

SINC-LINK

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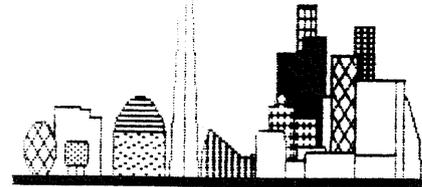
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TORONTO TIMEX-SINCLAIR USERS CLUB

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ZX80/ZX81
TS1000/1500
PC8300
TS2068
SPECTRUM
QL
LARKEN I/F



TORONTO TIMEX-SINCLAIR
USERS CLUB

ENORMOUS WINTER ISSUE

THIS ISSUE CONTAINS ARTICLES ON
MODEMS, RS232 I/F's, MIDI I/F's,
RLE GRAPHICS, GAMES, PROGRAMS
FOR ZX81, TS2068, SPECTRUM & QL
USERS PLUS SO MUCH MORE THAT WE
CAN'T LIST IT ALL HERE!

Editorial

I should threaten you readers with my prose more often! Last issue I warned that you would be forced to read lots of my stuff if I didn't get a few articles from you, the readers. Well, the thought of more of of my wit in print seems to have struck fear in the hearts of quite a few writers. I have never seen so much new material available at one time!

Of course, you readers are the beneficiaries of these writers' efforts because this is the largest Sinc-Link produced in at least the last three years. To the writers, thanks and keep up the good work. This doesn't let anyone off the hook, though, I still want more material and if I don't get it, you will!

QLers Rejoice!

I am happy to announce that our club has a QL librarian again! It seems Hugh Howie took exception to a comment that QL interest was all but dead in the club. He protested vigorously and for his efforts George and I asked if he would take over the QL side of the club. Hugh accepted and has many new ideas for the QL group. To this end Hugh has started a regular column in this issue called QLips. He has also written a special questionnaire which is found on the last two pages of this issue. Take the time to fill it out and mail it in. Welcome Hugh.

Newsletter Format

Several people have asked how I would like articles to be submitted. Ideally I would prefer two columns per page similar to this page. If you cannot supply two columns, just send one and I will do the cutting and pasting. As I have

the board and copying facilities, it would be better if I do it than for you to try it at the kitchen table and risk ruining your work (let me ruin it!).

If you do not have a printer but would still like to send material then why not send it on tape or Larken disk? We are familiar with both Tasword and Mscript word-processors so you could just send your article as a text file. In-town members can use their modems to transmit text files.

Lastly, if you have neither printer or word-processor, write out your article longhand and we will type it.

All material submitted at least seven days prior to issue will be published (though the entire article may not appear in that issue).

The purpose of all this is to make the issue a little easier to read and to make it appear more uniform. I'm only trying to make Sinc-Link the best Timex-Sinclair newsletter available. I'm not asking for too much am I? (What a snob, eh?).

Tidbits

We are no longer being charged a fee to use the classroom at Forest Hills Collegiate for our meetings. The group governing non-profit community clubs felt that we should be allowed to use the room for free. I won't argue.

TTSUC members voted at the February meeting to take out a club membership with the Sinclair NorthAmerican Users Group (SNUG). For more info about SNUG read George's blurb in this issue.

Keep those cards and letters coming ... or else! 'Nuff said.

J.T.

bob 10.ct

If you use a disk drive with your TS2068, you will probably already use disk menus to facilitate accessing the files on your disks. However, there is often a need or an opportunity to add a "Status Report" to such menus to display current disk or program information.

In this article, I shall describe some ways of gathering and displaying such data for programs in general and for the Larken Disk Drive system in particular.

These will include the following:

- 1) Printer Status On/Off Wide/2040
- 2) Printer Driver On/Off
- 3) Printer Driver Settings: Margin, Width, Line Feed
- 4) Drive Selected
- 5) File Now Loaded
- 6) Byte Length & Tracks Used
- 7) Disk/Tape Mode

PRINTERS, PRINTER DRIVER AND SETTINGS AND SELECTED DRIVE

Consider the following extract from a Disk Menu. This will serve to illustrate the first four of the above categories.

```
TS2040 ON Wide Printer ON
PD OFFLL=64LM=DLF ON DRV=2
```

Here are the program lines that produced this data display:

```

16 PRINT AT 18,2; PAPER 6;"PD ";("ON " AND lpd)+("OFF" AND NOT
   lpd;
17 PRINT #4: POKE 8200,16090: LET b=USR 110
18 PRINT "LL=";b+1;
19 PRINT #4: POKE 8200,16094: LET b=USR 110
20 PRINT PAPER 6;"LM=";b;
21 PRINT #4: POKE 8200,16092: LET b=USR 110
22 PRINT "LF ";("ON" AND b)+("OFF" AND NOT b)
23 PRINT #4: POKE 8200,8195: LET b=USR 110
24 LET b=(4 AND b=128)+(INT (SQR (b-2) AND b<128));
   PRINT AT 18,25; INVERSE 1;"DRV=";b

```

line
length
left
margin
line
feed
drive
selected

And here's the explanation:

15 Print on blue PAPER with contrasting INK at line 17 col 2 <TS2040> followed by <ON> if IN 251 gives a value less than 126 or <OFF> if it gives a value greater than or equal to 126; then <Wide Printer> followed by <ON> if IN 127 equals 237 or <OFF> if it does not give 237; TAB over to col 30 to complete the colour arrangement. One caveat here: I am told that all TS2068s do not give the same values for these IN commands so try yours out and if necessary substitute the values you find to be correct. Here's how: turn off your TS2040 and TYPE <FOR i=1 TO 100: PRINT IN 251: NEXT i>; run

this and note the results; do this again with the 2040 turned on. Repeat the process for your wide printer changing 251 to 127 in the FOR...NEXT loop. My 2068 gave the following values:

	ON	OFF
2040	58 or 59	126
wide	237	233
	229	225

16 Print at line 18, col 2 on Yellow PAPER <PD> for Printer Driver; followed by <ON> if lpd is 1 (or higher) or <OFF> if lpd is equal to zero. The variable <lpd> for Larken Printer Driver is changed elsewhere in the program to the value 1 if it is turned ON and to 0 if it is turned off. I have shown the routine for controlling the Printer Driver at the end of this section.

17-22 These lines do the following: Using a Larken extended BASIC command, an address in the LKDOS cartridge is poked into LKDOS address 8200 and a Larken routine returns the value in that address as the variable . The first case gives the line length (ie, width) currently set either on power up default or as changed elsewhere in the program. The second case does the same for Left Margin setting and finally the status of Line Feed is PEEKED and presented; (in the last one, if the variable is zero then the Line Feed is OFF, else it is ON).

23-24 This routine is similar to the previous three and using the same Larken command gets the value of variable and changes it to <4> if b=128, to the integer of the square root of b-2 if b is less than 128. This calculation is required to decode the number of the drive currently selected from the value stored in LKDOS address 8195 (ie, drive 0=2; drive 1=4; drive 2=8; drive 3=16 and drive 4 (ramdisk)=128).

The arrangement of colours in screen line 18 is necessary to allow all the data to be presented on the one line and still be readable.

The Larken Printer Driver can be turned on and off and its settings altered using the following program lines.

```

240 INPUT "l=ON O=OFF ";lpd: IF NOT lpd THEN PRINT #4: CLOSE #
   3: GO TO 40
241 PRINT #4: OPEN #3, "lp"
242 OUT 127,18: INPUT "line length? ";a: PRINT #4: POKE 16090:
   a-1: INPUT "linefeed (0=no: 10=yes) ";a: PRINT #4: POKE
   16092,a: INPUT "left margin? ";a: PRINT #4: POKE 16094,a
243 IF a+1>79 THEN OUT 127,15
244 LPRINT: GO TO 40

```

CONT.

Explanation:

- 240 You are prompted to turn the printer driver ON or OFF. By the way, this is very useful if the printer driver is ON and you wish to print to the TS2040; you simply enter <0> and Larken channel 3 is closed. Then the 2040 will function. GO TO 40 is just my way of going back to the disk menu. In all these examples you will put in your own line numbers to suit.
- 241 So if lpd is not zero then the Larken Channel 3 is opened to the large printer, ie, <lp>.
- 242 OUT 127,18 resets the Centronics dot matrix printer I use to normal PICA size printing. This may not suit your printer but it should work with most. Then there is a series of prompts to tailor the printer driver settings. Remember to make the line length exactly what you want. The routine will poke in a value one less than that, which is the way the Larken command works. Line feed is straight forward; 0 for no line feed and 10 for one line feed. It is usual to use 10. Left Margin is also straight forward; but remember to make the sum of the left margin setting and the line length a value not greater than the printer maximum width (for the print size selected).
- 243 However, with a dot matrix printer you can usually go to condensed print allowing a line length in excess of 120 characters. If your lone length is greater than 80 then this line switches over to condensed print.
- 244 This line does an LPRINT to clear the printer buffer and then returns action to the menu.

FILE LOADED, BYTE LENGTH AND TRACKS USED AND DISK/TAPE MODE

I have added some information to the Tasword menu which gives the name of the currently loaded file and its byte length and tracks used. Here are the lines to add or change to do this:

```
28 PRINT "save text"; TAB t;"[";a;" bytes]";TAB th;"s"
29 PRINT TAB t;"["; INT (a/5090)+1;" tracks]"
30 DIM n$(6): FOR i=1 TO 6: LET n$(i)=CHR$ PEEK (i+33279): NEXT i
32 PRINT "load text      now=>"; INVERSE 1;n$; INVERSE 0;TAB th;"1"
```

Explanations:

- 28 The variable <a> is already used by Tasword and is updated constantly as the text length is altered.
- 29 The variable <a> is divided by 5090 (the length of a Larken track); <1> is added to the integer of the result.

- 30 An array n\$(6) is created and is filled with the contents of the first six bytes of the Tasword text area. This means that you should enter the file name as the first line of text of each file and it can be anything up to six characters in length. In this example, I have entered the file name <name>.

- 32 The current file name is printed in INVERSE characters.

The affected menu lines should look something like this:

```
save text [7744 bytes]      s
                        [2 tracks]
load text      now=>name    1
```

My disk index program has a menu with some status reports:

The loader (for the TIMACHINE compiled version) indicates whether it is in the DISK or TAPE mode for loading and saving. This choice was added when I decided to make tape back-ups; if you do that sort of thing, show the current status on your menus. In the case of index, it was done this way:

Index called for pressing <6> to toggle between DISK and TAPE mode. The variable <s> was initialized as <4> early in the loader and pressing <6> activated the following line: <IF d\$="6" THEN LET s= ABS (s-6)>.

So, if s=4, then it becomes 2 and vice versa. The ABS cancels out the resulting negative sign in each case. Then variable <s> is used with the SAVE and LOAD commands to direct action either the ROM or LKDOS SAVE or LOAD routines, eg; <PRINT #s: SAVE n\$CODE 29000,29066>.

If s=2, then the line does a TAPE SAVE because PRINT #2 is the same as it not being there and the normal TS2068 ROM routine is called.

If s=4, then the command is preceded by PRINT #4 and this activates the LARKEN DOS and does a DISK SAVE. This technique can be used in many other programs, of course, and really speeds up the switching back and forth between the two modes. Your program must have activated channel 4 for the Larken command PRINT #4 to work, ie, <RANDOMIZE USR 100: OPEN #4,"dd">.

The way ABS is used in this example can be adapted to other uses, too. For example, if you want to toggle between a black and a white PAPER screen, <LET s=7> and use <IF d\$="A" THEN LET s= ABS (s-7): PRINT PAPER s; AT etc.... You can see that if s=7 (which will print on white PAPER), it changes to 0 which will make the PAPER black. Of course, make INK 9 for contrast.

LARKEN LINES

by Rod Gowan

(excerpts from Rod's column)

"I spoke with Larry Kenny on May 22, and he answered a few questions that have been brought to my attention by many users. I will try to relay the answers so that more folks can be in on them.

These are the most often asked questions:

QUESTION: Why did LARKEN decide not to include the FORMAT and MOVE commands in the DOS Eprom and put in EXBasic instead?

ANSWER: "I looked at MS-DOS and other 'BIG' computer operating systems and found that they all are set up with a FORMAT and COPY program on disk and non-resident. I figured this was the best way to go and it would leave the space free for the extra commands that I had in mind for the system. I could possibly have put the MOVE command in the Eprom but decided against it in favor of the other commands. I had one other thing in mind; the various systems and making mine compatible with all of them would have been ten times more difficult if not impossible if I had tried to incorporate it into the Eprom. I recommend that the user take that box of 10 or 15 disks that they buy and immediately sit down and load FORMAT and proceed to do all of them at once, and then not have to do it again until the next box. I might also point out that if you look REAL close at LKDOS and compare it to the Oliger DOS, you will find that I did in 4K what John Oliger took 8K to do, and he STILL has an incomplete DOS.

QUESTION: When will the new SEQUENTIAL FILING DISK be ready?

ANSWER: To tell the truth, we are in the middle of the planting season on the farm and I have not had much time to work on it. I do not want to make any promises that I cannot keep. I will let you know the moment I get it finished.

