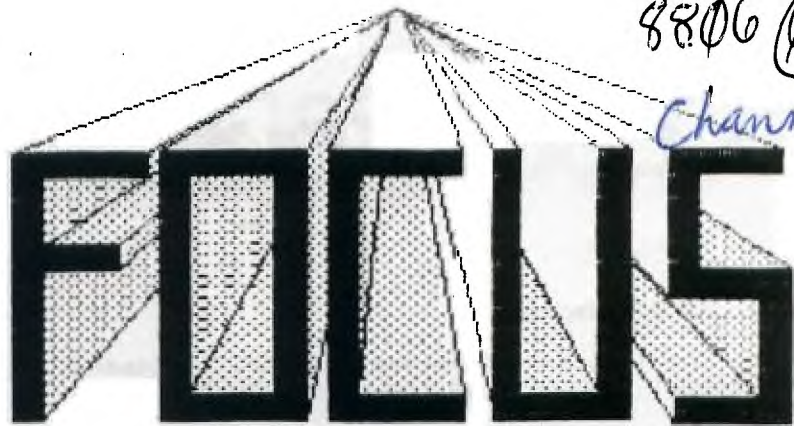


PUBLISHED TEN TIMES A YEAR  
BY CHANNEL 99 USERS GROUP,  
HAMILTON, ONTARIO, CANADA.

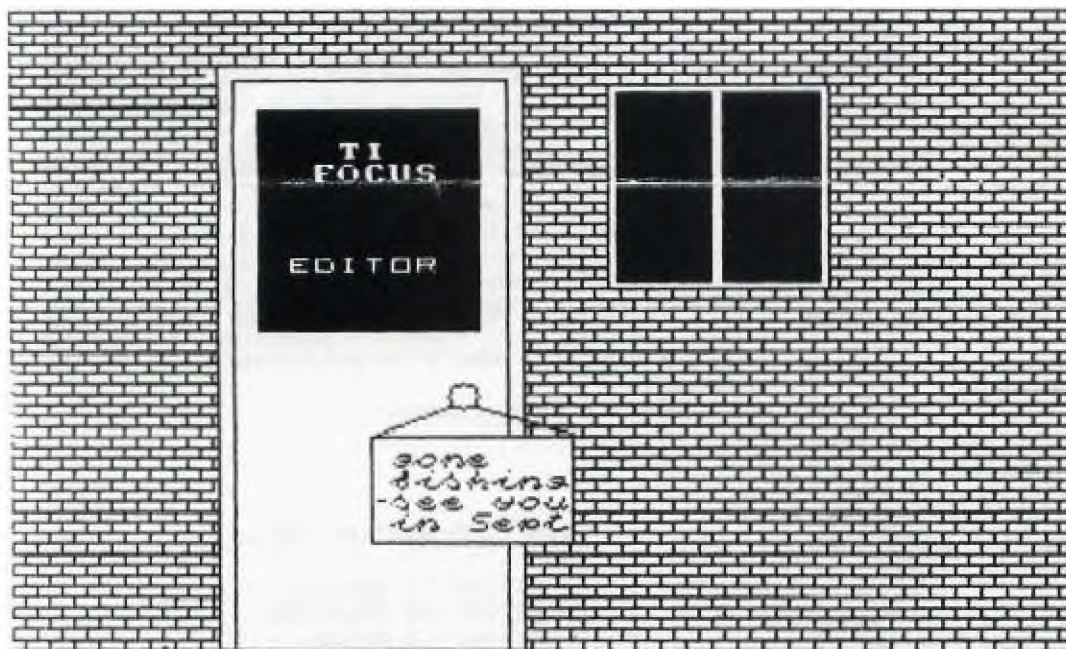


8806 (064)  
Channel.

TI-99/4A

MYARC GENEVE

JUNE, 1988



#### CHANNEL 99 EXECUTIVE

Tom Arnold - President.....(416)385-5576  
Tor Hansen - Vice President.....(416)279-0437  
Tom Bacolini - Treasurer - Librarian.....(416)734-9958  
Wayne Anderson - COPOLA.....(519)632-7329  
Richard Lilley - Newsletter Exchanges.....(416)336-7461  
Glenn Watson - Faireware Co-ordinator.....(416)844-9180  
Ed Moriarty - Enquiries.....(416)632-7039  
John Van Weelie - Disk of the Month.....(519)623-8218

Mailing Address - 656 Meadow Lane, Burlington, Ontario L7L4R8

# CLUB PAGE

## EXECUTIVE NOTES

By Tor Hansen

The last executive meeting (or, at least, it seemed that way, as the only volunteers to put the newsletter together were members of the executive), went reasonably well, as I think the results demonstrated.

I was unable to stay for the completion of the letter, although I got as much done as I could while I was there. When I picked up the proofs from Ed the Monday before the last meeting, to send them to a friend in the printing business, the first thing I did was to scan the pages to see how Tom and whoever remained finished off the letter.

It all looked great on the first scan through. I pulled out of Ed's driveway, and started working my way back to the QEW, with a vague feeling of unease.

As I passed the Ford plant in Oakville, I flipped up the cover sheet and looked at it again, and suddenly saw what was subconsciously bothering me. No page numbers.

Now I was under a bit of a time deadline of my own, as my friend had told me he wanted at least four days with the paper to give him time to fit it in with his other work. As I was getting a real bargain on the cost, I didn't want to push him too hard on the time issue.

Now lets do some simple math. I had told Ed that I would be over Sunday to pick up the issue. That gives me four days - Sunday night to Thursday night - to give the printer time to do his thing.

You'll note that I said that I actually picked up the issue on Monday (night).

As I was passing the Ford plant, my mind went into high gear to figure out how I would get the page numbers (No, Virginia, I don't normally keep several pages of pre-printed numbers handy for everyday use. Up until that moment, I had never had use for a bunch of pre-printed numbers.)

When I got home, I ignored the family (the dog, too), and ransacked the place in search of numbers (remember, I'm already a day late based on the printer's time estimate).

I finally settled on some sticky numbers provided with the labelling sheets that come with video cassettes.

And that is the story of how the May issue came by its page numbers.

(P.S. I got the letter to him that night, and to his credit, my friend had all the copies ready on Wednesday night, as that was the night I picked them up and paid for them.)

I would like to take this opportunity to publically thank Tom Arnold for providing his home, materials to work with to set up the issue, and most important, for the pot of Starter Fluid (coffee), that is invariably ready for any executive meeting.

And also a vote of thanks to the others who came out to cut and paste (even if they didn't know they were going to be doing that when we first started).

And, surprisingly to me, at least, a vote of thanks to John Whiteside, who showed up to help, and when he saw that I wasn't going to be doing it the way he had done in the past, and stayed until he was convinced that I wasn't crazy in the way I wanted it done, for the intent to help, a spirit that is helping to keep this club alive.

By the way, are there any volunteers yet for this job?

We need you real quick!

## CLUBPAGE

By Tor Hansen

There were only twenty-two present at my head count as Tom opened the May meeting. It looks like the summer doldrums are hitting a little early this year.

There were five full systems at this session, and again this month Gary Bowser from the Toronto group joined us. (in case you didn't already know, Gary wrote the TASS program, which displays the art work of three different graphics utilities, TI Artist, Graphx, and Draw-A-Bit II).

The rest of the meeting proceeded in a manner familiar to all who attend, so I feel no compulsion to expand upon that.

See you next (I nearly was going to write month, then I realised that I had better say next issue, as I am now starting two months off, since this won't be published during July and August).

Have a good summer.

## 1988 CLUB MEETING DATES

Friday 15 January  
Friday 12 February  
Friday 11 March  
Friday 8 April  
Friday 13 May  
Friday 10 June  
Friday 8 July  
Friday 12 August  
Friday 9 September  
Friday 7 October  
Friday 11 November  
Friday 9 December

All meetings are held from  
7 P.M. to 10 P.M.



By Tor Hansen

Just two topics to touch on this column.

1. John Whiteside is no longer News Letter Editor.

2. Tom Bacolini is vacating his position as Treasurer as soon as a replacement can be found.

We are an Executive Committee facing attrition. And we have to do something about it.

