SINC-LINK

Vol.8 No.1   Jan-Feb '90

SINC-LINK IS A PUBLICATION OF THE TORONTO TIMEX-SINCLAIR USERS CLUB AND IS ISSUED 6 TIMES A YEAR. COPIES OF THE NEWSLETTER ARE $1.50 EACH FOR NON-MEMBERS. CLUB MEMBERS RECEIVE FREE COPIES AS PART OF THE $20.00 ANNUAL MEMBERSHIP FEE. A NEWSLETTER SUBSCRIPTION ONLY IS AVAILABLE FOR $12.00.

NEWSLETTERS ARE EXCHANGED, FREE OF CHARGE, WITH OTHER TIMEX-SINCLAIR USERS GROUPS.

PLEASE CREDIT THIS PUBLICATION. AND THE AUTHOR IF YOU COPY MATERIAL.

THE CLUB MEETS ON THE FIRST WEDNESDAY OF EACH MONTH AT FOREST HILLS COLLEGIATE INSTITUTE, 730 EGLINTON AVE. W., TORONTO.
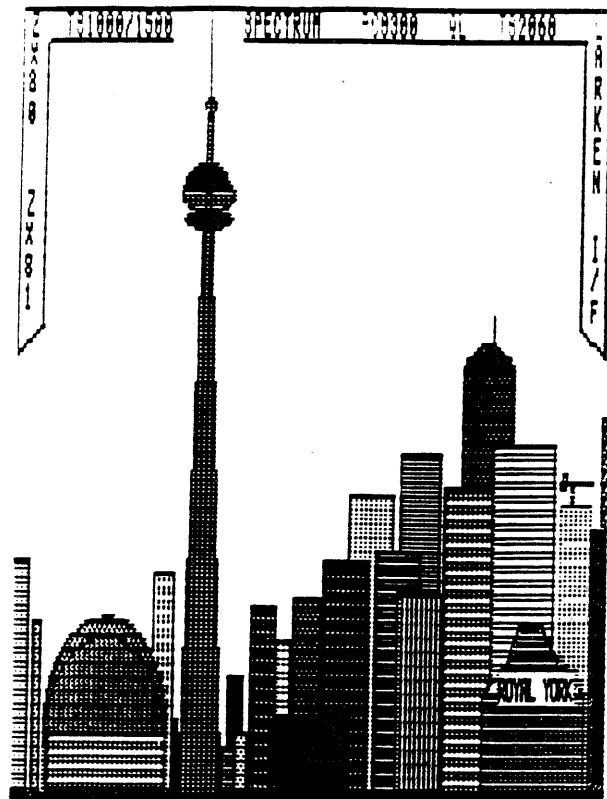
SEND CORRESPONDANCE TO:

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

TORONTO TIMEX-SINCLAIR USERS CLUB

EXECUTIVE OFFICERS:

PRESIDENT:	RENE BRUNEAU (531-9749)
TREASURER:	BILL LAWSON (444-8772)
SECRETARY:	GEORGE CHAMBERS (751-7559)
ACTIVITIES:	RENE BRUNEAU (531-9749)
TAPE LIBRARIAN ZX81:	LYMAN PAQUETTE (482-4479)
TAPE LIBRARIAN 2068:	RENATO ZANNESE (635-6536)
TAPE LIBRARIAN QL:	HUGH HOWIE (634-4929)
PAPER LIBRARIAN:	JEFF TAYLOR (244-8583)
NEWSLETTER:	JEFF TAYLOR (244-8583)
LIAISON OFFICER:	GEORGE CHAMBERS, 14 RICHOME COURT,
(Out-of-town members)	SCARBOROUGH, ONTARIO, M1K 2Y1
	(416-751-7559)

TORONTO TIMEX-SINCLAIR USERS CLUB

Editorial

The 1990's are upon us! The first decade of the personal computer is over and a new one is beginning.

Timex and Sinclair computers are still being used and new products are still being invented. Why? Because a small core of dedicated users realized that Sinclair's little toys weren't such bad machines after all. These users weren't bedazzled by the lure of gigantic ammounts of memory, befuddled by 1200 different colours or blinded by CPU speeds now approaching 50 MHz. Sure, some of the new machines have some neat features but is the average Joe ever going to use them all? Does he really need them all? Probably not.

Look at Commodore's Amiga. With all it can do (in the hands of talented salesmen) it should be a great money-maker yet where does Big C make most of its bread? From the lowly C64, a computer that's 10 years old. Why? Because the C64 fulfils the needs of the average home computerist.

The point I'm trying to make is that the big computer companies seem to have lost sight of what the ordinary home user really wants. It may be nice to own a Ferrari but wouldn't a Chevrolet do the job just as well? Think about it.

Whether you own a ZX81, TS2068 or QL, there are enough hardware and software products still around to get the job done.

The best way to find these products is to correspond with a user group. If they don't know, they can ask the user groups they correspond with. Most of the large clubs in North America regularly exchange newletters so an information network exists just waiting for you to tap into. All you have to do is ask.

The Toronto Timex-Sinclair Users Club is one of these groups. If you need information, we're here to help you. Whether you want software, hardware, literature or repairs we can supply or direct you to the right source and it can usually be done very economically. Give us a try. I think you'll find us worthy.

Thanks

A few people deserve some recognition for helping me out. Renato Zannese for finding the correct pinouts to run a modem on my QL after I found that both the QL Manual and Mike de Sosa's book were in error. To Vernon Smith of the CATS group for directing me to the correct issue of his groups' newsletter to find the circuit I needed to mate my QL to a RGB monitor. Rene Bruneau for finding an elusive and intermittent connection on my 2068 RS232 interface. To Bill Jones of Update Magazine (see ad further in issue) for continually plugging Sinc-Link and gaining us new members.
To the SMUG group for supplying my digitiser board and to John McMichael for supplying software to run it.

Aren't user groups great? Let's keep supporting them in order to support ourselves.

Gone But Not Forgotten

An example of not enough support is the demise of Syncware News/Quantum Levels Magazine whose final issue I received in mid

December. Publisher Jeff Moore wrote that he was simply not getting enough good material to continue to put out a quality product. Back issues of this fine publication are still available so write to Jeff for more info at 602 S. Mill St., Louisville, OH 44641. This is also an open invitation for any of the Syncware group of writers to have their articles published in Sinc-Link. We want to hear from you.

Not Gone But Not Forgotten

Has anyone heard anymore about Time Designs? We have been hearing and reading conflicting reports about when (if ever) the next issue will be published. Will Tim Woods please stand up and let us know what is happening?

Keeping writing in and we'll keep writing out. That's all for now. See you.

J.T.

PRESIDENT'S MESSAGE

Happy New Year everybody! We've made it through another year in fine health, thanks to the time and effort of the Club Executive and to the great support of all of our members. We wish you health and prosperity throughout the new decade.

1990 marked almost 10 years since Clive Sinclair introduced the ZX81 to the world as an inexpensive computer ($200.00 was cheap in those days - for a kit no less!) and this machine formed the cornerstone on which the Toronto Timex Sinclair Users Group was built. Since the mid 80's when Timex got out of the home computer scene and Sinclair sold out to Amstrad, we have watched with regret, the slow and inevitable exodus of members and vendors to other more lucrative markets. None the less, we still forge on, we dedicated few (read fanatic), and strive to tread where none have been before. Witness the Larken Ramdisk for the 2068 and Wilf Rickter's SRAM HiREZ package for the TS1000. Imagine if Sinclair knew in 1982 what we know now about the ZX81? Ah well, one can dream can't one?

We are survivors. How else would we have kept this club going? But, in order to continue, we need all of the support that you can give. We are not demanding that you give a demonstration or act in the executive, although any offers would be welcommed. Raise questions. Make suggestions. Comment. Write. Call. Our phone numbers are on the cover of the newsletter.

Looking forward to hearing from you,

Sincerely,
Rene Bruneau
President 1990

BOB'S NOTEBOOK

Many of us use our 2068's for word processing with the main programs being Mscript and Tasword. Most of my earlier files were done on Tasword but I've switched to using Mscript for most of my word processing and I decided to convert some of my Tasword files to Mscript. In the former, each line is exactly 64 characters long and often contains many spaces which are time consuming to remove. The main task then was to cull out these extra spaces and the two programs below are intended to do just that and only that.

The first program listing is a loader/manager that runs in BASIC and controls the second listing which must be compiled via Timachine. The use of these two programs is a good example of how one can switch back and forth between BASIC and COMPILED CODE. If you haven't done much of this, examine the notes alongside the listings to see how it is done.

Type in these two listings and compile the second one. Be sure to make a printout of the runtimes and variables when doing the Timachine compilation. If your compilation produces different addresses from those shown in the loader, make the necessary changes to the loader listing. (Lines 100, 200, 220, 305).

Now load the first one which will load your compiled code and you are ready to convert any of your Tasword files. You must know the length of any file you are going to convert; this is the value of variable <a> in the Tasword BASIC program.

The loader runs the code which then pops back to BASIC to get the name and length of the file you wish to load and loads it. It then pops back to the compiled code and does the workhorse job of taking out all the excess spaces. It even puts in a needed space at the end of any line that does not end with a space. Once again, the action pops back to BASIC to SAVE what you have done by any name you select. Listing 2 could be enhanced to do more than it does, such as taking out Tasword printer control characters but I decided to leave it as it is.

Now load in MSCRIPT and then the file you have just saved. You will have some editing to do which will include:

1) setting up the paragraphs;
2) adjusting some of the spacing which the code did not catch;
3) rearranging any tabular material in your original text; this is the most difficult type of text to adjust and it is best to have a printout of the Tasword version to help in inserting the line feeds and tab spacing to make the Mscript version look like the orginal.
4) removing all Tasword control characters; those little blurs of pixels;
5) entering Mscript control characters and commands.

But all this is relatively easy compared to trying to take out the extra spaces manually or typing the whole thing from scratch. Files with tabular material (tables, charts, etc) will contain a great many spaces and so the length of the Mscript file can be considerably less that the Tasword one. But even solid text will result in a saving of some bytes.