QUESTION: Do you have anything new in the works?

ANSWER: "Not much. Just trying to get caught up with what I have going now. I may, possibly at some future date, re-do the Aerco cartridge Eprom to get rid of the 'bug' that is in that Eprom. It does not currently allow one to save anything to the buffer and then bring it back. I may try to fix it and if I do I will recall all known owners and let them get an upgrade."

In the next issue of the same newsletter Rod Gowan has some more LARKEN info. Here it is:::

"Larry Kenny phoned me a few days ago and said that he had just about completed what he hoped would be Version 3.0, AND the LAST version of his LKDOS EPROM. One new feature will be a mini-sequential filing command that will allow the user to LLIST and CAT to the disk. The new EPROM will also have some improvements on the Aerco and Tasman Printer Drivers that are built-in.

"ALERT!! be aware that if you use your LKDOS system with an A&J printer I/F, you must REMOVE the A&J I/F before you can SAVE to cassette. Otherwise the system will only crash if you try to do it without removing it. No fix for this problem is expected.

I lifted this material from a column called LARKEN LINES by Rod Gowan which is published in the CCAT/S User Group newsletter, THE PLOTTER.

Rod Gowan is the proprietor of RMG Enterprises, a Timex dealer, who carry the Larken product line. We have an RMG catalogue in the club, for anyone to see.

Prepared by G. Chambers.

LARKEN NOTES
by G. Chambers

Sometimes there is an unawareness of the flexibility available with the Larken Print Control commands, or maybe we should say, how to make best use of them.

We have found that the best way to handle this matter is to assign the large printer to channel #5. That is to say, use the command PRINT USR 100: OPEN #5,"lp", to open a channel to the large printer.

With this in place it is possible to direct an output to either the screen, the TS2040 printer, or to a large printer, simply by using the appropriate command in the program. If flexibility to select the output within the program is required then the printer command should incorporate a variable in the command. For example, use the command 'PRINT # pr' where the variable pr represents the chosen output. If a screen output is desired then make the variable 'pr' equal to 2; for a TS2040 output let 'pr' equal 3; for a large printer let 'pr' equal 5. Your program would then have a line in it much like this:

```
200 INPUT "Choose Output screen(2) 2040(3)
large(5) Press a key";pr
400 PRINT # pr;"text to be printed"
```

The following table will make the options more obvious.

PRINT "TEST"	comes out on the screen
PRINT #2;"test"	comes out on the screen
PRINT #3;"test"	comes out on the TS2040
PRINT #5;"test"	comes out on large printer
LPRINT "test"	comes out on the TS2040
LPRINT #2;"test"	comes out on the screen
LPRINT #3;"test"	comes out on the TS2040
LPRINT #5;"test"	comes out on large printer

We have made use of the #5 channel because the channel #4 is reserved for use by the Larken system as optional to the PRINT USR 100 command.

45 →
Another of our members, Steven Gunhouse, has some interesting stuff in a couple of his letters which could prove interesting to some of our members. I shall quote selectively from his letter:

Topic JOYSTICKS:

".....I was rooting through my old stuff, and noticed you talking about the 2068 joysticks. The TS2068 technical manual does discuss the joystick, and says that it is connected to the I/O port of the sound chip. That means that if you want to read it without using the STICK function, you must do a few things. If you are in the Spectrum mode, and possibly if you aren't, you should make sure the sound chip knows that the I/O port is to be used for Input. This takes two steps, as does any access to the sound chip. In BASIC, it is OUT 245,7: OUT 246,63. Then reading the joystick port is OUT 245,14: PRINT IN (246+256 * P), where P is the player number. Of course, all of the OUTs could be placed at the beginning of the program. The values for the directions of the joysticks are in the 2068 manual, the FIRE button has a value of 128 (nothing like the Kempston, I'm afraid).

Topic - Disk Drive definitions

I had mentioned in a letter to Steven that I had had some problems with high-density disks on my 80-track drive, which I referred to as a "quad density drive". This is Steven's response. GFC

".....As another note, quad density does not mean twice as many tracks. If it did, you could use a standard disk in a quad-density drive with little trouble. Quad-density refers to the density of information on the track, not specifically the number of tracks. True, most high-density drives are both quad density and twice as many tracks. Then again, it is not the quad density which causes the problem using these drives...."

Topic - Conserving memory:

"....Oh, a few hints on my own in regard to conserving space in listings using variables and such. For numbers with values between 32 and 255, you could use CODE of the corresponding ASCII character or token. Actually, I would not recommend it for codes above 127, as they may be impossible to read. For example, GRAPHIC 8 is code 128, but it is impossible to distinguish from a space by sight. When using variables, it might be easier to identify 2-character variable names with numbers if the second character were a number. Using a two-letter variable for 0 or 3 is redundant - use NOT PI for 0, and PI or INT PI (if it has to be exact) for 3. Come to think about it SGN PI is 1 as well. I know, COS PI is -1, but using a transcendental function may slow things down (if you are not a mathematician, a transcendental function is anything that can't be written as a combination of fixed powers, like a^x, LN, EXP, or any trig functions. Actually, from a computer standpoint SQR is one as well, though mathematically it isn't).

Topic - Plotting Functions:

"...You know, that's one thing I really like about the 2068. Some people may complain about it's non-standard BASIC, but name one other computer where you could write a program to graph an arbitrary function in about 5 lines. All other current computers will only take the VAL of a numeric string (such as "32.1456"), whereas we can get away with VAL (X + Y) = as long as X and Y exist.

My five-line program to plot functions? It looks like this:

```
10 INPUT "f(x) = "; LINE f$
20 LET x = -10: LET y0 = VAL f$: LET x0 = x
30 FOR x = 9.9 TO 10 STEP .1: LET y = VAL f$
40 IF y > -8.5 AND y < 8.5 THEN PLOT 10 * x0
   + 128, 10 * y0 + 88: DRAW 1, 10 * (y = y0)
50 LET x0 = x: LET y0 = y: NEXT x
```

Oh, I did leave out one thing. I checked to make sure y was on the screen in LINE 40; I should have checked y0 as well.

Also, there is no error checking, so don't try to PLOT functions where you divide by the variable, or take powers or roots. To plot a parabola, such as $y = x^2$, use $y = x * x$. (Yes, the Sinclair and Timex will not take any power of a negative number).

Anyone interested might write to:
Steven Gunhouse
28746 Five Mile Road,
Livonia, Michigan, 48154

G. Chambers

INTERNATIONAL POST OFFICE MONEY ORDERS

A plea to all out-of-town members who live in foreign parts!! Our banks charge us on all cheques made out to non-Canadian banks. When a cheque is received for two or three dollars we find that the bank charges can exceed this amount. Recently, with the mention of our newsletter in the TS UPDATE magazine we have been receiving cheques for \$2 (for a sample of our newsletter). We have had to return the cheques for the above reason. We also get small cheques reimbursing us for postage costs since club members who live in the USA cannot send stamps (I mean, we can't use them)

The solution is to send either cash, or if that does not appeal to you, get an International POST OFFICE Money Order. We can cash these at any of our post offices with no problem. Notice that I emphasize Post Office. Many countries belong to the International Postal Union. The International Postal Union has an arrangement whereby they will cash this sort of money order between signatory countries with no fuss or bother. Our post office will cash money orders made out in U^S funds, or the currency of any of the signat^o countries.

G.F. Chambers

HACKER'S HAVEN PRESENTS:

ZX-81 MIDI INTERFACE PROJECT by LOU CHAMPAGNE

In the next few issues I will be describing the design and construction of a ZX-81 computer interface to connect to MIDI equipped musical equipment. Hopefully some members will become involved in developing software and applications for this project.

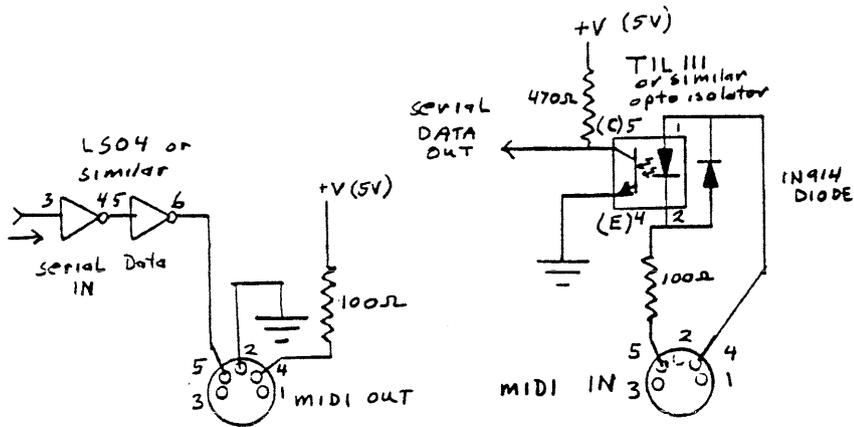
If your using your ZX-81 for a doorstop, and you have a MIDI equipped music keyboard (or any MIDI device that is), let's make a MIDI interface and start making music.

MIDI (Musical Instrument Digital Interface) equipped keyboards and devices have been around for quite some time now. These devices are characterized by the presence of MIDI IN and OUT (usually accompanied by MIDI THRU) jacks using a standard D.I.N. 5 pin female chassis connector. The idea behind these jacks is that different manufacturers of electronic musical equipment have standardized on an information exchange format. This allows you to connect a KORG synth keyboard to a YAMAHA keyboard and the note values played on the KORG will activate the YAMAHA.

This by all means is barely scratching the surface of what's possible. The MIDI standard allows for much more than simple note data exchange, it also is used to synch up drum machines and sequencers to play stored rythm patterns and music previously entered. These devices are all microprocessor based and connecting a computer up to them reveals the ultimate music system, the possibility of total control. Facilities exist in the software protocol that standardize parameters for control of the sounds the synthesizers produce as well as dumping this data to store it somewhere else (or load it for that matter). Some manufacturers have hinted that around the corner are MIDI light shows and special effect units such as lasers and MIDI mixers.

Some might say that the ZX-81 is not suitable for this application due to several disadvantages such as memory and speed constraints. Expanded to 64k and running ML software will yield a system at least as powerful as the 64k APPLE system I've been using for years. Even unexpanded units would offer at least a MIDI scratchpad to write small sequences or send specific MIDI information (such as program editors for synth voice creation).

The interface protocol as described in the MIDI specification 1.0 is an optically isolated, serial (31.2kBAUD) format, 8 bit data (1 start bit, 1 stop bit) connected as shown in diagram 1. The MIDI OUT jack has pin 2 (note the odd pin numbering used on D.I.N. connectors) connected to ground; the shielded twisted pair cable used for interconnection has its shield connected to this pin. Pin 2 on the MIDI IN jack has no connection to this pin, and since the interface is optically isolated this provides protection against ground loops that plagued earlier systems of musical data exchange. Pin 4 is always most positive and pin 5 most negative. No connections are made to the other pins. The current is limited to a maximum of 20 mA. All these specs are part of the MIDI standard document 1.0 agreed upon by all the major manufacturers.



transmitter

receiver

Diagram 1 : Electrical I/O requirements of MIDI interface

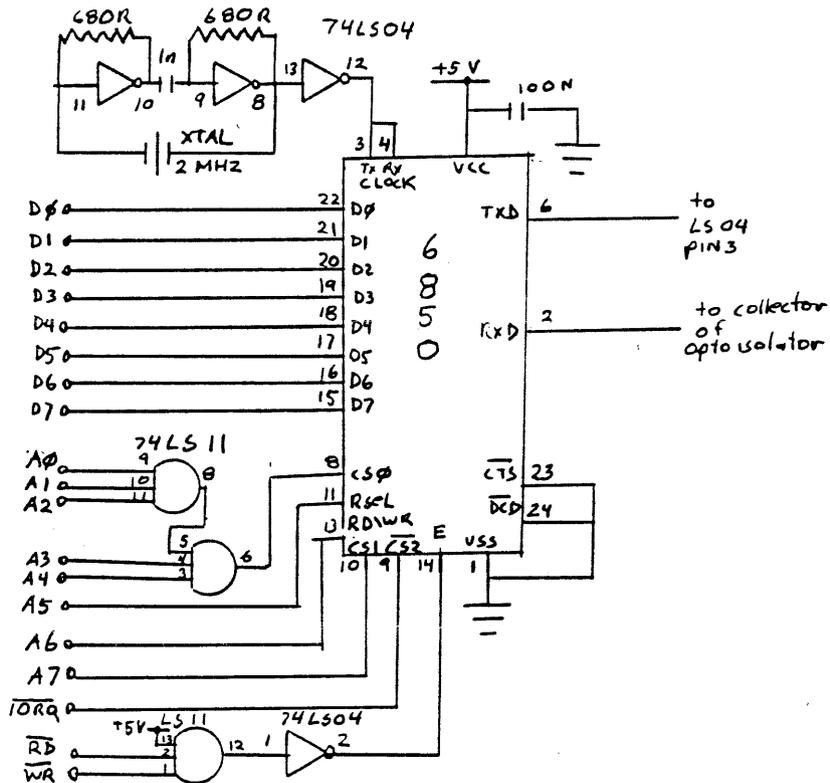


Diagram 2 : The MIDI interface using the 6850 chip

Obviously, the control system of any one of the instruments (or data handlers, or slave synths etc.) would have to be microprocessor driven UARTs or ACIAs (chips that convert the parallel data from the CPU to the serial data in the MIDI format). I have chosen to use the popular Motorola 6850 ACIA which will give us a send and receive port (MIDI IN MIDI OUT). The circuit is shown in diagram 2.