Needed... two volunteers. One to take over the job of editing this Letter, and another to take over the job of watching over the group's finances.

Neither job is excessively time consuming. Neither job, unless you live far from Hamilton, is going to amount to a lot of mileage and gas bill build up. The pay ain't great, but look at me. I'm not complaining, and with the stuff I wrote for last months issue, I've just completed three years of voluntary contribution to this group.

The stuff I write about isn't always highly technical, nor is it all directly related to the computer and its internal workings. Part of the reason for that is that its all been said before.

While there is some merit to the repeating of this information, as there always seems to be new members coming on board who haven't seen this information before, I try to talk to as many people as possible at the monthly meetings, and there seems to be no talk of a need for this, so I haven't attempted it.

Of course, if a person doesn't know what's been written, its hard to ask for something you know nothing about. I know that talking to some of the more knowledgeable in the group can be a daunting experience...

Correction... we need two volunteers AND some feedback from the rest of you. Let us know if we are meeting YOUR needs, and not just fulfilling the demands of our egos to see our names in print.

With only one of two people talking, the conversation can get far away from where it should be.

See you next issue.



```
10 !ONE-LINE MORTGAGE PAYMEN
T CALCULATOR
100 CALL CLEAR :: INPUT "ENT
ER P,R,N WHERE P=AMOUNT, R=R
ATE, N=YEARS ":P,R,N :: PRIN
T "$";INT((P*R/1200)/((1-1/(
+R/1200)^(N))0+.5)/100
;"PER MONTH"
```

By Tom Arnold

One of our members has recently ordered some programs from the U.S.A.

He has not received them and has complained about it to me. I thought that I would point out some tips on how to order through the mail. First check the ad you are replying to. Make sure it is in date. No sense in sending an order to a company that has gone out of business. Next check the address and make sure you send it to the correct address. When you send your order be sure to spell out clearly just what you want, most companies have many products. Also make sure you include your name and address. Place it on your envelope also. It amazes me to receive mail where the person does not put his address on the envelope. If you send the order to the wrong address how is the Post Office going to return it to you. Finally never send cash. Money orders are best. Actually I prefer to order from companies which use Master Card or Visa. This makes the transfer easy and you do not have to worry about exchange.

Finally, if you do not receive the order within a reasonable time then phone or write. They may be waiting for you to do so if they have misplaced your order.

#### FOR SALE

TI99/4A Silver Computer  
 TI Expansion Box  
 2-Teac DSDD Drives  
 Myarc Disk Controller  
 Myarc RS232  
 Myarc 512 Memory Card  
 Myarc X-Basic  
 TI X-Basic  
 TI Writer Word Processor  
 Microsoft Multiplan  
 Editor Assembler

price for above - \$800

Rave 99 Keyboard - \$150

Amedek 300 Colour Monitor - \$250

Seikosha GP-550TI Printer with  
 Parallax interface - \$150

Contact - Dave Douglas  
 2149-15th Side Road  
 Site 139 RR  
 Thunder Bay Ontario  
 P7C 4Z2  
 1-807-475-8079

POT POURRI  
by Tom Arnold

I would just like to remind everyone that this is our last issue until September. We only publish 10 times a year in order to preserve the sanity of your editors.

This newsletter is put together by several members including Ed Moriarity, John Van Weelie, Tor Hansen, Wayne Anderson and Rich Lilley. Others also contribute, so if I missed your name please forgive me. We would like a newsletter editor so if you want to take over in September then give me a call. We expect you to keep up our good standards so be prepared to work hard.

If you attend our meetings during the summer then you can pick up past issues of our newsletters or you may borrow newsletters from our exchange groups. We are expanding these exchanges so that you may access a larger information base. Many of these have excellent articles in them. My favourites are: Hunter Valley 99ers User Group, Bytemonger (Blue Grass 99ers), Great Lakes Computer Group, LA99 Topics, TISHUG news digest and Mid South 99/4A Tidbits. A recent addition to the exchange is the NY Interface from the Western New York Users. This is great reading, the president of this group Harry Brashear has had articles printed in Micropendium.

Speaking of Harry, I have ordered 10 copies of his "The Writers" a guide to the use of TI-Writer and it's clones. These will be on sale at our meetings when they arrive, cost should be \$2.50 each. If you do not have the TI Writer manual this is for you, a short summary (25 pages) on how to use TI Writer or Funnelwriter. Actually it's not bad to read even if you do have the manual. Thank You Harry for the sample!

Many people ask me where they can obtain software and hardware for the TI. There really is a shortage of dealers, but here is a summary of local dealers:

Wentworth Supplies, 162 Locke St. S. Hamilton - carries some used software and hardware, disks, paper, ribbons, monitors and printers. You must visit often to find any deals, the used stuff moves fast.

Computer Download Unlimited, 25 Ottawa St. Arnprior, Ontario - carries most of the hardware you would want including Myarc and Corcomp controllers, RS232's, memory cards. Also carries some software but I do not have a list. The owner Bob Boone is prominent in the TI community. I ordered a controller card from him which I was not happy with. Bob promptly sent me another one! Can't complain about that service.

Canaria Data Inc., 264 Weber St. W., Kitchener, Ontario - carries Myarc products including the Geneve. I just ordered the Myart and Mouse from them. They do carry a few other items so see their price list at the meetings.

You can also order items from companies in the US and I don't feel you can go wrong doing this. Most if not all are reliable, however the above mentioned dealers take Canadian money and provide faster service. The more you support them the more service you can expect.

Most of the new software I have read about has to do with graphics. The program I want to get is by Asgard Software, called Calendar Maker (\$19.95US). It does just what the name says but produces a calendar you will be proud of. The possibilities are endless as far as your creations can go. These are very fancy calendars. See the review by Harry Brashear in Micropendium (April).

Another item that caught my eye was Artist Borders (\$8US) a set of designs that allow you to border your TI Artist pictures. Again by Asgard.

I see where the Myarc Hard Disk Controller is now for sale. At \$320 it is out of the reach of most of us. Add the cost of a hard disk and the currency exchange and it would cost you \$700 to \$900 to own a hard drive. You would also need a case to put it in. I want a colour monitor before that!

For Geneve owners, Canaria Data Inc. mentioned above has keyboard overlays for the Geneve. It has either 10 or 12 function key sets. These include one for Myword, Multiplan, Myart and two blank ones. Cost is \$6 for the 10 key set or \$6.50 for the 12 key set. I like mine a lot, especially since I had already made my own.

No word yet on the Geneve updates, Myarc were supposed to ship the Advanced Basic, compiler and Pascal in mid April. I'm still waiting!

I was given at least 10 disks of GIF pictures by John Van Weelie at the last meeting. The details in these pictures are quite outstanding, some look like photographs. I would really like to see them in colour as my monitor is monochrome. This is one area where the Geneve really excels.

Finally the Chicago Users Group has announced it's faire in the fall. The date is November 12, 1988. We will not have a booth this year as we do not have a saleable product in our newsletter. Prior to this year we produced a disk with the newsletter so we could sell a package. My wife and I are planning to attend however, there is one feature of this faire that I like. The Faire is being held in the same Hotel as the guest are staying, This means you can leave the wife and kids to swim, etc. while you attend the faire. Great idea! See you in September.....

```
90 ! WEIRD SPRITE DEMO
100 CALL INIT :: CALL CLEAR
:: CALL MAGNIFY(4):: FOR B=1
  TO 10 :: FOR A=100 TO 255 :
  : PRINT A:: CALL LOAD(-3187
3,-A):: PRINT CHR$(A);CHR$(B
);:: NEXT A :: NEXT B :: GOT
O 100
```

## USING TEXT EDITOR AS A FORMATER

Originally by Edward Stamm of BLUEGRASS  
99 COMPUTER SOCIETY

If you're like me, you hate to have to go from Editor to Formater and back again all the time. It takes time and it's a wear and tear on the disk drives. While you know that you can print a document in the Text Editor using PF in the command mode, you also know that the Text Editor won't obey formatting commands such as .TL: it prints what is up on the screen "verbatim". You might not mind setting your tabs and typing with those annoying windows, or you might get just a little tricky and type with one window and then, after resetting your tabs, you reformat each paragraph. But you can't underline, you can't use sub- or super-script, you can't change print pitch, and you can't download your own designed characters. Right? Wrong!

