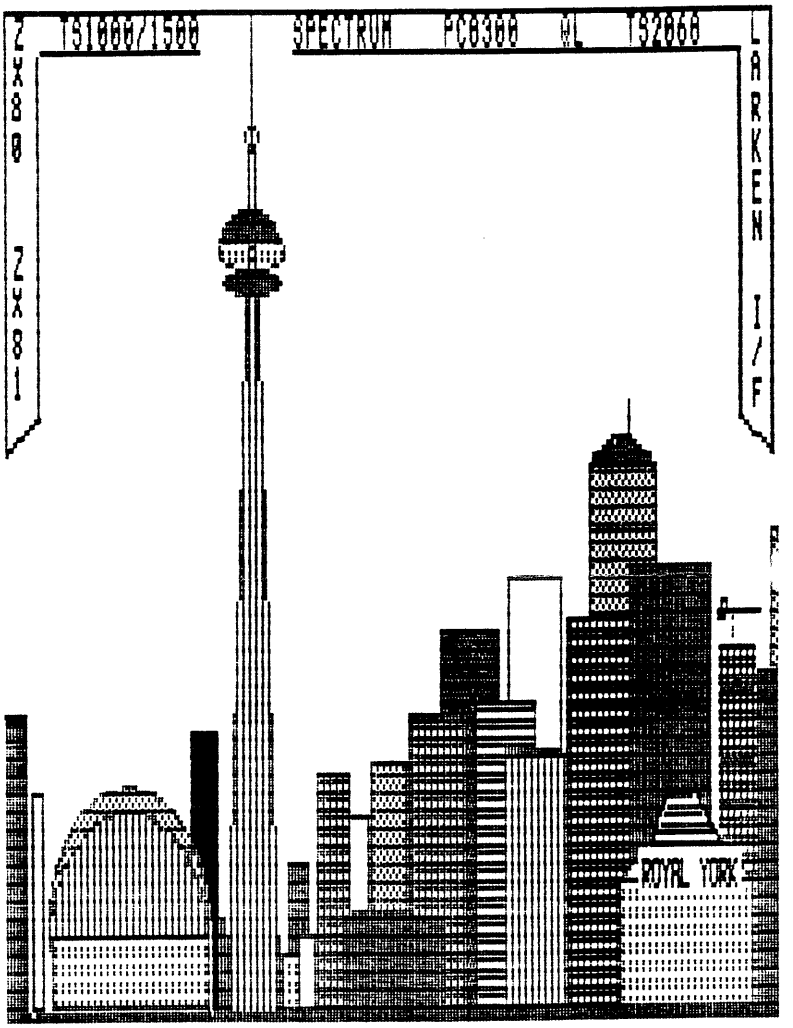
THE TS2068 & ZX-81 GROUP MEETS ON THE FIRST WEDNESDAY OF EACH MONTH AT 14 RICHOME COURT, SCARBOROUGH, ONT. 7PM START.

THE QL SIG WILL MEET WEDNESDAY, NOVEMBER 18TH AT 586 ONEIDA DRIVE, BURLINGTON, ONT. 7PM START. DECEMBER DATE TBA.

SINC-LINK IS PRODUCED ENTIRELY ON SINCLAIR AND TIMEX-SINCLAIR COMPUTERS.

SEND CORRESPONDANCE TO:

Attention: SINC-LINK EDITOR
TORONTO TIMEX-SINCLAIR USERS CLUB, 14 RICHOME COURT,
SCARBOROUGH, ONTARIO,
CANADA M1K 2Y1



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TORONTO TIMEX-SINCLAIR USERS CLUB

Editorial

Dayton

Well, a few things have happened since last issue. Pres Rene Bruneau's family and the Taylor family made our respective ways to the Computerfest in Dayton, Ohio at the end of August. Rene and I decided that we wanted to see what kind of Timex-Sinclair exhibits were still being put on these days, not to mention the fact that we were both anxious to visit the USAF museum out at Wright-Patterson Air Field. We weren't disappointed. By the way, the Taylor family made the trip from Toronto to Dayton in just 7 hours, moving at slightly faster than the speed limit. So for those of you thinking about making the trip next year, it's not that far. A little over 400 miles.

At the Fest we met such notables as Don Lambert from ZXir QLive Alive fame, Bill Pedersen from WIDJUP, Frank and Carol Davis from Update Magazine and his Mechanical Affinity partner, Paul Holmgren. We missed making connections with the SMUG folks who were there with a table of stuff but were never there when we visited. Mechanical Affinity had a good selection of T/S bits at their large table and Update was offering a lot of documentation.

Later Saturday evening Rene and I met Bill and Frank and we discussed various topics about T/S computing well into the wee hours. Bill also demonstrated some of the hidden features of the TS2068 and explained why areas of the ROM have been masked. He also showed us a few features of his CAD program for the 2068. Very interesting.

For members looking for lots of new Timex-Sinclair products, the trip might be disappointing. But if you have interests in other computers as well, then the trek down to Dayton may be justifiable. And the museum is definitely worth visiting. I know I'll be back next year.

Club Meetings

The November club meeting will be our last at Forest Hills Collegiate. The difficulties in access to the school, to parking and to getting all our gear to the new classroom (up and down several flights of stairs) have necessitated a change in venue.

Starting in mid-November, the QL SIG will be meeting at Hugh Howie's home in Burlington about every month to 6 weeks. The TS2068 and ZX-81 types will continue to meet on the first Wednesday of the month, but at George Chambers home in Scarborough. Both places are easier to get to than the school, have adequate parking and both have the advantage of not having to move equipment about for demonstrations. See the blurb on the inside cover for times and addresses.

Executive

All the existing members have agreed to continue in their respective capacities except for Rene who will be away on an intensive programmers course for the next few months. In his absence, I will act as interim Pres until he returns. We had an executive meeting in late October at my place to discuss the changes to meetings, course of action and an interesting mailing experiment. More on that next issue.

P.S. Check out the plea next page. Jeff Dodds came to our meeting last month and asked for assistance. Can you help? That's all for now... J.T.

Plea for Assistance for the Disabled.

Apart from being a member of QUANTA, I'm also a member of a voluntary organisation called REMAP. REMAP stands for Rehabilitation Engineering Movement Advisory Panel, and we work with local occupational therapists, looking at the needs and desires of the disabled in the community and advising on what aids are available and/or suitable. Where nothing quite fits we try to design something.

Most recently we have been dealing with residents in a Home for the Disabled, several of whom are more or less paralysed from the neck down.

These people have the same needs as everyone else. They need to eat, they like to read, they have itches to scratch and a myriad of other things to be done. Unlike you and I though, these things have to be done for them. I know there are things to do all of the above, but they are expensive and individual. You require one item for each of the above functions, each requiring space where space is often at a premium. I am trying to design a voice-controlled robot arm to do all of the above things for them.

Back home I can buy ZX81 mother boards for about $30, and I can build an arm using stepper motors for less than $100, so a ZX81 controlled arm is well within the bounds of possibility.

And now, the appeal. Back in the early eighties in Britain, a firm known as William Stuart Systems Ltd., produced a black box and some software for use on home computers of the day. ZX81, Spectrum, Atari, Amstrad, Pet, Philips, etc., The package sold for about $100, as "BIG EARS", and provided a voice-controlled cursor on screen. The company has now closed down and can't be traced.

So if anyone out there has heard of "BIG EARS" or its equivalent on this side of the water, if anyone has the package languishing in attic, garret or dungeon, PLEASE? PLEASE, PLEASE get in touch with me.

By the time this is published I'll be back home where I can be reached at the following address:-

J. R. Dodds
87/53 Pennywell Gardens
Edinburgh. Scotland.
EH4 4TF

9/4/92

Mr. Jeff Taylor, Editor
Toronto TIMEX-SINCLAIR Users Club
335-75 Lemonwood Dr.
Islington, Ontario M9A 3L4

Dear Jeff,

I was happy to meet you at Dayton. You are the only Toronto members I can remember meeting except for Larry Crawford, but then, my memory is not that good anyway, as you might have noticed.

The (to scale) EPSON Printer graphic you could not XEROX was a XEROX, and a poor one at that. A direct hi-rez printout is enclosed.

Because the graphic uses very narrow lines, it might seem that they are too light to copy. Unlike DRAFT mode, individual dots are connected. Good XEROX copies can repeat this fine detail without darkening, though some can improve general appearance. (It was printed using a 24 pin printer and HP graphics language from ASCII files.)

I had meant to do the same for 24 pin printers, but doing an honest job requires six pages; and even then, organizing them in a clear manner requires quite a bit of supporting text.

In the same vein, it is actually possible to get 360 horizontal dots per inch on an FX80 using multiple passes and intermixing character and graphic modes. Explaining how this is done in print — forget it! It involves printing blanks using PICA, backspacing using ELITE, and then going to a graphic mode for one example. Because added resolution using six passes does not appreciably improve CAD, it was not used.