The board can be assembled on traditional perfboard and wire-wrap is recommended in this case, or more elegant and sturdy, a pc board could be constructed. I hope to present in a future issue a PCB layout for this project.

On the software side the board appears as a Z80 I/O port with the CONTROL register at address 9F hex or 159 decimal. As the software boots it must reset the ACIA by writing a number with the two least significant bits high as 3 (hex or decimal) then initialize the chip by writing a 56 hex or 86 decimal to this location (this sets the byte size and clock divisor).

The data are sent at address BF hex or 191 decimal and received data are available at address FF hex or 255 decimal. In addition there is an ACIA STATUS register that is at address DF hex or 223 decimal. A chart in diagram 3 shows what should be expected at each register.

DATA BUS LINE	RECV AND XMIT DATA REG	CONTROL REG WRITE ONLY	STATUS REG READ ONLY
D0	BIT 0	CLOCK DIV 1	RECEIVE REG IS FULL
D1	BIT 1	CLOCK DIV 2	TRANSMIT REG IS EMPTY
D2	BIT 2	WORD/PARITY 1	DCD
D3	BIT 3	WORD/PARITY 2	CTS
D4	BIT 4	WORD/PARITY 3	FRAMING ERROR
D5	BIT 5	XMIT CONTROL 1	RECEIVE REG OVERRUN
D6	BIT 6	XMIT CONTROL 2	PARITY ERROR
D7	BIT 7	RECEIVE INT	INT REQUEST

Diagram 3 : ACIA register contents

As can be seen by examining the chart the transmit and receive registers are pretty straight-forward but one might be confused looking at the other two lists. First of all, the CONTROL registers parameters for MIDI use have but one possible setting as described previously so understanding this list is not necessary. However some use might be gotten out of the STATUS register, for instance it can be checked for a "1" at D0 to see if a data byte is ready to be read into the CPU. Likewise a "1" at D1 indicates that the transmit register can be loaded with another byte as the previous one has now been successfully transmitted. The rest of the STATUS register can be ignored (perhaps the framing error can be of some use but probably only in more sophisticated software).

Since the ZX-81 has no IN or OUT commands, two short machine code routines will have to be written to access the interface from Basic. Also Basic is far too slow for serious work with the unit as a data recorder so most of the real work will have to be done in ML anyway. I hope to have the interface working with the Larken Disk System to save and load MIDI files, I also figure I'll need to use a 64K ram to have enough room to do serious work with the system (such as MIDI multitrack orchestration etc.) the data can simply be written into the upper 32k area and read by the program running in the "normal" 16k block with the Larken interface inhabiting the 12-16k area. Perhaps a 4k scratch pad ram could be allowed for medium res graphics for music editing ?

In the next installment of this series I will describe the MIDI data protocol and present some short ML test routines that run from basic. Till then, I encourage the interested parties to obtain the necessary parts and try to wire-wrap a prototype. I don't suggest making a board yet because the addressing may change if it interacts with the Larken boards.

TILL NEXT TIME ----HACKER'S HAVEN LOGGING OFF BYE

As promised last issue, I will attempt to show how you can obtain Run Length Encoded graphic pictures on the TS2068.

First, you need a modem and a software package which supports Xmodem protocols (Specterm-64 and Larken's MAXCOM to name a couple).

Second, you must find a bulletin board which has an RLE file section. Many of the IBM boards have these. Once you are connected it is a simple feat to download and save one of the files as long as you do not exceed your available buffer space. The BBS file section will inform you of each files' length.

Third, you require an RLE decoder program which first appeared in the Jan.-Feb. '87 issue of Time Designs. Not to worry though, this program is available to club members from the disk or tape library.

Now the fun begins. Load the decoder program and when requested, load in your RLE file. Your picture will smoothly fill your screen. Now you have the options of inverting the picture (ie. like a film negative), copying to the TS2040 printer or saving the image as a SCREEN\$. It's that simple.

More RLE pictures next issue.



In the last newsletter I described Disk #1 in the Larken disk library. I also mentioned the programs had been placed on single-sided 42-track disks. Well, life is not quite so simple as that. The second disk in our library, "OMNIBUS", illustrates this.

OMNIBUS was designed quite specifically for use with an 80-tracks-per-side drive. Of course, the programs could be lifted from the disk and used independantly, but then the intent of the disk is missed.

So, disk #2 in the library, "OMNIBUS", is an 80 TPS disk. I can supply it also in the form of 2 DSDD disks, if you specify it. But it is not practical to supply it in SS format.

Another thing has become apparent. In the case of the TS2068 tape library, once a tape had been made up it was impractical to revise programs on the tape. With disks as the vehicle, it is so easy to incorporate revisions to a program, or to modify a disk make-up, that a new set of problems arise, namely, how to cope with program revisions.

How to handle it? I have not really thought this one out. Possibly, since the disk's "author" has the most interest in it, he/she would assume primary responsibility/interest for any revisions to the library disk. Say, by supplying an upgraded copy when it was deemed desirable. Anyone with suggestions for program improvements could propose them to the author.

I mention this because Bob Mitchell has supplied me with an updated copy of OMNIBUS for the library which now has 81 files on it, occupying 122 tracks! My thought is to simply replace the existing version with the new one. Any comments....by the "authors, perhaps?"

Anyway, to get back to the OMNIBUS disk. The simplest way to describe this disk will be to lift a short section out of the disk's "help" file. Here it is:

"OMNIBUS is designed to work with RAMDISK and a DSQD (quad) drive. As such, it appears on RAMDISK as an AUTOSTART file and on QUAD disks as AUTOSTART and <ombus.B1> files. As provided, this disk will require RAMDISK to be equipped with four SRAM chips for a total of 24 tracks.

The version on this disk is a special collection for general use by club members who have a quad drive with/without a RAMDISK. As presented, the disk will work well without a RAMDISK but the menus will not appear on the screen as fast.

The main Omnibus file comprises three menus and the details below are therefore divided into those three sections.

The RAMDISK files should include the three menus <rd1.C1>, <rd2.C1> and <rd3.C1>, each of which is compressed to below 5000 bytes by the use of a picture compression/expansion program called <pico.B1> with its code <pico.C1>; the last two programs are contained in the Omnibus collection. Actually, on this disk, the compression and expansion code is located in a REM statement in line 1 and is called from several locations including line 9000. By compressing the SCREEN\$, only three tracks are used but the RAMDISK memory so used is well spent since the menus appear much faster than they would if left in BASIC. In addition, there is a substantial saving in memory space in the BASIC program.

The RAMDISK also contains two domestic programs which I call "datebook" and "address book"; these are identified on the disk as <datebk.C9> and <dir.Cc>. The first one takes up three tracks each while the latter uses four. There are still some nine of 24 tracks open for future use.

WORDSQUARE

L F O R T H M O U S E A M S T R A D O H
 T B G O K D U L V C O M P I L E R S O B
 I A O S S M R A A M S C I H P A R G N R
 S S L R O T T N R B S B D P M O D E M P
 R I A U F E C I I U D C R I S K K B O A
 I C T C T R E M A L J I R S S R N T S S
 A I A M W M P R B C N C E I A K S I R C
 L N C A A I S E L T A C D L P J W E T A
 C T B R R I S T E P O M M T I T C I A L
 N E V E E L Y R S R A I A J E O M E J M
 I R C T A P E M P R T M O T R A M M T A
 S F H T T Y K D D U R Y T D C E A U R E
 E A A E A Q R V P O S E E H W L R L O R
 N C N L S O Q T F T S R I T Y B G A P D
 I E N S W L U A I S B N X U R A O T S E
 H C E W O O T C A R E V O P O C R O O P
 C O L E R A K C L I V E N N M Z P R D I
 A D E N D L A N G U A G E I E K I C K P
 M E Y E V I R D K S I D R O M D I M L I
 T E E H S D A E R P S R A M T O P L I U

LIST OF WORDS

AMSTRAD	MEMORY
BASIC	MODEM
CABLE	MOUSE
CAPS	MSCRIPT
CASSETTE	MTERMII
CATALOG	NEWSLETTER
CHANNEL	OUTPUT
CLIVE	OVER
CLUB	PASCAL
CODE	PIPEDREAM
COMPILER	PORT
CURSOR	PRINTER
DATA	PROGRAM
DIM	QL
DISK	RAM
DISKDRIVE	RAMDISK
EMULATOR	RAMTOP
FORMAT	RECORDER
FORTH	ROM
GRAPHICS	SINCLAIR
INK	SOFTWARE
INPUT	SPECTRUM
INTERFACE	SPREADSHEET
JOYSTICK	STOP
KEYS	TAPE
LANGUAGE	TASWORD
LARKEN	TERMINAL
LKDOS	TIMACHINE
LOGO	VARIABLES
MACHINE	WORDPROCESSOR

WORDSQUARE
by George Chambers

The wordsquare puzzle on this page was prepared with a program from tape #61 in our club 2068 tape library. I mention this because many club members are unaware of the many good programs that the tape library contains.

I customized the program to work with my particular printer, however it will work with most any printer that has settings for 6 lines per inch and 12 characters per inch.

The program will handle a maximum of 60 words, the actual number dependant to a large extent on the set of words entered into the puzzle. If too many words are lengthy the program will have trouble finding positions for them, and it will hang. However, as you can see with this puzzle, it can do a pretty good job of fitting them in.

WORDSQUARE ANSWERS

F O R T H M O U S E A M S T R A D
 B G O K D U L V C O M P I L E R
 I A O S S M R A A M S C I H P A R G N
 S S L R O T T N R B S B D P M O D E M P
 R I A U F E C I I U D C R I S K K B O A
 I C T C T R E M A L J I R S S R N T S S
 A I A M W M P R B C N C E I A K S I R C
 L N C A A I S E L T A C D L P J W E T A
 C T B R R I S T E P O M M T I T C I A L
 N E V E E L Y R S R A I A J E O M E J M
 I R C T A P E M P R T M O T R A M M T A
 S F H T T Y K D D U R Y T D C E A U R E
 E A A E A Q R V P O S E E H W L R L O R
 N C N L S O Q T F T S R I T Y B G A P D
 I E N S W L U A I S B N X U R A O T S E
 H C E W O O T C A R E V O P O C R O O P
 C O L E R A K C L I V E N N M Z P R D I
 A D E N D L A N G U A G E I E K I C K P
 M E Y E V I R D K S I D R O M D I M L I
 T E E H S D A E R P S R A M T O P L I U

For some time I have been looking for a small utility that would give me a hard copy of my mdv cartridges, no one seemed to have one, or could ever remember hearing of one, until at the last club meeting I mentioned my quest to Bill Lawson the Club Treasurer, and he let me have a few lines which would do the job. Thanks Bill.

So I took those few lines and gussied them up a bit, and the enclosed programme is the result. We hope that it will be of some use to someone somewhere sometime.

Not everyone will want a hard copy of the contents of a cartridge, but if you consider the advantages, you will see that a small utility of this kind can be of great value when it is required.

For instance, all the small bits of this and that are sent to a file somewhere so that they may be available as and when required. Later you decide that this particular file or cartridge is overloaded, and that you may not require all the contents. The problem is which to keep.

The print-out gives you something to lay aside and think about, rather than staring at a screen. With a print-out, you can take time to edit that which is required and that which can be edited. You mark the hard copy accordingly. When you start to edit/delete, you can go ahead in one continuous operation rather than having to re-list every time you do something.

When you load and run the programme, you are asked for the TITLE of the cartridge. Then the DATE. RUN it, and you have a list of the contents.

Oh! Make sure your printer is loaded !

Hugh H. Howie

QL Cartridge Print-out

Here is a small utility which may be of value to someone sometime. It gives a print-out of the contents of a cartridge, with the date it was made.

Bill Lawson gave me a few lines to do the job, and I gussied them up a bit.

We all, I am sure, keep a cartridge with all sorts of things on it, some of which are never required, and this cartridge can hold a couple of dozen items, taking up valuable space. To edit this on the screen can be tiresome, but if you have a print-out, it makes the task easier.

When you load and run the programme, you are asked for the TITLE of the cartridge. Then the DATE. Thats it, and you have a list of the contents.

Try it.