Why bother with all this? Well, first off, the printing of Mscript text is done much more professionally. Top and Bottom titles can be added to each page with pages numbered if you wish. Other bonuses include: line width can be set and changed at any point in the text and can be more than 64; printer control codes can be set more easily for a wide variety of printers; blocks of text may be printed or saved; finding and changing textual strings of characters is faster and more reliable than via Tasword.

```
LISTING 1
  10 REM tas/ms loader              :tasword to mscript.
 100 RANDOMIZE USR 64745            :calls code at 1st entry point
                                     then back to BASIC to get addr value
 200 LET addr=PEEK 65360+256*PEEK    from the code.
65361
 210 INPUT "file name? (max6) ";    :you input name of file to be converted
LINE n$: RANDOMIZE USR 100: LOA      and then it is loaded.
D n$+".CT"CODE addr
 220 RANDOMIZE USR 64846            :calls code at 2nd entry pt.
 300 INPUT "file name for SAVE      :code does its job and then switches to
(max6) "; LINE n$                    BASIC to get the file name for SAVE.
 305 LET len=PEEK 65356+256*PEEK    :The length of code is found from
65357: LET len=len-46926             the Timachine variable (j).
 310 RANDOMIZE USR 100:
SAVE n$+".CT"CODE 46927,len: STOP
9000 RANDOMIZE USR 100:             :The converted text is saved.
SAVE "tas/ms.Bb" LINE 9900: STOP    :SAVE the loader.
9900 RANDOMIZE USR 100:
LOAD "tas/ms.Cc"CODE                :LOAD the code.
9910 GO TO 10                        and start the operation.

LISTING 2
   1 REM ! LPRINT                   :Timachine Commands.
   2 REM !INT +j,tl,add,i
   3 REM ! LIST
   4 REM ! OPEN #                   :first entry point.
   5 LET j=46927                    :initialize <j>
   6 INPUT "tas len? ";tl           :get tasword file length.
   7 INPUT "load tas file to addr?  :get address where tasword file will be
(>27500) ";add                       loaded. addr+tl must be <46927
   8 STOP                           :switches back to BASIC.
   9 REM ' OPEN #                   :second entry point.
  10 FOR i=0 TO tl                  :loops through from zero to end of text
  15 IF PEEK (i+add)=32 AND PEEK     and removes extra spaces.
(i+add+1)=32 THEN GO TO 30
  18 IF i/64=INT (i/64) AND PEEK    :if last character on line is not
(i+add)<>32 THEN POKE j,32: LET      a space, put one in.
j=j+1
  20 POKE j,PEEK (i+add): LET       :pokes text into Mscript text area.
j=j+1
  30 NEXT i
  40 REM ! CLOSE #                  :switch back to BASIC to SAVE converted
                                     file.
```

+++
BOB MITCHELL 20 WILD BRIARWAY WILLOWDALE ONTARIO M2J 2L2.

AND NOW FOR SOMETHING COMPLETELY DIFFERENT......

How would you like to wear your favorite TS2068 designed artwork? With a simple iron-on heat transfer process, it is now possible to permanently affix TS2068 generated art onto cloth in black or in FULL COLOR! The heat transfer process actually impregnates cloth with a non-bleeding and fully washable image.

Using the "COLOR COPY" software I developed for OKIMATE 10 & 20 printers, the iron-on transfer is made by printing, with a black or color thermal transfer ribbon, a full 24-line screen dump onto clear acetate transparency sheeting such as that used with overhead projectors. The size of the screen dump printout is determined by which OKIMATE printer and Plug 'n Print cartridge is used. There are three possible printer/cartridge combinations that may be used with a TS2068 & "COLOR COPY" software:

1) OKIMATE 20 printer, IBM parallel Plug 'n Print cartridge, and AERCO (or compatable) parallel printer I/F.
   Two dump sizes: 6.5" x 5.4" and 3.25" x 2.5".

2) OKIMATE 20 printer, Commodore 64/128 Plug 'n Print cartridge, and Commodore serial port emulator I/F. (The Commodore serial port emulator I/F is available from me.)
   Two dump sizes: 3.25" x 2.5" and 1.6" x 1.25".

3) OKIMATE 10 printer, Commodore Plug 'n Print cartridge, and Commodore serial port emulator I/F.
   One dump size: 4.25" x 2.5".

Creating the artwork is something that can be done using any of a number of drawing programs available to the TS2068 or SPEC emulated TS2068. RLE pictures converted to SCREEN$, digitized video pictures, and header SCREEN$ from game software can also be used. However you do it, anything that can be saved to tape as a SCREEN$ will work. Note: extremely fine details will not transfer well to cloth - especially cloth with a heavy weave. Make any lettering as bold as possible and use lines at least two pixels wide in drawings. The iron-on artwork also needs to be a mirror-image of the original. Most drawing programs have a "flip screen" option - be sure to use it just before saving your final screen.

Once you have printed your "reversed" artwork onto a transparency sheet, the next step is to iron it onto the cloth (t-shirt, handkerchief, jacket, etc.) that you've chosen. A smooth, hard, heat-resistant work surface is required. The soft surface of most ironing boards is not suitable as a work surface. I use the metal top of a washing machine. Lay the cloth down with the surface area you wish to print to facing up, making sure there are no wrinkles or folds in the area to be printed. Position the transparency copy face down on the chosen area of the cloth. Place a single sheet of white paper over the artwork - this will be the surface you iron and it's purpose is to keep the iron from directly contacting and melting the transparency sheet. Next, using an iron on a dry medium-heat setting, carefully and slowly iron the paper over the entire artwork area while firmly pressing down. Keep the iron moving so as not to scorch the paper or melt the transparency. Be careful that the transparency sheet does not shift around while ironing or the transfered image will be smeared. Each transparency copy can be used for only a single ironing. Use care and follow these directions to insure a successful image transfer.

I can provide a ready-to-iron transparency copy in black or color, in any of the previously listed sizes, from your TS2068 artwork. A mirror image of the artwork can be made if you lack the software to do it yourself. Send your artwork saved to tape as a SCREEN$, the desired size(s) of the transparency copy(s), and $5 per copy to: John McMichael, 1710 Palmer Dr., Laramie, WY, 82070. Your tape and transparency(s) will be returned post-paid. If interested in the I/F and software I have to sell for using OKIMATE 10 & 20 printers with TS2068 computers, please send a LSASE for info./order form to the above address.
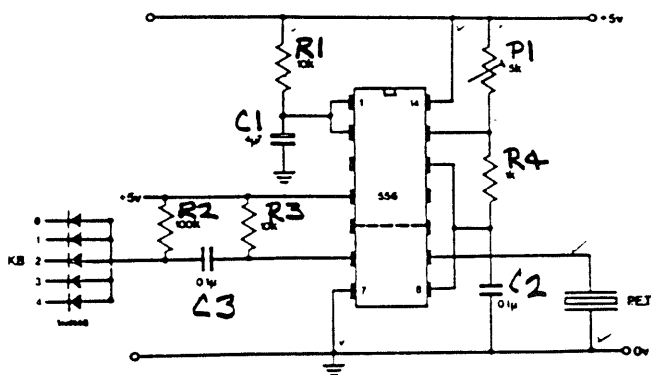
Beep, beep

One cannot really complain of the limitations of the ZX81 computer at ~uch a snip of a price, but one drawback seems to be the keyboard. This is a ~ered plastic and metal film composition which is sensitive to small pressure of ~e finger, and the only real way of knowing if you have pressed the key in the right place, or with sufficient pressure is to constantly look up at the TV screen.

The circuit shown causes an audible 'beep' every time a key is successfully pressed, thus alleviating neckache.

The circuit is small enough to fit inside the case of the ZX81 just underneath the keyboard and is powered from the computers 5V rail. The addition of this circuit in no way interferes with any of the operations of the ZX81.

A commercial version of this idea is on the market and costs over £10. The circuit described should cost no more than about £1.50.

Circuit Description

KEYBEEP PARTS LIST

R1 10K ¼ watt resistor
R2 100K ''
R3 10K ''
R4 1K ''
C1 4.7µF, 10v Electrolytic
C2 0.1µF, polyester
C3 0.1µF, polyester
P1 5K Trimpot
D1-5 1N4148 Signal Diode
IC1 LM556 Dual Timer
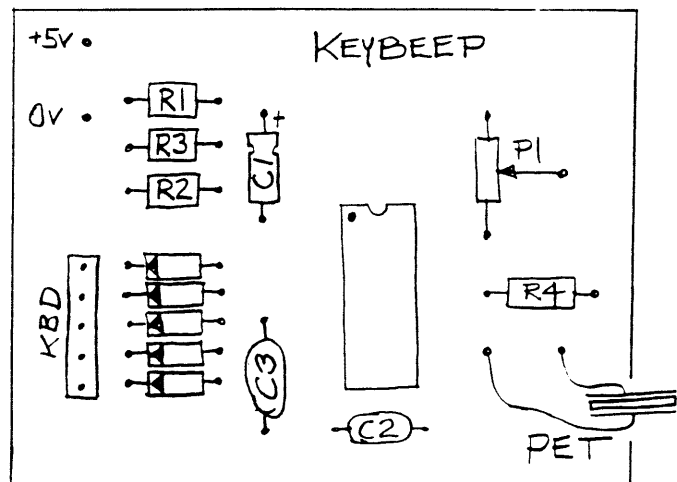KBD 5pin connector
PET Piezo Electric Transducer

The circuit is based on the 556 dual timer chip with one of the timers being used in a monostable mode of approx 50mS and the other being used as an astable to drive the piezo electric transducer. The circuit may be trimmed to obtain the resonant frequency of the transducer.
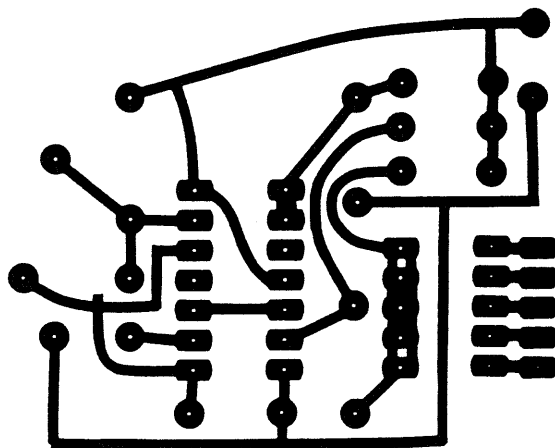
Article reprinted from ZX Appeal

Artwork by Rene Bruneau

Component side

Solder side

We have all had that "crashing" experience with the QL, and I wonder how often the crash is our own fault? My own little beast of burden had a problem at one time, but after some operation on its innards, the crashing was not quite so frequent, until recently that is, when I installed a plastic Carpet saver under my chair. This, combined with our present day mixture of wool and man-made fabrics, both in our upholstery and our clothing, made an ideal breeding ground for STATIC.

The problem seemed to arise when I used the printer, I had also noticed that when I left the Work Station, and returned, I was often welcomed with a little jolt to my fingers as I approached the QL and/or my Music Centre which is within reach of the QL.

The solution?
I use a sheet of thick corrugated card-board on top of my desk, on which my equipment rests, (it is easier on the arms than wood).
So I went to the hard-ware store and bought a roll of Aluminum Tape, about 1 1/2 inches wide, the kind used in duct-work. Now don't get the fabric type, get the METAL type.

I placed a strip along the front of my desk, about an inch from the edge and along the end, to the back of my desk. From there, I attached a piece of wire, which goes to the caseing of my disk power supply, which is the nearest ground I could get. To attach the wire to the aluminum strip, I bare an end of wire about two inches back, make this into a loose coil, lay it on top of the card-board, and place the tape on top of the coil. The other end is attached to the power supply by using one of the screws on the cover.

CAUTION:- Ensure that the aluminum tape is cleaned a little at this point, as the adhesive is not always conductive material.

Next step is to get some Scotch Tape, about 3/4 inch wide, and lay a strip of this along both edges of the aluminum tape, ensuring you do not cover up too much of the width of the aluminum tape. The reason for placing Scotch Tape along the edge of the aluminum tape, is to help prevent the edge of the aluminum tape from lifting, also, if the aluminum tape should wear out a bit in the centre, then there should always be a complete circuit under the Scotch Tape. Follow me ? (Check continuity) You must ensure there is an ample width of aluminum tape available for hand and arm contact, in the middle of the strip.

Now, when I approach my console, my hands MUST pass over or TOUCH this strip, grounding myself out. It is really surprising how often I get a jolt from this strip. Which goes to prove that I was at great risk very often, as also was my equipment. When I turn aside to the printer, I am always cautious to touch the strip, and also when I return to the computer, I again touch the strip. I do not have to consciously do this, as my hands have to cross this strip to reach ANY equipment on the desk.