With a humungous amount of work I can capture screen images which happen to contain gray-scale windows from a multimedia encyclopaedia. Getting these onto a TIMEX-SINCLAIR disk isn't easy, nor would copying a hex printout by hand. That is why I'm looking forward to getting a file from you containing A2D encoded pixel data along with a simple description of how the file is encoded and what it portays.

As with CAD, different printers work best with particular methods of "dithering" and gray levels. The same applies to screen video modes. The TS2068 is most amenable to 4x4 pixel "gixels" giving 17 shades. That requires a file 4 bits "deep", that is, 4 bits per pixel usually packed two pixels per byte. An uncompressed TIFF file is often exactly this format.

TV pictures can be quantized in many different ways, but what is nearly universal is real-time sample intervals integrated and then converted to digital form as scanning continues. These digitized samples are usually blocked by scan line and field. Two fields comprise one frame. One full interlace frame contains 525 lines, only about 400 represent picture data. The rest are border, vertical retrace, color burst and sync pulse templates.

The TS2068 has 192 non-interlaced scan lines of data out of 262. The horizontal scan frequency is exact, but the vertical is fast by 525/524, not enough to bother.

A single field with 256 samples per line would supply enough data for 16 screens of panned dithered display or dot matrix dump output. It would also fill a landscape oriented printed page. Fewer samples per line could be used, but then dithering routines have to integrate samples from two or more scan lines for each gixel.

For best results, no fewer than 128 samples per line should be used with no less than four bit gray resolution. The absolute minimum is 64 samples per scan line at 3 bits per sample. Anything less yields strictly amateur results by comparison. More gives an opportunity to correct for factors like overexposure and printer "gamma". Gamma is a correction factor which can make the screen and the printed page look identical viewed side by side.

Round dots, whether from pin impacts or ink droplets have difficulty in registering near-black detail. Dots overlap long before they completely cover the area. One common partial cure is to re-define a square array of four almost obliterating dots as a single pixel before creating gixels. A very few printers actually have square pins.

When round dots must be used, and only 17 gray levels (nonlinear) are used per gixel, samples 6 to 8 bits deep can be mapped using a pallet to correct for nonlinearity.

Other problems exist for printers with different sizes of pins, pin spacing, and dot pitches. Some laser printers operate like they have nearly square dots, too. A few special tests can determine that.

In spite of the complexity of visual presentation, the computer can do near miracles when given enough data. Programmers should never forget that taking convenience short-cuts is hazardous to results. This is especially true when learning about what is being done.

If I can, I plan to come out with my own DOS some time next year. This development will apply to all TS2068s and clones wherever they are. It all hinges on getting my ROM BYPASS to work like the TIMEX BEU without having to open the case for modifications.

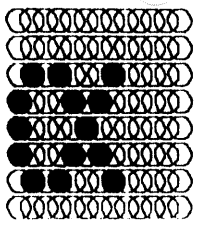
In case LARKEN faithful are worried, just don't change a thing. Of course they won't be able to use expansion bus bankswitching because both LKDOS and JLO SAFE wrest priority from the operating system. I have not yet found a suitable way to negotiate this difficulty, descended from Interface 1. I surely don't want to propagate that problem to still another tier. If others try to merge the systems I advise caution and realization of the consequences of good intentions.

Hangin' in there, baby,

Bill Pedersen

The EPSON 9-Pin Printer

ENHANCEMENTS



1/144" Horizontal
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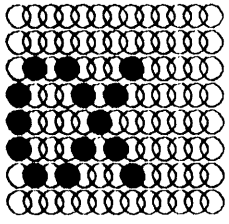
Draft ELITE

78%



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GRAPHICS Modes 1, 2
Draft PICA

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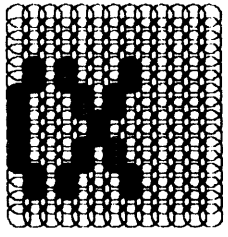
DOUBLE STRIKE



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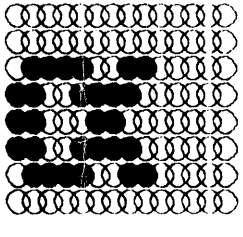

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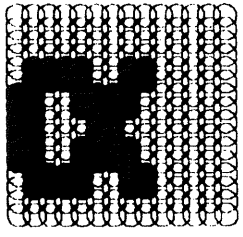
BOLD &
DOUBLE STRIKE



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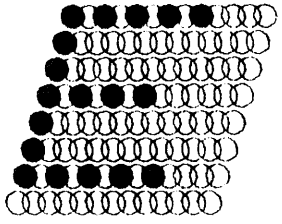
ITALIC



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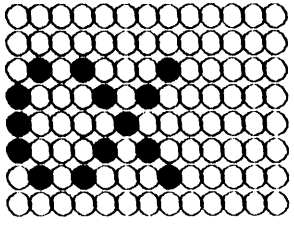
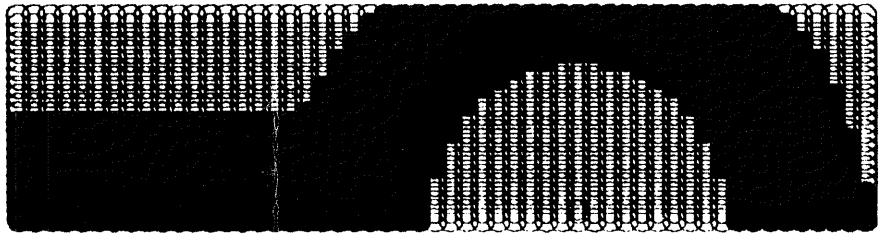


1/90" Horizontal
1/72" Vertical
GRAPHICS Mode 6

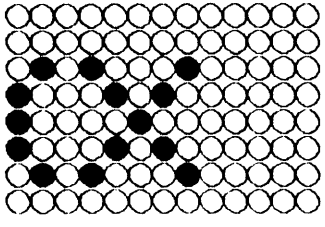
62%

HIGH RESOLUTION LINE GRAPHICS



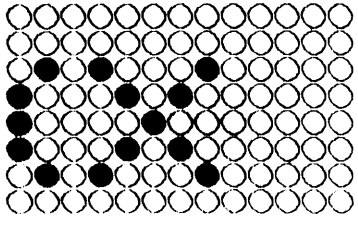
1/120" Horizontal
1/216" Vertical
Three Passes
GRAPHIC Mode 1

100%



1/80" Horizontal
1/72" Vertical
GRAPHICS Mode 4

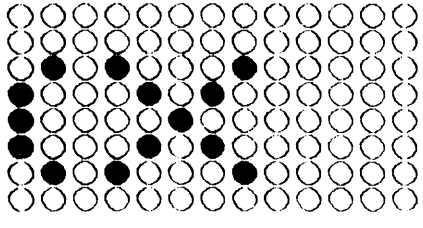
55%



1/72" Horizontal
1/72" Vertical
GRAPHICS Mode 5
(Square Array)

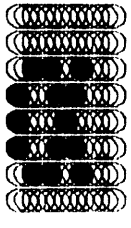
49%

Pins are spaced 1/72" (.0139) apart vertically.
Pin diameter is less than this, about .011".
It is impossible to get full density in a single pass.
The approximate attainable density is shown for each horizontal dot pitch.



1/60" Horizontal
1/72" Vertical
GRAPHICS Mode 0

41%



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GRAPHICS Mode 3

82%

SINC-LINK

Q L I P S

by Hugh Howie

C H U C K Q U I L L O U T ? -------- N O S I R R E E

Each new word processor to come on the market is extolled to make the use of Quill obsolete. These statements are mere ramblings and ravings of the producer of this new "ya gotta have this" item just to make you rush out and buy this new and improved and out of this world word processor.

I am using Quill to write this letter to-day, and I have to admit I can not do as fancy a job as with my regular word processor. But then again, I cannot use my regular word processor on a plain jane 128 K QL either. Most of the new w/p's require quite a bit more than 128 K to operate, and those that might be able to fit into the standard QL do not leave much if any, room for the document.

Another little thing the producer of the new W/P tells you, is that the new W/P retains many of the Quill key press functions, so there is not all that much to relearn.

You will also note that those new W/P's do not replace each other, they are supposed to replace Quill. Why is everyone so down on Quill?

Compared to many W/P's Quill is very easy to use and does not require a long learning period. You can sit down and write a letter with Quill with only a few minutes study, and still make an acceptable job of doing so.

It is also the one Word Processor that each and every QL user has in common. We ALL have it, and we are all capable of writing with Quill.

Every programmer uses Quill to write the explanation of how his/her program operates. This is because the programmer KNOWS that we all have Quill. What a great honor it is to be recognised as being so popular.

Every new W/P has the facility to import Quill as a QUILL_DOC file.

Quill has been in use for about eight years, that's right, count them! And they are still trying to replace it!

I must admit that those new W/P's are really nice to work with once you learn the intricasies of their use, but we still need our old stand-by Quill, so why not use it.

Write to this Newsletter to-day, right now. USE QUILL. The only Word Processor that is common to ALL QL users.

CHUCK QUILL OUT? NEVER.....

Quill is still being used by programmers for their doc files, and I am using QUILL to write this article. Not bad for a program some are trying to replace, EH?