H.H.H.

```

10 CLS
20 REMark by Hugh Howie/Bill Lawson
30 PRINT "Print_Dir_List"
40 PRINT "This programme sends the Dir_List "
50 PRINT "      of the cartridge in MDV1_"
60 PRINT "to the printer"
70 PRINT "Put Cartridge to be listed in MDV1"
80 OPEN #3,seri
90 INPUT "Cartridge Title ? ";b$
100 INPUT "Date ? ";a$
110 PRINT #3,b$
120 PRINT #3,a$
130 DIR #3,mdv1_
140 CLOSE #3

```

ALIGNING NUMBERS

Mel Richardson

The output of any program involving lists of numbers is usually easier to read and better looking if the numbers are lined up from a common point. This is sometimes accomplished in other Basic dialects by the "PRINT USING XXXX.XXXX" function.

Doing this in ZX81 Sinclair Basic can get pretty tangled. The book "CONVERTING to T/S BASIC" by Stuart Bird uses a subroutine and becomes ponderous for short programs. An easier way, I have found, is to use the "STR\$" function to convert numbers to "STRINGS" and employ the excellent string handling ability of our computers to control printing.

An example is this fragment of a program that outputs a "continued fraction" from a decimal input. Four numbers are printed; F, D1, D & R and we wish to align the fraction "D1/D" so...

```

240 LET N$=STR$ D1
250 PRINT F;TAB 11-LEN N$;N$;
"/";D;TAB 20;R

```

and the output is shown below.

3.1415927

3		3/1	3
7		22/7	3.1428571
15		333/106	3.1415924
1		355/113	3.1415929
292		103993/33102	3.1415927
2		208341/66317	3.1415927

The "TAB 11" is the key which indicates the point in this example to have the numbers lined up at. -LEN N\$ tells the machine where to start and the "/" will be at TAB 12.

This example demonstrates how easily strings are manipulated compared to numbers and variations of string handling and slicing should solve most situations like this.

EASY KEYBOARD FIX
by Dick F. Wagner

The TS2068 computer has a poorly designed space bar, as usually the right-hand end does not produce a space when pressed. I have explained to users about how to make a fix by disassembling the keyboard and inserting spacers between the hinge arms and the case to slightly lower the space bar and reduce it's travel. This is not easy to accomplish and requires removing the plastic keyboard overlay.

Here is an extremely easy solution to the problem that does not require entering the case, or even disconnecting the cables or plug-ins. One needs only a bright light, scissors, some notepaper in weight like 3M adhesive notes, and tweezers or needle-nosed pliers.

Inspect the space bar arrangement with a bright light and see how it moves. With the computer on, try pressing slightly on the left end and at the same time press the right end. The REPEAT should come on. Turn off the computer and note the gap between the space bar and the case, and see the two parts about 1/8 inch wide and 5/8 inch from each end that move within the slots. This is where the improvement is made. The arms are hinged about 1 inch back of the space bar.

The reason for the poor key action is that there are two contacts under the space bar that are too close together, plus the flexibility of the arms that do not force the key to move fully no matter where pressed. The springs under the keys are just rubber dimples that "turn inside out" when pressed. A hard button on the top of each makes the actual switch contact. This is all a one piece rubber assembly that seals the contacts from dirt.

The fix is simple...just lower the space bar about 15 thousandths of an inch. Cut some 1/8 inch wide strips from the notepaper, which is about 0.004 inch thick (don't use the adhesive end if 3M paper is used). Cut 2 lengths of about 3/4 inch long and two lengths about 3/8 inch long. Fold the longer strips at the midlength in a tight fold. Insert a short piece in each folded strip. At the folded end bend the three layer paper pieces in a right angle bend 1/8 inch from the fold. At the loose end bend very slightly in the same direction at a point about 1/16 inch from the end.

With a good light on, press the space bar fully and gripping the paper spacer (open end down and the right angle bent away from you) insert it between the space bar and the case, directly over an arm. The slight bend on the end is to make it easier to slide the paper between the arm and the case. Slide the paper down to the bend point, leaving the folded end protruding slightly higher than the case proper. This makes it easier to retrieve the spacers, if necessary. The right angle bend in the spacer keeps the spacer from slipping too far and it also keeps it from sliding sideways. If the paper ever does slip inside the case no damage can occur as all contacts are sealed.

Warning: As the rubber "springs" are not powerful, try not to bend the open end of the paper spacer very much, as the spacer may not flatten properly and the spacer will effectively be too thick.

Test and see the improvement. If you space bar is not fully fixed and requires excessive pressure on the end, remove the strips and add another 3/8 inch insert. It would be better to make a new set than to try to work with the old set, because of the bends. One user of this fix found that 4 thicknesses worked better than 3. There are differences in hardware so try a combination that works. It takes only a few minutes.

From the Clackamas County Area T/S Users Group

Retyped by G. Chambers

LARKEN-A TIP ON DISK DRIVES
by G. Chambers

Recently I have been adding disk drives to my Larken system. I came across an unusual condition which seems worth sharing with others who might encounter the same situation.

In the beginning, when I purchased my first DS 40-track drive (a new one) I looked for the terminating resistor that all instructions said should be installed on the end-most drive. I could not find the resistor, nor any place to install one. Upon inquiring I was told that modern drives do not need this resistor; that they function quite well without one. The story becomes interesting because I subsequently forgot that fact.

Later, I added an DS 80-track drive, then another DS 40-track. Finally I bought still another DS 40-track drive. This drive was a used one, and it had a terminating resistor installed. I decided to install it as the second drive in my system (drive 1). I left my original drive, the one I mentioned as not needing the terminating resistor, as drive 0. Upon trying the system I found that I was unable to FORMAT a disk successfully in any drive. There followed a great deal of shuffling of drives from position to position. Eventually I found that everything worked if I made the most recently acquired drive, #0, with the terminating resistor installed, and made the original drive, #1.

This still puzzled me until I spoke to another club member, Ian Robertson, who reminded me about new drives not needing the terminating resistor. The answer is that while the newer drives may not need it, if you have even one other drive in your system that requires the presence of a terminating resistor, then you will have to arrange your configuration so the end drive IS equipped with a terminating resistor.

Note that when we say the end drive we mean the drive that is connected to the end of the ribbon cable furthest from the Larken interface board. Also note that drive designation (i.e. drive #0, drive #1, etc.) is done by means of pins installed on the drive Circuit board, not by it's relative position along the ribbon cable.

SINCLAIR NORTHAMERICAN USERS GROUP

At our last club meeting it was proposed and accepted that we should take our club should take a membership in the above group. S.N.U.G. is a new group that has been in the process of forming an umbrella group to serve the Timex community.

Coincident with this action, we received a letter from S.N.U.G., advising us on what progress has been made by the group. Following is a retyped copy of the letter.

.....

S . N . U . G .
Sinclair Northamerica Users Group
7515 Arbordale Drive
Port Richey, Florida 34668
(813) 863 - 5552

This is a short update to let all of you know what has happened since last you heard from us. Since our last Press Release we have received 58 individual memberships, and an additional 15 memberships from User Groups. (which represents about 27% of the known users groups in the North American continent). We have also received memberships from Australia and Great Britian. We would be extremely pleased if we could establish groups to expand outside the continent!

So what have we been doing all this time? Plenty!! Firstly, we drafted a charter that was designed to allow for most provisions including expansion. This was a very time-consuming task. The Charter has been sent to Florida State Secretary of State, and was approved on Dec. 27th 1988. All funds up to now have been held and were deposited into a checking account on Dec 31, 1988.

We have with the help of the library committee established a format to work with the Public Domain Software Library. We currently have set up Librarians for the following machines and formats:

Head Librarian...Frank Davis
Assistant Head Librarian...Tim Ward

ZX81, TS1000, TS1500
Cassette, Larken DOS ⇨ Tim Ward, Tony Wiling

Spectrum, TS2068
Cassette ⇨ Frank Davis
A&J Microdrive, Wafadrive
Frank Davis, Andy Hradesky

Larken ⇨ To be Announced

Oliger DOS
Paul Holmgren, Willie Jones, Gary Lessenbury

Portugal Timex, Zebra ⇨ To be announced

C/PM ⇨ Paul Stoddard

Ramex SPDOS ⇨ To be announced

Quantum Leap (QL) Microdrive, Floppy Disk
Tim Stoddard

Cambridge Z88 Software, EPROM
To be announced

We are currently assessing what programs qualify for Public Domain and we are gathering programs at this time. We cannot give an accurate number of programs available, but we have conservatively estimated to have on hand approximately 850 Spectrum and TS2068 programs and 240 ZX81 and TS1000 programs as of Jan 1, 1989. We have been advised that several Commercial programs have been released into thr Public Domain. Once all details are arranged, an announcement will be made.

We have also been trying to put together a Publication committee to determine how our Magazine will look, and it's contents. Several of our respondents expressed interest in writing articles, so we should have several first-time writers with some new applications.

Included is the Official Membership Listing. All members on the list are Charter members, and as such are elegeible for becoming officers. All Users Groups that are members need to select a contact person. That person will act as directed by their membership to vote accordingly. All Users Groups have only one vote.

We are requesting that the membership respond with the names of three individuals for each of the offices listed. The deadline for nominations is Feb 25, 1989. The responses will be tabulated and official Ballots will be mailed on Feb 27th, 1989. The results of the elections will be announced on Mar 25, 1989.

The current officers are:
Mel Nathanson ⇨ Acting Chairperson, Pro_{tem}
Paul Holmgren ⇨ Acting V/Chairperson, Pro_{tem}
John "JC" Cushran ⇨ Acting Treasurer, Pro_{tem}

The offices that will be voted on consist of:
President
1st Vice-President
2nd Vice-President
Secretary
Treasurer

There is something special about a person willing to take a chance of an idea that has nothing immediately tangible to be had for their hard-earned money. It takes a person with vision, courage, and some money they don't need right away! Ideas with as much scope as the one we're attempting are difficult enough to pull off without individuals such as the Charter members and without your help, I really don't think this much could have been accomplished. Be proud ⇨ there are not many of you out there. We thank you.

We hope that this announcement has proved that we have been working towards the goals outlined. With the increased voluntary help that we anticipate, thr organization will thrive and grow.

(Signed by) Mel Nathanson

SNODGITS is a whodunit mystery game. It seems that a number of crimes have been committed in several mansions owned by Lord and Lady Snodger. You are assisting Benton, the butler, to solve them. The game requires that you move from mansion to mansion. There are 5 different mansions, or "houses", as I called them. Every time that you opt to move to a new house requires loading in a section of code, from tape of course.

Modifying this program to run on the Larken system requires that it be modified so as to call up the "house" data from disk. I shall first describe how I went about it.

The program was easily broken into after loading from tape by use of the NMI button, and pressing the A key. This is not always the case. By changing the INK colour to black I was able to list a short Basic program. It showed that there was a CLEAR 24200 instruction, and that the program would start with a RANDOMIZE USR 24663.

The "house" code that was to be called up was in the form of headerless files. This meant that the program did not access the Spectrum LOAD routine in the ROM at address 1366; that the LOAD routine was in the body of the program itself. Looking at the "house" code with a copy program (OMNI-2) showed each of the blocks of code to be to be 608 bytes long.

With the program in the computer and "broken into", a FOR/NEXT loop was used to search for a value of 608. That is to say, I was looking for a pair of addresses corresponding to the code length. The first address would contain a 96 and the second, a 2 ($96+2*256=608$).

Several locations turned up and were noted. Inspection with a disassembler turned up an interesting sequence starting at address 30691. Sure enough, a RANDOMIZE USR 30691 brought up a LOAD routine. Another thing, the disassembly showed that the code was loaded starting at address 30758.

Now that I know the starting address and length of each of the "house" code blocks I loaded the "house" codes from tape, into the computer in turn, using a made up header, saving them to disk with the name series "house1", "house2", "house3", etc.

I next wrote a short m/c routine which would call up the disk drive and load a block of code called "house1.C1". I searched for, and found a block of empty addresses at 59230 and placed the subroutine there.

Since the subroutine was constructed to load a file called "house1.C1", and I wanted to be able to load all 5 "houses", the m/c subroutine was instructed to increment the file name by 1. That is to say, if "house1" was loaded, it should then increment the file name so that "house2" would be the next "house" loaded.

Next thing to do was to POKE some addresses at 30691 to divert the program from it's tape load routine to my new disk load subroutine. This called for some POKES starting at address 30691.

There was finally one more thing to do. Delete the instructions re tape loading, that appeared on the screen. These were removed with a bit of POKEing.

Now step-by-step instructions for doing the job:

1. Get into the Spectrum mode.
2. Load the Basic listing shown here and run it.

3. Without turning off the computer, Load the SNODGITS program from tape, and break into it with the NMI button, and the A key.

4. Enter the following POKES:
POKE 30691,205; POKE 30692,94; POKE 30693,231
POKE 30698,0; POKE 30699,0; POKE 30700,0

5. Enter the following POKE sequences:
FOR N = 30505 TO 31518; POKE N,32; NEXT N
FOR N = 31617 TO 31640; POKE N,32; NEXT N
FOR N = 31666 TO 31673; POKE N,32; NEXT N
FOR N = 31682 TO 31695; POKE N,32; NEXT N
(Removes the tape instructions)

6. Finally enter the command RANDOMIZE USR 24663; press the SPACE BAR to get a screen display, and press the NMI to save the program. This SAVES the main program.