I wrote a few months ago that the only printer codes that you can embed in text which the Text Editor will recognize are Emphasized and Double-strike print codes (ESC E and ESC G, respectively, ESC F and ESC H to cancel, respectively). Well, that's not exactly true. All (or nearly all) printer codes can be embedded in text which are recognized by the Text Editor. The trick is to know how to do it. This article will: 1) discuss the Special Character Mode; 2) give you a few printer codes which can be used with the Text Editor; 3) finally show you how you can discover embeddable codes for yourself.

On page 146 of the TI-Writer manual all of the Special Character Codes can be found. If you hit the key combination CTRL U, the cursor turns into a flashing underline rather than a flashing box. This means you are in this special character mode. As you may remember from a few months ago, you can now type FCTN R to get the "ESC" (Escape) character. To get out of the mode, re-type CTRL U. This special character mode (henceforth abbreviated SC) is the key to embedding formatting commands that the Text Editor PF can understand. If you want to underline without having to go to the Formater, type "ESC" "-" "Shift A" (remember no spaces between anything). Everything following this code will be underlined. To cancel, it's "ESC" "-" SC "Shift 2".

After some investigation, I've come up with a nice collection of embeddable codes. I've included some of them below:

### FUNCTION START CANCEL

Italics ESC,4 ESC,5  
Condensed SC,Shift 8 SC,Shift R  
Double-width SC,Shift N SC,Shift T  
Subscript ESC,S,SC,Shift A ESC,T  
Superscript ESC,S,SC,Shift 2 ESC,T  
Underline ESC,-,SC,Shift A ESC,-,SC,  
Shift 2

How did I discover all of these codes? And how can you discover even more? The trick is something called Formatting to Disk. You can format any document to a file on a disk. When using the Formater, after the prompt "ENTER PRINT DEVICENAME", just type "DSK1.FILENAME" instead of your printer name. Instead of the file being formatted correctly on paper, it is instead formatted correctly on a disk. Then go back to the Text Editor, and load DSK1.FILENAME. If this file is then printed out using PF, it will print perfectly (except that underscored words, but not underlined words, will look screwy). Any and all printer codes (such as underlining) will be prominently displayed for you to take note of. By comparing these funny looking characters with the characters on page 146 of your TI-Writer manual, you can identify the embeddable commands for future use. Just make sure that you determine the correct SCs. Many of the SCs look similar to each other. With this simple little trick, you can learn to embed nearly any printer code usable by the Text Editor.

I hope you find this useful. Retyped by  
Glenn Watson.

### RUNNING TI-WRITER "PROGRAMS"

```
70 REM FROM BITES & PIECES FOX CITY U.G.
80 REM CONVERT TI-WRITER PROGRAMS TO
EXTENDED BASIC MERGE PROGRAMS
90 REPRODUCED FROM TOPICS LA 99 COMPUTER
GROUP NOV/DEC 87 NEWSLETTER
100 OPEN #1:"DSK1.AAAA",INPUT,DISPLAY
110 OPEN #2:"DSK1.MMM",OUTPUT,DISPLAY,
VARIABLE 163,SEQUENTIAL
120 IF EOF(1)<>0 THEN 230
130 IF LEN(A$)=0 THEN 120
140 B=POS(A$," ",1)/1
150 IF B<1 THEN 230
160 C=INT(VAL(SEG$(A$,1,B)))/256
170 D=VAL(A$,1,B)-(C8)
180 B=B+1
190 E=LEN(A$)/B+1
200 A$=CHR$(C)&CHR$(D)&SEG$(A$,B+1,LEN(A$)-1)&CHR$(0)
210 PRINT #2:A$
220 GOTO 120
230 PRINT #2:CHR$(255)&CHR$(255)
240 !
250 CLOSE #1
260 CLOSE #2
270 END
300 REM RETYPED BY GLENN WATSON
```



# MULTIPLAN

## MULTIPLAN MADNESS

by Tom Arnold

Yes, I remember that I was going to talk about formulas in Multiplan, specifically the IF - Then statement. However time constraints and the fact that I'm not all too clear about them yet has lead me to delay this topic to later.

I want to talk to you about using spread sheets, in particular Multiplan, as text editors. Why would I want to use Multiplan as a word processor? Simply because in certain applications it can be very useful. I actually use a spread sheet at work quite often and I never work with numbers! It is very useful in keeping lists of things, in particular lists that you might want to update from time to time. I assume that you would want to sort these lists. How about a telephone list, an address list of your club members, a list of topics on the TI, an index to a book, any index for that matter. For these applications Multiplan is a very powerful tool. Let me explain.

At work I have to write job practices, generally I type them out. All these practices need indexes. I use to write every topic out by hand, then number each letter in alphabetical order. For example under "P", prince comes before punk and punk comes before pyke. Then I would write all the topics out in order for the typist to retype. This took a long time, especially if there were many items.

Along comes the computer and I immediately found an easier way. I type out two columns, the topic in column #1 and the page # in column #2. These are entered in the order that I come across them in the book. After I am done I "sort" the first column and I have an instant index. Very simple and the typist does not need to retype it either!

How do you do this in Multiplan? First, do not type Titles or any other text you would want on the printed page, enter this later. Assuming we are entering an index type in the names (topics) in column #1. After each entry move the arrow keys right and then enter the number or other reference you want. Repeat this until all entries are done. Now sort the spread sheet by selecting SORT. First you will be prompted the column you wish to sort by, in our case enter (1). Control A will move you to the second field where the ROW selection will be prompted. The default is between rows #1 and #255. This will be your normal selection. However you can use this to

sort partial lists. This could be useful if you want to sort part by one column and the other part by another column. Which brings us to the last prompt (via Control A). You are given the choice of ascending order (<) or descending order (>).

I suggest you try this little experiment: list 5 names in column 1, list the numbers 5 to 1 in column 2, list the letters c,f,d,s,f in column 3, and then the numbers 1,34,76,45 in column 4. Now sort using a different column each time. See how the rows follow each other and the order changes. You may also sort using different columns, for example you could sort a long list by column #1 and then the top 20 entries could be sorted by column #2 to achieve a different order.

As for uses, how about starting by making a combination phone list and address list. Then sort by name, phone numbers, addresses, printing out a new list each time. These would then be handy references. For example, you could isolate all your friends who live in Australia whose name begins with "P" and whose phone numbers are in area code "317". I would think you would find ten or twenty anyway! Just kidding!!!

One more point about using Multiplan to make columns of items. You won't accidentally format them into one jumbled mass. I forgot to mention that all titles etc. should be added after all your sorting is done. Hope this has been helpful.

## DEBUGGING

By Debugger

I'm sure that most of you have seen the commercial on TV about the lonely Maytag repairman.

Well I'm starting to feel the same way! Yet another issue passes without a major gaff on any of its pages.

Sure, there's a couple of spelling errors here and there, but that is not what I look for. Those BITty gremlins that foul up the program listings and cause endless headaches with crashed machines are my major concern.

The fact that there are not as many listings as before may be contributing to this, but I don't think that it is the only reason.

Ah well, as I now look forward to the summer off (my first holiday from writing in three years), maybe the Fall will bring some new listings to tackle and some new gremlins to expose.

Have a good summer!



**Canaria Data Inc.**  
264 Weber Street W.  
Kitchener Ontario  
N2H 4R6  
CANADA  
Tel: (519) 578 3873

HYARC G E N E V E  
9 6 4 0

**99/4A**

# MORE MULTIPLAN

The following article by Bill Harms originally appeared in the December 1986 issue of MICROpendium.

In this article I will introduce you to a method to transfer data from a BASIC program for use by Microsoft Multiplan.