The shiny appearance is a constant reminder of a static possibilty.

It costs only a few dollars, but can save so much damage being done, to nerves and equipment.

H.H.H.

Computer Repairs

Do you have a 2068 that isn't working properly? The problem can be traced to a defective SCLD chip. During the Christmas holidays I happen to repair two 2068 computers, and one had a defective SCLD. If you happen to have an extra SCLD chip and you want to replace the SCLD chip, don't use a socket for the SCLD. The socket adds capacitance to the address lines and it interfers with the operation of the computer. If you have computer that doesn't work, check for any chips that are very hot. The hot chips are the defective ones. A very hot intergrated circuit can cause a problem with the 2068 power supply, the defective chip can draw a lot of power.

After cutting the power to the defective leads on the hot chips the power supply should return to the regular rating. Defective memory chips will show a distinct pattern on the TV display. The other computer that I repaired had two chips that were very hot. The hot chips interfered with the power supply, instead of having a voltage of 5V, I only had a voltage of 3V and the computer wasn't operating. After clipping the leads to the two defective chips, the power supply returned to 5V.

The chips that I replaced were the memory chips. One of the chips was part of the 2068 display, and when I turned on the computer the monitor displayed a pattern on the screen, but I didn't see any copywrite notice. After that I tried to replace the rest of the 2068 memory with new memory. I pluged the computer and turned it on and I saw the copyright notice on my monitor. After that the the computer worked okay.

A warning to all computer users, when pluging or removing anything from your computer make sure that the power is OFF!!

Renato Zannese JAN/05/90

A LARKEN TS2068 printer driver for a serial port
The following listing has been supplied to a club member by Larry Kenny. It is designed to be used with the Larken Version 3 LKDOS cartridge and a printer with a serial port, using Ed Grey's ZSI/O serial interface board.

```
  10 REM RS232 DRIVER FOR LKDOS
V3
  15 RANDOMIZE USR 100: OPEN #4,
"dd"
  20 LET st=191: REM 8251 STATUS

  22 LET dt=159: REM 8251 DATA
  25 PRINT "SELECT PARAMETERS"''

  30 PRINT "1. 8/1/N AT 300 BAUD
"'"2. 7/1/E AT 300 BAUD"'"3. 8/1
/N AT 1200 BAUD"'"4. 7/1/E AT 12
00 BAUD"
  40   INPUT "Select 1 - 4";a
  50 IF a=1 THEN   LET baud=111
  60 IF a=2 THEN   LET baud=123
  70 IF a=3 THEN   LET baud=110
  80 IF a=4 THEN   LET baud=122
  90 IF a>4 THEN   GO TO 40
 100 REM Initialize RS232 Port
 110 OUT ST,O: OUT ST,O: OUT ST,
O: OUT ST,64: OUT ST,BAUD: OUT S
T,183
 120 REM Install Driver in LKDOS
cartridge using PRINT #4:POKE
 130 FOR a=16100 TO 16109
 140 READ v: PRINT #4: POKE a,v
 150 NEXT a
 160 PRINT #4: POKE 8216,16100
 170 PRINT #4: POKE 16096,4
 180 PRINT #4: OPEN #3,"lp"
 200 DATA 219,ST,203,87,40,250,2
41,211,DT,201
 210 PRINT #4: POKE 16090,80
1000 PRINT USR 100: SAVE "driver
.B1"
```

NEWS AND NEW PRODUCTS

MICRODRIVE SPOTTING
from Computer Shopper-UK publication

Sinclair must have sold millions of microdrive cartridges to Spectrum, QL, and One Per Desk users in the past five years. The design has changed several times, and new cartridges are substantially more reliable than the original ones. Every cartridge is date stamped when it is made, yet few users know how to tell the age of a tape.

If you pull the cartridge out of the box you should see four digits embossed in the plastic near the cushion that holds the tape against the drive head. The code is very simple, once you know it - the numbers tell you the day and the year wnen the cartridge was manufactured by Ablex in Telford.

The first three digits are the number of days since the beginning of the year, and the last digit is the year from 1980. In other words, a tape manufactured 1st Feb 1988 would be marked "0328", as January has 31 days. If you can't read the number, try turning it the other way up - Ablex is not consistent.

The main events in the history of the microdrive cartridge were design changes in mid-1984, 1895, and 1987. In 1984 Sinclair changed the plastic moulding so that any excess plastic on the moulding ended up on the outside the cartridge rather than inside, in the cramped company of 20 feet of narrow continuously-looped tape.

Plastic mouldings usually have a smooth side and a rough side - where the plastic was originally injected. Up until then, Sinclair had injection-moulded computers and calculators, which must look smooth on the outside but can have any amount of cack on the inside. But microdrive cartridges have moving parts, so they need to be smooth on the inside!

Cartridges made from the middle of 1984 onwards sound and work better; you can tell later ones at a glance from the text RDG. DESIGN APP. embossed near the number. Older tapes don't have this message ¬ at least they definitely don't on the outside!

A year later the moulding was changed again. The part of the cartridge that covers the tape at the top left side was affected, near to the roller wheel clearly visible inside the cartridge. The new moulding meets the tape at a diagonal rather than at right angles. This reduces the risk of creasing while inserting the cartridge, but may cause loops to form when the cartridge is taken out of the drive.

In 1987 ICL persuaded Ablex to beef up the spring behind the tape cushion. Later tapes have a much wider copper spring holding the tape against the drive head, which makes them more reliable. It was not uncommon for the original spindly springs to fall out or snap off.

The length of tape inside each cartridge is said to have changed from time to time, although we have not been able to confirm it. In theory you can compare the length of tape in several cartridges by formatting them all in the same drive. The more sectors you get, the longer the tape. - but this assumes that all tapes run at the same speed, and in practice this does not seem to be true.

Drive motor speeds vary widely, so it's pointless comparing capacities between different drives unless youv'e matched their speeds. The method is explained below - but don't try it if you're ham¬fisted.

Souped Up Microdrives
You can adjust the speed of a microdrive just like a cassette recorder. Dismantle the QL and tip the drive up after undoing the single screww under the drive, and two screws on the top of the drive, at the bottom left and near the top right corner. Do not loosen the two screws nearest the rubber drive pulley.

Adjust the speed by pushing a sharp, flat¬bladed screwdriver - no more than 2mm wide, at least 10mm long - through the rubber seal under the metal-cased drive motor. You should find a regulator screw; half a turn counterclockwise is enough to change the speed from that which gives 200 sectors on a typical cartridge, to 230.

If the QL says 'format failed' on a previous-tested tape, the motor speed is probably too high, so that less than 200 sectors were found. It makes sense to set both your drives to the same speed ¬ a formatted capacity of 216-220 sectors should ensure reasonable compatibility with old and commercial copies.

We haven't tried this on Spectrum or ICL One Per Desk drives, but the same tweak should work. The mechanisms are virtually identical, apart from the rubber roller that moves the tape, which will do it's own thing regardless of the tape speed. We'd be interested to hear from readers who have adjusted their drives, but we advise you to leave well enough alone unless you're sure you can put things back the way you found them if you get into trouble.
This is not an exercise for the weakhearted - remember that the higher the capacity, the slower the access time and the greater the density of recorded data. Microdrives are quite tolerant of speed changes when reading, but there's no point adjusting the speed of your drives if you then find it difficult to read tapes formatted at the old speed. Don't say you weren't warned!

From ZX APPEAL...retyped by G.F.C.

THE FAR SIDE   By GARY LARSON

"I've got it again, Larry ... an eerie feeling like there's something on top of the bed."

NETWORKING with QL.

The following is a translation by Louis Laferriere of an article published in QL_DOC Issue # 9 .

The QL Network does work !! !!
I saw it in OPERATION !!!

You must be realistic, if your QL gives up the ghost, you are in deep trouble, unless it is a minor problem , you can forget about having your QL repaired , because it is just about impossible to get replacement parts in this country.

Therefore, the only thing to do is to get a back-up QL. In the meantime you can hook-up your two QL's into a local network to really surprise your friends.

Before , this big splash , you must have TOOLKIT II in each of the machines on the network. You can have up to 64 QL's on the same circuit.

To delve a bit more on the subject of networking , the following is an adaptation of an article by Mr. J. L. Dianoux (QLCF) e.g. from FRANCE, from QL_DOC.

" The QL , like all other complicated beings , was born prematurely , capable of accomplishing great things , but it cannot survive in the hostile world by itself.

Communication is the greatest gift for both man and computer. Therefore the only thing missing for the new born computer " QL " to be able to communicate with his brothers and sisters is " FSERVE ".

This need can be satisfied by installing the irreplaceable TOOLKIT II by TONY TEBBY . You will then discover that the QL can and will communicate with others at 9600 bauds.

All you need is a connecting cable " with RCA plugs " to interconnect the two " NET " . If you have only two machines each can be called net 1 by entering : NET 1 . However you don't even have to do this , because each will be NET 1 to the other. If you have more than two then it is imperative to number each machine up to a maximum of 64.

Then you should enter on one or both machines " FSERVE " this is the command to " FILE SERVER " , this magical command will allow the secomd machine to have access to all the peripherals of the first machine.

You heve then given the the authorisation to come and have access to your pocketbook, your microdrives ,your diskdrives and also to print on your screen all kinds of messages as well as on your serial or parallel PORT and on your microdrive cartridges , your disks as well as RAMDISKS but it also can delete your valuable files. But the remote machine cannot format your microdrives or other devices.

EXEMPLE : two QL s are tied together , QL 1 has a printer and QL 2 is equipped with 2 diskdrives , a memory extension board as well as a MODEM to connect to outside sources of INFORMATION . Each will ENTER " FSERVE " . The first machine which had been having problems with his microdrives ENTER s as well " NFS_USE mdv, n1_flp1_, n1_flp2_ " . This means that in the future when it will ENTER or that a program will be looking for " mdv1_ " the machine will interpret this to mean " flp1_ " of the other machine. The same applies also for " mdv2_ ". Therefore QL 1 will operating as if the diskdrives of QL 2 are his diskdrives will be able to get DIRectory etc. and the QL 2 will also have access to the printer of QL 1 with the command " COPY flp1_texte_doc to n1_ser1 ".

You can even have fun by displaying on QL-1 the clock from

QL-1 , and at the same time QL-2 will display the clock from
QL-1 :

open #3,n1_con:clock #3
and on QL-2 :
open #3,n1_con:clock #3

And that is it !!! If there is a clash , what happens ? .
The communication is suspended , the software for NETWORK keeps
on trying and then everything stops with the message " network
aborted "...and then sometimes its starts all by itself !!!

And now for a few comments .

You can load and run on your own machine some programs
placed on the peripherals of the other machine: e.g. LRUN
N1_FLP1_BOOT . As well EXEC_W N1_FLP1_QUILL works quite well.

You can command transfer of a peripheral of the second
machine to another peripheral :
e.g.   COPY N1_FLP1_FILE_LIS to N1_SER1

A machine which forms part of a network of many QL's allows
the circuit to function even though it is not on.