7. Now to save the "house" codes. Make up a "false" header, as follows. Save to a blank tape the first part of the following SAVE:
SAVE "house" CODE 30758,608
Then load this header into the computer, followed by the first "house" code on the SNODGITS tape. Save to disk with the command:
PRINT USR 100; SAVE "house1.C1" CODE 30758,608
Do the same with the next 4 code locks, except save them to disk as house2, house3, etc. That's it, you are finished!!

```

59230 F3      DI
59231 00      NOP
59232 00      NOP
59233 00      NOP
59234 CD6200  CALL 98
59237 2197E7  LD HL,59287
59240 112220  LD DE,8226
59243 010A00  LD BC,10
59246 EDB0    LDIR
59248 3E0B    LD A,11
59250 320220  LD (8194),A
59253 CDC600  CALL 198
59256 212678  LD HL,30758
59259 223320  LD (8243),HL
59262 216002  LD HL,608
59265 223120  LD (8241),HL
59268 CDC900  CALL 201
59271 3A6400  LD A,(100)
59274 3A9CE7  LD A,(59292)
59277 3C      INC A
59278 329CE7  LD (59292),A
59281 C9      RET
59282 4B      LD C,E }?
59283 61      LD H,C }?
59284 00      NOP
59285 00      NOP
59286 00      NOP
59287 68      LD L,B
59288 6F      LD L,A
59289 75      LD (HL),L
59290 73      LD (HL),E
59291 65      LD H,L
59292 312E43  LD SP,17198
59295 312000  LD SP,32

```

251 EI

HOUSE.C1

```

10 RESTORE 100; FOR n=59230 TO 59299
20 READ a: POKE n,a; NEXT n
30 STOP
100 DATA 243,0,0,0,205,98,0,33,151,231,17,34,3
2,1,10
101 DATA 0,237,176,62,11,50,2,32,205,198,0,33,
38,120,34
102 DATA 51,32,33,96,2,34,49,32,205,201,0,58,1
00,0,58
103 DATA 156,231,60,50,156,231,201,75,97,0,
,104,111,117
104 DATA 115,101,49,46,67,49,32,0,0,0,0,0,0,0,
0

```

What is an RS232 interface?
 What is the difference between serial and parallel ports?
 What is a Centronics port?
 What does Asynchronous mean?

Questions, questions, questions. I often wonder how many people listen to our discussions and are completely lost by the slang (computerese) that we use. If they do ask questions how often are the answers clear? To answer the questions above it is necessary to give a bit of background information.

RS232 is a specification that was developed in 1969 by the Electronic Industries Association. It is a standard that establishes how computers (data terminal equipment -DTE-) can communicate with modems and serial printers (data communications equipment -DCE-). Over the years many modifications and manufacturers preferences have made the standard confusing but the basis remains the same.

The RS232 Interface actually consists of two items:
 1. The Asynchronous Communications Adapter (the circuitry)
 2. The Serial Port (the connector where you plug the cable into.)

A character (8 bits) is transmitted to the adaptor by the computer all at the same time (parallel data transfer) and are captured by the adaptor. These 8 bits are then transmitted one at a time by the async adaptor. The parallel data has been converted to a serial stream of bits. The process can take any amount of time and is not governed by a clock rate hence the word asynchronous.

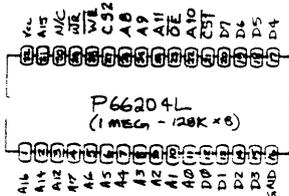
At the receiving end, another async adapter reconstructs the character by reversing the process. Serial data is converted back to parallel data. Serial data can be transmitted over long distances without deterioration of the data.

A Parallel port simply presents all 8 bits at its output and these are picked up by the receiving device at its parallel port. The data present is affected by attenuation over long distances and therefore is not suitable for communication over long distances. By the way, one of the first companies to provide parallel interfacing to the consumer was called Centronic and they set the standard that is still being recognized today.

CHECK IT OUT

How would you like to have 256k of banked-switched memory and do it with three or four chips? You can do it with a static ram chip that has 128k of memory. The chip is housed in a 32 pin package and contains four 32k memory modules and a decoder chip.

P66204L
 1 MEG (128k x 8)



What's the catch? ...it retails at \$141.96 Canadian. That's a lot of green stuff going up in smoke if you plug it in backwards!

Larry Kenny has brought out a new telecommunications software package for the Larken Disk system, called MAXCOMM. It is a dual-function utility. That is, it can be used on your computer in a simple terminal mode, or you can use it to set up your own Bulletin Board system.

We have not been able to review it properly for this issue of the newsletter, due to other pressing matters. Lacking a review, we shall quote from the Clackamas County T/S User Group newsletter, THE PLOTTER.

"...this should be a great new addition to the list of available telecommunications software. According to Larry this will operate as either a BBS or a standard terminal s/w. If you are running a BBS with it and someone wants to "chat", you press a key and you are in FULL TERM mode. It will operate at both 300 and 1200 baud (with an RS232 and Hayes compatible modem) and will not drop characters at the 1200 baud rate. It will have direct "dump to disk" downloading....."

".....It will be available from Larken, Ed Grey Enterprises, and RMG Enterprises. At a price of only \$25 (US), plus shipping. It will be hard to beat. KEEP WATCHING!...."

end of quote

We'll try to have a proper review next issue.

G.F. Chambers

WANTED! WANTED! WANTED!

MEMOTEXT, High or Low memory
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All must be in working order with instructions, and reasonably priced. State price including postage. Write to:

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 San Antonio, TX 78223 USA

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- 1 - TS2040 Printer
- 1 - Sound Generator, ZONIX-81 by BIPAK, uses a G.I. AY8912 chip.
- 1 - AGF Joystick interface for ZX81
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- 1 - Ribbon connector
- 1 - Loads of good ZX81 software

Best offers
 Write, or call Ricard Gonzales,
 Apt 616...77 Howard Street,
 Toronto, Ont. M4X 1J9
 Tel. (416) 921 9580 or 921 3450

Recently I was working with ABACUS, and as so often in the past, I was unable to get the complete print-out of the document on one page. I have been left with the last column being printed on the second sheet, and then having to paste the two sheets together to get a readable document. This time I was determined to beat the system.

I knew that with QUILL it was possible to go 'way past the 80 column and on up to about 115 or 120, so I felt sure there must be a way for ABACUS to work better for me.

I printed the document I was working on, and sure enough there was a column missing, so I adjusted the width of the various columns, this was OK. I then wanted to put a line down between the columns to make them easier to read, this put me back to square one. Try printing 'Condensed', half the page not used.

Went to the 'Design' command, and there it was right in front of me at the bottom of the menu: Paper Width(character) 80. I changed this to 100, but did not get the requirement I wanted, but I was interested by this time to see what would happen if I made this 200. To assist me in my experiment, I put in a few more columns in the document, right up to 'X'. Back to printer which I set at 'Condensed 20'. Printed the document, and Presto...complete... right up to 'X'.

There you have it,

Alter 'Paper Width' to what you want.
Adjust printer to condensed.
You're in business.

Got to admit, all my columns are not full width, most at 6 or 7 with every other set at 1 to print the symbol ' ' between columns to give me separation between columns. But I am now a lot happier than I was.

Try it!

H.H.H.

A tip in a letter from another one of our members, Hugh Howie. It concerns keeping track of magazine clippings. Here it is, slightly edited:

"...How often have you removed a page from a magazine or newsletter file, and when you go to replace the page, find the file been turned over, and you don't know where it goes. Now, if you keep the articles in a binder, you have to go through all the pages to find the right spot for your page.

A simple solution I found was to MARK the pages of any given date. The problem was that in an issue of many pages it was a time-consuming job.

Some time ago I invested in a Three Ring Punch. I punched the holes in the pages of course, but the real treat is to punch a couple of holes along the TOP of the page. Now I know that the Three Hole Punch will not register all three holes, but you will get two, and that's all you need to handle many documents.

Each time you use the punch, you make a mark with a pencil or tape, as to where you placed the LAST document, move the paper one mark over, press, and you can mark a number of pages at a time. When you put them all together you have a Hole-Coded page. Match the page in your hand to the holes along the top, and you have the issue. You will find that the number of combinations of hole positions are so varied, it is almost impossible to get an exact duplicate.

If necessary, you only need to use ONE hole, to mark a document.

One of our members, Schennelly Stoughton, writes about several items of interest to QL owners. I have selected parts of his letter to place in the newsletter:

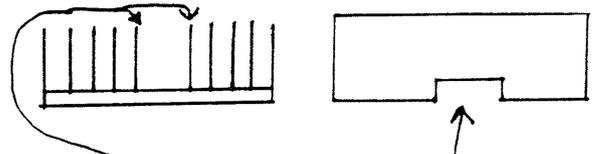
".....I have some good news for QL owners.

First: I found a 5-Volt 2 Amp. voltage regulator that runs cooler than the original regulator. You have to do some hardware mods, but it works great. Enclosed is a diagram for anyone interested. The regulator is a 3052V. Any of the 3052 series will work if wired correctly.

Second: Any hackers interested in good prices should check out ACTIVE SURPLUS ANNEX, at 347 Queen Street W. (a block or so east of Spadina). Phone 416-593 0967

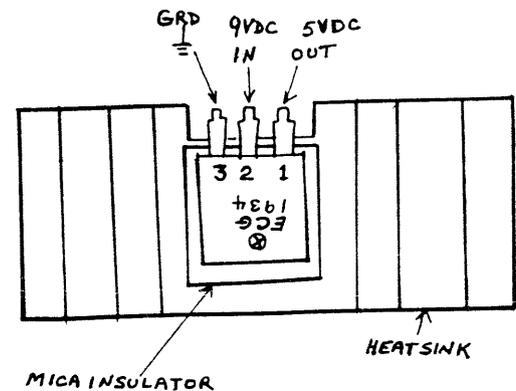
Third: Finally I can offer limited service for QL owners. I am doing my own business and can spend some time servicing our club members. I get the feeling from some suppliers of QL hardware and software that things are looking bad for us Sinclair buffs, but I will do what I can to help with any problem that arises.

The hardware mod for the regulator is as follows.



Remove old regulator & heat sink. Remove fins on either side of old regulator.

Remove enough aluminum from body of heat sink to allow legs of the regulator to fit where old regulator legs turned down. Cut legs of new regulator to approx. 3/8th of an inch. Remove plastic plug, but leave metal con. on wires. Replace heat sink, install insulating hardware (mica insulator) and heat sink compound. Install regulator and solder wires to appropriate legs of regulator. An ECG 1934 regulator can be used or any of the 3052 series if wired correctly. Wiring for ECG 1934 is as follows...."



Schennelly goes on to say that the ECG 1934 regulator sells for \$18.84, but that he feels that we should be able to do better than that. He will advise later.

Schennelly Stoughton
191 William Str. N.
Lindsay, Ont. K9V 4B8

Schennelly does servicing of satellite TV receivers as an occupation. Feel free to call him. 1-705-324 4792 should do the trick.
George Chambers.

QL QL

AT THE JANUARY CLUB MEETING IT WAS ANNOUNCED, AMONG OTHER ITEMS, THAT 'ACTIVE SURPLUS' WAS SELLING R G B MONITORS UNCASED O E Ms FOR A HUNDRED AND FORTY FIVE BUCKS. MY EARS PERKED UP. WOULD THIS MONITOR WORK WITH A QL?, SURE, IT MIGHT REQUIRE A LITTLE MODIFICATION, (SOUND FAMILIAR?). WHAT'S AN 'OEM' ?. ORIGINAL EQUIPMENT MANUFACTURE, I WAS ADVISED.

GEORGE CHAMBERS WAS GIVING ME A RIDE HOME AND I PICKED HIS BRAINS ON THIS APPARENT FANTASTIC BUY.

THE NEXT MORNING I GOT MARG, THE MRS., TO RESEARCH THE PHONE NUMBER. ACTIVE SURPLUS SAID THEY HAD FOUR UNITS LEFT. PUT MY NAME ON ONE AND I'LL BE IN LATER TODAY. DID I WANT A UNIT WITH 'CGA' OR 'IGA'. WHAT'S THE DIFFERENCE? HE DIDN'T KNOW. I THOUGHT OF ALL THE PEOPLE IN THE CLUB I COULD CALL, WHO MIGHT BE AT HOME, AND COULD ANSWER THE QUESTION. NO ONE. I CALLED AN OLD COHORT AT THE CNIB (CANADIAN NATIONAL INSTITUTE FOR THE BLIND) WHO IS IN CHARGE OF ASSISTIVE DEVICES, FOR THE VISUALLY HANDICAPPED. GEOFF EDEN. WHAT DO YOU KNOW ABOUT SINCLAIR QL COMPUTERS AND RGB MONITORS. TRY ME! WAS THE RESPONSE. I AM ABOUT TO BUY A 14 INCH RGB MONITOR MADE BY MITSUBISHI AND THE DEALER ASKED IF MY QL WORKED ON CGA OR IGA, AND I DIDN'T KNOW WHAT HE WAS TALKING ABOUT. GEOFF SAID, THE TERM REFERRED TO THE NUMBER OF PIXELS ON THE SCREEN AND THAT IT WAS HIGHLY UNLIKELY THAT THAT SET WOULD BE EQUIPPED WITH 'IGA' HOW RIGHT HE WAS. THE MANUFACTURE DATE ON THE SET IS NOV. 1983.