Ronald M. Cavin II
1741 Marshlyn Ct.
Columbus, OH 43220 U.S.A.
614/538-1808

Dear George,

I hope some of our readers found the last article interesting! I've found this venture fascinating. I'll try to keep going as long as the readers want. I believe this may breathe some much needed new life in our little boxes.

Enough preliminaries, on with the show. As I mentioned last article, we now need to transfer our copy of rom from the Spectrum to the IBM. If you read the issues of SINC-LINK as I suggested, you're probably way ahead of me. However, for those who didn't, for whatever reason, we'll briefly cover this ground.

What you will need is an appropriate RS-232 cable, a NULL MODEM, and terminal software for both computers. Again, let me recommend Rene Bruneau's work in the NOV-DEC '91 issue, and Bob Mitchell's letter in the MAR-APR '92 newsletter. These two readings will provide you with much more detail than we intended to enter into during this series. However, if there is enough demand for these particulars again, I'm willing to set them out on paper.

As I said last time, my IBM has an internal 2400 baud modem. Attached to the Timex is an AERCO version of the Z-SIO card. Thus my transfer rate is limited to 1200 baud! I am using MAXCOM, by Larry Kenny, on the Timex, and a program called Telix, written by one of your fellow Canadians, on the IBM.

Connect the computers, placing the NULL MODEM between them. Start both terminal programs, making sure each machine is set correctly in software, i.e. COM port, baud rates, UART setup (8/1/N), and XMODEM protocol. Be aware that XMODEM will add 128 bytes to your transfers! Thus, when you look at the file size on the PC, it will be 16512 long! This phenomenon is not new! Normally this doesn't mean much. However the Spectrum emulator program JPP-B2.EXE expects to see a file EXACTLY 16384 bytes long. We'll have to do a little editing on the file.

Start your transfer! Tell MAXCOM to send (headerless), and the IBM to receive SPECTR.C1. You should observe some type of visual confirmation that the transfer is in process. On my setup, MAXCOM displays a (+) character for each block sent, while Telix has a large status box which show the bytes received, CRC errors, etc. Once the transfer is done, both computers will indicate so. Maxcom gives a screen message, while Telix gives both visual and audible indicators. Before next issue, see if you can locate a Hex editor for your IBM.

Ronald M. Cavin II
1741 Marshlyn Ct.
Columbus, OH 43220 U.S.A.

Dear George,

By now I would expect that many of you IBM-TIMEXERS have obtained a copy JPP.EXE. We will fire it up by the close of this article. So lets go!

We left off last time at the termination of the rom transfer. Somewhere on your IBM you should have a file called SPECTR.C1, which is a image of the Spectrum rom. Also remember that the file will be 128 bytes larger than we want, i.e. 16512 rather than 16384. Since the emulator expects to see an exact image, we will have to delete the extra bytes. Without doing this the emulation program will never work!

Let's get rid of this excess baggage! I suggested you obtain a HEX editor for your clone to make this easy. Some may want to use DOS DEBUG, but I prefer a little program called HEXEDIT. It is only program I've found that allows you to easily delete and insert bytes in these type files. (For those who didn't know, I have provided George Chambers with a copy of ALL the files I have mentioned in these articles, with the exception of MAXCOM. I don't think he would have a problem providing you a copy if you ask him.)

Call up your editor, and using the appropriate commands, GOTO the files' absolute location 16383. This should be a 3C in hex format. Following this byte should be 128 bytes of 20H, caused by the XMODEM protocol. DELETE ALL THE BYTES FROM LOCATION 16384 THRU 16512! This will leave you with a file 16384 bytes long. How nice! Save it to disk. NOW RENAME FILE FROM SPECTR.C1 TO SPECTRUM.ROM. Create a subdirectory, by the name of SINCLAIR, and copy JPP-B2.EXE and its associated files, along with the file rom image into it.

Just a little more work before the moment of truth. There should be a file in your SINCLAIR subdirectory named PATH.JPP. Use an ASCII text editor and make the two lines read like those below:

```
*.SNA = . ; C:\SINCLAIR
*.ROM = . ; C:\SINCLAIR
```

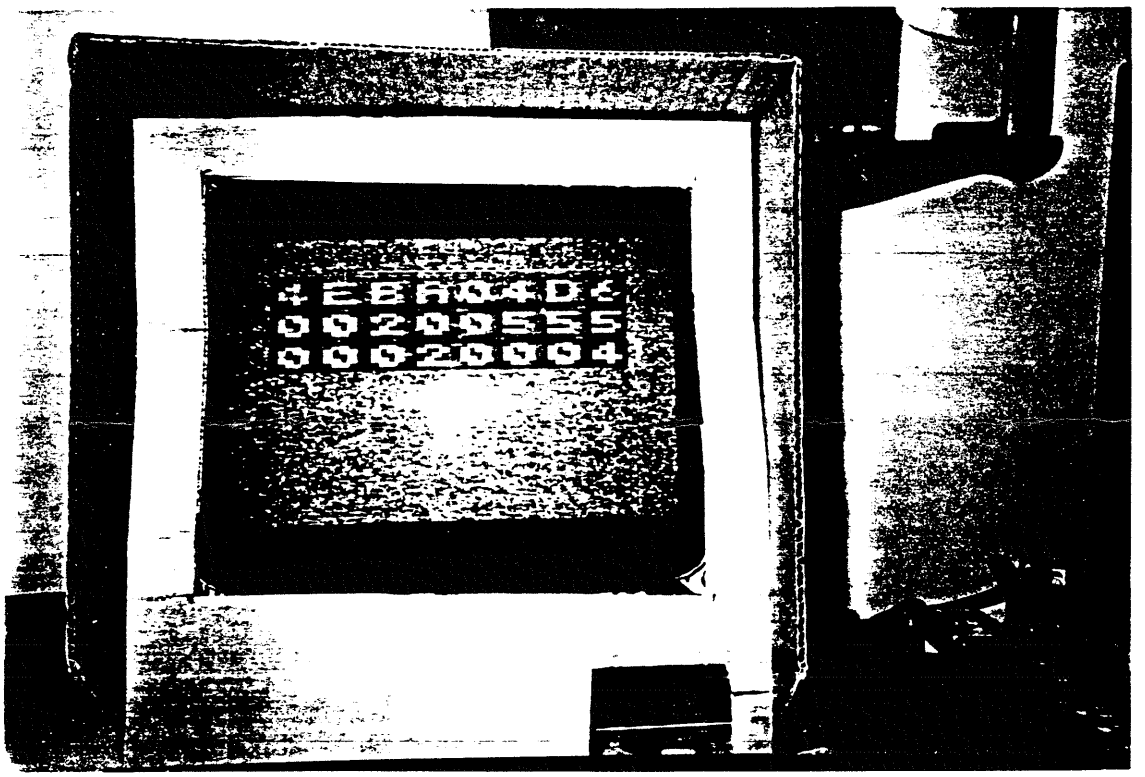
Save this file under its original name i.e. PATH.JPP. Now, for the moment you've been waiting for. Make sure you are in the SINCLAIR subdirectory, type JPP and hit ENTER. What you should have is a message like the one below:

```
JPP beta, built 19/03/92 20:39:56 mail bug reports etc to
arnt@swix.ifi.unit.no
Using "c:\sinclair\spectrum.rom" as ROM image
Press any key to return to emulator
```

Hit the ENTER key and watch him fly!! the F12 key will return you do DOS. We'll try to get a program going by next issue.

QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL

MY PURPOSE IN WRITING IS TO TELL YOU ABOUT THE PROBLEMS 'CHALLANGES' THAT SEEM TO HAUNT MY **QL**. I BELIEVE THAT LIVING ON THE 18th FLOOR OF 22 STORY BUILDING HAS A LOT TO DO WITH IT. FOR EXAMPLE. THIS ATTEMPT IS THE FOURTH AND THE ONE THAT HAS PROGRESSED MOST, IN WORDS TYPED AND SAVED. TWICE THE CURSOR DISAPPEARED AND THE MACHINE LOCKED UP. THE THIRD TIME, WHEN RELOADING THE PROGRAM, I GOT A **READ/WRITE FAILED** MESSAGE. I GAVE UP AND WENT FOR SUPPER.