So that QUILL and other PSIONS programs can identify the
peripherals on the network you must proceed as follows :
to perform certain functions with the network, such as LOAD
N1_FLP1_document_doc (" not found "), NFS_USE must first be
entered with a different instruction of MDV on N1_FLP1_ . e.g.
NFS_USE mdv,n1_flp1_,n1_flp2_ . You   will   then ENTER
 F3>LOAD>mdv1_document_doc , and QUILL will be fooled and will
get the document on N1_FLP1_ .
to print directly on N1_SER1 for example, you must
reconfigured QUILL or other programs , using for the peripheral
neither the PAR , nor the SER , but the " NON STANDARD PRINTER
DRIVER ". You must then ENTER " N1_SER1 " instead of PAR . To
print , the command will be " F3>print>whole>to printer".
The majority of other programs " THE EDITOR , FLASHBACK
,PAGE DESIGNER ..." identify directly the commands of the
network.
FSERVE usually has a higher priority , and would normally
slow down your activities. You can still get the better by
giving it a lower priority say : 1 .

All in all , the network arrangement works quite well ,
although not as fast as ETHERNET (10   words/sec.) but it
should   be   good   enough   for   every   day   usage.

These pictures are samples using
the SMUG Digitiser and John
McMichael's "VIDEOTEX" software
on a TS2068.
Watch the next few issues of
Sinc-Link for reviews of
McMichael's programs and more
digitised pictures.

J.T.

QL SECTION NEWS.

On Wednesday November 15, the QL Section met at my home in the fair City of Burlington, with the usual diehards in attendance. During the summer there have been a few meetings of this group, and everyone appears to have a good time, and agree that the meetings are worth while, and of value. Previous meetings have been well attended, as also was this one. Previous meetings of this section have been more on the lines of Question and Answer, This time the format was altered slightly. To make way for an educational evening.

At this meeting the early arrivals had a good chin-wag, exchanging news and views. The only problem at this time is getting a chance to say something as everyone is so enthusiastic, with their own discoveries, and asking questions. For a computer which is dead or dying.....you would not think it from those meetings.....there would appear to be an abundance of life. Which is good.

This meeting was primarily a presentation of the QL progrmming language, by Mike Ferris. The lecture concentrated on the uses and meanings, of Functions and Procedures, For/Next Loops, and Arrays. The presentation was very simple, and for this reason was very well received. So often we read something which we do not fully comprehend just because the presentation is made in a high flying way intended to portray the expertise of the lecturer or writer. Mike has a nice way of presenting something, and makes it very easy to understand, not too technical, not trying to make an impression of how smart he is, but someone who understands what he is talking about, knows what

he has to say, gets on with the job, and at the end, we have all learned something. I know that some of the things he said made a lot of sense to me, and that at the end, I understood in a new way, what I had been trying to learn from the manual. He punctuated his presentation with on-screen demos which were also excellent.

Before the meeting got under way, two QL´s had been set up for networking, one with RGB and all the gadgets, the other with TV only, and after a coffee, Mike went on, with the assistance of Senen Racki, to give a short demo of Networking. Mike and Senen have worked together quite a bit in the past, and are well versed in the QL, and were able to give an excellent demonstration of this aspect of the QL´s abilities. Messages were sent from 1 to 2, and replies returned. Very impressive.

Thank you Mike.

It was suggested that the lectures be continued on a monthly basis, Mike was enthusiastic about this, but as one in December would be too close to Christmas, it was decided to wait until the third Wednesday in January to continue the lectures, and at that time it might be that the members would like to have a monthly QL meeting. More on this at a later date.

At this time I would like to wish one and all a Happy Christmas and a Prosperous New Year.

May the road rise to meet you and the wind be on your back.

Hugh H. Howie.
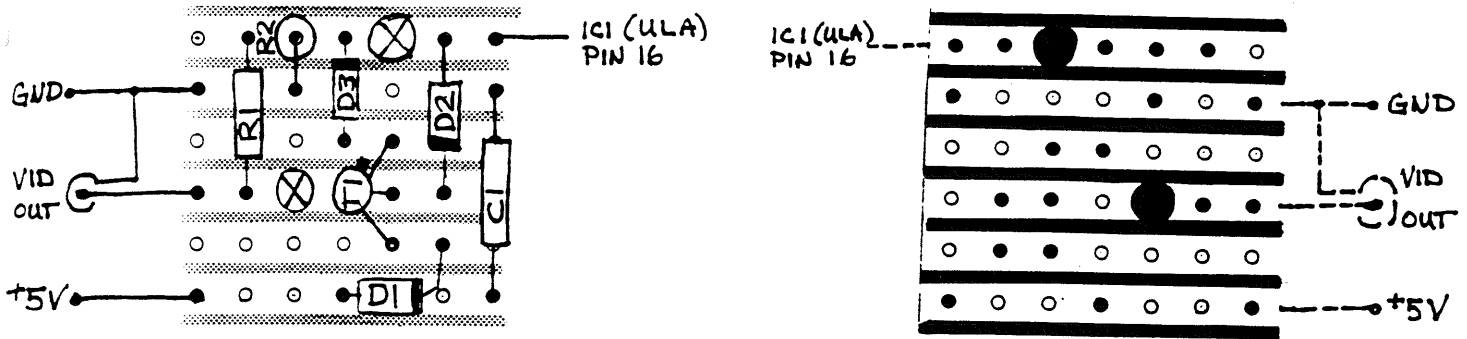
Last issue we presented an article and circuit to connect your
TS1000/ZX81 to a monitor. Unfortunately the artwork didn't copy
very well. So here is the enlarged and redrawn circuit board
layout. Artwork by Rene Bruneau.

This lovely lady was downloaded
in an RLE file from Ray Dyer's
TIBM WIZARD BBS here in Toronto.
Ray has hundreds of RLEs for you
to view. He also has the only
Timex-Sinclair file area that I
am aware of in this part of the
world. Lots of interesting stuff
for ZX81ers and TS2068ers just
waiting to be downloaded. So get
modemming. The BBS runs 24hrs at
(416)-743-6703 with peak usage
from 6 to 11 pm. Don't get
frustrated if you don't get on
with your first call, just keep
trying or call at non-peak
times. Keep supporting the BBS
and Ray will keep supporting our
file area.

                                    J.T.

W A N T E D

O N E _ L I N E R S

How about all you folks out there helping us to fill the occasional
empty space in our News-Letter. You **can** help. Send us your little
                        one-liner.
   ---- Specify if for QL - 2068 - 81 - or whatever ----
Anything goes, but it must be a one-liner. send it in with a short
note to explain what it does. We will try and tuck it in somewhere.

  May not be as fancy as this, as it will go where if fits best.

            THANKS   **see next page**

Talking about one liners :-

```
Poke_w  163976,255      Caps ON
Poke_w  163976,0        Caps OFF
Poke    163891,1        Freeze the screen
Poke    98403,2         Blank the screen
Poke    98403,0         Unblank the screen
Poke    98403,64             (Just watch the screen)
Poke    98403,8              ..           ..
Poke_L  163900,0        Disable BREAK
```
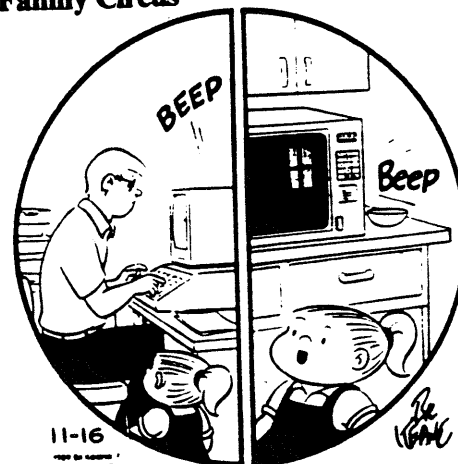
Please Please don't use them all at once--------

```
O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O
!                                                                    !
O              copy  device_name  to  con                            O
!                                                                    !
O   This will copy to Superbasic a readable copy of a Quill          O
!     document, or other, even in machine code. So that             !
O              you can get the gist of it.                           O
!                                                                    !
O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O-O
```

Special Offer

For sale- Spectrum Microdrive Interface One
includes- interface
          one microdrive
          buss adaptor for the 2068
Only For $35.00 + $5.00 S/H

For Sale- Custom ZX-81
includes- 32K internal memory
          custom keyboard
          runs hi-res packaqes
          enclosed in custom case
          more than one avaliable
Only for $35.00 + $5.00 S/H

Burnt EPROMS
Spectrum EPROMS @ 15.00 each
TKII   EPROMS @ 20.00 each

Contact Renato Zannese

(416)-635-6536

Family Circus

"The computer and the
microwave are talkin'
to each other!"

BOB'S NOTEBOOK

No heavy stuff this time. For a change of pace, here is a listing for an experiment with colour using both the ordinary BASIC provided by the TS2068 ROM and then the Larken Extended BASIC provided in the Larken ROM. Enter the listing and try it!

```
  1 REM playing with colour
  5 REM by Bob Mitchell
 10 CLS : FOR i=32 TO 255: PRINT CHR$ i;: NEXT i
 15 PRINT #0;AT 0,0;"Ordinary BASIC...": PAUSE 120
 20 INPUT "paper 0-7 ";p
 30 INPUT "ink 0-7 ";i
 35 BORDER p
 40 POKE 23693,p*8+i
100 OVER 1: PRINT AT 0,0;: FOR i=0 TO 21: PRINT ,,: NEXT i
110 OVER 0
120 INPUT "1=again 0=cont. ";as
130 IF as THEN GO TO 15
140 PRINT #0;AT 0,0;"Press a key": PAUSE 0
200 PRINT #0;AT 0,0;"Larken Extended BASIC...": PAUSE 120
210 INPUT "paper 0-7 ";p
220 INPUT "ink 0-7 ";i
230 BORDER p: RANDOMIZE USR 100: PAPER p: RANDOMIZE USR 100: INK i
240 INPUT "1=again 0=stop ";as
250 IF as THEN GO TO 200
260 STOP
300 RANDOMIZE USR 100: SAVE "colour.B1" LINE 1
```

Some notes on the above:
1. Line 10 puts the character set on the screen as an example to work with.
2. Line 15 advises that Ordinary Basic will be used.
3. Lines 20 to 35 set up the colours; I have made the Border equal the PAPER colour which is a good idea when saving any screen$.
4. Line 40 does a formula POKE to sysvars address 23693 which holds the permanent colours set up by BASIC statements.
5. Line 100 prints blank lines with the new colours from line 0 to line 21. Note the PRINT ,, trick that saves putting in a line of spaces. The OVER 1 does this without affecting what is on the screen. The Line 110 cancels the OVER command.
6. Line 120 offers a choice of repeating this part or continuing on with the next part.
7. Line 130 uses IF as which means IF as=a positive number. If not then action goes to line 140.
8. Line 200 starts the second part and advises that the Larken Extended BASIC method will be used.
9. Lines 210 to 220 set up the colours.
10. Line 230 uses the Larken commands to change the colours without affecting what is on the screen; this is instantaneous as compared to the ordinary BASIC version.
11. Finally, there is a choice of repeating this section again.

Bob Mitchell Willowdale Ontario.

MODEMS FOR THE MODERNS

Went to a meeting at Jeff Taylor's in Islington on November 8th., for a demonstration in the use of the MODEM. Turned out there are quite a few in the club who are interested in this form of communication.

When I arrived I was shown down stairs to Jeff's place of worship. Now don't get me wrong, what I mean is that I feel we are all inclined to treat our hobby in the form of a religion, so when I walked into this place, I was presented with a view of a large desk and bench stretching from one side of this room, to the other, must be about 13/15 feet wide. A drafting board as big as my billiard table, and walls lined with books. Now I really don't know how Jeff has time for computers with all those books. Some really good stuff there too.