I use Multiplan to keep my budget and to estimate my income taxes. I have a spreadsheet with 18 columns: 12 months, Yearly Total, Year-to-Date, Weekly Average, Monthly Average and two for taxes. Those last two have formulas to get various numbers from the spreadsheet. The rows include the following categories: Pay, Interest, Expenses, Loans and Other. You can really do "What If'ing" and "Why Not'ing" with Multiplan.

It was a bear however, adding up all the darn monthly cheque book entries in separate categories (Meals Out, My Pay, My Wife's Pay, Groceries, Interest, etc.).

Since Multiplan doesn't have a FOR/NEXT capability and cannot scan data until some criteria is met it was too time-consuming to enter the 100 to 150 monthly entries directly from my cheque book into Multiplan, even if there was enough RAM.

Now I use a fast little Extended BASIC program I wrote to get those transactions added by category. Then I can use a SYLK creator to quickly and correctly prepare them for loading into my Multiplan spreadsheet.

SYLK (or Symbolic Link) files are a little known feature of Multiplan. They can be written to disk by a BASIC program and read by Multiplan.

In this article I will show you how this is done. This material is based on a program I got from Texas Instruments, a series of articles in the May (and later) 1985 Super 99 Monthly (now called The Smart Programmer) and the Multiplan Manual.

This bare-bones program is based on the one I received from TI in 1984. The disclaimer was bigger than the program! It writes a disk file with a one cell spreadsheet that can be read by Multiplan.

```
100 OPEN #1: "DSK1.SYLK", DISPLAY ,OUTPUT
, FIXED 128
110 CALL CLEAR
120 INPUT "ROW NUMBER: ":R#
130 INPUT "COLUMN NUMBER: ":C#
140 INPUT "CELL CONTENT: ":A#
150 FOR Q=1 TO 27-LEN(A#)
160 W#=W#&CHR$(Q)
170 NEXT Q
180 X#=CHR$(34)&A#&CHR$(34) ! Surrounds
contents with quotes
190 Z#=CHR$(13)&CHR$(10) ! Carriage return
Line Feed
200 Y#="ID;PMP"&Z#&"F;DGOB"&Z#&"B;Y"&R
&#&" ;X" &C#&Z#&"C;K"&X#&Z#&"W;N1;A1
1"&Z#&"E"&Z#&W#
210 PRINT #1: Y#
220 CLOSE #1
230 END
```

Line 200 has the symbolics needed for Multiplan to read the file. See page 205 of the Multiplan Manual for explanations.

If you enter and run this program, you will find a file on your disk called "SYLK". Before you can load this file, you must change it. It may seem a bit odd, but the file must be written as DISPLAY, FIXED 128 and then changed to INTERNAL, FIXED 128 in the file header. In other words, the file must use DISPLAY notation but must look like an INTERNAL file!

There are two ways to do this. You can use a sector editor to change the last four hex characters of the first line of the file header to 0202.

Once you have done this you may load your file. First, boot Multiplan. Press (T)ransfer and the (O)ptions. Next press (S)ymbolic and then ENTER. Now press (T)ransfer again and this time (L)oad your file.

Here is the Multiplan spreadsheet:

```
|-----|
|      1      |
| 1 HARMS    |
|      |
|-----|
```

This is what the data looks like on disk using Miller Graphics Advanced Diagnostics program:

Drive : 2 Track : 3

Side : 1 Sector : 34

Byte : 0 Display: Ascii

```
1 D ; P M P * * F ; D G O G B * * B ; Y 1
; X
1 * * C ; K " H A R M S " * * W ; N 1 ; A
1
1 * * E * * * * *
```

Most of the asterisks stand for CR/LF (carriage return/line feed), Z\* in line 190.

There are many ways you could input data besides the simple INPUT in line 140. You could read data in from DATA statements or from a disk file. That disk file could be created by most anything: TI-Writer, RS232, another module or a Multiplan Print File.

You can create data in BASIC then "dump" it into a spreadsheet en masse instead of just keyboarding it.

You could transmit the outputted SYLK file of your Multiplan spreadsheet to others via RS232. The DIF (Data Interchange Format) used by Lotus 1-2-3 and Visicalc only accommodates the cell content, not the sheet parameters.

This is only a taste of what you can create to load data into Multiplan. It really opens Multiplan up to other software.

```
90 ! RANDOM MUSIC GENERATOR
100 RANDOMIZE :: DEF X=INT(R
ND*7):: FOR B=0 TO 6 :: A(B)
=VAL(SEG$("24726229433034939
2440", (B+1)*3-2, 3)):: NEXT B
:: B,C,D=X
110 CALL SOUND(-900,A(B),0,A
(C),9,A(D),19):: D=C :: C=B
:: B=X :: GOTO 110
```

## RECREATIONAL FUN

Article By T. Hansen  
Program By Bruce Bray

Considering turning your basement into a Rec Room? Or just doing some handywork around the home?

The program being premiered in this issue could be just what you are looking for.

Do you need to know how many studs you need for a job? Or how and where to install electrical outlets?

This program will tell you that and more. Bruce has done a pretty thorough job with this effort, allowing you to calculate costs and material requirements as you plan for the job you want to do.

As you will note from the program listing, this is a fairly long one. You will need memory expansion to run this from Extended BASIC.

When he gave this to me, Bruce asked me to critique his programming techniques. I am very leery of doing this for two reasons:

1). However much one thinks one wishes it, and however well intentioned the constructive criticism is, it is never well received.

2). If a program works, and does what the author intended (as this one certainly seems to), it seems to me so picaresque to try to poke holes in it or the style used to code the instructions.

The main point in programming to remember is to try to conserve memory. Those of us still with the original TI equipment, are limited to 64K total memory. Whatever we want to do with our software, we must remain mindful of that figure, as that is all the space we have.

The creative style we see some people develop is due to the fact that the available memory is not enough for what they wanted to do, so they played with coding until the program did what they wanted and still fit in the machine.

Some of these techniques are worth noting and remembering, as they will show us what can be done with a little thought, and can be useful in what we program, but I don't think they should be set up as a benchmark for programming style to be used by all every time we write a program.

The more that one programs (and I am speaking of the majority of us, enthusiastic amateurs), the more we will assimilate some of these methods and apply them. This is a natural growth process that all of us go through as we learn about our machines.

But enough armchair philosophizing. On to the program!