THE PHOTO WAS TAKEN IN JUNE. I WAS WORKING WHEN, ALL AT ONCE THE MONITOR BLINKED. THE START SCREEN APPEARED FOLLOWED BY THE WINDOW OF LARGE PRINT, OR SHOULD I SAY SUPER LETTERS & DIGITS. THE SECOND PHOTO (NOT SHOWN) INDICATED THAT THE INFORMATION, IN THE WINDOW, WAS CONTINUALLY CHANGING. I SHUT THE EQUIPMENT DOWN RATHER THAN WAIT TO THE END. LATER, A MONTH OR TWO, AT LEAST. THE SCREEN DISPLAYED, WHAT I THOUGHT WAS **'CODE'** AND SHORTLY AFTER RESETTING THE MACHINE. THE SAME THING HAPPENED, EXCEPT THIS TIME IT **'SCROLLED'** THE CODE AND I WONDERED IF I HAD JUST SEEN THE **'ROM'** GO BY. I'VE BEEN MOVING STUFF AROUND AND HAVE MADE MANY SAVES AS WELL AS TWO PRINTINGS AND WE'RE STILL GOING STRONG. DO YOU THINK IT'S THE **BUILDING???** **CONTINUED NEXT PAGE.**

QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL QL

ANOTHER CHALLENGE THAT OCCURS FROM TIME TO TIME IS **DOUBLE LISTING** IN THE DIRECTORY. THE SAME NAME LISTED ONE BELOW THE OTHER. I HAVE BEEN TOLD THAT I MUST HAVE PLACED AN EXTRA SPACE, WHEN SAVING, THAT DOES NOT SHOW UP IN THE LISTING. I HAVE TRIED TO PUT IN EXTRA SPACES BUT I'M SURE THEY ARE NOT INCLUDED IN THE SAVE. I HAVE COPIED TO ANOTHER DISK. THEN **DELETED** THE NAME AND ONE OF THE TWO REMAINS. THEN TRIED TO **DELETE** THE OTHER AND AM ADVISED **PROGRAM DOES NOT EXIST.**
I HAVE COPIED THE DISK, TAKEN DOWN THE NUMBER OF SECTORS USED DELETED THE FILE TAKEN THE NUMBERS AGAIN AND FOUND THERE IS STILL SOMETHING IN MEMORY EVEN THOUGH A REQUEST TO LOAD IS RESPONDED TO WITH **PROGRAM DOES NOT EXIST.**

RECENTLY, MY # 2 DRIVE BEGAN TO ACT UP. IT DEMONSTRATED THIS BY LISTING APPROX. 7 LISTINGS WHEN I KNEW THERE WERE 69 FILES ON THE DISK. I PROVED IT BY PLACING THE DISK IN ANOTHER DRIVE AND REQUESTED A **DIR** AND GOT THE RESULT I WAS EXSPECTING. I LEARNED FROM LOUIS LAFERRIERE THAT THE SLIDES FOR THE **HEAD** PROBABLY NEED A POLISH. SO. I SHUT THE SYSTEM DOWN, UNPLUGED THE POWER SUPPLY, REMOVED THE DRIVE FROM ITS CASE, REMOVED TWO SMALL GROUPS of lead connectors and two screws. This allows the removal of the top board and exposes the head mechanism. By wrapping an inch wide strip of (soft) cloth around the guide rod, working the cloth up and down, you remove any build up of dust etc. The head can be slid back and forth to allow you to get at most of the guide rods. Reassemble and test. My effort paid off immediately. One might get the idea that he knew what he was about.

ON BOARD THIS **QL** IS A **MINERVA ROM** INSTALLED BY GEORGE CHAMBERS. FOR A LONG TIME AFTER, WHEN THE SCREEN THAT TELLS WHAT IS CONNECTED. i.e. CARE QJUMP TOOLKIT VER. 2.09 @ 1984 AND UNDER THAT, CUMANA DISK INTERFACE VER 1.14, WHICH was REPEATED THREE TIMES. RECENTLY I READ ONE OF HOWARD CLASES' ARTICLES WHERE HE EXPLAINED WITH MINERVA, ON POWER UP THE CHECKING SYSTEM MAY PASS BY THE PARTICULAR SPOT AND EACH TIME IT WOULD REPORT AND RECORD. MY APOLOGIES TO MR. CLASE FOR THE TERMINOLOGY AND MY THANKS, AS I OFTEN WONDERED WHY THERE WERE THREE PRINTINGS. BY THE WAY IT DOESN'T HAPPEN NOW?

IT IS NOTED THAT MY LAST 'CONTRIBUTION' TO THE NEWS LETTER APPEARED IN THE JUL/AUG 1989 ISSUE. SO I WILL TAKE THIS OPPORTUNITY TO SAY THANKS TO ALL THE OTHER CONTRIBUTING MEMBERS, WHO HELP ME LEARN MORE ABOUT **QL SUPERBASIC** AND TO THE **LOCAL CLUB MEMBERS.**WHO MAKE **COMPUTING** POSSIBLE FOR ME.

W K (BILL) LAWSON

TS 2068 BASIC TUTOR
by Warren Fricke

SCREEN$

SCREEN$ is a very useful function on the TS2068 but it has a few limitations that are well known. It has two principal uses. One is to SAVE a screen to tape. This is explained on pages 160 and 161, and appendix A of the manual. From these sources we learn that....

SAVE "PROG" SCREEN$, really means

SAVE "PROG" CODE 16384,6912

The 6912 bytes of memory starting at address 16384 include the entire display file and all of it's attributes. Hence all characters, including graphics and colour, are SAVEd by this procedure. We may use either of the above two lines to do so.

SCREEN$ has a second use, and that is to identify individual characters, given their screen line, L, and column number, C, as in....

PRINT SCREEN$ (L,C)

Used this way SCREEN$ is colour blind and a bit myoptic. It can only recognise single block characters whose code is between 32(space) and 127(copyright symbol). It cannot distinguish between inverse and normal characters, seeing them only as normal, and it does not see graphics at all. These characteristics of SCREEN$ can be demonstrated by the following routine:

```
 10 PRINT "CHAR- CODE SCREEN$  CODE   LEN "
 20 PRINT "ACTER  OF   (L,C)  SCREENS SCR."
 30 PRINT "      CHAR.                 (L,C) (L,C)"
100 FOR n = 5 TO 21
110 INPUT a$
120 PRINT AT n,1;a$; TAB 7; CODE a$; TAB 15; SCREEN$ (n,1);
    TAB 22; CODE SCREEN$ (n,1); TAB 30; LEN SCREEN$ (n,1)
130 NEXT n
```

This routine when RUN will ask for the INPUT of a single-block character. Any character may be entered in response: normal, inverse, graphic, etc. The routine in turn will print out a single line of information on such character, all of which concerns it's appearance to SCREEN$.

The first two columns confirm the character that was INPUT and show it's correct code, if it has one. Inverse characters have no code and are assigned inverse control code 20. The last three columns show the way that SCREEN$ sees this character; what character it sees, what code it assigns to the character, and it's LENgth. This knowledge enables us to use the function correctly.

FIGURE 1 is a screen dump of the results from a number of characters entered. The first character was a solid square made by using graphics mode and the shifted 8-key. The second character was a solid square made using inversed video with the space bar. The third character was made in graphics mode using the 8-key. The fourth was a space from the space bar alone. Note that SCREEN$ by the results in the last three columns, sees no difference. In all cases SCREEN$ sees these characters as though all were made by the space bar alone.

Next there are some mixed normal and inverse characters. To SCREEN$, inverse and normal are both seen as normal. SCREEN$ cannot tell the difference between them.

Then lump all kinds of graphics together. SCREEN$ does not see them at all, because it reports them as having zero code and zero LEN, and empty string. Go back to the solid blocks at the beginning of the dump. SCREEN$ saw them all as spaces as it gave them a LEN of one. Nothing at all and space are two different things, so SCREEN$ differentiates to this extent.

SCREEN$ and PRINT POSITION

SCREEN$ is used in many game programs to detect the presence of a particular character in the PRINT POSITION. This is the block on the 32 x 24 grid of the screen where the very next character will be printed. One of the system variables keeps track of this for the computer because the position constantly changes as the program runs.

To demonstrate PRINT POSITION we will start with a simple common program that does nothing more than move a player's piece, or puck, around the screen by touching one of the four arrow keys. We will call the program FOUR-DIRECTION MOVEMENT...

```
 10 LET l=10: LET c=15
 30 LET ll=l: LET cc=c
 40 LET l=l+(INKEY$="6" AND L<21)-(INKEY$="7" AND L>0)
 50 LET C=C+(INKEY$="8" AND C<31)-(INKEY$="5" AND C>0)
 60 PRINT AT L,C;
 80 PRINT "*"
 90 PRINT AT LL,CC;" " AND (LL<>L OR CC<>C): PAUSE 0
100 GO TO 30
```

Note that lines 60 and 80 usually appear as a single-line reading:
PRINT AT L,C;"*"

We have split it into the two separate instructions, where to print and what to print. The reason will soon be clear. Try it out as shown.

We are now ready to include some targets, a single character in this case, designated by b$. The following additional lines will generate up to 35 such random targets, distributed randomly over the screen.

```
2  INPUT b$
4  FOR  n = 1 TO 35
6  PRINT at 21*RND, 31*RND; b$
8  NEXT n
```

Now we can RUN the program again and when asked for b$, enter the letter "o" or "X" for the time being. Move the puck about and it will wipe out the targets as it passes over them.

