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One Center Plaza
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FIRST CLASS MAIL

BOSTUG
Sinclair/Timex Newsletter
September/October 1989

EDITOR'S NOTES

Welcome back to the world of print! As a result of some real effort by members we are publishing again. How many more newsletters appear depends on how much we have to publish. That's a HINT!

The QL sub-group is still active, although we have lost several members through relocation. Mike Padlipski has taken a job in the LA area and Alan Hodge has pulled up stakes to move to San Diego. We wish them luck and, as a personal note, I will miss their friendship.

A contingent of 6 from the BCS were at the CATS Fest in May. We can report that support for Sinclairs is alive and well, though another 50 people at the show would have been a real shot in the arm. I wish we had had an article on the show in this issue. We draw your attention to TWO (2) shows of interest in 1990 as discussed elsewhere in this issue.

On the negative side we are faced with a real problem with our second bulletin board. Jim Rodlin's education has forced his restructuring of the TIMEWARP BBS to take a back seat. Whether or not it comes back is in the hands of the Gods. Any takers out there for the BCS owned equipment? Operating expenses and a dedicated phone line are covered by your membership dues allocation.

As a final note, we have a 24 pin printer to produce the copy. We think that the output is vastly superior to 9 pin and close to what you can get with a laser.

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The newsletter has an exchange policy with Sinclair/Timex User groups willing to reciprocate. Please forward exchange issues to Joyce Blaho, 971 Fellsway, Medford, MA 02155.

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MEETING NOTES

There will be no October meeting of the BoSTUG. The next scheduled meeting is the QL sub-group on Saturday, November 4, from 11 am to 4 pm. The location is not yet set. Call me at (617) 889-0830 if you are not a regular in the QL group for directions.

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NEWSLETTER EXCHANGE by Joyce Blaho

You may not be aware that our group exchanges our newsletter with other Sinclair Groups across North America.

A library of these newsletters is available at meetings to read. A sampling of offerings is often reprinted in BoSTUG.

The following are some statistics of topics found in newsletters during 1989 that we exchange.

% OF NEWSLETTERS THAT COVER THE FOLLOWING TOPICS:

TS-1000 & ZX-81	20%
TS-2068	42%
QL	23%
Z88	10%
Electronic hobbyist	39%
Dues & small talk	87%

The percentage is of newsletters that cover a particular topic. For example, only 20% of all newsletters have had one or more articles on the TS-1000 or the ZX-81 during 1989.

This can give you a feel for what is written in the newsletters.

Clearly, from the numbers most newsletters have columns that pass on information about new products, what is heard in the press, or club dues, meetings and location.

Few newsletters print programs written by the members. It seems that few Sinclair computerists are developing new programs. Granted, Sinclair computers are not new, but there must be more people out there doing something new with them.

A number of newsletters reprint just from other newsletters - little that is original from within the group.

The most popular computer is the TS-2068. There's a lot of support for them. This is where you'll find a good number of electronic hobbyist articles. Much of the support for the TS-2068 is due to the large installed base in North America and the development of the Larken Disk Drive system that extends its functional life into the 1990's.

Few newsletters support the Z88. This is unfortunate, since many Sinclair enthusiasts have more than one computer, but it may simply reflect that the Z88 is less a hobbyist's computer.

It's a shame there are not more original programs or personal insights, tips and discoveries by users.

The information may be out there, but you and I will never know until people take to the keyboard and distribute their experiences in their local newsletter.

Editor's note: There are many still using ZX-81/TS-1000/TS-2068 computers who would benefit from reading these newsletters, even if the active group can't.

This would be a great reason to reactivate the General Meeting if there is demand.

I tried soldering small wires across the break. All I managed was cold solder connections that came apart when the cable was jiggled or holes burnt right through the plastic backing.

Next, I tried gluing thin strips of aluminium (N.B. spelling! It is, after all a British computer. Ed.) foil across the breaks. The glue turned out to be nonconductive.

I tried some fancy silver (real silver - not just silver color) paint, but it did not have enough strength.

I searched for strong conductive adhesives. It turns out there are such things, but their cost is such that it is cheaper to buy a replacement membrane.

Finally, I tried sewing them together. It worked.

SUCCESSFUL FINISH

I used a standard sewing needle and fine copper thread obtained by unraveling eight inches of ordinary electric extension cord.

Stitches were made so as to maximize contact with the conductive paint while being careful not to put holes so close together as to tear the membrane. A second needle helped to make holes from one direction when the needle with copper thread was in an awkward position to make a hole coming from the other direction.

The first wire of the second set (CNTL) is too close to the first set of wires to get any stitches in. So I stitched a pair of copper threads to the ribbon cable and ran a jumper over the first set of wires and then went into the membrane to make contact with the conductive paint. I covered the jumper with a piece of tape. Since this worked fine, I believe a break in the conductive paint could be repaired anywhere on the membrane.

It is easier to sew the membrane if it is removed from the case. Open the QL by removing the four short and four long screws from the back. Don't touch the two screws which hold the microdrives and are directly under them. Leave the QL upside down, open the front, and gently tug the two ribbon cables from their sockets.

There are six wires (from the back: red, black, white, black, green, black [all blacks are ground, OK if switched]) from the mother board to the top case. These light the pilot lights for the microdrives and the off/on light. Some QLs have a plug and socket, but in most QLs the wires individually slip into a socket - usually with much patience. IT IS NOT NECESSARY to remove these six wires to remove the membrane.

With the keyboard down and the main part of the QL propped open (but still hooked to the top by the six wires), unstick the aluminum foil at each end of the keyboard. This foil grounds the metal part of the keyboard and helps shield the mother board.

Remove the seven screws (one is under the cable - don't bend) that hold the membrane plate. There are more than seven holes, so note or mark the screw holes.

Then lift out the metal keyboard backing with the membrane attached. I found it easier and safer to keep the membrane attached to the backing with some tape while sewing. If the ribbon cable must be unstuck from the backing, do it with great care.

Test the repair for continuity by placing one lead of an ohmmeter on one of the wires of ribbon cable one and the other lead to one of the wires on ribbon cable two. Then push the membrane at an appropriate (from figure 1) key location to close the circuit. The astute reader will notice this takes three hands or a clamp on the ohmmeter lead.

RECIPES By Sherm Waterman

Having written a program called RECIPES and having been asked to review same, I would like to preface this article by giving the program a rave review.