Thanks, Bruce, for the help when I needed it.

```
1 REM CONSTRUCTION ESTIMATOR
2 REM BY BRUCE BRAY
3 REM CHANNEL 99 USER GROUP
4 REM HAMILTON, ONTARIO
5 REM *****
```

```
10 CALL CLEAR :: GOSUB
1800
20 CALL CHARSET
30 CALL CLEAR :: CALL
SCREEN(15):: FOR D=1 TO 12
:: CALL COLOR(D,2,15)::
NEXT D :: DISPLAY
AT(2,8):"MAIN MENU"
40 DISPLAY AT(4,4):"1)
STUDDING" :: DISPLAY
AT(6,4):"2) INSULATION" ::
DISPLAY T(8,4):"3)
ELECTRICAL" :: DISPLAY
AT(10,4):"4) PANEL OR/GYP"
50 DISPLAY AT(12,4):"5)
BASEBOARD/TRIM" :: DISPLAY
AT(14,4):"6) PAINT" ::
DISPLA Y AT(16,4):"7)
CARPET"
60 DISPLAY AT(18,4):"8)
MISC SUPPLIES" :: DISPLAY
AT(20,4):"0) TOTAL"
```



```

70 DISPLAY
AT(22,7)BEEP:"YOUR CHOICE?"
80 CALL KEY(3,K,S):: IF S=0
THEN 80 :: CALL CLEAR
90 IF K=49 THEN 110 :: IF
K=50 THEN 210 :: IF K=51
THEN 290 :: IF K=52 THEN
480 :: IF K=53 THEN 1010 ::
IF K=54 THEN 1150
100 IF K=55 THEN 1260 :: IF
K=56 THEN 1360 :: IF K=48
THEN 1690
110 DISPLAY
AT(2,1):"STUDDING" ::
DISPLAY AT(4,1):"IT TAKES 9
STUDS FOR EVERY" : DISPLAY
AT(6,1):"8 FEET OF WALL"
120 DISPLAY AT(8,1):"LENGTH
OF WALLS?"
130 DISPLAY AT(10,1):"# OF
FEET?" :: ACCEPT
AT(10,12):LW
140 WS=(LW/8*9)
150 DISPLAY AT(12,1):"# OF
STUDS NEEDED-" ; WS ::
DISPLAY AT(14,1):"+ DOUBLE
CORNE RS";WS+4
160 DISPLAY AT(16,1):"COST
OF EACH STUD? $" :: ACCEPT
AT(16,21):CS
170 TC1=WS*CS+4
180 DISPLAY AT(18,1):"COST
OF STUDS=$" :: DISPLAY
AT(18,16):USING
"####.##":TC1
190 GOSUB 910
200 GOTO 30
210 DISPLAY
AT(2,1):"INSULATION" ::
DISPLAY AT(4,1):"1 BUNDLE
OF INSULATION " :: DISPLAY
AT(6,1):"COVERS APPROX. 90
SQ FT"
220 DISPLAY AT(8,1):"LENGTH
OF WALLS-" :: ACCEPT
AT(8,17):LW :: DISPLAY
AT(10,1) : "HEIGHT OF WALL-"
:: ACCEPT AT(10,17):HW
230 DISPLAY AT(12,1):"TOTAL
SQ FT-" ; LW*HW
240 DISPLAY AT(14,1):
"NUMBER OF 90 SQ FT AREAS="
:: DISPLAY AT(14,26):USING
"###.###":LW*HW/90
250 DISPLAY AT(16,1):"# OF
BDLS NEEDED=" :: ACCEPT
AT(16,18):BN
260 DISPLAY AT(18,1):"COST
PER BUNDLE=$" :: ACCEPT
AT(18,18):CB
270 TC2=BN*CB :: DISPLAY
AT(20,1):"COST OF
INSULATION=$" :: DISPLAY
AT(20,21):US ING
"####.###":TC2 :: GOSUB 970
280 GOSUB 910 :: GOTO 30
290 DISPLAY AT(2,1):
"ELECTRICAL" :: DISPLAY
AT(4,1):"COST OF WIRE-$"

```

```

300 ACCEPT AT(4,15):WC ::
DISPLAY AT(4,21):USING
"####.##":WC
310 DISPLAY AT(6,1):"# OF
RECT BOXES-"
320 ACCEPT AT(6,17):BO ::
DISPLAY AT(8,1):"COST OF
BOXES=$" :: ACCEPT
AT(8,16):C B :: DISPLAY
AT(8,22):USING
"####.###":BO*CB
330 DISPLAY AT(10,1):"# OF
OCT BOXES-" :: ACCEPT
AT(10,16):OB :: DISPLAY
AT(12,1) : "COST/OCT
BOXES-$"
340 ACCEPT AT(12,17):COB
350 DISPLAY AT(12,22):USING
"####.###":COB*OB
360 DISPLAY AT(14,1):"# OF
SWITCHES-" :: ACCEPT
AT(14,15):SW
370 DISPLAY AT(16,1):
"COST/SWITCHS-$" :: ACCEPT
AT(16,15):CSW :: DISPLAY
AT(16,2 2):USING
"####.###":SW*CSW
380 DISPLAY AT(18,1):"# OF
RECEPTACLES-" :: ACCEPT
AT(18,18):RE :: DISPLAY
AT(20 ,1):"COST/RECEPT-$"
390 ACCEPT AT(20,14):CRE
400 DISPLAY AT(20,22):USING
"####.###":RE*CRE
410 GOSUB 930
420 GOSUB 950
430 DISPLAY AT(2,1):"# OF
LIGHT FIX-" :: ACCEPT
AT(2,16):LF :: DISPLAY
AT(4,1):"COST PER FIX=$"
:: ACCEPT AT(4,15):CP
440 DISPLAY AT(4,22):USING
"####.##":CP*LF :: TC3=
(CP*LF)+(CRE*RE)+(SW*CSW)
+(WC)+(BO*CB)+(OB*COB)::
DISPLAY AT(8,1):
"TOTAL/ELECTRICAL=$"
450 DISPLAY AT(8,22):
"-----" :: DISPLAY
AT(8,22):USING
"####.###":TC3
460 GOSUB 970
470 GOSUB 910 :: GOTO 30
480 DISPLAY AT(2,1)
:"PANEL/GYP" :: DISPLAY
AT(4,1):"LENGTH OF WALL-"
:: ACCEPT T(4,16):LW ::
DISPLAY AT(6,1):"# OF
PANELS=" ; LW/4
490 DISPLAY AT(8,1):"COST
PER PANEL=$" :: ACCEPT
AT(8,17):PA :: DISPLAY
AT(10,1) : "TOTAL COST
PANEL=$"
500 DISPLAY AT(10,19):USING
"####.###":LW/4*PA
510 DISPLAY AT(12,1):"COST
PER GYPROC-$" :: ACCEPT
AT(12,18):GY
520 DISPLAY AT(14,1):"COST

```

```

OF GYPROC-$" :: DISPLAY
AT(14,17):USING
"####.##":LW/ 4*GY
530 DISPLAY AT(16,1):
"SELECT ONE 1)PANEL
2)GYPROC" :: CALL
KEY(0,K,S):: IF S=0 HEN 530
:: IF K=49 THEN 540 :: IF
K=50 THEN 550
540 TCW=LW/4*PA :: GOTO 560
550 TCW=LW/4*GY
560 DISPLAY AT(18,1):
"COST-$" :: DISPLAY
AT(18,7):USING
"####.###":TCW
570 GOSUB 930
580 CALL CLEAR :: DISPLAY
AT(2,3):"CEILING-1)GYPROC
2)SUSPENDED"
590 CALL KEY(0,K,S):: IF
S=0 THEN 590 :: IF K=49
THEN 600 :: IF K=50 THEN
670 600 CALL CLEAR ::
DISPLAY AT(2,2):"GYPROC
CEILING"
610 DISPLAY AT(4,1):
"CEILING-LENGTH=" :: ACCEPT
AT(4,18):CL :: DISPLAY
AT(6,1):" WIDTH=" :: ACCEPT
AT(6,9):CW
620 DISPLAY AT(8,1):
"AREA=" ; CL*CW :: DISPLAY
AT(10,1):"NUMBERS OF
SHEETS=" ; CL*CW /32 ::
TC4G=CL*CW/32*GY
630 DISPLAY AT(12,1):
"CEILING COST/GYPROC=
$" ; TC4G
640 TC4=TCW+TC4G+TCSC
650 DISPLAY AT(16,1):
"GYPROC/COST =$" :: DISPLAY
AT(16,16):USING
"###.###":TCW+TC 4G
660 GOSUB 910 :: GOTO 30
670 CALL CLEAR :: DISPLAY
AT(2,2):"SUSPENDED CEILING"
:: DISPLAY AT(4,2):"LENGTH
OF ROOM=" :: ACCEPT
AT(4,17):LR
680 DISPLAY AT(6,2):"WIDTH
OF ROOM=" :: ACCEPT
AT(6,16):WR :: DISPLAY
AT(8,2):"A REA OF
CEILING=" ; WR*LR
690 T=WR*LR/8 :: DISPLAY
AT(10,2):"# OF 8 SQ FT
AREAS=" :: DISPLAY
AT(10,21):USI NG "###":T ::
DISPLAY AT(12,2):"-2X4
CEILING TILES"
700 DISPLAY AT(14,2):"# OF
8' WALL ANGLES=" ; ((LR/8)
+(WR/8))*2
710 MB=((LR/8)+(WR/4))
720 DISPLAY AT(16,2):"# OF
8' MAIN BEAMS=" :: DISPLAY
AT(16,22):USING "###":MB
730 DISPLAY AT(18,2):"# OF
4' CROSS BEAMS=" ; ((LR/2-1)
*(WR/4))