In a game program some additional action is usually taken when the puck hits a target. So we'll add another line asking SCREEN$ to look at the PRINT POSITION contained in LINE 60 and to take some special action if a target happens to be there before the puck is printed over the spot. Again, for the sake of simplicity, the action will be just a BEEP.

```
70  IF SCREEN$ (L,C) = B$  THEN BEEP .05,25
```

We can also use SCREEN$ in a negative sense by rewriting line 70 to read:

```
70  IF SCREEN$ (L,C) <> "" THEN BEEP .05,25
```

Now RUN the program and enter any character with the CODE of 33 to 127. Enter the character, not the CODE number. Move the puck about and we should get a BEEP each time a character is hit. Try running the program and entering inverse characters or some graphic ones. They do not work, and now you know why.

Now we can use anything at all for a target as the field has only targets and spaces. There is only one drawback. SCREEN$ does not know the identity of the targets. It only knows that they are not spaces. In some game arrangements this is all that needs to be known.

Have you figured out the reason for the PAUSE 0 in line 90? Without it the GOTO construction fills up the PRINT POSITION in line 60 with the puck itself. SCREEN$ reads the wrong character and BEEPs. With PAUSE the program is held up until an arrow key is touched. In this way SCREEN$ looks at the print position just before the puck gets to print on it. This is the essence of this kind of a game program.

Line 70 is usually written in terms of CODE SCREEN$ (L,C). To be consistant with this practice, the code number of the target character should be used after the = mark instead of it's string counterpart. Either method works.

As we have seen, SCREEN$ is limited in it's capabilities. But the TS2068 has at least four other methods of character identification that can be used in these situations. Some of these are not commonly known but will be discussed in coming issues of QuarTerS.

This article was re-typed from one appearing in the Summer 1985 issue of the QuarTerS publication. It is the first of a series of articles by Warren Fricke that we shall be re-publishing. G. Chambers

Figure 1.

CHAR-ACTER	CODE OF CHAR.	SCREEN$ (L,C	CODE SCREEN$ (L,C)	LEN SCR. (L,C)
▒	143		32	1
	20		32	1
	128		32	1
	32		32	1
*	42	*	42	1
†	20	†	42	1
	94		94	1
	20	†	94	1
	137		0	0
	141		0	0
A	65	A	65	1
B	144	B	65	1
B	66	B	66	1
B	145	B	66	1
a	97	a	97	1
b	98	b	98	1
=	61	=	61	1

ZX81 RESOURCES - JOYSTICK

Rene Bruneau November 1992

Several meetings ago, Jeff Taylor demoed a Zebra joystick interface for the ZX81. At that time, several people expressed an interest in making one, so I looked through my files for a circuit that I could use in a construction article. I found one written up in the June 1984 issue of Electronics Today International and changed one of the chips and added the edge connector to mount the interface on the back of the ZX81. The interface is I/O mapped to Port 31, making it compatible with the 2068 to play Spectrum and 2068 programs that use a Kempston Joystick system. It will also work with a Commodore 1351 mouse in joystick mode.

THE HARDWARE

As with past projects, I have provided a PCB mask to be photocopied onto TEC 200 mylar film for transferring to a blank board. Load the components as shown on the overlay, being careful to install the sockets and capacitor correctly. The edge connector is located on the copper side of the board, with the components and extender on the side facing away from the computer. Check for poor solder joints and jumps between traces and clean any that are suspect. Before you install the ICs on the board, plug the assembly onto the rear edge connector of your computer, turn it on, and confirm that the computer initializes properly. If it doesn't, quickly shut off the machine and check your work again.

TESTING

If you have access to a 2068, testing is simple. Enter the following program and run it with a joystick plugged in.

```
1 PRINT AT 15,10; IN 31
2 PAUSE 5
3 PRINT AT 15,10;"  "
4 GOTO 1
```

For the ZX81, a short machine code program must be entered as follows:

```
1 REM 123456
2 FOR X=16514 TO 16519
3 INPUT A
4 POKE X,A
5 NEXT X
6 CLS
7 PRINT AT 15,10; USR 16514
8 PRINT AT 15,10;"  "
9 GOTO 7
```

The data requested in line 3 is:

219, 31, 6, 0, 79, 201

If the interface is working correctly, a 0 will be printed in the middle of the screen. The number should change as you move the joystick or press the fire button. The number printed will correspond with those shown below. Note that holding the stick in the corners will give you a sum of the vertical and horizontal values. For example, with the stick in the top right corner a 9 is printed on the screen, holding down the fire button at the same time increases the number by 16 (DOWN + RIGHT + FIRE = 8 + 1 + 16 = 25)

ACTION	RESULT PRINTED	BIT
Right	1	0
Left	2	1
Up	4	2
Down	8	3
Fire	16	4

For those who have a copy of FIGHT SIMULATOR, here are some pokes to adapt it to allow the use of a joystick. Use a FOR/NEXT loop to enter the code. We will provide additional program pokes in future issues of this newsletter.

ADD.	DEC. CODE	MNEMONIC
17316	205, 247, 75	Call 19447

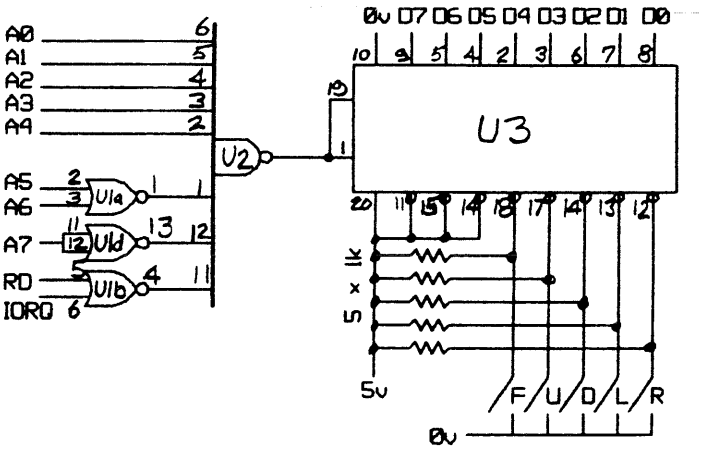
Write code to #2 REM statement with 50 Xs.

ADD.	CODE	LABEL	MNEMONIC
19447	219, 31		IN A, 31
	254, 0		CP 0
	40, 32		JR Z, EXIT
	254, 4		CP 4
	32, 4		JRNZ, DOWN
	33, 239, 239		LD HL, 239, 239
	201		RET
	254, 8	DOWN	CP 8
	32, 4		JRNZ, LEFT
	33, 239, 223		LD HL, 223, 239
	201		RET
	254, 2	LEFT	CP 2
	32, 4		JRNZ, RIGHT
	33, 247, 223		LD HL, 223, 247
	201		RET
	254, 1	RIGHT	CP 1
	32, 4		JRNZ, EXIT
	33, 239, 247		LD HL, 247, 239
	201		RET
	205, 187, 2	EXIT	CALL KSCAN
	201		RET

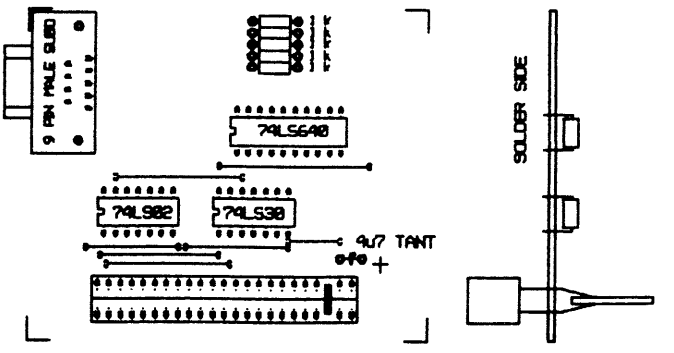
COMPONENT LIST

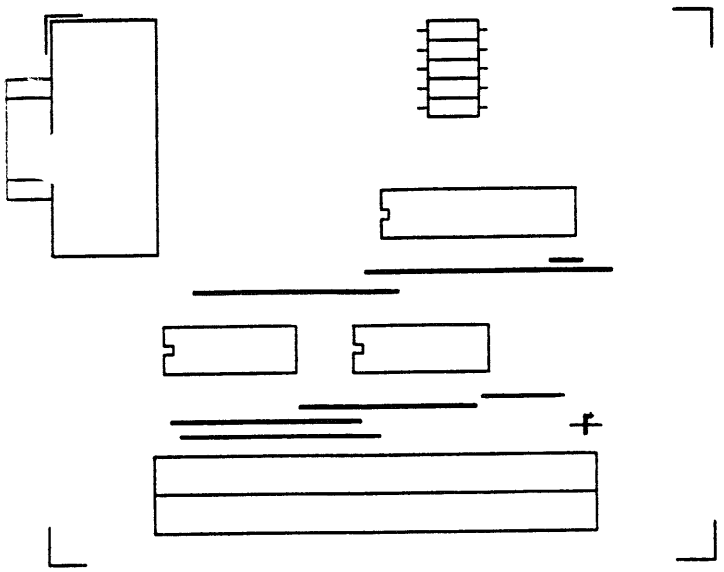
U1 74LS02
U2 74LS30
U3 74LS640
C1 4u7 Tantalum Capacitor
R1-R5 1K 1/4 watt Resistor
P1 Male 9-pin Subd Socket
P2 ZX81 Edge connector and extender
Misc. 2-14 pin dip, 1-20 pin dip, Solid wire for jumpers