Now you can believe me or not, but this bench area is covered with equipment, I don't know how Jeff can find his way around all this stuff. But he does, to great effect.

There were 81's, 2068's, a QL, RGB monitor, TV, modems.. that right, in the plural, disk drives (more plurals). Wires, power supplies, wires, power bars, wires under the desk, printers, wires, and flashing red eyes all over the place. I have a funny idea that Jeff likes to crawl around trying to see how many ways he can run a piece of equipment and from where.... This is where the religion comes in, he spent so much time on his knees it MUST be a religion.

Now, I don't have a modem, yet, but Jeff's demo might change that. We must have called up half the boards in Toronto, little clicks and clacks as the dialer went into action, and downloaded some wonderful stuff.

The graphics were something else again, really fabulous. As I say, I think I will soon have one of those gadgets. Because I am green as far as this goes, I am afraid I cannot do justice to what was going on, but the others fellows there sure were goggle-eyed. I did not know a Modem could be so much fun.

Of course we had the usual chat about this and that, a lot of it away over my head, as some of the talk was very technical, and I am a slow learner.

Anyway, I would like to thank Jeff for his hospitality, and for the excellent show he put on for us. This is a great way to learn. It is amazing how time passes in these get-to-gethers.

When, (You notice I said WHEN not IF) I get a modem, I will have a better comprehension of what Jeff was showing us.

Thanks for a great evening Jeff. That coffee was good.

I would like to tell a little story about that QL which Jeff has. Way back in May a bunch of us went to the CATS FEST in Washington, and we had a great time. While we were there, Jeff bought a QL at a really great price, on the chance it just might be OK. As it turned out, it was sour. But as we were still at the Fest when we discovered this, Jeff gave it to someone well known as a QL expert, to repair, and he paid in advance too! But Jeff is still waiting for that QL to come back to him, so he went out and bought another, and this is the one he is now using. He likes it too! But would still like his first purchase back !

Hugh Howie.

TURTLE GRAPHICS   by   Timothy Swenson

One of the most overlooked and unused capabilities of the QL is Turtle Graphics. Turtle Graphics is the basis of the language LOGO. Years ago LOGO was seen as the perfect language to start young children on. The heart of the language was the movement of a turtle cursor around the screen leaving a trail behind it. With simple loops one could get the turtle to draw a box or a five-point star.

Considering the past popularity of LOGO, I have yet to see any mention of Turtle Graphics on any QL related publication. It's as if QL users are too advanced to use such simple commands.

I personaly think that using the already present Turtle Graphic commands, a workable LOGO can be implimented on the QL. Procedures can be used to add keywords to the language. Remember procedures can be called at the immediate level by entering their name.

Not knowing LOGO it would be hard for me to try this implementation myself, although if someone is willing to lend me a book on LOGO I'll give it a try. I can still see using a LOGO type language to help children start programming.

Now it's time for me to get off of my soapbox and spend some time explaining Turtle Graphics.

Turtle Graphics, as it was originaly concieved, can be pictured as a little robot (turtle) running around on the floor with a pen attached to it. The turtle can move forward, turn, lift the pen, and drop the pen (write). Now consider the screen as the floor and a dot as the turtle.

The commands that get the turtle to do things are quite simpe: PENDOWN and PENUP enable and disable the drawing of lines.

MOVE tells the turtle to move N units forward. TURN turns the turtle N degrees to the left. A negative N would turn it to the right. Both MOVE and TURN are relative. This means that they remeber the last place the turtle was and do the command from there.

TURNTO makes the turtle turn to a specific heading no matter what the last heading was. To move the turtle to a specific place use POINT. This sets the point and moves the turtle to that point. Turtle Graphics are based on the QL graphics system. Any graphic command affects the turtle. If you drew an ARC and then told the turtle to MOVE 5, the turtle would start at the end of the ARC.

This means that FILL may be used with turtle graphics. But be aware that the results may be a bit unexpected.

At the end of this article is a short program that demonstrates a use of Turtle Graphics. The program asks for a number of sides for a figure. The figure with 5 sides comes out to look like a 5-pointed star. All numbers entered must be odd. Give the program a try. Also try adding FILL statements and see what happens.

I hope I didn't bore anyone with my ramblings.

```
100 CLS
110 INPUT "How many sides?"!sides
120 LET angle =
        (360*(INT(sides/2)))/sides
130 CLS
140 POINT 10,50
150 PENDOWN
160 TURNTO 0
170 FOR x = 1 TO sides
180    MOVE 50
190    TURN -angle
200 NEXT x
210 BEEP 2000,10
220 PAUSE
230 GO TO 100
```
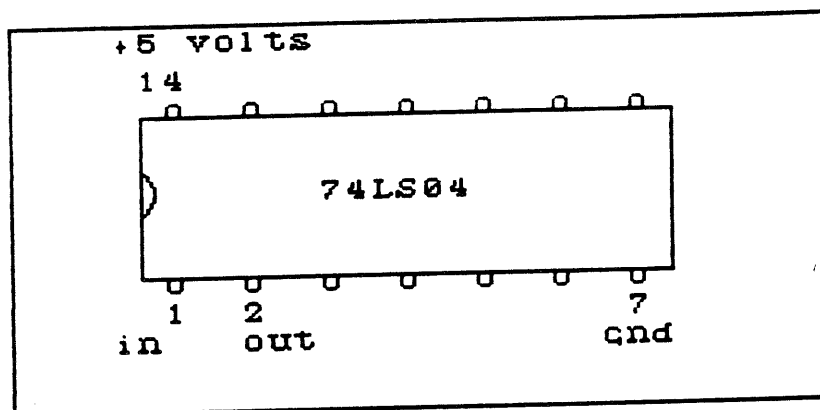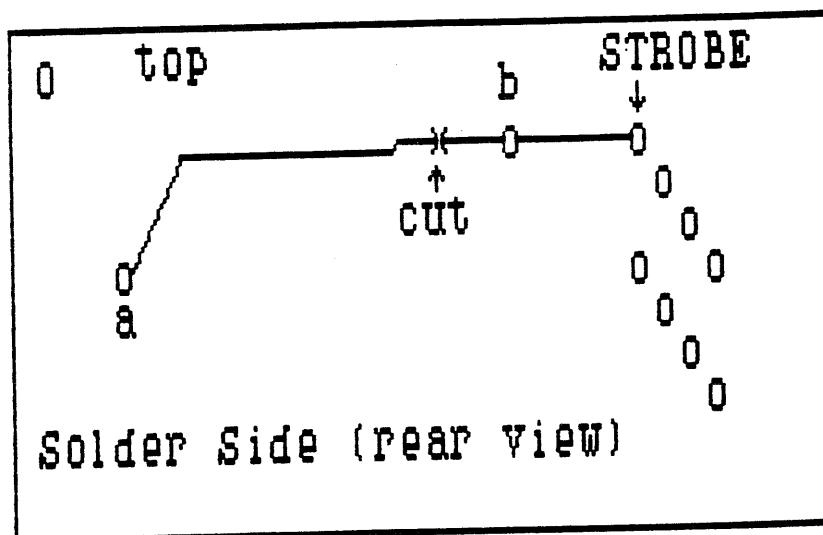
2068 FIX
STAR NX-1000/AERCO CENTRONICS I/F FIX

by Richard Hurd

I purchased a new Star NX-1000 Multi-Font printer about a month ago only to find that it would not work with the AERCO Centronics printer interface and the 2068.

I started writing requests for help to everyone I could think of and today I received word back from John Oliger with a suggestion for a fix. Invert the STROBE line. It worked!

First I cut the trace on the AERCO board. I had a 74LS04 IC in the spares box and soldered wire-wrap wire to pins 1, 2, 7, and 14 then to the connections shown. Pin 1 of the 74LS04 to point a of the AERCO I/f and pin 2 goes to point b of the AERCO I/f. Just track down a ground pad and a plus 5 volt pad for power. I used a small piece of double sided sticky tape to hold the IC in place.

```
 O     top              b        STROBE
                                   ↓
                  ╫───O───────O
                  ↑                O
                 cut               O   O
              O                 O
              a                     O
                                      O
                                        O

Solder Side (rear view)
```

```
 +5 volts
  14
  ┌─□──□──□──□──□──□──□─┐
  )                     |
  |      74LS04         |
  └─□──□──□──□──□──□──□─┘
   1   2               7
  in  out             gnd
```

SINing and Filling on the TS2068
by Joel Brody

The trig functions on the T/S computers
(SIN, COS, TAN, ASN, ACS, and ATN) are ones
I have always avoided since trigonometry was
was the one maths course I detested. However,
they are quite powerful graphics tools
especially with the graphic power of the 2068.
I'd like to illustrate how they can be used,
as well as the use of the DRAW command to fill
in an area with color.

I'd like to produce a background for a
graphic with green rolling hills and blue sky.
To plot this scene point by point would
consume lots of time and memory. So let's
outline the hills by adapting a SIN curve. You
can produce the basic SIN curve with the
program:

```
50 FOR f=0 TO 254
60 PLOT f,30* SIN (f/10) + 88
70 NEXT f
```

This program produces somewhat sharp rolling
hills, but by changing the variable the curve
can be manipulated. In this case 30 determines
the height of the peaks, 10 is the distance
between peaks and 88 the position of the curve
on the screen. Enter this program and
experiment by changing these variables. I have
found a suitable curve with the instruction:

```
100 FOR f = 0 TO 254
110 PLOT f, 15*SIN (f/50)+92
130 NEXT f
```

Lets make the background the grass color
with:
```
50 PAPER 4: INK 1
```

The quickest way to fill in the sky is with
the DRAW command directing a line from each
point on the curve to the top of the screen.
We can do this by adding:

```
120 DRAW 0, 175¬(15*SIN  (f/50)+92)
```

In this case we are using the SIN formula to
determine the distance of each point on the
curve to the top of the screen, and then DRAW
in that distance, with the sky color. The
scene can be finished by drawing objects
(houses, trees, etc) onto the green paper.

The following programs show some other uses
of the trig functions and the DRAW command.:

```
10 FOR f = 0 TO 254
20 PLOT f, 30 * SIN (f/10+88)
30 DRAW 10,10: DRAW ¬10,5
40 NEXT f
```

```
10 FOR f=0 TO 65 STEP .1
20 PLOT 2*f* SIN f+125, f* COS f+88
30 NEXT f
```

From TIMELINEZ..Retyped by G.F.C.

CONFUSED ABOUT FONTS?
by Mike Felerski

So you bought a font package or font
library , and you want to use these fonts
within your own programs? Well, it's as easy
as 2 5 6!

The TS2068 and Sinclair Spectrum both use
a character 'shape' table to derive each of
the characters displayed on the screen. Within
the System Variable section of RAM is a
variable named CHARS. CHARS holds the location
in memory of the start of the 'shapes' table,
less 256. Normally, when the system is
initialized, CHARS holds a value of 6000h
(which is in ROM). To obtain the block of data
which is used to create a character, all we
need to do is multiply the ASCII code of the
character by 8, and add it to CHARS. This
gives us the starting address of the eight
values that make up our character.

But how does this help me to load and to
use fonts in my own programs?