A while ago (18 months), when I retired to Cape Cod, I gave much thought as to how a retiree could keep busy when swimming, boating, fishing, gardening, bicycling, clam digging, reading, computing and portfolio management did not fill an entire day's time.

An opportunity arose to enroll in a men's cooking class to teach us old-timers that you don't have to eat fried eggs, bacon, toast and coffee or go to restaurants every night to survive. After taking three courses coupled with additional gourmet instructions in Italian and French cooking, I consider myself somewhat of a chef (at least, my wife hasn't complained yet and delights in getting out of the kitchen).

Over time, a collection of tested recipes was amassed on sheets of paper, and not wanting to continue with the helter-skelter of normal home file recipe systems, (a drawer here, a book there, a slip of paper somewhere or a pile of something to paw through to find a recipe), I decided to put the QL to use and write a program to do the work.

Being a computer hacker and I mean hack-hack (it takes me three days to do what most of you do in 30 minutes), I asked my good friend, Peter Hale, if he thought the program had merit and would he help if necessary. Naturally, the response was affirmative, the help forthcoming and an ARCHIVE program evolved over six months.

With the RECIPES program, the following things can be done:

1. Look at the test file, play and learn with it.
2. Create one's own new file.

3. View recipes by category or type (name of recipe).
4. Pull up and view a sub-category i.e. salad, soup, dessert, pasta, seafood, etc.
5. Add, delete, and/or alter records.
6. Print single, multiple or all recipes to 8 1/2"x 11" sheets or 4"x 6" cards (or to 3 1/2"x 5" cards with a slight program modification)
7. Merge other recipe files.
8. Backup the file, procedures and/or screen.

The program allows for 15 ingredients - enough for almost any recipe. Field lengths are short, so abbreviations like C for cup, T for tablespoon, t for teaspoon, etc. are necessary.

A possible difficulty is that ingredients are entered in horizontal sequence rather than vertically. This was done purposefully for faster screen writing, but should present no problem after working with the program.

RECIPES is fun. You'll like the graphics and ease of operation.

For example, if you decide on spaghetti for dinner, a couple of key presses to select the pasta category brings up every pasta recipe from noodle pudding to spaghetti sauce in alphabetical sort. After selecting a recipe, a couple of more key presses prints it and off you go to the kitchen.

What salad goes with a spaghetti dinner? Use the same method on the salad category to bring up all the salads and off you go!

If your wife or friend is hooked on computers, don't show her this program! You've lost your computer! And if you're alone in bed at 2 AM don't blame me!

P.S. Try the CLAM CHOWDER recipe. You won't be disappointed!

PROFESSIONAL PUBLISHER

A QL Software Review by Vernon Smith

Desktop publishing covers a lot of ground. Everything from small display ads, one page fliers, and multi-page newsletters can be produced using specialized programs which meld text and graphics. Two other dtp programs have been developed for the QL, Front Page and Page Designer, but the most extensive and feature laden, as well as the most user friendly, is Desktop Publisher from Digital Precision. Version 1.0 was introduced in 1987. It had many features for the manipulation of graphics, but its handling of text files, left a lot to be desired. Version 2.0, DTP Special Edition, also came out in 1987. It had better file handling and purported to be able to handle imported text files. Last year I critiqued DTP and pointed out that, while it did a pretty good job with graphics, its text handling was still flaky. I couldn't consistently import text files, which I deemed to be the primary feature that DTP, or for that matter any dtp program, should have. Now Digital Precision has introduced Professional Publisher, an upgraded and expanded version of DTP Special Edition. Before you run out and get this \$190 program, you should ask yourself what you want to accomplish with your dtp endeavors. This is even more important if you have DTP SE and feel that you want to increase your dtp capabilities. If the most you are going to do is prepare small display type ads or all of your text entry will be directly on the page, you may find the Special Edition will be adequate.

WHAT IT HAS

For starters, it has drop down menus and can work with a mouse. This is a rather dubious feature since there are really very few programs that use a mouse and there is no standardization between the various mice on the market. As with the previous two dtp programs, it has a large number of text and graphic fonts; however, this edition includes what DTP terms "high definition fonts". Also included are auxiliary programs to make pages and fonts saved under the earlier

DTP programs, versions 1.0 and 2.0, readable by Professional Publisher and to change the program defaults. I especially like this capability, as you can set up all the default alphabets and fonts, page variables (memory, width, and height), text parameters, files, rulers, printer driver, and layout. This edition also includes 11 screens of clip art, something that was missing from previous programs and something I felt was a real drawback. Well, given these tools, what can you do?

Pages can be a variety of sizes and they can be dimensioned in inches or centimeters. I should caution you, though, that you can crash the program if you use the wrong sequence of steps when you set the page dimensions. The correct sequence from the Main Menu to get a page dimensioned in inches is 2 (page globals), 5 (1, 2 (dimensions) and set the width at 21.6 cm and length at 28.0 cm. Then Escape back to the Main Menu to change the centimeters to inches using 2, 8, and 6. Want to see what I mean by a crash? After you've set the dimensions above, try to change them (2, 5, 2). CRASH! The same is true if you reverse the order above and change the centimeters to inches (2, 8, 6) and then try to change them (2, 5, 2). CRASH! Why? Darned if I know. It shouldn't matter but it does. Horizontal and vertical rulers are provided and the dimensioning will be in centimeters or inches. Text handling is a snap and you can have it flow between multiple columns. Furthermore, Quill and ASCII (jis) files are handled with ease. Editing can be done after the file is imported, a feature version 2.0 needed. In general, this program has everything that I felt I needed in a dtp program. To Digital Precision's credit, they have rectified the errors of the earlier versions and added things that have enhanced the overall worth of the program. This would be all the program I could have wanted for the QL, if I hadn't tried dtp on the Atari.

WHAT IT NEEDS

First, there is the broad area called

Continued page 11

TS2068 Utilities

First these are machine code programs I got from ZX Computing Magazine and in fact all five programs came from the magazine. The first will break a m/c program that got lost in a loop. The keyboard is scanned by using the interrupt and if break is pressed then it returns to Basic. The program was written by Ray Reeves who ammended an earlier program by A. Vellacott.

```

1 REM M/C break Mk2
10 CLEAR 65278: RESTORE : FOR a=65279
  TO 65322: READ b: POKE a,b: NEXT a
20 DATA 1,255,245,205,84,31,48,4,241,
195,56,0,241,62,2,205,1,2,2,1,6,24,205
,217,13,193,205,43,45,205,227,45,237,8
6,255,195,3,19,62,254,237,71,237,94,20
1

```

Please note this program will print the break address in the upper right hand corner of the screen.