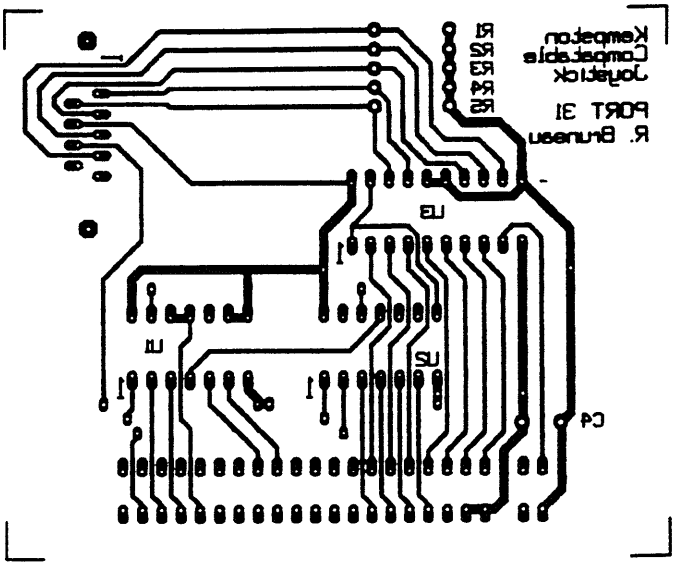
CIRCUIT DIAGRAM



COMPONENT PLACEMENT






Kempston
Compatible
Joystick
PORT 31
R. Brunesu
U3
U2
U1
C4


TORONTO TIMEX-SINCLAIR USERS
CLUB
"THE NORTHERN LIGHT"

1992 QL Library

New and revised

There are at present 271 programs/utilities in the QL Library, in the following categories.

Disk Title	Free Mem		Contents
o Catalogue	1242/1440	Revised	Library Catalogue
o Comm_1	555/1440		Communications
o Demo_1	477/1440		Demos
o Game_1	99/1440	Revised	Games
o Game_2	1101/1440	New	Games
o Graf_1	1110/1440	Revised	Graphics
o HJC_1	639/1440	New	Howard J. Clase file
o Math_1	993/1440		Maths
o Pics_1	324/1440	New	Pictures
o Psion_1	1041/1440	Revised	Psion related subjects
o Sound_1	1269/1440	New	Sound and music
o Spec_1	1050/1440	Revised	Founts. Tests. _doc info files.
o Spec_2	15/1440		Manusoft file
o Spec_3	870/1440	Revised	Small.C. by Tim Swenson
o Tute_1	1260/1440	New	Tutorials
o Util_1	24/1440	Revised	Utilities
o Z88	3/1440		Z88 files in QL format(Untested)
o TK2_manual	834/1440	New	TK2_Manual
o QHJ_1	814/1440	New	QL Hackers Journal by Tim Swenson (For advanced QL Programmesrs) Vols 1-9

This is a total of 19 disks of varying interest. Some old, some changed, some new.

I know that some of those disks could be lumped together, but I feel that this presentation leaves possibilities for additions without too much trouble.

If you wish to order any of the above, please send FORMATTED disks of your choice, with return postage.

I can copy to 5 1/4 40 or 80 track or to 3 1/2 DD or HD. Complete disks only.

For the MDV user I will try to copy to your formatted Cartridge if you designate the particular program by Disk Title and Title of program.

It is almost impossible to fit more than one program onto one cartridge.

I will not be responsible for faulty cartridges or disks, or for the formatting of such.

Hugh H. Howie.
QL Librarian
586 Oneida Dr
Burlington. ONT.
L7T 3V3
(416) 634-4929

SINC-LINK CONTENTS

prepared by George Chambers

Each entry is prefixed with the year and first month of issue (eg, 8301 = Jan/Feb 1983, 8303 = Mar/Apr 1983); and with the volume & number (eg, 3/1 = volume 3 number 1). These are usually followed by the (first) page number of the entry.

1983

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8404 2/4 P.02 Machine Code program with one POP by K. Van Vleit.
8404 2/4 P.03 Machine code programming by Stan Piotrowski.
8404 2/4 P.08 BASIC programming article by Stan Piotrowski.
8404 2/4 P.10 Low Memory - SAVE/LOAD program by Bob Croker
8405 2/5 P.01 BASIC programming article by Stan Piotrowski.
8405 2/5 P.04 Machine Code programming article by Stan Piotrowski.
8405 2/5 P.08 A short program in FORTH (ZX81) by J.J. Castillos
8405 2/5 P.09 An article on the Z80 registers and instructions.
8405 2/5 P.10 Z80 OPCODES table.
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8406 2/6 P.07 Ideas on including author credits in a Basic program by George Chambers
8406 2/6 P.09 TS 2068 programming suggestions by John Roach.
8406 2/6 P.10 Machine Code programming by John Roach.
8406 2/6 P.11 Table of ZX81 Key (board) values
8406 2/6 P.12 Schematic for 8K EEPROM board by John Roach.

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9209 10/5 p.3 Editorial (Interesting ?) J.Taylor
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ZX SPECTRUM MODIFICATIONS TO U.S.A. STANDARDS

While I was on a business trip to Europe last December, I purchased a ZX Spectrum computer. No, I'm not tired of my TS2068, but my first love is my soldering iron and a heap of electronic components with a burning desire to experiment with these electronic marvels we call computers.

The TS2068 and the ZX Spectrum are closely related in design, however there are physical and electronic differences between both computers. Many European publications provide a store of add-on do-it-yourself hardware articles to enhance the Spectrum, but NOT The TS2068. My Spectrum will now become a test bed for building Spectrum hardware, then modifying the hardware to operate with the TS2068.

This article is dedicated to those individuals who have a Spectrum or intend to purchase one and want to get the most out of it - to operate on 110 volts without a step-up transformer; convert the PAL decoder to operate on NTSC video standard for colour operation; and add a composite video output for your monitor.

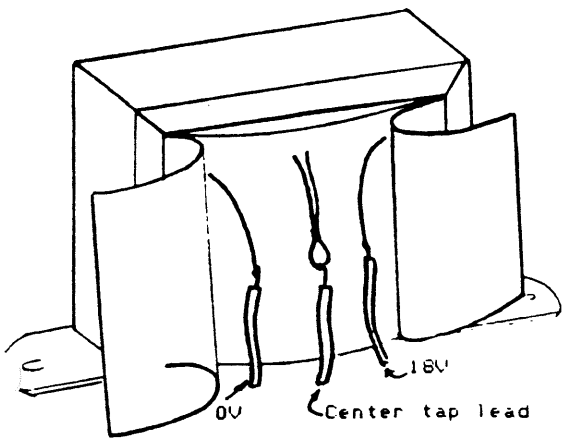
POWER SUPPLY CONVERSION

The orinal Spectrum power supply module requires 220 VAC at the primary, and outputs approximately 9-10 VDC. Two options for the modification can be considered.

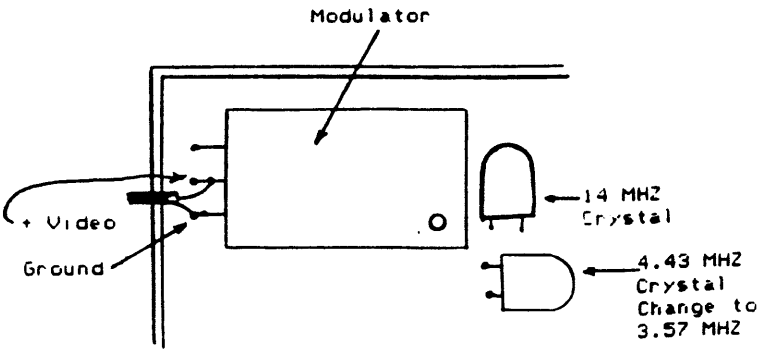
1 - Rewind the original transformer primary winding to operate at 110VAC, or adding additional windings to the secondary to up the output voltage, using the original primary windings. The transformer design allows fairly easy rewinding of the primary or secondary, but it is work.

2 - Remove the original transformer and replace it with a commercial 110 VAC,18 VAC Centre Tap transformer.

I chose option two because I had an 18 VAC CT transformer on hand that fit into the Spectrum power supply case. The reason a 18 VAC CT transformer was selected, is that a 9-10 volt transformer is pretty hard to come by, and by cutting the transformer centre tap and paralleling both 9 volt windings with proper phasing, the voltage is 9 volts with the operating current doubled. Also the original power supply rectification and filter assembly can still be used without modification.