THERE IT WAS, ENCASED IN A PLASTIC HOUSING, I'D FORGOTTEN THAT ONE OF THE FELLOWS AT THE CLUB HAD MENTIONED THAT THE DISPLAY UNIT WAS IN PLEXIGLASS, THE UNIT WAS DISPLAYING ALL OF ITS COLOURS IN AN ELONGATED RECTANGLE FROM CENTER SCREEN OUT. AS MY GRANDSON WOULD SAY 'AWESOME'. THE COUNTER WAS QUITE BUSY. WHEN MY TURN CAME, "I'D LIKE ONE OF THOSE MONITORS". I SAID. IT TOOK A WHILE BUT I FINALLY GOT TO TAKE MY 'FANTASTIC BUY' HOME.

I CALLED GEORGE. "GUESS WHAT! I BOUGHT AN RGB MONITOR". "WOULD YOU LIKE SOME HELP IN GETTING IT GOING?" SAID GEORGE. I THOUGHT YOU'D NEVER ASK. I REALLY MUST DIGRESS, TO SAY HOW MUCH THE FELLOWS IN THE CLUB HAVE HELPED ME IN SO MANY WAYS IN THE FOUR YEARS I HAVE BEEN A MEMBER, I COULD NOT HAVE MAINTAINED MY INTEREST IN COMPUTING WITHOUT THE CLUB MEMBERS AND THE ASSISTANCE RECEIVED FROM ARTICLES IN NEWS LETTERS FROM OTHER SINCLAIR USER GROUPS. I TAKE THIS OPPORTUNITY TO SAY THANKS TO ALL OF YOU.

AS I AM RUNNING OUT OF SPACE I'LL TELL YOU THE BAD NEWS. SO FAR, WITH THE ASSISTANCE OF GEORGE CHAMBERS AND RENE BRUNEAU, WHOSE EXPERTISE IMPRESSES ALL OF US, THE 'RGB' IS NOT COMPATIBLE WITH MY QL. I HAVE WRITTEN TO MITSUBISHI IN CALIFORNIA FOR A SCHEMATIC, HOPEFULLY I CAN WRITE OF GOOD NEWS IN THE NEXT ISSUE.

W K (BILL) LAWSON.

Dear George Chambers,

I just got a news letter and from reading it, I got the impression that maybe I COULD offer something that some of our members don't know already.

In the process of writeing, re-writeing and fiddling around with a word processing program, I've come across a few things that may be of interest to some. The following is a list of these things:

1. By using "PAUSE 0" instead of "IF INKEY\$ = "" THEN....." I not only saved memory, but found out that it makes use of all the computer's normal keying characteristics! (repeat, delay before repeating,.... a VERY powerful command!) I don't know why, I just happened to discover this by my endless fiddling.

2. "IF CODE I\$ = 6 THEN POKE 23658, (8 AND PEEK 23658 = 0)" enables the caps lock key within the program. (this one took some research to figure out how to accomplish using little memory)

3. I used all 22 lines for the display in my program. Later I found that to prompt an input, I would HAVE to use an INPUT statement which would require keying "ENTER" after inputing the choice. This was bothersome, so in trying to solve this problem I came up with a way to use the INKEY\$ function in conjunction with an INPUT statement. This allowed the printing of a prompt at the bottom of the screen while the computer was waiting for INKEY\$!

The following are the program lines that allow this:

```
10 IF INKEY$ = "" THEN INPUT "E-DIT/N-EXT PAGE/P-RIOR PAGE  
(SPACES TO FILL IN THE REST OF ONE LINE AND NO MORE)": GO TO 10.
```

```
20 LET I$ = INKEY$.
```

Notice that there is no variable in the INPUT statement! For some reason, this syntax is accepted!

What this does is print the INPUT statement if no key is being pressed; immediately erase it since there is no variable to input; then loop back around. When the computer detects a key being pressed, instead of re-printing the INPUT statement, it assigns the value of INKEY\$ to I\$.

So what you get is a very rapidly blinking prompt to an INKEY\$ function.

Now, back to narrative...

As always I've got a question, tip #3 is only good for short prompts. The longer the written prompt, the harder the end is to read since the first characters remain on the screen longer than the last. Does anyone know of a better way of accomplishing this by way of pokes or a machine code routine? My program was written to be used with the OS-64, so my prompt is almost a whole line long. (64 characters per line)

Well, that's about it.

Until I hear from you again,

John Vander Stel
502 MI CO, 2ACR
APO NY 09093

John Vander Stel
BOX 535
NEWAYGO, MI 49337

The Spectrum game Technician Ted has been around for some time. It has been a difficult program to break into because of a combination of double speed loading, some complex M/C loading procedures, and the habit of crashing when any attempt was made to gain access to it. There have not been many game POKES published for it for this reason. These notes describe how it was accessed, using the Larken NMI button, to permit games POKES to be made. This same procedure is applicable to any Larken NMI-saved Spectrum program.

Some times it is possible to break into a program by trying an NMI-type save to a protected disk. This will produce a Disk Full error report, and if you are lucky you will find yourself in the BASIC mode. It is then a simple matter to save the code to disk. I suggest a save as follows:

```
PRINT USR 100:SAVE"prognm.C1"CODE 24000,41535
```

In many cases this "save to a protected disk" routine results in a system crash. Probably because the program poked a different number into addresses 23613 and/or 23659. The first address contains the stack pointer address, while the second address contains the number of lines on the screen. Tampering with these numbers will produce a system crash.

What we need is simple. We want a block of code that contains all the code to play the game. Also, equally important, we need to find the starting address of the program. Finding the starting address is probably the hardest part. We shall get into that later. The first thing is to obtain the requisite block of code.

My first attempt at this was unsuccessful. My thought was to delete the first track of the NMI-saved program, in the disk Directory. This was not successful. The LOAD itself was successful but at the end of the loading process, some Larken NMI code appeared at the bottom of the screen, and the computer remained locked up.

I then took a different tack. I saved each track in turn to tape (curiously, saving to tape, while a longer process, is simpler), and then loaded them back into the computer, and all was well. There is actually more to it than that, and I shall go into the details.

Firstly, your NMI-saved program should be a 9-track SAVE. That is to say, the saved code starts at address 22490. Secondly, I used the "doctor.B1" program, which will move a selected track into the computer starting at address 50000.

With "doctor.B1", determine which tracks the NMI program (Tech Ted, in this case) is located. Make a note of them. Then, again using "doctor.B1", load the highest numbered track into the computer. Then save the block of code 50024, 5090. This represents the actual program code, with the Larken data removed. Do this save to tape. Then load the next track (the one immediately below the just-saved one), and save it to tape. Continue this way until you have saved 8 tracks. You will have to name each save to tape and I suggest that each SAVE name include the track number, as an aid to keeping track of things when you are reloading the tape. For example SAVE "ted 45" CODE 50024, 5090; SAVE "ted 44" CODE 50024, 5090, etc.

The last track to be saved has to be treated in a special way. The track contains the first part of the NMI program starting at address 22490. We want to save to tape only the part of this track that starts above the "start of BASIC" address of 23755 (Spectrum mode). Actually we will want to save somewhat above this address. There is a trade-off here. We want to capture all of the code that is necessary for program operation, but we don't really know where this code starts. From experimenting it appears that a good address to start the code from is address 24000.

This is as low as one can place RAMtop, and still leave a bit of room for entering a few BASIC program lines (very few, to be sure). I have found that just about every games program has a few lines of BASIC in them, so the code generally starts above the address 24000 that I suggest..

What this is leading up to is this. The last track to be saved to tape, i.e. the one that starts at address 22490, must be saved with a starting address of 51534, and a length of 3580.

Now that the code has been saved to tape it is time to load it back into the computer, and this time to save the whole block to disk.

First enter the direct command CLEAR 23999. Then, starting with the first program on the tape, enter the command LOAD "" CODE 63210. This will load the first block of code into the right location in the computer. Follow this by loading the next code with the command LOAD "" CODE 58120, and so on. You will see the merit of including the track numbers in the filename as suggested earlier.

Here are the correct loading addresses in full:

```
1...63210
2...58120
3...53030
4...47940
5...42850
6...37760
7...32670
8...27580
9...24000
```

Note that the last one to be loaded is a smaller block of code, and its starting address corresponds to the shorter SAVE treatment that we gave it earlier.

Now that you have all the code loaded you may save it. Use the command:
PRINT USR 100: SAVE "prognm.C1"CODE 24000,41535

Having saved the code is one thing. The next thing is to look for the correct starting address. That is to say, what RAND USR number will start the program.

This is the part where a good deal of ingenuity will be required. If you are into disassemblers you can load one into high memory and search for some unconditional JUMPS. List them and try them out systematically. Sometimes you will strike it lucky that way. Or you can try breaking into the BASIC of the original program to find a RAND USR number. Sometimes the BASIC loader installs some M/C used to load the main body of code, and it will be necessary to locate it and disassemble it.

If you are not into disassemblers and don't mind some bull-work then try this. Install the game code. Then write a simple FOR/NEXT loop as follows:

CONT.

(Technician Ted - continued)

```
10 FOR N = 23950 TO 65535
20 IF PEEK N = 195 THEN PRINT N, PEEK N
30 NEXT N
```

Run this and you will get several addresses that contain a value of 195. This is a M/C unconditional JUMP command, and is a good place to start. After you have a list of maybe a dozen or so numbers, terminate the FOR/NEXT program, and start entering the command RANDOMIZE USR xxxxx, where xxxxx is one of the numbers in your list.

Sometimes the command will bring you back to BASIC, sometimes it will get you into some obscure part of the program (often followed by a system crash!). Mostly you will get a system crash. Simply persevere, reload, and continue with the next number. One of them will start the game at the proper place. Usually the number is in the lower part of the code.

Incidentally, the program "doctor.B1" mentioned above is one of several utilities available for Larken disk repair. Any utility that will place a track into memory will do the same task, though the SAVE/LOAD addresses given above would necessarily have to be changed.

RANDOMIZE USR 31490 will start Technician Ted!

MISMATCH...A terrific read

A new book is now in the bookstores which could be of interest to club members. It is called MISMATCH. To quote from a newspaper review:

"...Lloyd Pye is the author of one of the latest forays into the techno-thriller field, a thriller called "Mismatch" (Dell, \$3.95). Mismatch takes as its technological foundation computer "hacking" and phone "phreaking" (tapping into Ma Bell's lines illegally). The novel's plot hinges on the possibilities for chaos inherent in a situation in which an extremely talented individual proficient in both areas is capable of bringing national communications networks to a standstill."

The author appears to have written to a number of computer clubs, including ours, promoting his book. We received his missive this week. To quote from his letter:

"...I wrote it primarily for people like us, people who relish the lore and legend of all aspects of computer/high technology.

"....Believe me when I say this: If you do make the effort to alert your group, you won't be doing me a favor alone. MISMATCH is an absolutely terrific read, which I'm not saying just because I wrote it....So trust me, if you read it you'll be doing yourself a favor; and if you urge your group to read it as well, you'll be doing them a favor, too."

The author's letter also contained two pages of reviews of the book, which made it sound very readable. Interesting enough that I went looking for it. I have not been able to find it yet, but I shall keep looking. For \$4.95 Can., it seems worth taking a look at. If you come across it, let us know where you found it. You may need to order it. The author says that it has gone into 2nd printing.

G. Chambers

SYSTEM 15000 on the Larken Disk System
by George Chambers

System 15000 is a an unusual sort of program, in which you, a computer hacker, are trying to break into a large computer system to retrieve money.

The program description can be paraphrased as follows:

"Richard's company COMDATA has been ripped off by REALCO to the tune of \$1.5 million on his American order. The only way to put things right is to transfer the money back to COMDATA's bank (MIDMINSTER), by getting into the appropriate computer. Start by going to KINGSDOWN Polytechnic 672 3427. The special code list is SL312 - look for L.T.Perry & Son."

Needless to say, this game will take several sessions to complete. It has a SAVE/LOAD routine so that one can save the key data of a game in progress. Problem is that the save and load is to tape. What we are going to do is break into the program to change the commands to enable a save to disk.

Break into the program by attempting an NMI_{save} to a protected disk. This will give you a DISK PROTECTED error, and you will find that you can now list the program. The SAVE/LOAD routine starts at line 330. Changes will be required in lines 338, 372, and 390, as follows:

```
338 RANDOMIZE USR 100: GOTO 0: RANDOMIZE
    USR 100: LOAD "sysdat.A1" DATA s()
```

```
372 RANDOMIZE USR 100: GOTO 0: RANDOMIZE
    USR 100: SAVE "sysdat.A1" DATA s()
```

```
390 PRINT AT 12,6;"PLACE DISK IN DRIVE
    0"" PRESS <ENTER> WHEN READY"
```

(You may use a different drive number if you anticipate saving an interrupted game to another drive)

Install an unprotected disk in your chosen drive, point the Larken DOS to it (if necessary) with PRINT USR 100: GOTO (chosen drive number). To save a running program, enter GOTO 5. The screen will go dark for a few seconds, then the program logo will appear. Press the NMI button to save the modified program.