The second program is a program that will ignore the break command. It was written by R. Glavas. To use the program RANDOMIZE USR 50000. Save is SAVE "7777"CODE 50000,42. This only disables the BREAK. Regular halts will still work.

```

1 REM break ignore
10 CLEAR 49999: RESTORE : FOR
a=50000 TO 50041: READ b: POKE a,b:
NEXT a
20 DATA 59,59,225,17,15,0,25,235,42,
61,92,115,35,114,201,59,59,33,58,92,12
6,254,20,40,9,254,12,40,5,51,51,195,3,
19,54,255,35,203,254,195,125,27
100 Rem example
110 LET 1=USR 50000
120 PRINT "Try Break !"
130 FOR f=1 TO 21: PRINT AT f,0: INK
f/4;f
140 CIRCLE 128-f*2,88,f*3: NEXT f
150 STOP

```

The third and fourth programs are called Inverter and Wrap around. They were written by John Fryc.

```

1 REM inverter
5 CLEAR 40000: INPUT "Enter storage
address for          INVERTER code ";st
art
10 FOR x=start TO start+18: READ a:
POKE x,a: NEXT x
15 SAVE "inverter"code start,19
20 DATA 33,0,64,6,24,197,6,0,126,238
June      1989

```

,255,119,35,16,249,193,16,243,201
 inverter changes the screen attributes without affecting the graphics or text present on the screen.

```

1 REM Wrap around
5 CLEAR 40000: INPUT "Enter storage
address for          WRAP AROUND code "
:start
10 FOR x=start TO start+24: READ a:
POKE x,a: NEXT x
15 SAVE "wrap/around"CODE start,25
20 DATA 6,192,17,0,64,213,225,35,197,
1,31,0,26,237,176,43,119,0,35,35,19,19
3,16,240,201

```

Wrap around scrolls the screen lines to the left by a character space. The left hand column being wrapped around and reappearing in the right hand col.

The fifth program is to flip a screen either Horizontal or vertically.

```

10 REM Horizontal flip
20 FOR f=50000 to 1e9: READ a: IF a<>
999 THEN POKE f,a: NEXT f
30 DATA 33,0,64,17,0,200,1,0,27,237,1
76
40 DATA 33,0,200,78,6,8,203,17,31,16,
251,119,35,124,254,224,32,241
50 DATA 33,255,90,17,0,224,6,6,197,6,
128,26,119,43,19,16,-6,19,3,16,-12
60 DATA 33,255,87,17,0,200,6,48,197,6
,128,26,119,43,19,16,-6,193,16,-12,201
,999
100 REM Verticle flip
110 FOR f=50100 TO 1e9: READ a: IF a<>
999 THEN POKE f,a: NEXT f
120 DATA 33,0,64,17,0,200,1,0,27,237,1
76
130 DATA 33,0,200,78,6,8,203,17,31,16,
251,119,35,124,254,224,32,241
140 DATA 33,0,200,6,216,197,84,93,6,32
,126,245,35,16,-5,98,107,6,32,241,119,
35,16,-5,193,16,-22
150 DATA 17,0,64,33,0,200,1,0,27,237,1
76,201,99:
200 PRINT AT 10,10:"DEMO": FOR i=1 TO
100: PRINT AT RND*21,RND*30: INK RND*7
;"X": NEXT i
220 PRINT #0;AT 1,0: INVERSE 1;"Horizo
ntal flip": RANDOMIZE USR 50000
230 PAUSE 0
240 PRINT #0;AT 0,0: INVERSE 1;"Vertic
le flip": RANDOMIZE USR 50100
250 PAUSE 0: GO TO 220

```

SMUG Bytes

Courtesy Sinclair Milwaukee User Group

(NOTE NEITHER ANY AUTHOR OR SMUG BYTES TAKES ANY RESPONSIBILITY FOR ANY HARDWARE MODIFICATIONS TO YOUR EQUIPMENT.)

REVIEW OF DBADDRESS AN ARCHIVE PROGRAM

The program was written by Wood And Wind Computing and sold by EMSOFT div. of Estate Management Services, P.O. Box 8763, Boston, MA 02114-8763.

I purchased the program at the Capital Fest in May. Although I know nothing about Archive I can see the advantages to using the program. DBAddress is a program that runs within Archive. It uses it's own screens and instructions to process your data. There is a start-up screen with Bill Cable's, the programmer, name and address. The boot program then loads the necessary programs, screens and returns to the main menu. If you are entering for the first time his Sample Data Base is loaded. You can then create your own data base and change it so your data base will be loaded from now on.

The main menu allows for the following operations: 1. Look at the data with out opening the file. This means that you can examine, print, or do data base selections with out opening the data base. If you don't open the file nothing can get screwed up if the file is not closed before leaving. A good feature. 2. Open the file for insert, update, deletion. 3. Create new or change selection, to be used by the, data base program. 4. Backup the programs, data base or both, or Print a directory. 5. Quit DBAddress and/or Archive.

From this point you can enter your Name/Address data to create your data base, print it sort it into a different sequence or just about anything else. Continued page 7-.

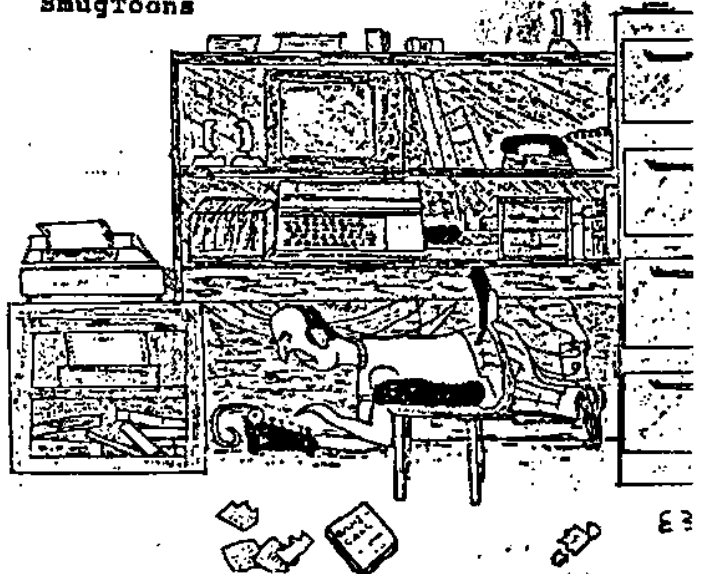
Well the first thing I did was to back up the programs. Since I use disk and Taskmaster with the programs on flp1 and data on flp2 I had to copy the sample data base to flp1. The program looks for sample on flp1. After that all other data bases are found on flp2 with all of DBAddress programs on flp2 also. I called this data base smugbyte as I plan to keep all mailing labels for SMUG on this data base. I then went to the Change menu and inserted all my labels. When finished I reordered the data. This wasn't necessary as the records are inserted in "Name\$" sequence. Now I used the Id box as a selection code. Exchange

labels are called "exchange", members are "members" and vendors are "vendor". Now if I want to produce mailing labels I select all labels except for those coded "vendor". This is all there is to it. If printing labels the print selection asks if I am printing labels. If I am it, asks how many lines for the labels.