18 Volt Transformer Secondary Leads
Exposed After Opening Insulation Tape



Colorburst Crystal Change & Composite Monitor Input

The first step in this operation is to remove the power supply case top by removing three (3) Philips head screws. Remove the case top and set aside with the three retaining screws previously removed. Carefully remove the transformer with the filter assembly and both input and output cables. Measure the transformer core (metal laminations) for height, width, and length and record these measurements. I used an old Radio Shack transformer, however I'm not sure it is still available. A visit to any electronics TV supply house will provide you with the necessary tranformer. Ask for an 18 Volt Centre Tap, 1 amp filament Transformer, and measure it so that what you buy will fit the case. Surgery on the transformer first begins with removal of the mounting frame. Set the transformer on your work bench upside down and pry up the four (4) retaining tabs on the bottom of your transformer core. With a common screwdriver (flat blade), insert the blade between the mounting frame and the transformer core and apply a prying motion until the frame has exposed both sides of the transformer core. Remove the frame from the core and trial fit the tranformer into the power supply case. If the fit is a little loose, a strip of foam tape (weather stripping) will snug things up at assembly time.

Remove the transformer from the case and locate the secondary side. This is the side with either two green lugs and one lead with stripes, or three solder lugs. With a sharp knife (X-ACTO, #11 blade) or razor blade, using light cutting pressure, cut a slit from top to bottom at the centre point on the transformer secondary side insulation. Carefully pull both sides of the cut tape towards their respective sides which should expose three copper wires either terminated to lugs or wires.

Using the low wattage soldering iron, desolder the centre tap winding from a lug or wire. Examine the copper wire tap; it can be either a loop, or two separate wires. If it is a loop, cut the loop, and if it is two wires, separate them. Cut two small strips of tape, any kind, and place one strip on one of the centre tap wires. This is for identification purposes only, to properly phase both both secondary windings which we will parallel. Using an ohmmeter or a continuity tester, connect one lead of the test instrument to the CT lead having the strip of tape. The other test lead is touched to either or both lugs/wires to locate the mating lead of the CT winding having the tape. Now, follow this carefully. Place the other strip of tape on the lug/lead which did NOT indicate continuity. Connect both taped wire ends together, remove both strips of tape and solder these leads together. Connect the remaining two leads together and solder these as you had soldered the others.

Before going further, the transformer output voltage must be tested for a voltage and correct phasing. Connect a two wire cable with a proper 110 VAC connector to the transformer primary. The primary side should state 110 VAC or have two black wires attached to it. Insulate these connections to avoid any contact with the line voltage. Set your voltmeter function switch to AC and the range switch to 25-50 VAC. Plug the line cord into an AC wall outlet and touch both secondary connections with the voltmeter test probes. If the voltmeter is reading 9 VAC or higher then all is well. On the other hand, if no voltage is present, then remove the line cord from the wall socket, desolder the secondary connections previously made and switch secondary leads. Repeat all previous steps until proper AC voltage os obtained.

Attach two 2" leads to the secondary contacts and solder, then place some insulating tape over the exposed secondary leads. Place the transformer into the bottom of the case and add some foam-backed tape to it if the fit is too loose.

Desolder the filter assembly circuit board from the original transformer and place in the case next to the transformer secondary. Connect both secondary wires to the filter circuit board in the holes which the original transformer was soldered to. Any wire can connect to either hole for tranformer connection. If you wish, the AC line strain relief from the original transformer can be removed and tne 110 VAC line cord can be inserted into it for a custom fit.

Set the function switch on your voltmeter to DC and the range switch to 25 VDC. Plug the line cord into the AC socket and monitor the output voltage at the power supply connector. A reading of 9 VDC or greater will be present.

NTSC COLOUR OUTPUT

The Spectrum operates on a European video standard called PAL, which means Phase Alternating Lines. PAL provides 625 TV lines as opposed to 525 TV lines with NTSC. The colour is automatically corrected at trasnmission, thus eliminating the requirement for a Tint or Hue control. If we operate the Spectrum without a change in colour burst frequency, then the output on a TV screen will be black and white, and possibly some diagonal lines. Fortunately a crystal change from 4.43 MHz to 3.57 MHz is all that is necessary to have the Spectrum perform in colour in the USA.

A trip to your local Radio Shack should solve the crystal requirement. Ask for part No. 272-1310, COLORBURST CRYSTAL at $1.69. If they do not have the crystal, any TV or Electonic Supply outlet will have one. Just make sure it is a miniature case, HU-18.

Please note there are two (2) crystals in the Spectrum computer. A 14 MHz crystal operates the system clock and should not be removed or replaced with a crystal of another frequency. The PAL crystal, 4.43 MHz is the one to replace.

Open the Spectrum case by removing five (5) Philips screws on the case bottom. Carefully open the keyboard section of the case and locate a Philips screw approximately centre on the PC board. Remove this screw and lift out the PC assembly with the keyboard still attached. If you are careful, you will not have to remove the keyboard case section.

The 4.43 MHz crystal is located next to the TV RF modulator. Ensure that you have located the right crystal as the clock crystal shares the same approximate location. Heat up your soldering iron and grasp the 4.43 MHz crystal with two fingers. Disconnect the soldering iron from the AC line, and quickly heat up one crystal lead and gently pull with a slight twist at the crystal. Repeat the previous step until the crystal is removed. Note: the soldering iron will not zap any semiconductor within the crystal circuit with a static charge, if disconnected from the AC. Plug the soldering iron back into the AC line to build up heat. Insert the 3.57 MHz crystal into the PC board using the same holes as the crystal you previously removed. Again, disconnect the soldering iron, and quickly solder both crystal leads to the PC board. Clip oof both leads of the crystal on the underside of the board. Place the PC assembly with the keyboard into the lower case.

Attach a cable to the modulator jack and the other end to the UHV leads on a TV set. The approximate channel should be between 30 and 36. Plug in the modified power supply and turn on your TV. Rotate your Channel Select switch until the Sinclair copyright message appears on your TV. If you do not wish to add a Video Monitor output to your Spectrum at this time, then disconnect power and the TV cable, and reassemble the computer case.

NOTE: My Spectrum did not have a trimmer capacitor in the crystal circuit. If yours does and the image on the TV screen appears poor, then you may want to attempt to adjust the trimmer to peak the picture.

This article appeared in an old issue of the L.I.S.T. newsletter, and has no credit line. I suspect it may have been written by Nazir Pashtoon. I have retyped it, since my copy is in poor condition. G. Chambers

ARTICLES

USE LESS RAM BY TYPING MORE

by
Bob Swoger

Don Lambert wrote me a letter and stated that being a less experienced programmer he could not understand why I used statements with VAL and CODE in them.

The answer, Don, is to save program space. Just a couple of bytes saved can sometimes save a whole disk track of 5090 bytes!

One of my favorite examples is Larry Kenny opening up channel 4 to access his LKDOS because PRINT # 4 is easier to type [*less key strokes*] than RAND USR 100". [*page 11 of his V3 manual*] Also, he told me it takes up less RAM space in a program. Well, LARRY, it can USE UP MORE RAM space! The problem I have is channel 4 is also assigned to my ZEBRA Talker and I can't change that.

Consider a short program to load LogiCall. Get in front of your machine and do the following:

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

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

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

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

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

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

Now lets try the ultimate RAM saving trick. Most numbers over 31 can be expressed in the program as CODE. Let's change VAL"100" to CODE"d" , do you follow me, Don? It is on page 242 in the TS2068 manual. The program now reads:

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

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

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

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

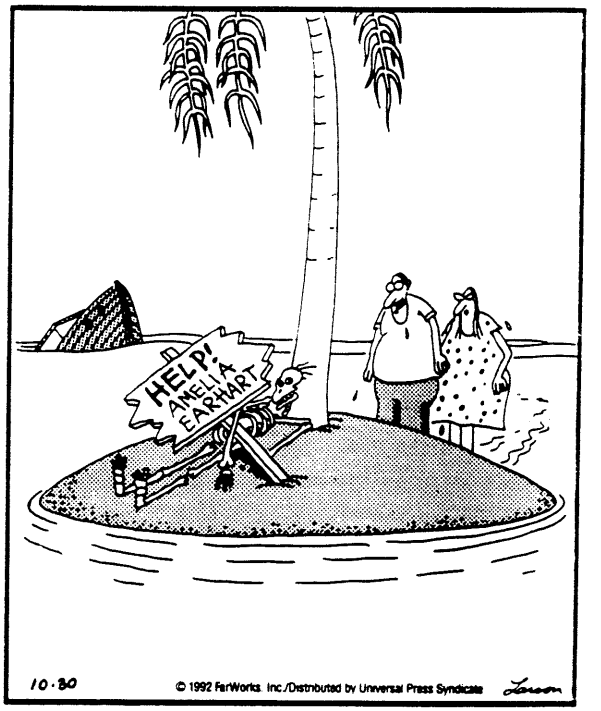
```
 10 LET h=CODE "d"
 20 RANDOMIZE USR h: LOAD "L.B1"
```

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

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

SO WHY OPEN CHANNEL 4?

THE FAR SIDE By GARY LARSON



'Well, this *isn't* very promising.'

COMPUTER CLASSICS
RT 1, BOX 117
CABOOL, MO 65689

Repair Charges for SINCLAIR/TIMEX Computers Revised July 1, 1992

Prices do not include shipping and handling charges.
Shipping charges will vary depending upon weight, distance, and method.
I will ship via the cheapest method unless you specify otherwise.
The minimum handling charge for shipping is **$2.00**.
There may also be an extra charge for repairing modified equipment.
The minimum extra charge for modified equipment repair is **$5.00**.