```

```

740 GOSUB 910
750 CALL CLEAR :: DISPLAY
AT(2,1):"COST/2X4 CEILING
TILES=$" :: ACCEPT
AT(2,25): CT :: DISPLAY
AT(4,1):"TOTAL=$";T*CT
760 DISPLAY AT(8,1):"COST
WALL ANGLE=$" :: ACCEPT
AT(8,18):CWA :: DISPLAY
AT(8,1):"TOTAL=$";CWA*
((LR/10)+(WR/10))*2
770 DISPLAY AT(10,1):
"COST/MAIN BEAMS=$" ::
ACCEPT AT(10,18):CMB ::
DISPLAY AT(12,1):"TOTAL=
$";CMB*MB
780 DISPLAY AT(14,1):
"COST/4' CROSS BEAMS-" ::
ACCEPT AT(14,20):CCB ::
DISPLAY AT(16,1):"TOTAL-$"
;((CCB*((LR/2-1)*(WR/4)))
790 GOSUB 910
800 TCSC=(CCB*((LR/2-1)*
(WR/4)))+(T*CT)+(CWA*((LR
/10)+(WR/10))*2)+(CMB*MB)
810 CALL CLEAR :: DISPLAY
AT(12,1):"SUSPENDED
CEILING-" :: DISPLAY
AT(12,20):US ING
"$###.##":TCSC
820 DISPLAY AT(14,1):"WALL
COVERING-" :: DISPLAY
AT(14,20):USING "$###.##":
TCW
830 TC4=TCW+TCSC+TC4G
840 DISPLAY AT(16,19)
:"-----"
850 DISPLAY AT(18,1):"TOTAL
CEILING/WALL-" :: DISPLAY
AT(18,20):USING "$###.##"
:TC4
860 GOSUB 910 :: GOTO 30
870 FOR DELAY=1 TO 2000 ::
NEXT DELAY
880 RETURN
890 FOR DELAY=1 TO 1000 ::
NEXT DELAY
900 RETURN
910 DISPLAY AT(23,3):"HIT A
KEY TO GO ON" :: CALL
KEY(0,K,S):: IF S=0 THEN
910 LSE 920
920 RETURN
930 FOR DELAY=1 TO 500 ::
NEXT DELAY
940 RETURN
950 CALL CLEAR
960 RETURN
970 TCT=TC1+TC2+TC3+TC4+TC5
+TC6+TC7+TC8+TC9+TC10
980 RETURN
990 IMAGE $###.##
1000 RETURN
1010 DISPLAY AT(2,1):"BASE
BOARD & TRIM.."
1020 DISPLAY AT(4,1):
"LENGTH OF WALLS-" ::
ACCEPT AT(4,17):BBWL ::
DISPLAY AT(6,1):"# OF 6 FT
LENGTHS OF BB="

```

```

1030 DISPLAY AT(6,24):BBWL/8
1040 DISPLAY AT(8,1):"COST
PER 8 FT LENGTH=$" ::
ACCEPT AT(8,23):CBB
1050 DISPLAY AT(10,1)
:"TOTAL COST OF BB=$" ::
DISPLAY AT(10,19):USING
"$###.##": BBWL/8*CBB
1060 DISPLAY AT(12,1):"# OF
LENGTHS OF TRIM-" :: ACCEPT
AT(12,22):LT :: DISPLAY
AT(14,1):"COST/8FT
LENGTH=$" :: ACCEPT
AT(14,18):CTL
1070 DISPLAY AT(16,1):
"TOTAL COST OF TRIM=$" ::
DISPLAY AT(16,21):USING
"$###.##":CTL*LT
1080 DISPLAY AT(18,1)
:"CHAIRRAIL"
1090 DISPLAY AT(20,1):"# OF
8FT LENGTHS=" :: ACCEPT
AT(20,18):CRL :: DISPLAY
AT(22,1):"COST/LENGTH=$"
:: ACCEPT AT(22,14):CRC
1100 GOSUB 950 :: DISPLAY
AT(2,1):"COST CHAIRRAIL=$"
:: DISPLAY AT(2,17):USING
"$###.##":CRL*CRC
1110 TC5=(CRL*CRC)+(CTL*LT)
+(BBWL/8*CBB)
1120 DISPLAY AT(4,1):"TOTAL
TRIM & BBOARD=$" :: DISPLAY
AT(4,21):USING "$###.##"
:TC5
1130 GOSUB 970
1140 GOSUB 910 :: GOTO 30
1150 DISPLAY AT(2,1)
:"LENGTH OF WALLS-" ::
ACCEPT AT(2,17):LW ::
DISPLAY AT(4,1):"HEIGHT OF
WALLS-" :: ACCEPT
AT(4,17):HW
1160 DISPLAY AT(6,1):"TOTAL
AREA-" :: DISPLAY AT(6,13)
:USING "$###.##":LW*HW
1170 DISPLAY AT(8,1)
:"CEILING AREA-LENGTH=" ::
ACCEPT AT(8,21):CL ::
DISPLAY AT(10,1):"CEILING
WIDTH=" :: ACCEPT
AT(10,15):CW
1180 DISPLAY AT(11,1):
"TOTAL SQ FT=" :: DISPLAY
AT(11,13):USING
"$###.##":(CL*CW)+(LW*HW)
1190 DISPLAY AT(12,1):"ONE
GALLON OF PAINT COVERS:"
400 SQ FT" :: DISPLAY
AT(14,1):"# OF 400 SQ/FT
AREAS="
1200 DISPLAY AT(14,21)
:USING "$###.##":((LW*HW)
+(CL*CW))/400
1210 DISPLAY AT(16,1):"# OF
GALLONS NEEDED=" :: ACCEPT
AT(16,21):GN
1220 DISPLAY AT(18,1)
:"COST/GALLON=$" :: ACCEPT
AT(18,14):CGP ::

```

```

TC6=(CGP*GN):: DISPLAY
AT(20,1):"COST OF PAINT=$"
1230 DISPLAY AT(20,16)
:USING "$###.##":TC6
1240 GOSUB 970
1250 GOSUB 910 :: GOTO 30
1260 DISPLAY AT(2,1):"CARPET"
1270 DISPLAY AT(4,1)
:"LENGTH OF ROOM?-" ::
ACCEPT AT(4,18):RL ::
DISPLAY AT(6,1):"WIDTH OF
ROOM?-" :: ACCEPT
AT(6,17):RW
1280 DISPLAY AT(8,1):"SQ
FT=";RL*RW :: DISPLAY
AT(10,1):"# OF SQ YDS=" ::
DISPLA Y AT(10,13):USING
"$###.##":(RL*RW)/9
1290 DISPLAY AT(12,1)
:"COST/SQ YD=$" :: ACCEPT
AT(12,13):CYD ::
COC=((RL*RW)/9)* CYD ::
DISPLAY AT(14,1):"COST OF
CARPET=" :: DISPLAY
AT(14,17):USING "$###.##"
:COC
1300 DISPLAY AT(16,1)
:"COST/UNDERPAD-" :: ACCEPT
AT(16,15):CP ::
CUP=((RL*RW)/9)*CP ::
DISPLAY AT(16,20):USING
"$###.##":CUP
1310 DISPLAY AT(18,1)
:"INSTALLATION/YD-$" ::
ACCEPT AT(18,18):IC ::
DISPLAY AT(20,1):
"INSTALLATION COST="
1320 DISPLAY AT(20,20)
:USING "$###.##":IC*(RL*
RW)/9 :: TC7=COC+CUP+IC
1330 DISPLAY AT(21,19)
:"-----" :: DISPLAY
AT(22,1):"TOTAL COST-" ::
DISPLAY AT(22,20):USING
"$###.##":TC7
1340 GOSUB 970
1350 GOSUB 910 :: GOTO 30
1360 DISPLAY AT(2,1)
:"MISCELLANEOUS SUPPLIES"
1370 DISPLAY AT(4,1)
:"HEATING SUPPLIES-$" ::
ACCEPT AT(4,19):HES ::
DISPLAY AT(6,1):"NAILS
,SCREWS,ETC..-$" :: ACCEPT
AT(6,21):NST
1380 DISPLAY AT(8,1):
"STRAPPING-$" :: ACCEPT
AT(8,12):STR
1390 TC9=HES+NST+STR
1400 DISPLAY AT(10,1)
:"MISC SUPPLIES-$";TC9
1410 GOSUB 970
1420 GOSUB 910 :: GOTO 30
1430 GOSUB 910
1440 DISPLAY AT(21,1):"1)
RETURN TO MENU" :: DISPLAY
AT(22,1):"2) END" :: DISPLA
Y AT(23,1):"3) PRINTOUT"
1450 CALL KEY(0,K,S):: IF
S=0 THEN 1450