If I want to print the labels in "Name\$" sequence no problem but if I want a different sequence then I must select the labels to be printed, exit to Archive, reorder using the field name, or names, following Archive rules and return to DBAddress, "M option". Now I can print them in the sorted sequence or save the file or anything else I want to do with the data.

This program is a sophisticated data base driver program and well worth the \$24.95 if you want to use Archive with it's unique sorting ability. You can create a data base and print it in any order you wish. It allows the saving of data and referencing it to other data. The documentation is adequate and Bill's responses to my written questions was fast and accurate. I am very impressed with both his program and his professional manner. He has other programs for Archive and Superbasic that I plan to try in the future.

SmugToons



Courtesy Sinclair Milwaukee User Group

September/October 1989

The 192K ZX/TS Laptop Project

by U. Lee

The latest craze to hit the computing world is the "Laptop". These portable battery powered computers possess the computing powers of its desktop cousins, yet they are small enough to fit on ones lap, hence their name.

Not being one to be left behind in the crowd, how about a ZX81/TS1000 laptop? The ZX/TS is already a portable computer because of its small size. Package it up with battery, extended memory, portable screen, full size keyboard, tape recorder... and poof, a ZX/TS Laptop.

The power will be obtained from a rechargeable 6V "Gell Cell" with 4AH capacity. (A method borrowed from the Vancouver Robot Club.) These lead acid batteries are maintenance free and are made by several manufacturers including Yuasa and GS Batteries. They are superior to traditional rechargeable nickel-cadium batteries in this application since nickel-cadiums have a characteristic known as "memory". They must be used from fully charge to discharge or they will eventually lose their capacity to store a full charge. This is acceptable when it comes to powering a radio but in a computer, it would mean losing data in order to "cycle" the battery. Lead acid cells are just the opposite. They like to be fully charged.

The ZX/TS onboard regulator circuitry will have to be redesigned in order to obtain a regulated 5V from a 6V battery and allow the battery to be recharged when the ZX/TS 9V adaptor is plug in. Take extreme care with the polarities. Rechargeable Cells can severely damage equipment if they are accidentally shorted. The earphone plug on the 9V adaptor should be changed to a barrel type DC plug for the recharging circuit. Earphone plugs tend to short themselves when they are first inserted into their jacks.

The circuit is set up to fully charge the battery in 14 hrs. With the system drawing about 400mA, the battery should last up to 9 hours. However the battery will have a longer life span if it is never fully discharged. A maximum of 4 hours operating time between charges should be the guideline.

Using a 12V Gell Cell would not reduce the amount of modifications required. A

different charging system would have to be implemented since the 9V adaptor could not supply the voltage required, a 6V tap would have to be provided for the tape recorder and monitor and the Cell would be twice as big in size in order to provide the same "AH" rating and therefore add additional weight to the system.

The 64K RAM upgrade which appeared in the Feb/89 ZX-Appeal will now be expanded to 192K with the additions of two 32K CMOS low power SRAMs and two 32K CMOS EPROMs. The new memory chips are connected in parallel to memory chip U5 with the exception of the CS lines which are connected to the rotary switch. Write Protect resistor R4 is changed from 10K to 4.7K. The 27C256 EPROM pin 1 is VPP and pin 28 is VCC. Both pins should be tied to +5V. Pin 27 is R14 and should be connected to pin 1 of the 62256LP SRAM.

Keeping the computer in the normal 16K mode, the area above 32K can be switched in and treated by the operating system "Ramos" as "diskdrives". Two banks will just contain EPROMs of "archived" programs. Two banks will contain SRAM which will allow programs to be saved and loaded. And two other banks will be used for storing relocated programs or used as a third and fourth "drive".

There will also be two new functions added. One is called "PARK" which will disable the "drives". Switch this function in along with the Mode Switch in the "NORMAL" position before turning off the computer. This prevents the data from being corrupted as the system turns on or off. Leave the Write Protect switch on as this protects the data when the computer is on.

The second new function will not only switch in the "AUXILIARY" RAM in the 32-48K region but also produce the display echo in the 48-64K region. This allows 16K versions of WRX16 software to run without having to modify the software.

The TS1016 Rampack cannot be use since it requires 9V which is not available.

The Z80 CPU will be replaced with its CMOS version and eventually the ROM will be removed and burned into the first 8K block of one of the CMOS EPROMs. This reduces the amount of power consumption. The decoding will then have to be changed. Remove the 4.7K pull-up resistor from whichever EPROM contains the "ROM". Connect a wire from that EPROM CS to pin 28 of the old ROM footprint.

**Professional Publisher—Continued
from Page 6**

"Why did they/didn't they do that?"

Why do I have to exit the program to change defaults? I ought to be able to do it at any time, inside or out. When you are in a sub menu and use Esc, you are returned to the main menu. Why not just back to the previous one? In the same vein, when I am setting the margins, each time I change a value the cursor returns to the top. Why not to the next entry or just remain there? I can display a grid or a layout but not both. Why? Ticks on the rulers are in inches or centimeters but there is no numbering on the rulers, just the same stupid pixel counter system you had in the earlier versions. I don't think in pixels and I doubt many of us do. Why not dimension the rulers and throw out the dumb counters? Why didn't they include the graFixC printer driver with the program? This is the only driver which supports 24 pin graphics. The docs talk about it and I know it is available since I purchased it from PDQL in February 1988. Is DP just trying to save money? Furthermore, printing with graFix is a long convoluted operation calling for a lot of setup, etc. If this driver were tied to the program, many of the setup questions would already be answered.