Well, first we need to CLEAR some area in
memory to LOAD and store the font we wish to
use. As an example, let us load our font at
63000. This means that we need to CLEAR 62999.
Now load"" CODE 63000. The next step is to
tell the TS2068's operating system where the
start of our font 'shape' table is. So we must
POKE locations 23606 and 23607 with the value
62744. (63000¬256=62744....remember the 'less
256' above)
This is done with:
   POKE 23606,24: POKE 23607,245

We now have characters displayed in the
font we loaded. Even our listings are
displayed using this font! If we wish to
change back to the standard Sinclair font, we
need to:
   POKE 23606,0: POKE 23607,60

And now we have the regular font restored.

Numerous fonts are now available in the
public domain for the TS2068 and Spectrum.
There is also an excellent font package
available from:
 BYTEPOWER MAGAZINE
 1748 Meadowview Ave.,
 Pickering, Ontario,
 CANADA L1V 3G8

From the Indiana S/T User Group Newsletter
Retyped by G.F.C.
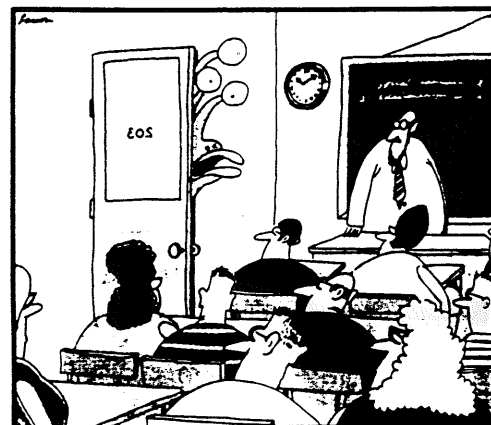
"Whoa!... Wrong room."

LARKEN RAMDISK at the SPACE CENTER

What I mean is that I am using my 2068 here at the Space Center as my lunch hour entertainment! There is a bridge game going on at the other end of the room. I find a little computer time more relaxing.

I recieved my RAMDISK kit about a month ago and am still finding out how it can be useful. The ramdisk worked on initial power up and my only problem was from not following the instructions carefully. During assembly I started to install the edge connector backwards. The component side faces away from you when it is installed. As Larry says the board is not easy to desolder so DO follow the instructions!

I have discovered that it is easy to transport my computer with the software loaded into the RAMDISK. Right now I have MScript word processer loaded so I can do some writing during my lunch hour. Before I either had to bring along my dual disk drive unit, the disk I/F board and some disks (too bulky) or my cassette and tapes (too slow). Now all I have to bring is the 2068, power supply and RAMDISK. (I keep a 9" TV and a 2040 printer stored in my desk.)

I have also brought programs in to review. I have borrowed tapes and disks from George to expand my library and still have a number of programs that I haven't tried out yet. When I get home, I simply reload the RAMDISK with the regular programs using the Larken Ramdisk backup utility that was in Sinc-Link vol. 7 no. 4.

I would like to thank all of you at the Toronto club for making your group available to out-of-towners like me. It has really opened up new horizons for 2068 owners. I can't thank George enough for his part in your club. When I have asked for something he has always replied promptly and often sent me things I didn't know to ask for. Thanks George. I must also thank Bob Mitchell for the good work he does with his programming. I use his index program, and the Tasword sort program frequently. I have probably read each issue of Sinc-Link a dozen times!

Back to the RAMDISK. I did deviate from the kit in one small detail - I used a 3.1 volt Lithium battery and holder like the one that was used in the Hunter board for ZX-81's. I will let George know how this works out. I thought that the lighter battery on the board would be worth a try. I currently only have 2 chips and am still trying to decide what I want loaded. I have compacted Larkens Editor program and merged some other utilities (renumber, compacter, etc.) into it. I have combined George's Erase.B1 and copy12.B1 programs into 1 block as another selection. I boot up with a menu program. I am having trouble choosing what else deserves space, so I plan to ask Santa for 2 more chips.

The bottom line, then, is that I am finding more uses for the RAMDISK than I imagined and am VERY pleased with it.

Les Cottrell Cocoa, FL, USA

DEF FN COMMAND ON THE TS2068
by John Kemeny

The TS2068 has a feature that allows users to define one- line functions. If you have a math formula that is used many times in the program you can program it into a 'function' and 'plug' any values you choose into it. For example, if you were going to multiply two numbers together and then divide the result by a third the formula might look like this:

(A * B)/C

You turn this into a function by using the DEF FN (beneath the "i" key);it comes out looking like this:

DEF FN Z (A,B,C) = (A*B)/C

You&'ve now created a function called Z. When you go to use this function you 'pass' the values for A, B, and C by putting them in parenthesis following the function name. For example, X= FN Z (1, 2, 3). The computer plugs 1 , 2, and 3 into your little equation and gives you back the answer, in this case putting it in the variable X. The values you pass to the function don't have to be actual numbers but can be other variables:

X = FN Z (M,N,O)
where M, N, and O have been established earlier in the program.

The following example shows a more practical use of DEF FN. It goes like this:

DEF FN S (A,B,C,) = (A>B)*(A¬B)+B¬(B¬C)*(B>C)
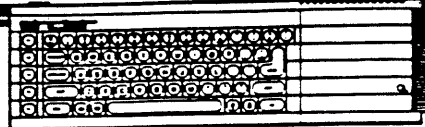
This function is quite useful as a kind of bypass filter; that is:

FN S (left,x,right) =
    left, if X < left;
    X, if left <= X <= right
    right, if X > right

The function could be used for example in a game program to keep an object within bounds. It's also interesting to note that:

FN S (X,Y,Y) = Maximum of ((X,Y)
and
FN S (X,X,Y) = Minimum of (X,Y)

From TIME LINEZ ... Retyped by G.F.C.

FEB 19 '90

```
ZUNK                    1419 ferris
CUSTOM                  Waxahachie, Texas
ELECTRONICS             75165
CATALOG
```

NOTE: all software and hardware were designed for use with the Aerco or Larken disk or tape, but can be adapted to other systems.

WEATHER STATION

* Complete weather station featuring a rain guage with 1/10 inch resolution, wind speed, wind direction, barometric pressure, inside and outside temperature, outside light level and real time clock. The board comes with sockets for up to 256k ram expansion that can run in the dock or exrom bank. The board comes with 32k of ram that is used by the weather station software. The clock is battery backed to retain time and date. The software has many screens and utilities, including a software oscilloscope. There are eight user programmable analog inputs for anything you wish to measure. High and low voltage reference points can be set so that eight bit resolution can be obtained over a very narrow range. Complete system $450.00. Circuit board, assembly instructions, software $250.00. Schematics, circuit board printouts (can be assembled on perf board), and software $45.00.

REAL TIME CLOCK

* Clock with three year calender, has battery backup to retain time and date when computer is turned off. Board plugs into the cartridge port. Comes with basic and relocatable machine code software. Time and/or date can be displayed anywhere on the upper or lower screen, selectable attributes. $15.00

32k RAM EXPANSION

* Internal modification to put 32k of ram inside the 2068, in the upper half of the DOCK and EXROM bank. The ram is active in the dock and/or exrom bank so that you can save to tape files that reside in the dock bank. You can also load files directly into this ram from tape. There is a switch that will disable the ram from the dock bank so that you can run other peripherals that use this address space. I will perform this modification to an un-modified 2068 for $35.00 plus the current price of the SRAM chip.

CHIP TESTER AND LOGIC MONITOR

* I have adapted the article in MAY 1988 RADIO ELECTRONICS, "BUILD A DIGITAL IC TESTER", to the 2068. I used a Z80 PIO, and found that this is a great tester for any digital circuit. It makes a 8 trace, dual screen, digital storage oscilloscope that will run as fast as the computer. The board goes in the cartridge port and requires a very simple internal modification to the 2068 to put the Z80 clock signal on the cartridge connector. The board and software are $45.00. I will do the internal mod for free if the customer will pay postage, or show you how to make the 1 wire mod.

SOFTWARE

CADZ for designing printed circuit boards, schematics, drafting, advertisements or any large graphics project.

FEATURES

MOVE * SWAP * OVERLAY * CUT & PASTE * MIRROR H/V * INVERT * DIP/SIP/FINGER/DOUGHNUT AUTO DRAW * TRACE ROUTING * SCALING * 64 COLUMN SCREEN PRINTING * SCIENTIFIC CALCULATOR * CREATE LAYERS * SIMPLE ANTIMATION * UP TO 172K OF SCREEN DATA IN RAM WITH 256K

SUPPORTS

AERCO OR LARKEN DISK OR TAPE * ANY 32K TO 256K RAM EXPANSION * OLIVETTI INK-JET AND EPSON COMPATABLE PRINTERS * ANY PRINTER INTERFACE

Over 300K of program data and sample files. $20.00

Send $1 for documentation and review by Duncan Teague

ZEBU is Zunks Extra Basic Utilitys. In the edit line mode ZEBU gives you up/down arrow keys, truncate edit line to the left or right of the cursor, delete all between colons at cursor, fast delete key corrects timex bug. In the immediate or run mode ZEBU will join basic lines, block move memory with bank switching available, double poke, double peek, assign a basic variable with a 16 bit peek, true 16 bit AND/OR/XOR operations, 16 bit decimal to binary bit pattern, get critical program data and parimeters, get basic program length, print five sizes of text, charactor modifiers make 27 combinations of charactor sets, list a line or range of lines, search basic lines, electric ink auto rotates ink colors at selected areas, hex to decimal, decimal to hex, and more. 38 new functions and commands. Zebu is 5k of pure machine code. ZEBU will run on any 2068 system and in any bank. **$20.00**

ASSEMBLER If you hate HEX I have an assembler for you. It uses decimal inputs only, though there is a converter for (hex / dec / bin / 2-byte). Assembling Z80 machine code is like typing in a basic listing only with mnemonics. The code is assembled as each instruction is typed in. You can modify or insert code into a chunk of code as you would edit a basic line, transfer blocks of memory (to other banks also), enable banks, enable chunks, use labels in mnemonics, user variable list, decimal or disassembly display mode, poke/doke, relocate calls and jumps in a MC program, auto corrects jump relative commands when editing a block of code. and much more. **$12.50**

CHIP is an integrated circuit inventory program. It will hold 300 entrys with descriptions and quantities. Fast MC search and sort routines. 64 column file displays. **$12.50**

PINS is an integrated circuit pinout directory. It can store the pinout information for any chip up to 40 pins. I have 98 ICs in the program now and still have 19k free for more entrys. An entry for one IC can range in length, so I don't know how many ICs it will actually hold. Fast MC routines look up ICs by number or description, and draw the chip on screen with all pin labels and notes. **$12.50**

TASWORD with 256K Aerco disk, will hold five 300 line documents, (96,000 charactors). Currently for AERCO 256k four drive mod only. **$15.00**

OS DRAW is the only drawing program that I know of, that works with OS64 and the A&J Microdrive. **$10.00**

** That Tasword files may be loaded into Mscript? Assuming that both use the .CT extension and imbedded commands are not used the file will load easily. There will be some clean-up required since Tasword doesn't use carriage returns. Some words will end up run together and there will be extra spaces in places but it is relatively easy to fix with Mscripts 'insert space' key(1),'delete' key(0) and 'delete left' key(9).