```

```

1460 IF K=49 THEN 30 :: IF
K=50 THEN END :: IF K=51
THEN 1470
1470 OPEN #1:"PIO.MA=10"
1480 PRINT #1:" CONSTRU
TION ESTIMATE": "
-----"
1490 PRINT #1:" THIS IS AN
ESTIMATE ONLY."
1500 PRINT #1:"
-----"
1510 PRINT #1:"1)STUDDING->
# OF STUDS-";WS+4;"
COST=$";TC1
1520 PRINT #1:"2)INSULATION
-># OF BDLS-";BN;"
COST=$";TC2:
1530 PRINT #1:"3)ELECTRICAL
->WIRE COST-";WC:"#
REC/BOXES=";BO;"
COST=$";BO*C B:"
SWITCHES-";SW;"
COST=$";SW*CSW:"
RECEPTACLES-";RE;"
COST=$";RE*CRE
1540 PRINT #1:"#
OCT/BOXES";OB;"
COST=$";OB*OB:" LIGHT
FIXTURES-";LF;" COST
=$";LF*CP;"TOTAL
ELECT=$";TC3
1545 PRINT
#1:"4)WALLCOVERING -PANEL
/GYPROC-";LW/4+CL*CW/32;"
COST=$";TC4:" SU SPENDED
CEILING-TILES-";T;"
COST=$";T*CT
1550 PRINT #1:" WALL
ANGLES-";((LR/8)+(WR/8))*2;
"COST=$";((LR/8)+(WR/8))*2
*CWA : " MAIN TEE-";MB;"COST
=$";MB*CMB
1560 PRINT #1:" 4'CROSS
T-";((LR/2-1)*(WR/4));"
COST=$";((LR/2-1)*(WR/4))*CCB
;"TOTAL=$";TC
1570 PRINT #1:"5)BASEBOARD-
#";BBWL/8;" COST=$";BBWL
/8*CBB:" TRIM-";LT;" COS
T=$";LT*CTL:" CHAIR RAIL-#"
;CRL;" COST=$";CRL*CRC;
"TOTAL=$";TC5
1580 OPEN #2:"PIO.MA=20.LF=2"
1590 PRINT #2:"6)PAINT->#
OF GALS-";GN;" COST=$";
GN*CGP
1600 PRINT #2:"7)CARPET-#
OF SQ YDS->";(RL*RW)/9;
"COST=$";COC
1610 PRINT #2:" CARPET/
UNDERPAD/INSTALLED=$";TC7
1620 PRINT #2:"8)MISCELLANE
OUS-": " HEATING SUPPLIES=$
";HES:" NAILS, SCREWS, ET
C.=$";NST:"
STRAPPING=$";STR
1630 PRINT #2:"-----"
1640 PRINT #2:"TOTAL CONSTR
UCTION ESTIMATE->$";TCT

```

```

1650 PRINT #2:" THA
NK YOU."
1660 CLOSE #1 :: CLOSE #2
1670 GOTO 1440
1680 END
1690 DISPLAY AT(2,3):"STUDD
ING-" :: DISPLAY AT(2,18)
:USING "$####.##":TC1
1700 DISPLAY AT(4,3):"INSUL
ATION-" :: DISPLAY AT(4,18)
:USING "$####.##":TC2
1710 DISPLAY AT(6,3):"ELECT
RICAL-" :: DISPLAY AT(6,18)
:USING "$####.##":TC3
1720 DISPLAY AT(8,3):"WALL/
CEILING-" :: DISPLAY AT(8,
18):USING "$####.##":TC4
1730 DISPLAY AT(10,3):"BASE
& TRIM-" :: DISPLAY AT(10,
18):USING "$####.##":TC5
1740 DISPLAY AT(12,3):"PAIN
T-" :: DISPLAY AT(12,
18):USING "$####.##":TC6
1750 DISPLAY AT(14,3):"CARP
ET-" :: DISPLAY AT(14,
18):USING "$####.##":TC7
1760 DISPLAY AT(16,3):"MISC
ELLANEOUS-" :: DISPLAY AT(
16,18):USING "$####.##"
:TC9
1770 DISPLAY AT(17,19):"---
----"
1780 GOSUB 970 :: DISPLAY
AT(20,3):"TOTAL ESTIMATE-"
:: DISPLAY AT(20,18):USING
"$####.##":TCT
1790 GOTO 1430
1800 RANDOMIZE :: CALL
CLEAR :: RESTORE 1850 ::
FOR Z=0 TO 20 :: READ A,A$
:: CA LL CHAR(A,A$):: NEXT
Z
1810 CALL MAGNIFY(3):: FOR
Z=1 TO 9 :: NEXT Z
1820 DIM R$(24),RM$(10,2)
1830 FOR Z=1 TO 24 :: READ
R$(Z):: NEXT Z
1840 CALL CLEAR :: CALL COL
OR(1,2,12,2,12,6,4,2,12,8,2
,8,9,2,8,10,12,8,11,12,6,1
2,12,8):: FOR Z=1 TO 24 ::
DISPLAY AT(Z,1):R$(Z);::
NEXT Z
1850 DATA 33,01020408102040
80,35,8040201008040201,36,8
08080808080808000000000000
000FF01010101010101FF81FF
FF81ABD5FF
1860 DATA 96,FF,97,80808080
8080808001010101010101000
0000000000FF,100,FF808080
80808080FF01010101010101
1870 DATA 102,8080808080808
0FF01010101010101FF00,112,0
0,113,0103070F1F3F7FFF,120
,00,40,00,41,80C0E0F0F8FCFE
FF
1880 DATA 60,8182848890A0C0
80,61,8141211109050301,106,
FFFFFFFFFFFFFFFF00000000FF

```

```

0000000101010100000000000000
00001010101
1890 DATA 110,01010101FF0000
000000000000FF010101,92,00
1900 DATA 128,FC3F0F07FF010
0000000107FF0F3FFC0000C0F0
F8FCFEFFFFFFEFCF8F0C0
1910 DATA 132,FFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFF80E0F8FC
FEFEFFFFFFFFFEFEFCF8E080,4
5,00000000FF,95,00000000000
000FF
1920 DATA " #
!"
1930 DATA " # # # # # !
! ! ! ! !
1940 DATA " # # # # # !
! ! ! ! !
1950 DATA " # # # # # !
! ! ! ! !
1960 DATA " # # # # # !
! ! ! ! !
1970 DATA " # # # # # !
! ! ! ! !
1980 DATA " d' ' ' ' ' '
' ' ' ' '
1990 DATA " %X%X% ahhhcccc
hhhb %X%X% "
2000 DATA "&pppp$ ahhbxxxx
ahhb &(((($
2010 DATA "&pppp$ ahhbxxxx
ahhb &(((($
2020 DATA "&pppp$ ahhbxxxx
ahhb &(((($
2030 DATA "&pppp$ ahhbxxxx
ahhb &(((($
2040 DATA "&pppp$ ahhbxxxx
ahhb &(((($
2050 DATA "&pppo$ fccgxxxx
fccg &(((($
2060 DATA "&pppp$ !
# &(((o$
2070 DATA "&pppp$! CONSTRUC
TION #&(((($
2080 DATA "&pppp<
=(((($
2090 DATA "&pppq ESTIMAT
OR )(((($
2100 DATA "&ppq
)(((($
2110 DATA "&pq BY
)($
2120 DATA "&q
)$
2130 DATA " ! BRUCE B
RAY #"
2140 DATA " !, !
2150 REM
2160 D=5 :: C$="MEMBER OF C
HANNEL 99TIUG HAMILTON
ONTARIO. PRESS KEY TO GO
ON." 2170 C$=RPT$("
",28)&C$
2180 FOR X=1 TO LEN(C$)::
DISPLAY AT(24,1):SEG$(C$,X,
28):: FOR Y=0 TO D :: NEXT
Y :: CALL KEY(0,K,S):: IF
S<>0 THEN 2200
2190 NEXT X :: GOTO 2180
2200 RETURN

```



# GENEVE PEB MODIFICATION

Tom Arnold

The following article appeared in the latest issue of Micropendium. I submitted it many months ago and was surprised to see it finally in print. The picture referred to in the article appeared in last month's issue of Focus. Several of our members have submitted ideas, articles, newsletters to the editor etc. to this fine magazine. Just shows we have some top notch people in our group. Keep up the good work all!