Now to narrow down to what I think are the fatal flaws in the program. First, text alphabets are dimensioned in C Size, just like before. The trouble is this is "computer talk" and has little to do with dtp. The type should be dimensioned in "points". Second, the default type style is too "dotty" and looks more like computer draft printing than dtp printing. There is no clean DARK serif style type for text. Also, why have 26 alphabet choices? (Many are unusable at any size greater than 1,1.) Any competent graphics designer will tell you that having more than 3 type styles on a page isn't good. Aldus Pagemaker, an industry standard, only comes with 3 tpestyles, but you can vary their size. It is better to vary the highlights (bold, italics, etc.) of the type rather than introduce a new type face. Why not load in additional type styles when needed? Perhaps the space used

store the alphabets could have been used to better advantage. Third, large "display type" alphabets, once you get out of the designed height and width, suffer from a terminal case of the "jaggies". Large rounded letters like P, Q, S, etc. aren't smooth. They have the "stair step" look. Finally, it can only hold 2 pages in memory. No problem, you say, just save them to disk. Well it *is* a problem when it comes to printing. A good dtp program should be able to print an entire newsletter in one operation. This newsletter, done on the Atari, is printed that way. I start the printing operation around 10 PM and when I get up in the morning it is all finished. You can't do that with Professional Publisher. It's one page at a time. For this reason, it's sort of unwieldy for anything greater than a single page newsletter.

Now one final observation. Perhaps this is an unfair comparison, but I feel that the program is way overpriced when the better Atari dtp programs (Publisher ST and Page Stream) are priced at \$79 and \$129. I feel these two programs are far better for dtp than Professional Publisher.

So, how do I rate Professional Publisher? For a one page or less dtp program, three out of five stars. If it had a decent text font and could produce large smooth letters, I'd have to say that it would be a five star buy. If you are looking for a dtp program that will produce a multipage newsletter, and you are willing to stand by and set-up each page during the printing process, Professional Publisher will be adequate for your needs. For the QL, this is the best dtp program on the market, realizing, of course, that the contenders are few; however, compared to dtp programs on other machines, it leaves a lot to be desired.

Courtesy Capital Area
Timex Sinclair

PRINTING QL FONTS By Al Boehm

Many programs both commercial and in the Public Domain from QUANTA are available to design new fonts for the QL. They look swell on the screen but printing them on a printer is a different matter.

OVERVIEW OF QL FONTS

In the QL, a font consists of 9 bytes for each character with two extra bytes at the beginning. The first extra byte gives the code of the first character in the font. If N is the number of characters in the font, the second extra byte is N-1. The first byte plus the second gives the highest valid code number in the font. In the default font the first character is 31. It has 97 characters so the second byte is 96 and the highest valid code is 127.

The QL uses two fonts. If the character code is out of range of the first font, the QL looks in the second font. If it's still not in range, the first character of the second font is printed. The default second font starts at 127 and has 65 characters.

The machine code TRAP #3 DO=\$25 lets a new font be used. This trap can be called from Super-Basic with Speedscreen's `_FOUNT` or with Toolkit II's procedure `CHAR_USE`. Similar procedures are available in other SuperBASIC aids. The main parameter of these procedures is the address of the new font. This address is usually known since space needs to be reserved for the font:

```
100 font_address=RESPR(875)
```

where RESPR reserves 875 bytes starting at font_address.

In my JSU ROM the address of the first default font is 44514 and the second is at 45390. I found them simply by searching for a 31 followed by 96 then calling `_FOUNT` to make sure this really was a font:

```
romtop=49151:FOR i=1 to romtop:  
IF PEEK(i)=31 THEN IF  
PEEK(i+1)=96 THEN PRINT i
```

Default fonts start with:

```
1st 31 96 84 40 84 40  
2nd 127 64 84 40 84 40
```

A quicker way to find the address of the fonts are:

```
PRINT PEEK_L(42+(PEEK_L(4+PEEK_L  
(163960)))) for the first font.
```

Change the 42 to 46 to get the second font.

In the JS ROM, default fonts are at 44442 and 45318. The MG ROM defaults are at 44512 and 45388.

PRINTING A SCREEN FONT

The main problem in sending fonts to a printer is that for video raster scanning the bits in a byte represent a horizontal slice through a character. Many (but not all) printers use a vertical set of pins so that they expect the bits in a byte to represent a vertical slice.

To rearrange a character from the horizontal to vertical storage you need to do three things:

1. Be able to get a bit out of a horizontal byte.
2. Know where this bit is in a vertical byte.
3. Put a bit in a vertical byte.

If $h(i)$ is one of the 8 horizontal bytes numbered $i=0$ to 7 (we'll ignore the 9th font byte which is usually blank for a space between lines), and $v(j)$ a vertical byte, then the following statement puts bit k of $h(i)$ into bit m of $v(j)$:

```
if  $h(i) \& 2^k$  then  $v(j) = v(j) || 2^m$ 
```

where $\&$ and $||$ are the logical bit operators AND and OR.

```
1&1=1 1&0=0 0&1=0 0&0=0  
1||1=1 1||0=1 0||1=1 0||0=0
```

2^k is a number with all zero bits except at k when you number the 8 bits in (Continued)

a byte: 0 (least significant) to 7. As you might expect for raster scanning, the horizontal font bytes are numbered from top to bottom but most printers require the least significant bit to be at the bottom. Thus, $m=7-i$.

Furthermore, the raster scanner uses the most significant as the left bit, but the printer expects the first byte to be on the left so that $k=7-j$.

Confused??? I would like to say this was all logically obvious to me, but in fact I figured it out by trial and error. In any case, the Procedure `invert_font` (See Listing) changes a QL font to a printer font.

Bit image graphics send a printer font character to the printer. The code is printer dependent, but Epson compatibles such as the QL, Star NX-1000, Centronics GLP, ALPS P2000G, etc.) use `ESC K n1 n2` to print $n1 + 256*n2$ bytes at 60 bytes per inch. When each character is 6 bytes, this works out to 10 character per inch which is standard Pica size type.

The default font only uses 6 horizontal bits and the first is always blank for separation between characters so this gives a nice (See Procedure `draft` in Listing) draft quality print.

Many printers also use `ESC L n1 n2` to print $n1 + 256*n2$ bytes at 120 bytes per inch. If each font byte is sent twice to the printer (See Procedure `emphasized`), a nice emphasized print results.

SpeedScreen also allows fat fonts which are a full 8 horizontal bits. For fat fonts, the `FOR i` loop in Procedure `invert_font` must go from 0 to 7 as written, but for the default fonts 1 to 6 (as in the Procedures `draft` and `emphasized`) is sufficient.