The program has several copy protection devices in it which are worth a note.

The first line consists of a couple of pokes which are designed to corrupt line 3, so that the program will not list properly. Also, the first line is line 0, making it impossible to list. To make it listable, change the line number by entering as a direct command, POKE 23756,1. This will change it to line 1. You might be wise to delete this line altogether.

You will also notice that the screen listing is only partially visible. This is because several of the lines have "buried" colour codes in them. Eliminate these codes by using the EDIT function to bring a line down to edit it. Move the cursor slowly across the line being edited until the cursor disappears. Then DELETE (slowly) until the invisible section of the line reappears. Personally I find it easiest to continue the ERASE function until I have erased the first character to the left of the cursor; then I retype it back in. You will find this program has quite a few "buried" colour characters in it. Aside from "copy protection" reasons, you will find these codes are also used to put colour onto the screen. Look at line 330 as an example.

EMY Extnbasic Multitasking

This machine code program provides 10 new commands for Spectrum Basic. The program is 1413 bytes long. The program has been saved under Larken Disk Commands. To load the program type:

```
CLEAR 63000: PRINT #4:
LOAD "emy.C1" CODE <enter>
```

Once loaded you will have 10 new commands:

AFTER, EVERY, DISABLE, ENABLE, DROP, ON ERROR GOTO, ON BREAK STOP, ON BREAK GOSUB, IGNORE BREAK, RESUME

All commands use a REM statement to pass commands.
ex. 100 RANDOMIZE USR 63866
110 REM IGNORE BREAK
120 GOTO 130

Command Functions:

AFTER time, GOSUB line
EVERY time, GOSUM line
time represents seconds
(1 sec = 60)
DISABLE and ENABLE turns on and off "time" in EVERY and AFTER
DROP lowers the stack on the spectrum
ON ERROR GOTO ex.
1000 DEF FN v(a)=USR 63872:
RANDOMIZE USR 63866
1100 REM ON ERROR GOTO 9900
1200 etc,,,,,
9900 PRINT "Error ";CHR\$(FN v(10));"in line ";FN v(8) ;":
;FN v(9)
9901 PRINT:LIST FN v(8)
ON BREAK STOP will stop the program when BREAK is pressed.
ex. 100 RANDOMIZE USR 63866
110 REM ON BREAK STOP
120 etc,,,,,
999 GOTO 110
ON BREAK GOSUB xxxx will cause a jump to xxxx when BREAK is attempted.
ON BREAK IGNORE will ignore the BREAK attempt.
RESUME is used with ON ERROR GOTO command