-from Micropendium:

From the first time I saw a photo of the Geneve card I was concerned that the card extended out from the back of the PEB. Although one does not often move the PEB, it does get exposed to potential knocks. Now that I have a Geneve this concern has become reality. As I take my system to every Club meeting I was initially removing the Geneve card from the PEB to avoid damage. This is unacceptable as I could damage the card or connectors by doing this on a frequent basis. I was more worried about static electricity more than physical damage.

My first idea to protect this card was to build a protective box from sheet metal. However I was unable to find any sheet metal in my work shop on the day that I decided to commence this project. Scouting around the piles of junk one collects in a basement workshop I came across an old electrical box that I had discarded. I tried to use this but it was too small to fit around the card. It was, however, just the right depth which was more important because I wanted to support the connectors on the back of the card. I was about to scout for something more suitable when I noticed that this type of deep electrical box had it's sides screwed on. The reason for this is to allow more than one box to be joined together. Now I had the solution at hand. I located another box and removed one side from each box. When they were joined together they fitted around the Geneve card perfectly. I carefully drilled and out holes to match the connections on the card. This is more difficult than it sounds due to outouts, formed sections and pre-punched sections. The more equipped your workshop the easier this job will be.

Although my holes were not cut perfectly, they are placed so that they support the connectors which is one the benefits of making this modification. The two boxes are connected to the PEB by three self tapping

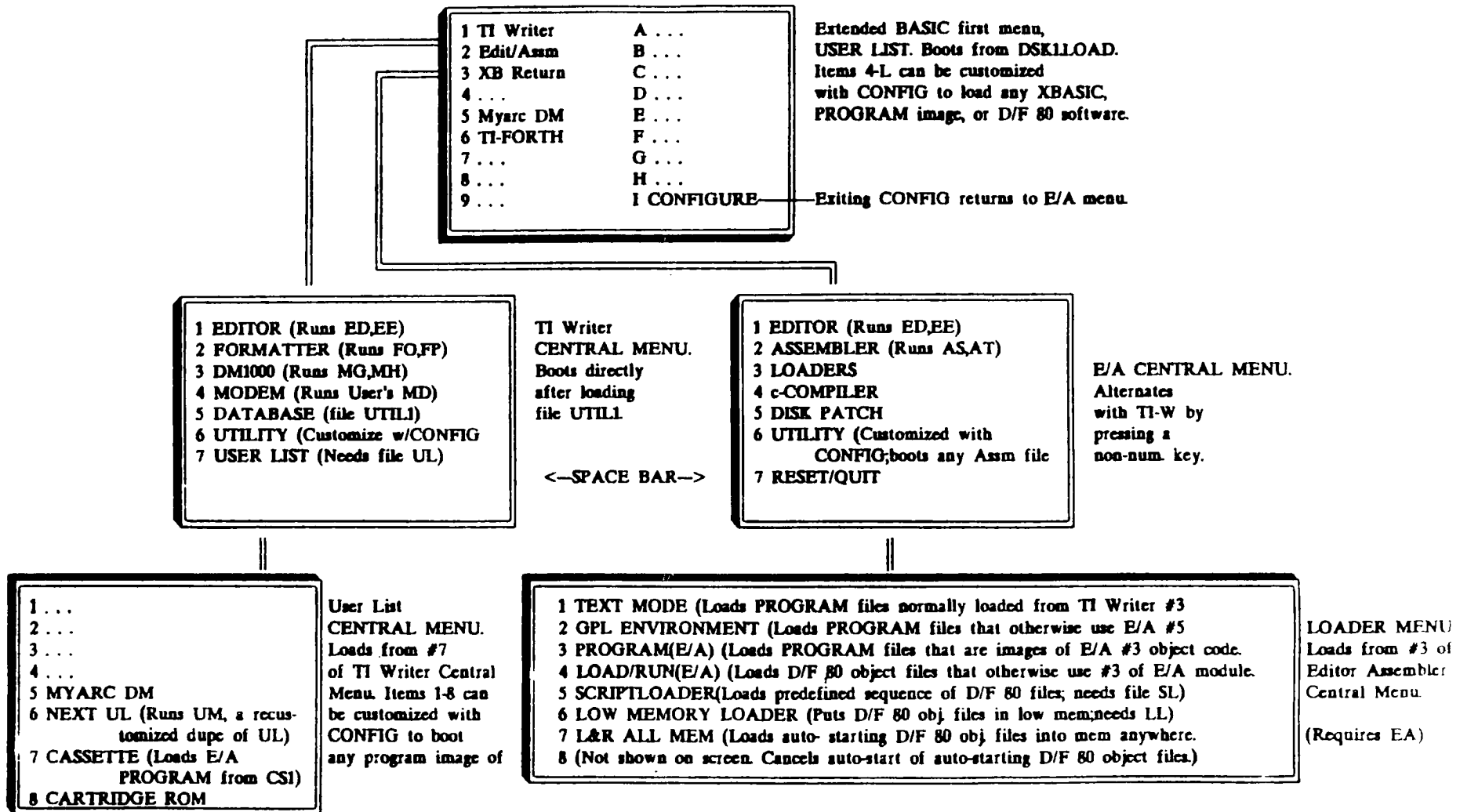
screws placed through the small tabs which are used for connecting the electrical outlet or switch to the electrical box. Be careful to vacuum up the filings created when you drill the holes in the PEB. Locate the joined electrical boxes that they clear the Geneve card by about 1/8", you don't want to short out the card. I connected all the cables through the holes in the electrical boxes before I placed the boxes on the back of the PEB in order to mark the hole locations that needed drilled. This ensures that you get the location right. This location should allow you to place 3 cards in the space covered by the extension. The RS232 card won't fit if you use the serial port (modem), but will if you just use the PIO port for a printer. You will have to cut a slot for the cable to pass through the electrical box.

Now when I haul the Geneve (it's no longer a TI is it?) to the monthly meetings I don't have to worry about hitting the card extension. In addition I don't have to worry about the kids pulling on the joysticks and breaking the Geneve card.

```
100 CALL CLEAR
110 PRINT "THIS IS A NEW ENT
ER ROUTINE": : : : : :
120 PRINT "WOULD YOU LIKE TO
TRY IT": : : : : :
130 GOSUB 10000
140 CALL CLEAR
150 PRINT "WORKS NEAT HUH"
160 END
170 REM
180 REM
190 REM
200 REM
10000 ROW=23
10010 COLUMN=6
10020 A$="PRESS ENTER TO CON
TINUE"
10030 GOSUB 10060
10040 REM
10050 GOTO 10110
10060 FOR C=1 TO LEN(A$)
10070 CALL HCHAR(ROW,COLUMN,
ASC(SEG$(A$,C,1)))
10080 COLUMN=COLUMN+1
10090 NEXT C
10100 RETURN
10110 CALL HCHAR(23,12,32,5)
10120 CALL KEY(0,Y,Z)
10130 IF Y=13 THEN 10150
10140 GOTO 10000
10150 RETURN
```

# FUNNELWEB 4.0 MENU FLOW CHART

FCTN-7 (AID) from any of these menus gives a disk directory.



# FUNNELWEB 4.0 CONFIGURE PROGRAM FLOW CHART