Procedure `invert_font` can be used character by character if only a few characters from a special font need to be printed. But it is a little slow.

Better to invert all characters at the start, change them to character mode, and store them in a printer font array, e.g.

```
DIM font$(no_of_characters,11)
```

The 11 lets 12 characters (0 counts as one) be stored for each value of the first subscript - just right for emphasized printing. In the Listing this is done in Procedure `init_printer_font`. The character function `C$` can then return the printer sequence to graphically print a character.

If #3 is the printer channel,

```
PRINT#3,'ABC'&C$(179)&'DEF'
```

will print special font character 179 between the C and the D.

This capability is particularly good in two cases. First, if you have other than a QL printer and want to use a QL character that isn't in your printer's font, you can print it.

The second case is when special characters are used in `QUILL`. In order to print these characters, send the document to a `_lis` file by specifying a storage device (e.g. `mdvl_filename`) instead of the printer when printing a document. Next, write a simple program that reads the `_lis` file (say #6 is opened to file) and sends it to the printer (say #3) as is except for the special characters:

```
REPEAT letter
  a$=INKEY$(#6,-1)
  IF CODE(a$)=179 THEN a$=C$(179)
  PRINT#3, a$
END REPEAT letter
```

Two final points: Most letters look OK on the printer when using this method, but it is possible to do much better if you develop special printer fonts for a particular printer.

Also, some printers such as the Olivetti 2300 jet ink printer use a single line raster method and all of this inverting fonts is superfluous.

FONT_PRINTER LISTING

```
10 REMark Font_Printer 18 Aug 1989 by A.Boehm
100 OPEN #3,ser1:REMark printer channel
110 address=44514:REMark JSU rom default font
120 REMark address=44512:REMark MG rom default font
130 type =1:REMark change 1 to 0 for draft
140 REMark print 80 characters
150 FOR l=31 TO 110
160 invert_font address,l
170 IF type=0 THEN draft:ELSE emphasized
180 END FOR l
190 PRINT#3:REMark sends carriage return so line feed is printed
200 CLOSE#3:STOP
210 REMark =====
300 DEFine PROCEDURE invert_font (font_at,chr)
310 DIM v(8)
320 first=PEEK(font_at)
330 last=first+PEEK(font_at+1)
340 IF chr<first OR chr>last THEN PRINT 'Character ';chr;' not in font
    range ';first;' to ';last
350 chr_at=font_at+2+9*(chr-first)
360 FOR i=0 TO 7
370 hi=PEEK(chr_at+i)
380 m2=2^(7-i)
390 FOR j=1 TO 7
400 IF hi&&2^(7-j) THEN v(j)=v(j)||m2
410 END FOR j
420 END FOR i
430 END DEFine :REMark =====
500 DEFine PROCEDURE draft
510 p$=""
520 FOR i=1 TO 6:p$p$&CHR$(v(i))
530 REMark ESC K 6 0 tells printer to expect 6 single-density graphic bytes
540 PRINT #3,CHR$(27);'K';CHR$(6);CHR$(0);p$;
550 END DEFine :REMark =====
600 DEFine PROCEDURE emphasized
610 REMark doubles each vertical slice to get 12 slices
620 p$=""
630 FOR i=1 TO 6:p$p$&CHR$(v(i))&CHR$(v(i))
640 REMark ESC L 12 0 tells printer to expect 12 double density graphic bytes
650 PRINT #3,CHR$(27);'L';CHR$(12);CHR$(0);p$;
660 END DEFine :REMark =====
700 DEFine PROCEDURE init_printer_font (font_at)
710 first=PEEK(font_at)
720 last=first+PEEK(font_at+1)
730 DIM font$(last,11):REMark 12 counting 0 for double density
740 FOR n=first TO last
750 invert_font font_at,n
760 g$=""
770 FOR m=1 TO 6:g$g$&CHR$(v(m))&CHR$(v(m))
780 font$(n)=g$
790 END FOR n
800 END DEFine :REMark =====
900 DEFine FuNction c$(chr)
915 REMark returns printer sequence for graphic printing of character chr
920 RETURN CHR$(27)&'L'&CHR$(12)&CHR$(0)&font$(chr)
930 END DEFine :REMark =====
```

THE PRINTER PORT

By Peter Hale

I want to tell you about what has to be the best printer value for Sinclair users on the market today - the PANASONIC KX-P1124.

It's a 24 pin printer and what a great toy!

The Epson compatible, QL printer that I got in 1984 when I bought my QL had begun to show its age.

But for its indecisiveness in printing NLQ fonts, I would not have looked for a replacement. After more than 20,000 sheets of paper I owed it more than it owed me. It's still a fine draft mode printer, but I need correspondence appearance that won't make clients think I'm cheap.

Clearly, Laser printers are impractical with Sinclair software, although price alone makes them out of the reach of many.

I had seen samples of 24 pin output in LQ mode and I was impressed. Also impressive are the 24 pin's increased speed and additional features. And 24 pin prices have been dropping.

I looked at a lot of printers before choosing the PANASONIC and not only is it cheaper than the competition but it has a lot more features.

WHAT'S SO GOOD ABOUT IT?

It has all the features that most current model printers (whether 9 pin or 24 pin) have:

1. Push tractor feed so you don't waste a sheet of tractor paper to remove the most recent document.
2. Paper parking, which backs out fan-fold paper to insert cut sheet letter head without having to reassemble the paper transport mechanism when you return to fan-fold paper.
3. Multiple resident fonts (the Panasonic has 6 including draft -

all printers count draft as a font) and more sizes and pitches. You get double-high characters and a new pitch called micron, mid-range between elite and condensed.

4. All pitches can be printed in Letter Quality so condensed and subscript look really sharp.

5. Both Epson and IBM printer codes are supported, and the Epson codes are fully downwardly compatible with 9 pin codes.

6. Printer speed is increased by more than 50% over comparable 9 pin machines. In the Panasonic, draft Elite is 192 characters per second and Letter Quality is 63 cps. High Letter Quality speed is possible because it makes a single pass, not two as with NLQ.

[A note when comparing printer speeds. Most printer speeds are quoted for Elite (12 characters to the inch) rather than Pica.]

7. There is a whole range of front panel settings for pitch, font, form length, lines per inch as well as the ability to control the printer from a program.

8. It has a built-in 6K printer buffer. Short documents disappear instantly to regain control of the keyboard even if you don't have TaskMaster to allocate some QL memory to the printer port.

You can add 32 K to the buffer so that custom fonts can be downloaded to the printer.