R. Zannese Oct.,23,1988

```
1000 REM *****
*           E M Y           *
* Extnbasic Multitask*
* By L. Callegari *
* Spectrum * V 1.1 *
* 7/87 *
*****
1002 REM *****
* Modified By *
* R. Zannese 10/88*
*****
1010 RESTORE : INK 9: PAPER 6: C
LEAR 62000: LET ad=63866: POKE 2
3609,22: BORDER 2: POKE 23692,0
1020 LET a=10: LET b=11: LET c=1
2: LET d=13: LET e=14: LET f=15
1030 FOR j=7000 TO 7036
1040 LET ck=0: READ a$,ch
1050 LET by=VAL a$(2)+16*VAL a$(
1): LET a#=a$(3 TO )
1060 LET ch=ch-by: POKE ad,by
1070 LET ad=ad+1
1080 IF a#<>" " THEN GO TO 1050
1090 IF ch<>0 THEN PRINT "Error
in line ";j: STOP
1100 PRINT TAB 9;"Line ";j;" Ok!
": NEXT j
1110 CLS
1120 INPUT "Save Program (Y/N) "
;a$
1130 IF a#="y" OR a#="Y" THEN P
RINT #4: SAVE "emygen.Bf" LINE 1
000
1140 INPUT "Save Code (Y/N) ";a$

1150 IF a#="y" OR a#="Y" THEN P
RINT #4: SAVE "emy.C1"CODE 63866
,1413
1160 STOP : STOP
7000 DATA "0321FDC31AFDC321FBDFC
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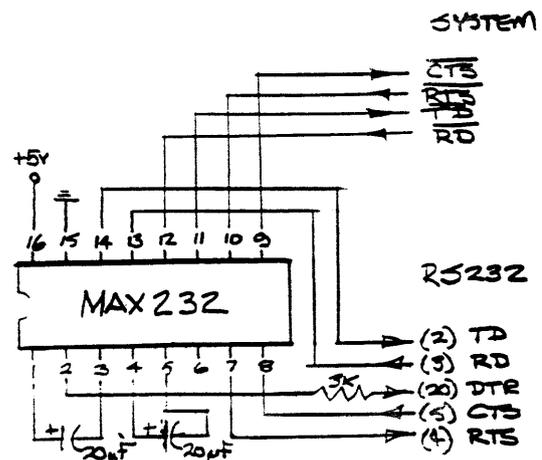
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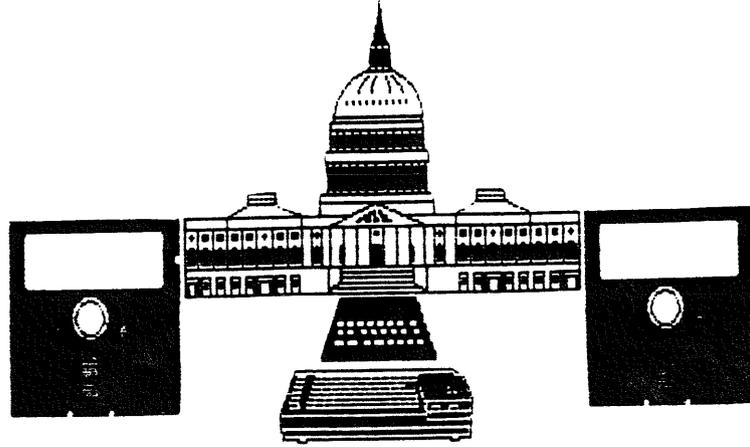
ONE CHIP MOD FOR THE 2050 MODEM R. BRUNEAU

In the May/June 1987 issue of the SINCUS NEWS article was written about adding a RS232 port to the TIMEX 2050 modem card. The integrated circuits used were the MC1488 Driver and the MC1489 Receiver which provide a conversion from RS232 voltage levels (+15 to -15) to TTL levels (0 to +5). To generate the negative voltage a 9volt battery was used. Both IC's have been around for many years and are quite cheap.

Recently, a new chip has come into the market which provides the RS232 voltage levels from the computer's 5volt power supply. The chip is made by MAXIM and is called the MAX232. It contains two voltage converters to generate +10v and -10v. the chip is available from Active Components for \$5.97 Canadian. The figure below shows how to connect the circuit. In the next issue of SINK-LINK we will attempt to publish a printed circuit to convert the 2050 modem.



CAPITAL AREA



TIMEX SINCLAIR
USERS GROUP

C. A. T. S.

DEAR TIMEX/SINCLAIR ENTHUSIAST:

WE WOULD LIKE TO TAKE THIS OPPORTUNITY TO INVITE YOU TO ATTEND THE UP-
COMING CAPITAL AREA TIMEX/SINCLAIR CAPITALFEST ON MAY 6 AND MAY 7, 1989.
BANQUET FRIDAY NIGHT, MAY 5, 1989.

FEST TO BE HELD AT THE HOWARD JOHNSON INN, ROUTE 450 AND THE BELTWAY (EAST-
SIDE), NEW CARROLLTON, MD.

HOWARD JOHNSON'S IS CONVENIENTLY LOCATED FOR EASY ACCESS BY ROAD, SUBWAY
(NEW CARROLLTON, MD. STOP), AMTRAK FROM NEW YORK AND BOSTON TO THE NORTH
AND ALL POINTS SOUTH, AND BY AIR INTO WASHINGTON NATIONAL AND BALTIMORE —
WASHINGTON INTERNATIONAL.

CATS, OUR USERS GROUP, CURRENTLY WITH OVER 100 MEMBERS WILL BE HOSTING
THIS AFFAIR.

SHARP'S, ZEBRA, AND MANY OTHER VENDORS WILL BE SPONSORING AND ATTENDING.

SEMINARS, DOOR PRIZES, AND MANY SURPRISES AWAIT YOU.

THIS CAPITALFEST WILL BE FULLY ADVERTISED WITH THOUSANDS OF FLYERS BEING
SENT ALL OVER THE COUNTRY.

HOTEL ROOM RATE IS \$62.00 A NIGHT ALONG WITH ONE FREE ADMISSION TO SHOW.

BANQUET, FRIDAY NIGHT WILL RUN AROUND \$17.00.

TABLES WILL BE \$25.00 EACH.

IF YOU ARE INTERESTED IN MORE INFORMATION, PLEASE LET US KNOW.

GET THE DETAILS!!

LOVE TO HAVE YOU AT THE FEST.

C.A.T.S. CAPITALFEST
P. O. BOX 24
GARRETT PARK, MARYLAND 20896-0024
301-439-8756



CAPITAL AREA TIMEX SINCLAIR
USERS GROUP



C. A. T. S.
CAPITOLFEST

NAME: _____

ADDRESS: _____

PHONE: _____

VENDOR: _____

USERS GROUP: _____

BANQUET: _____ \$17.00 EACH DINNER. LIMITED SEATING

TABLES: _____ \$25.00 EACH

ADVANCE ADMISSION:
\$7.00---2 DAYS
\$5.00---1 DAY

ALL TICKETS FOR ADMISSION MUST BE BOUGHT BEFORE 4/1/89.

AT DOOR:
\$10.00--2 DAYS
\$7.00---1 DAY

HOTEL: _____ \$62.00 A NIGHT WITH 1 FREE ADMISSION.

PLEASE MAKE RESERVATIONS AS SOON AS POSSIBLE.

C. A. T. S.
CAPITOLFEST
P. O. BOX 24
GARRETT PARK, MARYLAND 20896-0024
301-439-8756



SPESHUL SPESHUL QL ers HEAR THIS HEAR THIS QL ers SPESHUL SPESHUL

In the Jan/Feb 1989 issue of SINC-LINK, it was stated at the end of the History of the Toronto Timex Sinclair Users Group, that "Only the QL section seemed moribund". This chance remark was jumped on by Yours Truly, and I wrote a letter saying that I did not think the QL section was moribund. The subject was brought up at the meeting on February 1st, and to cut a long story short, it was agreed that something should be done.

My name is Hugh H. Howie, my Address is 586 Oneida Dr, Burlington. Ont. L7T 3V3. and I have been asked to try and do something to enliven interest in the QL section. I am the something that was DONE ----Shows it pays to keep your mouth shut. Anyway, here goes.

It is suggested that we try and build a QL library within the Club, and that we ask all members to give us support, by articles to the NewsLetter, and by items for the library.

If you have been keeping in touch with some of the developments South of the Border, you will know that there appears to be, at the very least, more than just a MINOR resurgence in the QL. Many Magazines and NewsLetters are starting beginners courses on the QL. There appears to be a lot of software being produced for this section. In fact the QL section is NOT MORIBUND, it just needs a little bit of a prod to come forward. Perhaps that little remark in the News-Letter was all that was needed. Since that remark was made, we have had one renewal from the Hamilton area, and George Chambers has received a PHONE CALL from NEWFOUNDLAND. Now if all this is not an indication of an ALIVE section, what is?.

OK. Enough of back-ground. What do we do?

First of all, we should start a QL Library, but how to do it, and what form it should take. Many QLers do not have disc, as a matter of fact, who needs it? we have a perfectly good medium of storage available, which not every computer has. But it is felt that we should ask the members what they would like, and to start the nucleus of the library on that precept. In fact, why not have both? The point is, as a Qler, which would you PREFER? Drive?, or Disc?.. We will try to accomadate both. But a preference would be welcomed.

At the back of this Newsletter is a tear-out page, with some questions on it. ALL members, QLers or others are asked to contribute. Answer the questions, make suggestions, and send it back to us. To tear out the page will not destroy any part of the Newsletter, as of itself. But please take the time to answer the questions and make your suggestions. ALL SUGGESTIONS ARE WELCOME. You need not put your name or address on the form if you desire not to. Purely Voluntary. (But we do like to know those things, from members or non-members of the Club)

By filling in this form you are not, definately NOT, going to win some fantabulous amount of money to keep you in Computer Luxury for the rest of your life. But you will have an opportunity to assist in the formation of a Library, a Library which is dedicated to give YOU, as QL members, access to much more information than would be possible if you were working on your own. But we do need your assistance.

Should we make use of the Quanta library? would you care to contribute to the purchase of Quanta material for donation to the QL library?. What would you like of us ? Are you considering the purchase of a QL ? If you are , what are you interested in? Those and a hundred questions require an answer, and YOU are the only folks that know the answer. Let Toronto Timex-Sinclair Users Club, have your observations.

Please, take a few moments, spend a copper, let us know what you would like.

Hugh H. Howie.

NAME

Address

City.....

Postal Code.....

Do you have a QL.....

List what you DO have.....

.....

.....

Would you be interested in a QL Library?.....

Would you contribute to a QL Library?.....

Would you be willing to contribute a cartridge
of your own choice, occasionally, from the
Quanta library, to this library?.....

Should this be on DISC or DRIVE?.....

Your Own Observations and Recommendations.....

.....

.....

.....

.....

.....

.....

.....

.....

Please take a few moments to fill out the above.
Your name may or may not be given.
ALL, not only Qlers, are invited to reply.

Thank You from :-

Officers of Toronto Timex_Sinclair Users Club

Mail Reply to:-
Hugh H. Howie
586 Oneida Dr
Burlington. Ont
L7T 3V3

JAN/FEB 1989

Jan 8, 1989

Dear Out-of-Town Members,

I can't believe it's that time again. So soon!! I seem to have just got the last letter off.

Well first off all, I shall go through some old newsletters that we have received from other clubs. They have a number of tidbits in them which will be of interest. We don't seem to get much gossip about Timex doings, into our letter, for some reason.

Bill Heberlein, writing in the Sinclair Milwaukee newsletter, reports that a Mr Tomei Jr. has applied for bankruptcy and will be free of debts after Feb 6th, 1989. His assets are listed as .01 cent and debts as some \$61 thousand. That will not mean much to most of you. However for anyone who is waiting for an order to be filled from Quantum Computing it means bad news. That's really Quantum Computing, a Timex dealer. Quantum Computing were selling QL computers, among other things, and if you have not received yours, you are not likely to.

Anyway, if you have claim you can file it with Jonathan Kohn, 1180 Raymond Blvd., Newark, NJ 07102-4107. Well, best forget it, I'd say.

The Capitol Area Timex Sinclair club are sponsoring a ComputerFest to be held on May 6th and 7th. That's a Saturday and Sunday. Actually it starts going with a Friday evening banquet, I think. The Fest is being held in Carrolton, Maryland. Admission is \$5/one day; \$7 for the two days. Accomodations are possible at the Howard Johnson's at \$62/day.

Some of you may remember the two dealers, EZ KEY and FOOTE SOFTWARE. They were strong advertisers in the old SYNC magazine. I have not heard much about them lately. However, RMG ENTERPRISES have obtained the stock of these two companies and will have the stuff ready for sale as soon as they have inventoried it. Anyone interested might drop them a line. When I look at old SYNC magazines I see that EZ KEY specialized in keycards for the TS1000, so that might interest some of you. In looking at some old TIME DESIGN magazines I see that FOOTE were offering printer interfaces, some printers, some software, and copies of "The Best of SUM" magazine compilation.

Another Timex dealer seems to have closed shop. The Clackamas County newsletter, the PLOTTER, reports that Knighted Computers was sold to WMJ SYSTEMS, who will now have their inventory. Knighted Computers offered quite a large range of software and hardware, so there may be things of interest at WMJ Systems, too.

WMJ DATA SYSTEMS
4 Butterfly Drive,
Hauppauge, N.Y. 11788 USA

RMG ENTERPRISES
1419 1/2 7th Str.,
Oregon City, Oregon 97045
phone (503) 655 7484

The same newsletter mentions that the SINCWARE and QUANTUM LEVELS magazines have combined and that a new issue is possibly in the works.

Come to think about it, I have not seen a TIME DESIGN magazine for months and months. Does that mean that it is foundering also?

Tim Wood of the Vachon Island S/T club reports that he has been appointed as the SNUG LARKEN Disk PD librarian. Just recently we received a request to exchange newsletters with this group, so I shall inquire just what this Larken library is about (I thought we had the only Larken library!!)

I seem to have mentioned it once before however I shall say it again. There is a BBS in Toronto that has a Timex section on it. At our last meeting One of our members mentioned that he had uploaded some programs onto it. I will have him upload some of the Larken utilities that I have written. Any of you modem enthusiasts might try it some time. It is the PHOENIX. The phone number for this BBS is (416) 458 5850. I must confess that I don't have the information on how to access the Timex section, but I suppose you old hands will have no difficulty with that. You can ask me for more information, I should have more details later.

I ordered and have received some extra SRAM chips for my RAMdisk. Say, the price on them has shot up. Where a few months ago Bob Mitchell bought some for his system for \$13 US and we thought the price was exorbitant the price now is \$18 US. Each, that is!!

To add to the aggravation I am going to have to return them because they are not doing the job. What I find is that they will not reliably retain the programs when I shut off the computer. I added a third AAA battery to raise the voltage to 4 1/5 volts. This helped, but I still get CRC errors after a day or so when I do a Verify routine. Did I mention this VERIFY routine before. It is an undocumented routine in the Larken system. Enter the command PRINT USR 100: VERIFY "" and the LKDOS will work it's way through the drive you happen to be pointing to, checking each track. Any CRC errors it encounters will appear on the screen.

I have started pondering how to remote my keyboard from my computer. I think I would like to get the computer proper and all it's paraphernalia down under the desk, and have just the keyboard on the top, along with the monitor. Remoting the keyboard, I find is a bit tricky. There does not seem to be much written about this. I wonder why, is it not practical. Should be though. I thought with all this modern chip technology, anything was possible. I mean easy!!

A local surplus store has been selling RGB monitors off for \$145. They are uncased, 14 inch size distributed in USA by Mitsubishi. One of our members has bought one for use with his QL. I have been helping him to get it going. We have to make up an interconnect cable. If we get it going, I must confess that

I am tempted to buy one for myself. Though why I need a second one is beyond me. It's just that I paid close to \$600 in total for my Sears RGB monitor several years ago, and I cannot resist the bargain!! Does that make sense?

Had a bit of excitement around here a day ago. A neighbour had a handbag stolen from his car parked in the driveway. I am a neighbourhood Watch block captain, so I scouted around the area, talking to the residents, and was able to recover most of the money and some credit cards. The story of course is much more involved than that, but the culprit has been charged with the theft. It was pleasing to have a satisfactory outcome, I must say.

Now it's back to mundane matters like newsletters!!

I bought an interesting item to hold my Larken disks. It looks very much like an oversized letter rack. About 5 1/2 by 4 1/2 by 8 1/2, I have placed it on top of my drive and the disks rest vertically in the 'letter' slots. It has 7 slots, each of them can hold about 5 disks. It cost \$6.75 at an office stationary store. We know them in Toronto as Grand & Toy. The disks are exposed to dust etc., but I use the disks so much that it has no real significance. Much handier than the normal disk holders.

SAM's PhotoFacts has put out a set of sheets on servicing the TS2068 computer. It is identified as CC19 COMPUTERFACTS. I imagine that the larger public libraries carry SAM's material and you can see it there. However, if any of you are interested I can send it to you. There are 17 large sheets to it. Some of the more technically minded may be interested.

Am I up to date with my membership mailings. I think I am. If you don't agree, drop a line and let me know. I know I am behind in some of my correspondence, but maybe I can get onto it by the time I send out this newsletter.

I mentioned in the last letter that we were discontinuing the club Box Number. Just a reminder, it runs out sometime in March or April. We are going to use my home address. It got to be too much of a hassle going to pick up the mail at a downtown Post Office.

Bill Harmer, a ZX81 enthusiast in Ottawa, has sent me a preliminary draft of a document he has been working on. It's subject is the ZX81 and LARKEN. It deals with the ZX81 version of the Larken disk system, and how to make best use of it. I gave the copy to one of our out of town members, Lou Champagne, to critique. We shall return it to Bill Harmer with our comments. I think it will be a worthwhile manual for Larken enthusiasts of the ZX81/TS100 stripe.

I received a postcard from a TOM PHILLIPS 2942 Christopher Road, Jacksonville, Florida 32217. He is offering a number of items for sale on a first come, first serve basis. He offers a QL, looks brand new, for \$125, plus \$5. A TS2050 modem w/case, docs and software, for \$35, plus \$3. A Mathewson keyboard interface, and a 66-key Keytronics keyboard. A TS2040 printer, 2 Tandon disk drives, an 8K Hunter NVM board, a nine inch monitor. And some other stuff. Drop him a line, or you can call (904) 739 2580 after 6pm

I have inherited a copy of a portion of the Spectrum manual. The part that I have seems to cover a lot of the more advanced programming possibilities of the Spectrum. More than was covered in the TS2068 manual. There are 28 sheets, and I can get a copy for you if you are interested in paying the postage, and the copying cost of about 6 or 7 cents a page.

Also I have the same sort of a thing from what is called the HACKER's MANUAL. Full of interesting but mostly useless tidbits of information on hacking!!! Ask me if you are interested.

Several clubs report that they have members who have bought the Z88 computer, and there have been how-to articles written in several newsletters on it. If anyone is interested I can make copies of these articles for you.

One of the items available commercially is called a Z88 MacPack. It consists of a Z88 computer and a Z88 MacLink. It is said to be an affordable way for Mackintosh owners to transfer files from a Mackintosh so they can be worked on in the Z88, then transferred back to the Mac.

For you QL owners, one of our members is prepared to repair the QL computer. Well, I may a bit premature about this, but if you have a problem why not drop him a line.

Schennelly Stoughton,
191 William St., N.
Lindsay, Ont K9V 4B8.

This would be of particular interest to QL owners living in Canada. Schennelly is involved, workwise, in the installation & servicing of satellite TV, and therefore seems likely to be competent for this sort of work.

Members in the USA would probably prefer to send defective units to:

Dan Elliott
Rt. #1 Box 117
Cabool, MO 65689

Dan has been repairing all Timex units for some time now, and I've heard no complaints, and he seems reasonable.

I'll have to close off now. I've simply run out of anything to say!! Don't say it!!

Sincerely,

George Chambers

TORONTO TIMEX, SINCLAIR USERS CLUB
January 29, 1989

Rec'd 2-6-89

14 Richome Court
Scarborough, Ont.
M1K 2Y1

Les Cottrell
108 River Heights Drive
Cocoa, FL 32922

Dear Les,

Received you disk the other day. I happened to have most of the programs on the disk. But I did not have ALIEN 8. Also, of course, the LOADER.BL program. Thank you very much for it. Thank you also for the \$10 which you sent to cover postage, etc. I shall keep track of it.

I am enclosing a tape that has a great many games on it. In addition to the games, on the far end of side B you will find a program. I think I called "menu.B1", but I can't be sure. It is a program which I have been working on recently. It is an AUTOSTART menu program which would be very useful where there are more programs on a disk than can be shown on a single menu screen. It has quite a number of features, and I think I shall publish it in our newsletter, so that I can go into more detail about it's operation. But I think you could experiment with it in the meantime.

I also enclose a list of other games tapes that I have, which you can borrow, if you are into this sort of thing. I have a great many others on disk, which are difficult to get onto tape. If this interests you I can send a list of them also. I guess you can see that my interest is not so much in playing them as hacking them!!

not enclosed!

Did I send you a copy of the utility called "bopeep.B1"? I can't remember. It is a program which allows you to peek (and to POKE) into NMI,type programs. Or any programs, for that matter. Very useful to insert Game Pokes into Spectrum programs. Really quite a novel approach, made possible by using the Larken system. If you do not have it, let me know.

yes

I am enclosing a version 3 LKDOS EPROM. You can use it while you order one from Larry Kenny. It is an EPROM that Larry sent initially, and we found a small bug in it. You will hardly notice the bug. What it is is this. The LKDOS is supposed to default to a 64 character line. In fact, with this copy it defaults to 65 lines. That means that if you want to print out a TASWORD file, for example it will put 65 character lines out on paper and look messy. Other than that, it works perfectly. What you have to do is POKE the wanted 64 into the DOS. See the instructions on making changes.

I do not really know how much Larry Kenny charges for his v3 LKDOS. I have seen figures in newsletters suggesting \$10, others mentioning \$15. Without quoting me, try sending him a Postal Money Order for \$10, plus your old EPROM. I think that should do it. Well, maybe a couple of dollars extra for postage. Really,

it is a good thing and well worth the money. You can return the EPROM that I am sending you, when you get your copy back from Larry. He may take some time to get back to you. Don't worry about that, but when you do get it, I would appreciate a prompt return so that some other member can use it in the same way.

Re your comments about the similarity of "doctor.B1" and Larry's Editor. They were developed independantly. Funny though, how you get used to your own way of doing things. I think mine is the better one!!, and I'm sure Larry feels the same way about his.

Actually, mine got it's start from a similar program written for the ZX81 Larken interface, by a former club member. I took the basic concept and adapted it to the 2068. THEN I continued to modify it with experience, so that by now there is very little resemblance.

I see where you want to borrow a few tapes as well. I shall put one or two in the package, so as to fill it up. Ask again, in your next letter for more tapes.

Sincerely,

George Chambers

Rec'd # 26
30

plus games # "C"