Definition of modified equipment: Any circuitry changes on the inside of the equipment case that involved the addition of components, wires, integrated circuits, or hardware. Customers who send in computer equipment that has had modifications done to it, which change the manufacturer's original design are subject to paying extra.

The following items will be repaired for $5.00 each + parts & shipping:

TS-1000	ZX-81	1016 Ram Pack	Any MEMOTECH Module	ZEBRA TALKER
			MIRACLE Centronics	

The following items will be repaired for $10.00 each + parts & shipping:

TS-1500	TS-2020	TS-2050	PC-8300	ZX-80	Any BYTE-BACK Module
	TS-2040			ZX-99	Any BASICARE Module
		LARKEN RAMDISK		Z-SIO	AERCO 2068 Centronics

The following items will be repaired for $15.00 each + parts & shipping:

TS-2068	SPECTRUM	A&J MICRODRIVE	LARKEN 2068 FDI	KEMPSTON FDI
		MIRACLE 512K	LARKEN 1000 FDI	CUMANA FDI
				CST FDI

The following items will be repaired for $20.00 each + parts & shipping:

ROTRONICS WAFADRIVE

The following items will be repaired for $25.00 each + parts & shipping:

SINCLAIR QL	AERCO 1000 Centronics	AERCO 2068 FDI
TRUMP CARD	ZEBRA 2068 FDD System	AERCO 1000 FDI

For repairing modules, printers, monitors, or other computerized equipment not listed above - write for a price quote for the items you want repaired.
For modifying or upgrading any computer or module - write for a quote.

I also service ATARI, COLECO, COMMODORE, IBM, OSBORNE, TI, and TRS-80.

In house turn around is usually 2 to 4 weeks.
Upgrades and problem cases may take longer.
You will be notified of any unusual delays or excessive repair costs.

(over)

Instructions for sending in computer equipment:

1. For repairs, please use a separate sheet of paper to describe in detail the problem you are encountering, and whether or not the problem is intermittent. List any software or hardware that are associated with the problem. Also list any modifications that have been done to your equipment
2. For upgrades, please enclose or specify the magazine article or other source of information for doing each upgrade.
3. You may include a check or money order as a deposit for repair costs. You will be notified if a balance is due. Over amounts will be refunded.
4. Carefully pack and ship your equipment to the address below via UPS or parcel post. UPS is sometimes cheaper, especially with heavy items.

COMPUTER CLASSICS
RT 1, BOX 117
CABOOL, MO 65689

Phone (417) 469-4571 daily 8:00 AM till 8:00 PM Central time.
If there is no answer, try another time. I'm busy building a log house and can't always hear the phone. **Please do not call after 8:00 PM Central time.**

VISA / MASTERCARD accepted with 4% surcharge.
(Charge customers must provide Acct. #, expiration date, and name on card.)

ROGUES GALLERY

George Chambers

Hugh Howie

Bill Lawson

Lou Laferriere

Would you buy a used Timex-Sinclair computer from these men?

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Write to us and we'll publish your piece and put your name in lights, well, bold type anyway.

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The Officers

of

Toronto Timex-Sinclair Users Club

Would like to take this opportunity to wish all our

Subscribers and Contributers

A Merry Christmas

&

A Happy New Year

November 22, 1992

Dear Out-of-Town Members,

Another interesting newsletter, I see. Jeff says,'there's only 28 pages this month'. ONLY? ONLY? Seems to me that's quite enough, especially when I look at the contents.
Actually, we can only send out 36 pages before we have to pay more for postage; we exceed the 100 grams marker, whereupon we have to pay $1.30. To the USA, and other foriegn countries, that is. So it behooves us to stay within that limit.

We don't publish much about our club meetings in the newsletter. Probably because we do not have a member to take on that task. Maybe also, our meetings are not of sufficient interest. But this month we have some items to mention to you. They should appear in our next newsletter.

Because our in-town membership is falling we have revised one of our club bylaws, the one pertaining to the definition of a meeting quorum. We were afraid we might not be able to function, some time in the future without this change.
The bylaw used to read "At least 10 percent of the membership must be present to conduct official business".
It now reads "A quorum shall consist of a minimum of five members, three of whom must be members of the executive".
The change was approved by a membership vote, with a meeting quorum of 11 members.

We also have had problems with our present meeting place, Forest Hill Collegiate Institute (read High School). Difficulty in parking, hard-to-find meeting rooms, missing washroom facilities, etc. So we are going to meet at my home from now on, 14 Richome Court. Well, we also do have a QL interest group who are going to meet at Hugh Howie's home, on a different Wednesday of each month.
What this means is that our group has shrunk in size to the point where it is feasible to meet in someone's home. But still strong in enthusiasm.

I had an interesting experience recently. About a year ago I supplied a Toronto museum with a sweater that my father had knitted while he was a prisoner-of-war during the 1st World War. It was knitted with needles made from fence wire, and with wool unravelled from the tops of worn-out army socks. It was a sort of sampler with a great variety of patterns in it. The museum was having an exhibition of textiles having a human interest to them. The show is on now, and I was interviewed on a CBC radio station in connection with it.

One of our club members, Ken Gamey, took me to task gently, for not responding to his letters. I have responded to him, and I hope he is in the throes of working with his Larken system and Vu-Calc, etc.
He had a point though.
So I mention again, if I do not seem to be responding to your letters, drop a line and remind me.

I Have been working on a routine that was prepared by Bob Mitchell, used to sort Mscript files. I had a particular application for it. What it was, was this:
I had a list of Neighbourhood Watch Block Captains, showing their name, address, phone number, Block number, and No. of homes on their Block. It was in the form of a Mscript file, with one line per person. I wanted to be able to sort it in several ways. The upshot was that I looked up this routine, reworked it a bit more, and it is now part of my reportoire. I shall be issuing a new club disk, containing Mscript utilities, and this will be part of it. Ask for it. I have not assigned a library number to it yet.

Recently I went through a set of "Your Spectrum" magazines, photocopying pages of game pokes, tips, and maps. I have a collection of 59 pages, plus an index. If anyone is interested, I can make and send you a copy, 5 cents a page, plus postage. Or if you like to see if you have the games the sheets cover, ask for the two-page index.

Recently Robert Shade sent me a disk containing the music from a tremendous number of Spectrum games. Rather an interesting disk. I shall put it into the club Larken library. Do ask for it. It also does not have a club library number.

Another thing. In the July/August OOT letter I mentioned that I had several disks designed to allow the Spectrum to be emulated on a 386-PC machine. One of our members has made a copy of the disks, so if anyone is interested in trying them out, I can loan you a copy. Another suite of disks for the club library!! Ask for Spectrum Emulator disks. You will need a 386- or later type PC machine to be able to make use of them. Maybe someone can try it out and give us a review article for the newsletter. Think of it; your name in our newsletter!!

I prepared an index for the early issues of the SINC-LINK to round out the index prepared by Bob Mitchell. It is in this issue of the newsletter. I am placing the indexes for the years 1983 to 1992 on a disk for the club Larken library. Still another as yet un-numbered disk for the library!

Rene Bruneau has made up a buffer circuit so that I can use a remote keyboard on my 2068 computer. I would like to use the keyboard separated from the 2068 by a ribbon cable of maybe 5 feet in length. To do so we need to have a buffer circuit, otherwise it will not work properly. I have not wired it up yet; been to busy, somehow. It should make for an interesting article.

We have a couple of members looking for an Aerco-type printer interface. Seems like they have Tasman interfaces, which are not compatible with the Larken system. Anyone know of a spare one!

Article written & sent

Rene Bruneau is taking a heavy 6-month computer course, starting shortly, maybe early in the new year. As a consequence he will not be very active in the club for that period. That's too bad, since he was very heavy into circuit board design, and hacking of the ZX-81. We have had a number of good articles recently, for the TS1000. He offered to resign as President of the club, but we declined to accept it!

I have been corresponding with Bill Pederson, recently. You may remember I mentione that in my last missive. He has written a letter, which I am going to ask for permiss to reprint in our newsletter. It contains some interesting tips and observations about the 2068 and Larken, etc. Possibly in the next newsletter. Bill also send a set of schematics and PC board layouts pertaining to an external ROM and EXROM for the 2068. Idea being tha one could mount external Static RAM chips and experiment with modifying the code in the ROM and EXROM. To your heart's desire, with no need to burn EPROMS, and all that problem. Sounds very interesting. I turned this info over to Rene Bruneau. Hope he will nibble. Anyone else interested?

Anyone interested in old magazines. I have inherited another batch of them, including old YOUR COMPUTER, SYNC, ZX COMPUTING, and some misc magazines that have programs to type in. I'll send you a list if you are interested. Also some books, and a bunch of other junk. Everything, it seems, except Aerco Printer interface boards. Anyone interested in a 2040 printer, or printer paper?

I seem to have run out of conversation.

Sincerely,

George Chambers