All current model printers have the above features, so aside from price, **WHAT MAKES THE KX-P1124 BETTER THAN THE COMPETITION?**

First, it has bottom feed paper handling with a pull-tractor for really accurate form handling. That also lets you have more paper trails sticking out of the printer than anyone else in your neighborhood.

Second, it has 3 macro settings for combinations of pitch, font,

etc. which are held on E-EPROM when the power is off. Push two buttons rather than 20 to change from draft Pica to LQ Prestige in proportional, Elite.

Third, and best of all, it is the only printer that's not a wide carriage printer but can handle a 8 1/2"x11" sheet sideways. Great for spreadsheets and such that would otherwise need fancy photocopying or a sidewise graphics program that takes forever if it works at all.

Fourth, the printer's ribbon, though expensive, is readily reinkable with little mess.

Fifth, it has a 2 year warranty.

There has to be a catch, right? Well, there are a few.

The expensive one is that it comes as a parallel printer only. If you have been using a serial printer to date, you will need a parallel interface. The Miracle one sold by Sharp's is a lot cheaper than the one sold by Panasonic and works just fine.

To get the full benefit of the printer's features you'll have to wade through the manual to learn how to use them from within a program. It had to be written by a former IBM technical writer.

There are also one or three undocumented 'features' that I discovered by accident, but which would have been easy to document.

Finally, and perhaps the most important catch - the one that would give you a good reason for not buying it - is that it is only available in that G** awful computer-putty color. We all know what happens to Sinclair computers if they are not used in a color co-ordinated environment!

Price: List = \$529.00, but as low as \$299.00 in a recent Computer Shopper. That's what I paid for the original QL printer and only \$120.00 more than an entry level 9 pin.

SINCLAIR SHOWS

We have received news releases about two Fests of interest to all Sinclair Users.

The first is for all you folks that missed last Spring's CATS Fest in Washington, DC. The Sinclair Milwaukee User Group (SMUG), as in Wisconsin, is planning a Sinclair Fest in April or May of 1990. At least one or two of us will show the flag.

Second, and of great importance to those of us on this side of Interstate 495, the BCS is planning an **ORPHAN COMPUTER SHOW**.

The chief organizer is Justin Dowling from the TI 99/4A SIG. The group has sponsored TI 99/4A Fairs for the past two years and has always shown a profit what with over 200 active members, a nationally respected PD software library, and a computer like ours that just won't quit.

Details are sketchy. At press time Justin was on vacation and unavailable for comment.

In short, if our group is to participate, we will have to do some leg work and promotion toward getting vendors, visitors and various and sundry to part with a few bucks to cover costs.

One bonus of this is we will meet others in similar fixes - particularly Atari, Commodore, TI and TRS 80 folks - but also those in applications groups like music, graphics, robotics and the like using these computers.

Whether or not Wang or Digital will be there, too, is uncertain, but check back in March.

A second, and perhaps bigger bonus, is that there will be enough people drawn to such a fair to attract the vendors of generic support like paper/disks/cables/chips and all.

Call if you can help: Peter Hale
617-889-0830.

REPAIRS
by Peter Hale

Dead and/or dying Sinclair equipment is often a reason for giving up on a Sinclair computer, particularly if your knowledge of computer electronics is zilch.

Until recently we knew of no one source to repair Sinclair equipment, whether hoary ZX-80 or QL.

We have learned of Dan Elliott, who trades as Promised Land Electronics. Dan repairs virtually every item for any model of Sinclair computer, as well as Commodore's, Coleco's, and TI's.

His charges are very reasonable, starting at \$5.00 plus parts for an unmodified ZX-81 or TS-1000 up to \$25.00 for a QL and includes UPS shipping in the 48 states.

I sent him my CST disk interface. Total cost was \$15.70 including a burned out diode. I had it back within three weeks, although Dan advertises that you should expect 4 to 6 weeks. That covers him in case of a parts supply problem.

For more info: call DAN at (314) 739-1712 evenings, Sun-Thur, or (417) 469-4571 on weekends. His address is Rt 1, Box 117, Cabool, MO 65689. Tell him a satisfied customer referred you.

=====

MEMBRANE REPAIR (cont. from p. 4)

Putting it back together is pretty much the reverse of the above. The keyboard must have something under one end to give the keys room so the bubble mat isn't squeezed while you try to replace the 7 screws.

To insert the ribbon cables in their sockets, it's better if the mother board is flat and the top propped up. Prop it up good (a steel book end works fine. ed) or have someone else hold it because the ribbon cables tend to go in easier with less chance of a bend if both hands are used.

M/TERM PATCH For
AERCO I/F & Printer

This program from SINCUS and Dave Schoenwetter will allow you to use a full size printer from your TS 2068, TS2050 modem and Smart Term II. It should work on most Epson compatible printers.

```
11 REM by Dave Schoenwetter, 1335 F
arm to Market Rd. Endwell NY 13760
100 INPUT "Do You have MTERM CODE LO
DED?"; "(Y/N)"; a$
110 IF a$="Y" or a$="y" THEN GO TO V
AL "4000"
(Ed. note using a$="--y" will check
both upper and lower case value of a
character.)
120 CLS: PRINT "Please Load MTERM pr
ogram"
125 LOAD "" CODE
130 PRINT AT 0,0;"MTERM IS NOW LOADE
D"
200 STOP
4000 RESTORE 4100
4010 FOR f=59173 TO 59175: GO SUB 450
0: NEXT f
4020 FOR f=59188 TO 59190: GO SUB 450
0: NEXT f
4030 FOR f=58618 TO 58633: GO SUB 450
0: NEXT f
4040 PRINT "Press CONT ENTER to Save
Modified M/Term on Tape.": STOP: SAVE
"MtermPatch" CODE 54016,7721: STOP
4100 DATA 195,126,229
4110 DATA 195,178,229
4120 DATA 42,232,238,237,75,236
4130 DATA 238,3,125,185,32,7
4140 DATA 124,184,32,3,195,80
4150 DATA 229,62,127,219,254,31
4160 DATA 210,80,229,219,127,230
4170 DATA 16,32,242,126,254,10
4180 DATA 32,2,62,0,254,12
4190 DATA 32,2,62,0,205,48
4200 DATA 229,35,195,2,229,0
4210 DATA 211,127,0,219,127,201
4220 DATA 0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0
4230 DATA 62,13,205,48,229,62,13
4240 DATA 13,205,48,229,62,13
4250 DATA 205,49,229,33,117,239
4260 DATA 54,13,6,32,43,54
4270 DATA 32,16,252,125,50,231
4280 DATA 238,201,33,195,229,126
4290 DATA 167,32,4,62,35,119
4300 DATA 201,175,24,251,203,79
4310 DATA 194,40,231,245,197,229
4320 DATA 42,176,229,237,75,174
4330 DATA 229,237,66,32,4,225
4340 DATA 193,241,201,219,127,230
4350 DATA 16,32,246,10,205,48
4360 DATA 229,3,62,96,184,32
4370 DATA 3,1,0,94,237,67
4380 DATA 174,229,24,227,0,94
4390 DATA 0,94,229,219,115,254
4400 DATA 12,40,4,254,10,32
4410 DATA 1,175,245,42,176,229
4420 DATA 119,35,62,96,188,32
4430 DATA 3,33,0,94,34,176
4440 DATA 229,241,225,201
4500 READ a: POKE f,a: PRINT f, P
EEK f: RETURN
```