** That Mscript files may be loaded into Tasword? The conversion isn't quite as easy as above, but it can be done. Mscript uses carriage returns (ENTER) and they will show up in Tasword as the graphic found on the '8' key. That is your clue for paragraphs and blank lines. If you work from the bottom of the document and come up the paragraphs can be separated using 'insert line' (SS-AND). The next step is to delete all leading spaces for any line. Then the paragraph can be reformated with 'reformat to end of paragraph'(SS-STEP). The paragraph will probably have some split words, delete extra spaces there and reformat again if necessary. (Taswords 'What-see-is-what-you -get' format makes the load into Mscript easier than vice-versa.)

** That version 3 users can save a block of disk space when saving Artist II by adding the line:
    1 BEEP 1,1: PAUSE 8C
Enter GOTO 1 and press the NMI button when the long beep ends, press SHIFT and 1. Version 3 owners can then rename the file by
    MOVE "NMI-S1.CM","artist.B9"
or whatever name suits you. I use .Bn or .B9 to indicate NMI saves -- the change from .C to .B extension avoids adding 'CODE'. I imagine there are other programs that can be done this way. It also gives you a clean bottom line when the load is completed.

** If you load a program with machine code in a 0 REM statement that you shouldn't use the OPEN# 4,"dd" command? BytePower programs often use 0 REM code, so don't blame the program if you have used a 'boot' program with OPEN# 4. The solution is as simple as removing 'OPEN# 4,"dd" ' and replacing 'PRINT #4' with 'RANDOMISE USR 100'. Merely trying to CLOSE# 4 doesn't resolve this problem. This one is in the Larken instructions but I forgot!) The lesson here is to reread the instructions and past SINC-LINKs every so often!)

** That version 3 owners can make any program pause with the NMI button after inputting the following one liner:
    RANDOMIZE USR 100: POKE 16100, 201: RANDOMIZE USR 100: POKE 8214, 16100
    The program pauses when you press the NMI button and may be resumed by pressing the "F" key.

** That if you all share your tips in SINC-LINK we could all profit from it!

Les Cottrell   Cocoa, FL USA

(handwritten margin notes:)

how about a NMI-F warm boot in drive 4
÷ COMPILE ÷
RANDOMIZE USR 100: GOTO 4
RANDOMIZE USR 100: NEW

CALL 100
GOTO 4

CALL 100
(CALL 0 or JUMP TO 0)

|←——————— 45 ———————→|

(handwritten:) W75 max   reduced 75%

mailed to GFC 1-24-90

December 15, 1989
Les Cottrell
108 River Heights Drive
Cocoa, FL 32922

Dear George,

    I recieved your package this week. Thank you for sending
the rest of the ROM Disassembly book. I figure that I owe a
little more so I will enclose a couple of dollars to cover copy
cost and postage.

    I'll put my REQUEST early so it is easy to find. I'd like
to borrow the omnibus disk to look at the menu system you
describe. It will have to be the DSDD 5 1/4 version since I
don't have quad capability.

    I am also trying to bring a couple of disk drives back to
life and have had some disks "eaten". The newsletter contains
a lot of good info for tinkers like me. These drives were from
a friend who had replaced his and it looks like I will be able
to have a third drive just with some cleaning. The only other
area that might have given him trouble is the centering
mechanism. With the cover off you can see what happens-it puts
a warp in the disk which bounces the head around. Every time it
has done this it wipes out the disk and I have to re-format to
use it again. I will make a plexiglass case and just use it
carefully! My plan is to use it as a 'portable' unit.

    Here are some thoughts on the "Larken articles on disk".
First since Tasword came on my Larken system disk I assume that
means that every Larken owner has Tasword. Therefore I think
that tasword files would be a good choice. (Since I wrote the
last line I have run Tasword-to-Mscript and Mscript-to-Tasword
checks and Tasword is definetly the right choice. My accompaning
column should explain why. I don't see that it would be
descriminatory to make the disks Larken only because only Larken
owners would want such a disk. The disk should have a menu
system and I wouldn't think I'd allow members to choose. How
about Tasword text file except for the actual listing which
would be on disk as a loadabe program instead of the lising. If
I have time maybe I'll include a sample when I return disk 9
suggested changes. Other possibilities would be disks by topics,
i.e. "disk drives" or "ramdisk". I probably like the newsletter
'annual' idea best.

    I have added a screen on disk 9 that I have made of my 68
Triumph Spitfire. It has a home-made fiberglass body per
instructions in Mechanics Illustrated a few years ago. I use
that picture as the title screen for Artist II. I have enjoyed
playing with Artist II and Art Studio. Both are very good.

    I have started a column of tips I have found useful and if
I finish it in time I will include it. If not I will mail it
separetly. Writing is not as easy for me as I would like, but I
am willing to give it a try.

    Thanks again for all your support.

                    Sincerely,

Dear Out-of-town members,

        Our newsletter is full of stuff again this month. Though it seems to be a bit thin on the ZX81 side. But there is one encouraging thing. That is the amount of material that is being contributed by our OOT members. That is how it should be since you make up the majority of our membership. So do keep it coming. You may notice that quite a bit of it has been lifted out of letters that I have received. This is not easy to do. It is a bit tricky excerpting it; where to draw the line, etc. I hope that I have not made too much of a mess of it.

        One of our long-time members, Larry Crawford,has sent me a program which will be very interesting to some of our members. Seems that Larry has a passion for keeping a record of movie titles that he has watched. The existing filing systems did not have enough capacity to hold them all. His solution originally was to put additional memory on his 2068 and bank-switch it in as needed. When He got a RAMdisk from Larken he rewrote the program to use two banks from the RAMdisk instead (chips F and G). This program can hold up to 3600 27-character records. You can enter records,display them, correct them, and sort them.

        This program has tremendous possibilities. Another of our members and a regular contributor to our newsletter, Bob Mitchell, has taken the program and is considering a variation of the SORT routine. As it is now, it can only sort the records alphabetically. Bob wants to be able to conduct SORTS on the basis of a selected column of the record. Much like the disk index program he has written, which can do a column sort, allowing for a sort by disk or by program title.

        The bank-switching feature could be adapted to the Larken sequential filing program. As it is now, searching through the Sequential filing program causes a lot of disk drive activity. If it could be moved into the RAMdisk it would make for a much quicker and quieter application.

        I have been working on a "search" routine for it. I have adapted the search code from an old Profile program which looks as though it will be able to do a superb job.

        There is one shortcoming; as Larry C's program is made up at present it uses chips 6 and 7 on the RAMdisk. Now, many members will not have their RAMdisk fitted with 8 chips. It seems to me that maybe it would be possible to use chips 1 and 2, for example. I see that Larry Kenny, in his RAMDISK backup program does it by means of bank-switching, so maybe there are some ideas to be obtained from it. How about someone trying it, and maybe giving us a newsletter article.

        I have all this material on a disk, if any member is interested in taking it from here. Ask me for it.

        Had an interesting experience recently. Bob Mitchell is considering getting some more RAMdisk memory. I modified his RAMdisk, piggybacking sockets onto the four existing chips. Well, when I had finished, the chips would not hold data; would give CRC errors. I

found that if I added another battery in series with the existing 2 that the memory would now hold. Very puzzling. Until Bob told me that while he had ordered #42256 chips for his inital memory, from JDR Micro-devices, he had in fact received #62256 chips. Seems that the 62256 chips are not really SRAM chips, but rather what might be termed Pseudo-SRAM chips. They are RAM chips with a built-in refresh circuitry to maintain the memory. But they are not compatable with the Larken RAMdisk.

        We are waiting to see whether Bob's existing chips will still function when he installs the additional SRAMs. So, be warned, when you order additional chips for the RAMdisk insist that you get 43256-type chips, not the 62256 variety. No substitutions, please! I mentioned some months ago where I had to return some chips because they would not work. They were called 71256 chips. I understand now that they are also pseudo-SRAMs, and that was the reason. Incidentally, my copy of the Larken instructions says that they both work. Seems t'aint so!!

        The Nov issue of Computer Shopper magazine has a reference to our newsletter in it. I have had a letter inquiring about our club, as a consequence. There's one drawback about these mentions. They always make mention of our having a Public Domain program tape library. I have to explain to these persons that while it may be termed P.D., that does not mean that it is available to the public; it is available only to our members. Of course I invite them to join; some do.

        And then there's TS UPDATE magazine, which always refers to us as the Ontario T/S Users Club instead of the TORONTO T/S Users Group. Why, is beyond me.

        You may notice that there are some changes in our club executive. We had an election of officers at the October meeting and these changes are reflected in the list on the front of the newsletter. Only one or two changes. What happens is this. The current executive make up a slate of candidates, present them to the meeting, and ask for further nominations. Sometimes there are additional nominations, but usually the proposed slate is voted in. Somehow, we seem to select only in-town members; I suppose it is because most of their responsibilities lie with the in-town membership.

        Bob Mitchell has created an index of all the articles contained in our newsletter from 1985 to the present. It has been created using Pro/File. If anyone is interested I can send you a copy of the file on disk ot tape (specify). Or I could run a printout on selected topics for anyone who is interested. I think I could also send it as a simple code file that you could load into your own database program. Though I suspect that the data would need refining to work in another filing program. I am very glad this has been done. I never had the time to do this sort of thing myself, even though many times I have had to search through my collection of newsletters to find what I wanted. Great stuff!!

        One of our members, George Cary, mentions in a letter to me that he was driving on Interstate Hwy 880 (the one that collapsed in the San Fr. earthquake) just an hour before

the earthquake. As he says,"Believe me ¬ we said more than one little prayer of thanks." I can well believe it!!

I have revised tapes 52, 53, and 59 in the 2068 tape library. The programs on these tapes were devoted to the early vintage Larken systems. The system that had 1960 bytes per track rather than the 5090 bytes per track of the current system. Actually I simply put a completely different set of programs on these disks. If anyone wants catalogue sheets to reflect this, ask for them. Also we are working on the 2068 tape #65 currently. So if you want to update your 2068 catalogue ask for these sheets also. Let me know the last tape on your catalogue.

I'm going to lighten this missive, at the expense of a couple of our members. I hope that these two members, who shall remain nameless, can take it in good spirit. Some of the correspondence that I get requires a bit of deciphering. I shall give you a couple of examples here (somewhere in this letter).

[handwritten text]

Can you make them out? Tip: they were written by a doctor and a pharmacist. You see, you really weren't meant to understand them. Bite my tongue and say no more!!

The newsletter has a number of items for sale. I happen to have the Amdek DD at my place, and I can assure you that it works. I copied some of the programs off the three¬inch disks. Drop a line to Greg Lloyd or me. Obviously I can't make a deal, but maybe Greg will. I also have Art Johnson's Byteback modem, and am having it tested out. If interested, ask me; Art is in Florida just now.

Steve Spalding has sent me a program which will capture a 4 by 7 character section of a screen to make an icon, which could be used in Pixel Print Plus, for example. Or with the Zebra program "Greeting Card" program. Rather a clever idea. It still needs some refining, Steven tells me. Anyone interested? I'm thinking of adding a 4th disk to the PPP in the club Larken library, and this program will be on it. No, I think this program should go on the first disk.