Courtesy Sinclair Milwaukee
User Group

SAVER
by Ed Kingsley

As a sometime victim of Quill documents lost to lockups or power glitches, I was delighted to find QUANTA's "SAVER" program. It addresses a long standing need for Quill users who neglect to SAVE documents at regular intervals.

The program appears well thought out and does what it promises. It automatically (and without any effort on your part) backs up a Quill document at set intervals. At configuration you set the SAVE interval and medium for backup.

The program is machine code and resides in background.

There are two versions. The simplest SAVES to a single file, overwriting it each time. The longer second version SAVES to separate files alternately and avoids losing or corrupting the only file in the event of a power interruption in the midst of a SAVE. In the simple version you choose a file name; in the alternating version SAVER writes to defaults (BAKa & BAKb).

After each SAVE, the cursor is returned to the end of the document, as in Goto, Bottom.

I use Taskmaster and have TK-2, extended memory and dual disks. Periodic interruptions are short - only a few seconds until cursor return. This is not true without extra memory or with microdrives. There is no prompt or warning that a SAVE is about to commence and although no keystrokes made during the process are lost, the process can seem interminable, especially with microdrives.

It is easy to lose your train of thought. If you are editing the middle of page 2, you might be annoyed to find yourself at the end of page 5 when SAVER returns you to the document.

Without TK-2, the only way to interrupt SAVER is to RESET. If you multitask and have TK-2, you

can use SPJOB to suspend or RJOB to remove the program (which appears as SAUVEUR in the JOBS listing - French author). If you switch to another program but don't remove SAVER, it tries to SAVE the task you are working on. This can be merely annoying or, in some cases, corrupting.

A minor irritation is that if you are in Command (F3) Mode when a SAVE operation begins, the SAVE will not occur and you may experience unpredictable results.

I like this program. It is long overdue, but it has limitations, particularly if you don't multi-task or if you use microdrives.

An option to defer a SAVE by hitting a "snooze button" would be a plus. It would remind you later (maybe with increasing emphasis) to SAVE at a more appropriate moment. This would remove most problems I found with SAVER.

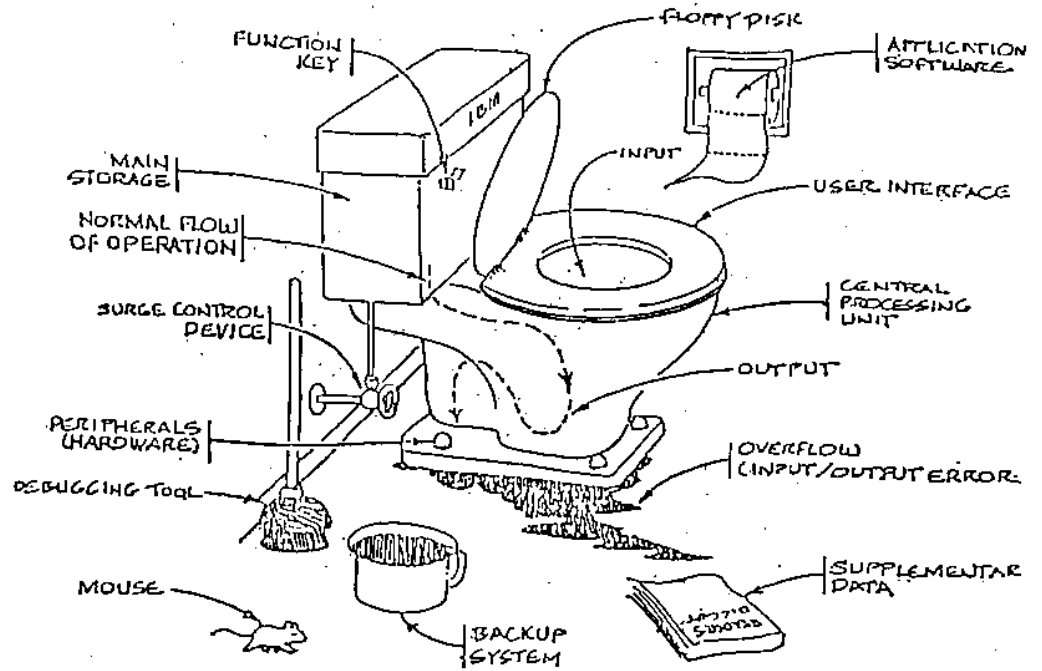
For those of you without extra memory and/or multitasking who need reminding, I offer the following short program to include in your boot. It sets up a series of ALARMS at intervals you select to remind you to SAVE your document. It requires TK-2. If you don't have it, I can't urge you strongly enough to get it.

```
10 REMark  QUILL SAVER ALARM
20 REMark  -----
30 CLS: PRINT: PRINT: PRINT
40 INPUT "  ENTER INTERVAL
   BETWEEN ALARMS (in minutes)":
   Interval
42 PRINT: PRINT
45 INPUT "  HOW LONG A SESSION ?
   (in hours)":time
47 times=(time*60)/Interval
50 d$=DATE$
60 h=d$(13 TO 14)
70 m=d$(16 TO 17)
80 FOR x=1 TO times
90   m=m+Interval
93   IF m>=60 THEN m=m-60: h=h+1
96   IF h>24 THEN h=(h-24)
100  ALARM h,m
110 END FOR x
```

Note: This program works without setting the current date or time.

Understanding the Technology

Courtesy Greater Cleveland
Sinclair User Group



PROBLEM SOLVING FLOWSHEET

Courtesy Massachusetts Department of
Environmental Protection