I have had to make a few changes to the PIXEL PRINT disks recently. I'll cover the changes briefly. I learned that the program PIXELC.BL and it's code are actually a refinement of the original PIXELP.BL program. Therefore I have removed PIXELP.BL and PIXELP.C1 from the disk. I found a bug in PIXELC.BL in that when attempting to load a screen a B$ should have been defined but was not (if you don't get an error report then don't worry about this bug). I changed the font names to be consistant, i.e. the "named" fonts such as "hitech.Cf" etc were changed to f3.Cf, g4.Cf, etc. I placed an upgraded Steve Spalding "messge.CT". One oriented to our Larken disk version. Mostly these changes are not too significant, but if anyone who has one of our original copies they may like to

upgrade it. Also, while in the last letter I said 'don't all ask for it (PixelPrint) at once, I now say, 'do ask me to send it to 'you'!

While on the same topic, Stan Lemke has written saying that he has a version 5 of PIXELPRINT on the boards. It looks as though it will contain a great many new features and improvements over the version 3 that we have.

For one thing it will be oriented to disk use, allowing greater flexibility in calling up functions from disk as they are needed. Stan talks about releasing this new program as 'Shareware' under the title "The Lemke Desktop Publisher v1.". If anyone would like more details I can send you a copy of Stan's 2¬page letter.

While on the same topic it seems to me that we should be able to use the Larken RAMdisk bank¬switching capability to use the PIXEL PRINT PROFESSIONAL program. It requires a 32K additional memory. Would the RAMdisk not do the trick?

Another club member has sent me some "Shareware" programs written by a William McBrine. I have only had a brief look at them, so far. I wrote to W.McB. inquiring about maybe putting them out as a "Shareware" disk in our library. I also asked him for some advertising copy that we could put in our newsletter but I have not heard from him.

On one of our disks, Sound & Music, there are a number of music programs by Joan Kealy. Several of them I typed in from newsletters that came to us by exchange. I would like to get more of them. Does anyone have Joan's address, or do you have some of the melodies that she has converted to the 2068. I would like to add them to this disk.

I ordered an 80¬track drive from Doug Hemming, of San Gabriel, CA., but I have heard nothing since. That was October 2nd, long enough that something should have appeared. I had hoped that I would have something to report in this newsletter, but this all I can report. So take heed. I'll let you know of developments.

I think that when this newsletter goes out, that I should be up to date on my mailings. If anyone disagrees let me know. Your requests may have got lost in a crack somewhere!! Sometimes I get confused....No mostly I'm confused...and sometimes when there are several requests in a letter I overlook one of them. Maybe it's because one item requires that I get a Xerox copy, or I have to get an item from another member, so I sometimes forget all about it. I just want to say that it is not deliberate, just an oversight.

I have not heard from the TIME dDesigns editor, Tim Woods, in reply to my letter. Have any on of the four that I wrote to him about missing subscriptions, received anything. If you do, do drop me a line. I have two further members who are in the same situation of not receiving their copies of TIME DESIGNS. I am awaiting results of my earlier letter before writing again.

Well thats's about it for this letter
Sincerely,
George Chambers

TIMEX-SINCLAIR/CAMBRIDGE - COMPUTER SOFTWARE AND HARDWARE DEVELOPERS' N/L #4-1989

This marks the 8th issue (and second year end) of publication of the newsheet. In that time the coverage of QL news, tips and particulars was shifted to a new, separate newsletter, QL Technical Newsletter, and the TS2068/Spectrum ROM, TS1000, ZX-81 and TS1500 material has been left to this newsletter to continue with. This newsletter trys to report both news and specific descriptions/abstractions from the technical information being published elsewhere as well as original and first-time-in-print items. Leading off the original items for this issue:-

The Ottawa-Hull TSUG has started a B.B.S. service, after hours at (area code) (613) 745-8838 . It is running at the moment at 300 baud and is scheduled for up-graded operation on 1200 baud (optional) soon. Hats off to Mike Dove and Dave Solly for all the work put in on it as well as Larry Kenny of Larken for technical advice. In other news, the prospect of stocking spare parts for the TS2068 was turned down at the October meeting but the possibility of assembling accessory boards for the TS1000 like the SCRAM board or Hunter board was approved, if the boards and parts are provided without cost to the members doing the assembly and the club (that is pre-paid by the orderer). Now the problem of finding the boards is being tackled. The gap left in the third-party accessory market by the departure of Jim Horne, Fred Nachbaur, Knighted Computers, and Larry Kenny leaving the TS1000/ZX-81 segment of the market to concentrate on the TS2068, can in the writer's opinion only really be filled by user groups and other volunteers (plus a few 'hobby' businesses maybe). Dues were also reinstituted at the October meeting and some cassettes of games and other TS1000/ZX-81 programs were received for the library, courtesy of Clem Holden. Contact persons for the group are: Mike Dove, 2161 East Acres Rd., Gloucester, Ont. Canada K1J 9A6 and David Solly, 1545 Alta Vista Dr., Apt. 1402, Ottawa, Can. K1G 3P4 There is no connection between this group and the publisher of this newsletter other than friendly co-operation, it might be noted. The group's n/l was scrapped Oct.,89.

Like many people, who have probably never got around to it, the writer has always wanted an EPROM programmer or/and microcontroller programmer for his ZX-81 but was loath to spend much money to get one. With that in mind, the writer is looking into designs for such devices at the present. Maybe even an EPROM cartridge module, where an EPROM (or CMOS memory, battery-backed up) can be slotted into any memory postion one would want in the ZX-81/TS1000 memory map. Radio-Electronics recently published the schaematic for a 68705 microcontroller/microprocessor programmer that it seems could easily be adapted to run off a ZX-81/TS1000, if you had a universal memory buffer module designed. Design is fun, but hardware hacking is more of a chore, not to mention debugging designs, but that project will be put aside with the future in mind. Meanwhile, if anyone has an old ZX-81 EPROM programmer that they want to get rid of, or complete plans/info/documention, on one, I would like to see it. The writer even looked into PROM programming but it seemed too complicated to do by hand.

POKES for the TS2068. In Oct.89, a number of POKEs for the TS2068 as well as other tricks were published by the Washington, D.C. user group, CATS (OCT.n). Among them were some old standards like POKE 23658,8 for capitals only mode and POKE 23658,Ø to go back to regular mode (useful for running a program uploaded from the TS1000, since the TS1000 doesn't have l.c. and poking into caps mode will eliminate false responses to IF A$="YES" THEN ... which will not repond to "yes" (lower case) so introducing an erroneous response into the program). As well, new ones to me, like POKE 23609,X where X is from 1 to 255, for key click. And SCROLL controls, like POKE 23692,2 which when used right before a PRINT, acts like the TS1000 SCROLL command. POKE 23692,1 which scrolls 22 lines then you need a key press for each line, POKE 23659,Ø to make a program 'unstoppable' by using all 24 lines (POKE 23659,2 will set the computer back to normal mode), and the tip that CAPS SHIFT 3 will scroll two screens when listing the program. INPUT tips include POKE 23617,236 to get a question mark displayed in input statments as a cursor (as with Microsoft BASIC's), and INPUT AT 22,Ø;AT 10,Ø;"Input your value";A$ to input at any screen position.

Make No Mistake-Timex-Sinclair computers progress: ZX-81 has 16 error codes, the
TS2068 has 27 and the QL has 99. (Herb Schaaf, CATS, Washington, D.C. Newsletter)

Some Group Addresses: Southwestern PA Users' Group, c/o Ralph Vasko, 1 Virginia Dr.,
Donora, PA, USA 15033   and Greater Cleveland Sinclair Users' Gp., 12706 Leeila
Ave., Cleveland, OH, USA 44135//BOSTON SIG, 971 Fellsway, Medford, MA, USA 02155

Sinclair Support/Vendors: Byte Power (TS2068 cassette magazine), 1748 Meadowview Ave.
Pickering, Ont. Canada L1V 3G8 ///Russell Electronics (TS1000, Winky Board,QL), RD#1,
Box 539, Centre Hall, PA 16828,USA///Repair of TS1000-TS1500-TS2068:Eric Johnson,249
N. Harden Ave.,Orange City, FL, USA///RMG,1419 ½ 7th St., Oregon City, OR 97045,USA
1-503-655-7484 (noon-10pm,Tues-Sat.) -Larken Disk System etc. TS2068///J.Hammer,
TS1000-TS1500-TS2068 repair,HCR1,Box 50A, Melette,SD,USA 57461///UP-DATE (TS2068 mag.
for disk system users, esp.JLO),Bill Jones, 1317 Stratford, Panama City,FL,32404.///
Bottle Cap Software, 1284 Brushwood Ave.,Cincinnati,OH,USA45224-TS2068-TS1000-OS64///
J.Mathewson, TS2068 repair & accessories, 1852 Appleford St.,Gloucester,Ont.,Canada
K1J 6T4-call first at (613)746-7869 before sending anything for repair///

SYS 80 by Jack Dohany gives an 80 col. BASIC with an IBM keyboard to the TS2068 or
Spectrum. This should be available by the end of 1989 and requires Jack to rewrite
parts of the ROM of the computer. It works with a Linger Board, an RS232 video ter-
minal board which allows the IBM keyboard and composite or TTL monitor to run 80 col.
The Linger board is US$139 ass.,US$99kit from Digital Research Computers,POB 381450,
Duncanville,TX,USA 75138 & Jack's ROM's for about $30 (when ready) from him at
390 Rutherford Ave.,Redwood City,CA,USA 94061 --mentioned in SINCUS,Oct.89 N/L

Public Domain: ABBA Software no longer supoorts TS and all programs have been placed
in the public domain by Herb Bowers (up to letter date of July 11,1988)-HATS N/L

SpecDOS -- Jack Dohany(see above for address), allows full use of Spectrum software
with the Aerco TS2068 disk interface. Note: LKDOS is Spectrum-ROM switch compatible
                                          without any DOS modification.
SNUG is alive and well but has lost the first two newsletter editors to family com-
mitments. Dave Bennett & Paul Holmgren are now working on the newsletter. SNUG is
also collecting public domain programs. Frank Davis, Head SNUG Librarian is collect-
ing programs,at 513 E.Main, Peru, IN,USA 46970.ISTUG,Aug.89 n/l:Due to the n/l, etc.
delay, all memberships paid up (as of summer, 1989) get an automatic 6 month extend.

TS1000 Software-Bill Harmer,97 Ruskin St.,Ottawa, Ont.,Canada K1Y 4B3 is working on
some TS1000 programs on a continuing basis, including a DEC PDP-11 trainer/assembly
language emulator. Past programs included an ESP (extrasensory perception) tester,
Child I-for the very young, Vector Calculator, RRIF Calculator,Run Generator, and
Accounting Practice. Vacuum Tube Triode (design) has been done for TS1000(& TS2068).
Most of these programs have been submitted to user groups in the past. Maybe enough
time will come to hand to work on the compiler NOT BASIC too. In addition to the
programming hobby, books are being written, An Unofficial TS1000 LDOS Manual nearing
early draft stage at about 86pp. & Tips,Tricks & Techniques From The User Group Mas-
ters for the TS1000 about 35pp is being enlarged as is a book on TS1000 Assembly
Language Programming (about 25pp.) that specifically features the Artic assembler.
Another porject, perhaps of interest to Amstrad users, is a BASIC codeworks program
library which attempts to get some BASIC code in GW BASIC or BASICA out in the hands
of amateurs for experimentation, in a field (MS DOS) where all to many programs are
only available in compiled versions, without access to the source code possible. Too
the writer has always wanted to experiment with programming in C, but that will wait.
Source listings of some of these programs (TS1000) are available for $2 or cassette
for $7.
NOTE: