Spiritof99
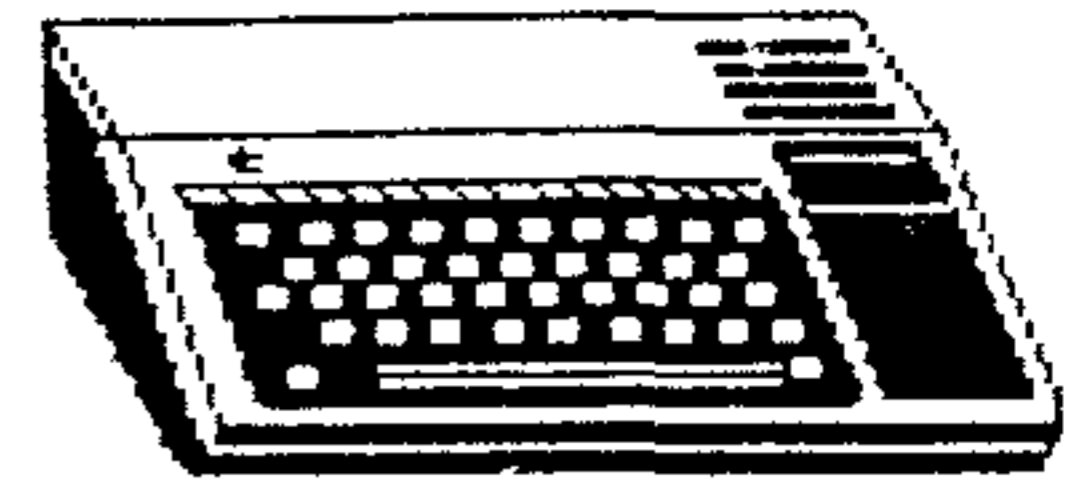
CENTRAL OHIO

NINETY NINERS INC

THE OFFICIAL NEWSLETTER OF THE CENTRAL OHIO NINETY-NINERS INC.

PUBLISHED MONTHLY IN COLUMBUS OHIO

C.O.N.N.I. PICNIC
SEPTEMBER 13

O.S.U.
GO BUCKS

LABOR DAY

LABOR DAY

BACK TO SCHOOL

IT'S
THAT TIME AGAIN

$1.50   VOL.10   NO. 9   SEP 1992

Central Ohio Ninety Niners Inc. is a non-profit organization comprised of MEMBERS who own or use the TI99/4A computer and it's related pro-ducts and have paid a yearly membership fee of $30 and whose main objective is the exchange of Edu-cational and Scientific information for the purpose of computer literacy. C.O.N.N.I. meetings are held the 3rd sat-urday of each month at C h e m i c a l Abstract, 2540 Olentangy River Road Columbus, OH. Meeting time is 8:30 AM til 2:30PM, Meetings are open to the public. Membership dues ($30.00) are payable yearly to C.O.N.N.I. and cover the immediate family of the member. Please send check to our membership registerar and join C.O.N.N.I. Please address it to:
John L. Parkins
2215 Bayfield Drive
Columbus, OH 43229

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Saturday 15 August 1992

We had a guest, Wade Dunham

It was announced that Ken Marshall has agreed to take over as DOM librarian in June or July of next year.

Dick Beey and Chuck Grimes presented figures regarding cost of printing the newsletter and the disk of the month. Upon a motion by Dick Beery, the following charges were adopted:

$20 annually for membership, including newsletter, within the U.S.; $5 extra outside the U.S., due to postage costs.

$35 annually for disk of the month (10 issues) mailed within the U.S.; $5 extra outside the U.S.; $3.00 each when picked up at a meeting.

A motion was made and passed that costs of operating the BBS are to come out of the user group funds.

It was decided that the annual picnic will be held at Sharon Woods on 13 September at 11:00 A.M. This is in addition to the regular Saturday meeting.

Respectfully submitted,
Jim Peterson, Co-Secretary

MINUTES
Wednesday, August 26, 1992.

Only a small number of members(7) showed up for the meeting. The group rehashed and explained the decisions made during the past several meetings for the benefit of Harold Timmons who was unable to attend the past three meetings. Now that we are once again offering to others outside our local group the opportunity of receiving our newsletter and subscribing to our Disks-of-the-Month , President John Parkins has agreed to contact personally the psople who had earlier sent money for such purchases and whose checks have been returned. He will explain the new price structure: $20 a year for the newsletter (including membership) and $35 a year for a Disk-of-the-Month subscription-- minumum ten disks per year--(excepting outside the USA, where DOM is $40, newsletter $25). Jim Peterson volunteered to send out once again with his catalogs and other correspondence a copy of our revised offer. Everett Wade submitted a motion to offer a combination package of the DOM + NL for $50. The motion died without a second and with very little discussion. Harley Ryan reported having received a $30 check for a year's membership on our Clearinghouse BBS. Membership in that portion of our offerings is rising slowly; it is thought that once more groups and individuals are aware of the opportunity that it will increase at a greater rate. Discussion included some of the items brought to us by Bud Mills at the July evening meeting; Freenet and TI-Echo; and a Beta-test version of a program by Bruce Harrison that will allow the storage of strings in the 32K memory expansion, something that has heretofore been considered impossible. Jim Peterson is assisting Bruce with the testing. The meeting was adjourned at about 9:30p.m. There were no demos.

Respectfully submitted,
Dick Beery, Co-Secretary

C.O.N.N.I. CALENDAR

September 1992

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
6	LABOR DAY	8	9	10	11	12
CONNI PICNIC	14	15	16	17	18	CONNI MEETING
20	21	AUTUMN BEGINS	CONNI MEETING	24	25	26
27	28	29	30			

SATURDAY MEETING 13 SEP 1992
Chemical Abstracts Building -- Columbus

8:30AM Setup, coffee, and doughnuts

9:00AM Disk of Month,   10:30AM Business
         MICROpendium,   Meeting
         Beginners help,
         Libraries open   11:15AM Demos:
                                         MIDI:
                                          Dick Beery
9:30AM Question and   Jim Peterson
         Answer Period   TIPS V1.8
                                          John Parkins

                                1:30PM Tear down
                                        and go home

WEDNESDAY MEETING -- 23 SEP 1992
McDONALD'S -- Cleveland and Main -- Westerville

7:30PM MEETING TIME
Demos:
 MIDI:
  Dick Beery
  Jim Peterson
 TIPS V1.8
  John Parkins

DUES ANNOUNCEMENT

Local dues are usually paid at or before the March meeting, and are $20 per year for full membership, library and voting privileges, plus the newsletter. You may also pay your dues in two installments if desired: $10 in March and $10 in September. Those who join during other months of the year pay a lesser, pro-rated amount:

MAR-20.00 APR-18.33 MAY-16.67 JUN-15.00 JUL-13.33   AUG-11.67 SEP-10.00 OCT-8.33 NOV-6.67 DEC-5.00   JAN-3.33 FEB-1.67

A DEAL YOU CAN'T PASS UP! SUBSCRIBE TO BOTH!

Now you can have the best of both worlds-- Keep up to date on the latest news from the TI-99/4A world with a subscription to the Spirit of 99 Newsletter AND get an up-to-date collection of new public domain and shareware programs with the Disk of the Month--Both brought to you by the Central Ohio Ninety-Niners, Inc.-- No newsletter published in August.-- January newsletter is an index of all articles published during the previous year.-- 10-SSSD "flippy" DOM's published annually.-- At times, two diskettes depending on the availability of new material.--the NL is mailed 1st of the month-- DOM is mailed about the middle of the month.

SUBCRIPTION RATES

Annual membership including newsletter:
$20 (U.S.A.)
$25 (outside U.S.A.)
DOM $35 (U.S.A)
$40 (outside U.S.A.)
John Perkins, Membership
Central Ohio Ninety-Niners, Inc
2215 Bayfield Dr, Columbus, OH 43229
(614) 891-4965

Please enter my subscription for:
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__ D.O.M. $35 (U.S.A.), $40 (outside U.S.A.)
__ Newsletter and D.O.M. $55 (U.S.A.), $65 (outside U.S.A.)

Name _____

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Make check payable to C.O.N.N.I.

Type of disk drive:

___ SSSD

___ DSSD

___ DSDD

THE STAR NX-1020 RAINBOW PRINTER
by Jim Peterson

After several years of heavy use, my sturdy old Gemini 10X printer decided to ignore the RS232 card, although it still performed in the test mode. So, it seemed to be time to catch up with the advances in technology by buying a new printer.

When a car gives me several years of trouble-free service, I usually trade it in for another car from the same manufacturer. It seemed sensible to do the same when shopping for a new printer.

So, I wanted a Star Micronics printer, I wanted a color printer, and the latest model I knew of was the NX-1020R, so I started calling around town for prices. I didn't even bother calling the places whose ads suggested they dealt only in the high-priced heavy duty business equipment, but even the discount computer stores didn't have much to offer. They are more interested in pushing 24--pin printers. As I understand it, the TI-99/4A cannot drive a 24-pin printer unless it has a 9-pin mode, in which case you would only be using 9 of the 24 pins.

One store did offer to sell me an NX-1020R for $239. I believe in supporting local vendors, but only when their prices are somewhere this side of the moon. I don't like to buy from those big discount mail order firms, but B.C.S. Megasource was offering the same printer in a Computer Shopper ad for $169. It turned out there was also a $20.99 shipping charge, which was a ripoff, but $189.99 is a lot less than $239 plus sales tax, and they did ship promptly.

The first thing I did was to run over to MicroCenter to buy a black ribbon, rather than use up the black portion of the color ribbon that came with the printer. To my great disgust, I found that generic ribbons were not yet available - MicroCenter could not even find the NX1020 in their cross-reference manual. I searched their shelves, and found the correct ribbon, marked ZX9, made by Star Micronics, "for Star 9-pin printers." The price was $12.95, which is HIGHWAY ROBBERY!

I tried one of the $4 generic ribbons for the NX1000, and found that Star Micronics had changed the design just enough so that it would not fit. This was very obviously done in order to force their customers to buy their OUT-RAGEOUSLY OVERPRICED ribbons. This is equivalent to selling a car which would only run on a special gas that was only available from the car manufacturer, at $10 a gallon. Any company that will treat their customers like that deserves

to be BOYCOTTED! I will never again buy a Star Micronics product, and I urge everyone else - DON'T BUY FROM THEM!

Well, that is the part of this review that I'm going to send to Consumer Relations at Star Micronics. I have since found a source for generic ribbons at $8, Which is still a ripoff. I know that the other manufacturers pull the same stunt, and it was stupid of me not to check on ribbon availability before I bought the printer. I was prefectly happy with the $.79 typewriter-spool ribbons of the old Gemini 10X, even if I did get a bit of ink on my fingers.

So, how do I like my new printer? I can only compare it to my old Gemini 10X. That is about like comparing a Model-T Ford to a Ferrari. The Model-T and the Gemini 10X had more metal and less plastic, and probably lasted a lot longer than the new cars and printers will, but printer technology has made a vast leap forward in the past several years.

Those microscopic inaccessible idiotic dip switches have been replaced by a front panel which accesses the electronic dip switch mode if you press three butons simultaneously. According to the manual, the Font button will then select the Bank Number and the Pitch button will select the Switch Number. The remainder of the instructions make no mention of Banks or Switches, but I figured out that be pressing the Font button to the 2nd light and the Pitch button to the 3rd light, and then pressing the Park button, I could turn off Switch B-3 and thereby enable the Tear--off function. Pressing the on-line button causes the printer to remember this setting each time the printer is turned on. Most of the other 15 switches are probably of little use unless you are working with IBM software, multi-part forms, non-standard page lengths, etc.

However, the five buttons on the panel have many other uses which I will use more frequently. Holding down the Font and/or Pitch buttons while turning on the printer allows me to override printer commands in the software and select the font (high speed draft, draft, or one of the NLQ fonts - Sanserif, Courier, Orator or Script) and pitch (pica, elite, condensed pica, condensed elite, or proportional). This takes a bit of learning because some options are indicated by a combination of lights; for instance, Sanserif is selected when the Draft and Courier lights are both on!

I do wish that emphasized and double e-struck print could be selected from

the front panel - would come in very handy when your ribbon starts getting old and weak.

Which reminds me of a peculiarity of this printer. Apparently it is mechanically impossible for a 9-pin printer to print emphasized condensed print. The Gemini 10X manual warned me of this but the NX1020R manual did not. If you attempt to do so, the Gemini 10X and the NX1000 and probably other printers will give you condensed print which is not emphasized - the NX1020R gives emphasized print which is not condensed!

The printer has too many other features to describe here. There is a 16kB printer buffer - but if you download a character set, this is reduced to one line. The four NLQ fonts print very sharply. In addition to the usual double e-width printing, double-height and quadruple size are also available. If you have one of the expensive color ribbons installed, you can print in 7 colors - although yellow is almost invisible. A number of special character sets are available, but I do miss the many graphics symbols that were so readily available on my old Gemini 10X.

Buttons on the front panel make it very easy to advance a sheet far enough to tear it off, and then reset the next page to top of form. There is also a button combination to advance or retract the paper in very small increments. This is extremely useful for getting strip labels aligned properly - and also very dangerous. Pressing the wrong combination can cause the strip of labels to go careening backwards - which is very likely to cause a label to peel off and get jammed under the platen, especially if you are using the better quality strip labels which are attached rather loosely to the backing. I have made this mistake three times, and have been very lucky that I was able to dig out the jammed labels without disassembling the printer. From now on I make micro-adjustments forward only.

In the meantime, Harley Ryan took my old Gemini 10X home and got it working with the aid of a 10-cent chip. I wonder what Star Micronics would have charged for that?! It pays to have friends in a user group - the manufacturers are NOT our friends.

P.S. - I have just learned that Midwest Micro sells NX1020R black ribbons for just $3.98 each if you order six. Their 800 number is 972-8844.

END

We're going to be a month behind for a while, owing to the fact that there was no newsletter published in August, as is our custom. This month we'll do the July D.O.M. Call all your friends and have them send for one. This one is a humdinger.

There are two games, one on each side of the disk. Both are written in Assembly by John Phillips. Each comes with its source code, for those of you who like to work with the Editor Assembler and see how things are put together. In both cases, to run the program, you must use the UTIL1 file on the disk. Each game should be unpacked to a DSSD disk--they won't fit on SSSD. Not sure--there may be a way to divide up the files so they would be playable using two SSSD disks each. Both have been commercial software and are now released to the public domain. They are in E/A5 format, so load them as suggested later in this article.

Side A has &4AFLYER, a program that has been popular with many. You can learn to fly, doing takeoffs and landings and doing bank curves. You can also shoot down the enemy. Great game, but takes

practice. It isn't easy.

Side B has &STRIKE3, a baseball game that is fun to play. Uses the keyboard and the computer does most of the work for you. Fast and fun!

Also on Side B are five music programs provided by Bud Wright. They are .ROL files transported over from the PC world. They are titled: "Adventure", "Bach", "Brazilia", "Bulldog" and "Cramary". All five can be unpacked to a single SSSD disk. You can load them using either the Editor Assembler cartridge or the "Loaders" option from Funnelweb. If you have Boot Menu, I would suggest you put them on a Boot Menu disk with nothing else besides the BOOT and LOAD programs. Then alter the menu to show the names of the games and put the program filename that loads each with the correct name, and presto! you have a music disk that allows you to play each selection by merely pressing a number. That option would require you to have DSSD and unpack the music files to that size disk, as the addition of even earlier Boot Menu versions would require at least 33 sectors, bringing the total to 373 sectors.

All five music programs and both games are, of course, archived. Chuck does this so you get more value for your money--more goodies on each disk. Use Archiver 3.03 or 3.03g to unpack. Hope you enjoy this one! See you next month.

P.S. We have had an inquiry about printing the README file using the Formatter. If you do so, the "^" following the filename of archived files disappears, since that is a formatting command. Take your pick: print it out using the Editor (PF) command which will retain the "^" or use the Editor and insert an extra "^" following the first one. (e.g. "^^") Now it will print correctly out of the Formatter.

Hint:I set my printer to Elite Condensed--Condensed would do-and then cut off what exceeds the length of one page and tape it to the right-hand column (blank) on the first page. This is quite readable and keeps all the information on only one sheet of paper, unless there is a double D.O.M.

END

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PLUS! v.2.0

This dynamic package of utilities and word processing aids creates one of the most exciting environments in the world of TI-99/4A and Geneve. Few things in good ol' USA are going to make you as happy as this new (and FINAL!) version of the popular PLUS! series. Almost 1400 sectors of pure dynamite is sure to keep you awake many fun-filled nights.

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DV80 TO PROGRAM CONVERSION

by Jim Peterson

John "Jeb" Hamilton of the Central Iowa User Group was the first to realize, several years ago, that a DV80 listing of a Basic or XBasic program could be converted to a DV163 file and then merged in and run as a program. I no longer have his program in my library, but this is a quick and dirty version of it -

```
100 DISPLAY AT(12,1)ERASE AL
L:"Input file? DSK":"":"Outp
ut file? DSK"
110 ACCEPT AT(12,16):A$ :: A
CCEPT AT(14,17):B$
120 OPEN #1:"DSK"&A$,INPUT :
: OPEN #2:"DSK"&B$,VARIABLE
163,OUTPUT :: LINPUT #1:M$
130 LINPUT #1:M$ :: IF LEN(M
$)>78 AND EOF(1)<>1 THEN LIN
PUT #1:M2$ :: M$=M$&M2$
140 X=POS(M$," ",1):: Y=VAL(
SEG$(M$,1,X-1))
150 PRINT #2:CHR$(INT(Y/256)
)&CHR$(Y-256*INT(Y/256))&"!"
&SEG$(M$,X+1,255)&CHR$(0)
160 IF EOF(1)<>1 THEN 130 EL
SE CLOSE #1 :: PRINT #2:CHR$
(255)&CHR$(255):: CLOSE #2
```

To try that out, key in this useless little program -

```
100 CALL CLEAR
110 FOR J=1 TO 10
120 PRINT J
130 NEXT J
140 END
```

List that to disk by LIST "DSK1.80". Then run the above converter program, answer the input prompt with 1.80 and the output prompt with 1.163. After it runs, enter NEW, then MERGE DSK1.163 and then LIST. This is what you should see

```
100 !CALL CLEAR
110 !FOR J=1 TO 10
120 !PRINT J
130 !NEXT J
140 !END
```

Type 100 and FCTN X to bring line 100 to the screen with the cursor on the "!". Type FCTN 1 to delete the "!" and repeat with FCTN X and FCTN 1 to delete all the others. Then enter RUN and it should do so!

All that the program does is delete the blank first line of the listing, convert each program line number to tokenized format, add a CHR$(0) end-of-line marker to each line, move the record to a DV163 file, and add the double CHR$(255) end-of-file marker.

The result is a merge format program composed of REM statements; when you delete the "!" REM indicator, these become program lines.

There is just one problem. A LISTed program is a DV80 file, consisting of records of 80 characters or less, but a program line in XBasic can be keyed in up to 140 characters long, and can be forced even longer (as I often do!) When such a line is LISTED, it is broken into 80-character records, which confuses the conversion program completely.

Line 130 of the conversion program attempts to resolve that problem. If a record is more than 78 characters long (because it could have been an 80-character line ending in a blank, which would become a 79-character record without the blank) it is taken to be most probably the first part of a long program line; another record is read in and tacked onto it.

However, this creates another problem, as you will find if you LIST the converter program and then try to convert it back to a program - line 140 will be tacked onto line 130 because line 130 is 79 characters long.

The best fix for this is to load the DV80 file into Funlweb and print out a hard copy; use a ruler to draw a vertical line after the 78th characters; mark any program line that ends on the 79th or 80th characters, delete those characters, save the listing, run it through the converter, merge it in and key those deleted characters back in - still much easier than keying in an entire listing.

After John Hamilton published his discovery, several authors wrote their own versions. It was suggested that programs could be written in text format, using the superior editing features of TI-Writer or Editor Assembler, and then converted to program format. Personally I was satisfied with the editing features of Basic and was not about to give up its syntax error-catching capability, so I never tried this method.

However, nowadays several hundred text files of newsletter articles are available on the Clearing House BBS, and other newsletters are being circulated on disk. Many of these articles contain program listings, and it would be much easier to extract and convert them than to print them out and key them in.

Later on, John Ford wrote a more complex converter called XLATE, which eliminates the need to delete all the "!" by converting the ASCII text file directly to tokenized merge format. It also checks for syntax errors and corrects them or reports them on-screen . If the LISTed program had regularly sequenced line numbers, it will check these to see whether records should be combined, which should greatly improve accuracy - I have not tested it enough to say how foolproof it is.

Blanks at the end of a DV record are dropped, so if the 80th character of a long program line is a blank, when the line is broken into two records and then recombined the blank will be missing. For instance, if the blank between FOR and J in FOR J=1 TO 10 happens to be the 80th character, it will recombine as FORJ=1 TO 10. This results in a SYNTAX ERROR referencing the line number, which is therefore easy to spot and correct. The same problem can cause the string "John Doe" to become "JohnDoe".

The above conversion programs are intended for listings in 80-column format. However, many of the listings within text articles have been reformatted to 28-column or 40-column width, or listed in those widths with Triton Super Extended Basic.

Fortunately, there is an alternative. Curtis Alan Provance has written a truly remarkable program in assembly, called TEXTLOADER, which will convert a DV80 file directly into a program in memory, and will handle the shorter line lengths, although with increased chance of error because the method of detecting new lines is far from foolproof.

I have not tested this program extensively, but have found only two major problems. The one is with records ending in a dropped blank, as described above; these are easy to correct. The other is with split referenced line numbers. For instance, if a line ends in GOSUB 120 :: GOTO 200 and splitting of records turns this into GOSUB 1 and 20 GOTO 200, you will find the line ending with GOSUB

REVIEW OF
CS6D
LABEL MAKER
by Dan Gazsy

Reprinted from
NEWJUG 99ER'S NEWS

Last month at our local user group meeting, I had a genuine need for a decent label making program. I wanted something to create a label which would combine graphics and text. since my need for the program was to create a Disk Of the Month label, I felt that a few lines of text was preferable to a program that cataloged the disk. One week after the meeting, what should appear on Delphi as a new upload, but CS6D Label Maker by Steve Hoshield. I had heard much about it's unique file extension ability, but very little of it's operation. My curiosity and current need convinced me to investigate the program.

I've learned in the past, the best way to review a new program is to READ THE DOCS FIRST, then experiment with the program. There are two doc files that come with the program. The first is for the Label Maker (CL,DOC) and the second is for the utility program to set up the data disk (UTIL,DOC). Before you attempt to run the Label Maker program, it's necessary to set up the data disk. This is probably the most time consuming process you'll perform. After you format a floppy disk, you are required to set it up for multiple directories by running the utility program (CL,UTIL). With the directories in place, you need to place the supplied CS6D-GR files in the directory. The supplied files are archived, so you can extract them directly to the data disk. Once the extract function is complete, you must load either the Label Maker (CL) or the Utility program (CL,UTIL) to switch directories. While both programs list the ability to switch directories, only the CL program performs the function. In fact the only function I can get CL,UTIL to perform is "Crerate Directories". After that , the program locks up my console. I even switched to a TI disk controller to eliminate my Myarc FDC as the potential culprit. Well enough on that subject: to get back to filling the CS6D data disk. your next step is to switch directories. To do this load up CL and select option 6. Now load up the Archiver and extract the next file. You keep up this process till all 4 CS6D data files are unpacked. If you have two systems available, it would be quicker to load the Archiver in one system and the Label Maker (CL) in the other. Then just transfer the data disk between the systems till all the files are unpacked. With this out of the way it's on the program (CL).

The options listed in the MAIN MENU provide a bit more than you are used to seeing in a label maker. The easiest way to describe this program is to start with the last option and work forward.

Option 6 - CHANGE DIRECTORY. With 6 subdirectories at your disposal, this option permits you to select the graphics subdirectory of your choice.

Option 5 - OPTIONS. With this function you can invert the currently selected graphic, edit the graphic, change the catalog path or configure the printer. The first two options give you the ability to customize the graphic, but you have to go back to the MAIN menu to save your creation. The third option is really there for those individuals who have more than one disk drive available as a data disk. The last option let's you customize the program for your printer. I tried to take the easy way out using the default settings for the printer, but I had to set it up for my Panasonic KXP-1124. To my surprise, it really wasn't too hard to do. The hardest part of it was understanding the printer manual.

Option 4 - CATALOG DISK. This option will search the currently active directory for all the graphic or label files on the disk. To page through the available files you use the numeric keys (1-5). To select a file on the page you use the alpha keys (A-Z). Once selected, the graphic now becomes your selected graphic and will appear on the screen once you return to the main menu. Not bad, a WYSIWYG LABEL MAKER.

OPTION 3 - PRINT OPTIONS. The first four options are toggle functions which are really aimed at the fifth option which prints the label. With those first four, you can toggle the graphic on/off, double strike the graphic on/off, additional printer codes for the five lines of text in the label on/off and additional printer codes for the label header on/off. The last two options permit you to create a image catalog of the current graphic files in the directory or all directories. This takes all the guess work out of trying to remember what all the images look like.

OPTION 2 - EDIT LABEL. This is the only function common to most of the other label makers. Here's where you put the text into the label. The nice thing here is that it's WYSIWYG compatiable. Again, all the guess work of what the label will look like disappears.

OPTION 1 - LOAD-SAVE. At this submenu, you can save all of your creations or load others. The only important thing to remember is that you'll probably want to switch directories before you save you creations. At this level you can LOAD/SAVE either the graphic, the text for the label or the label with graphic and text.

So now that I've gone all through the functions of the program how do you rate it? Well to begin with, it's fairware. Most likely, the author will NOT be rewarded for his work. The author asks the exorbitant amount of $5 for his efforts. At this price, how could one resist not registering it. With the few irritations and flaws I found with the program, it still merits the asking price. One last point, the author is looking for comments and suggestions on the program. Let's not frustrate another fairware author. REGISTER the program and send him comments. The author is Steve Hoshield and his address is 400 W. Cass St., St Johns, MI 48879.

END

ASSEMBLY LANGUAGE
     Lesson 5
       Bob Webb
   Reprinted from
POMONA VALLEY 99ERS

Howdy doo. I hope you have gotten something out of these
lessons. I have been able to reinforce my understanding of
these subjects by having to write about them. Once again, if
you have any questions, or want to enlighten me on any points,
please write. If you include a self addressed, stamped envelope
I will try to write back in a prompt manner.
Write to:

        BOB WEBB
        P.O. BOX 3023
        ARCADIA, CA. 91007

write code.
I think it is only fair to warn you that with Assembly you just
can't just sit down and key in code. If a program is very small
it still requires some planning. A simple thing like putting a
letter on screen gets to be quite a job. Your Assembly Language
programs will always seem very large. However the end result,
The Machine Code Instructions in RAM, will take up very little
space. With this space savings you also get SPEED. This is why
we want to tackle this language. Last month I showed you the LI
instruction.
LI R3,>17 This means to Load Immediate into REGISTER >3 the
Hexadecimal number >0017.
Since our computers operate on even Memory Addresses the
assembler adds the MSB >00 to the >17. It then becomes >0017
when it is entered into memory.
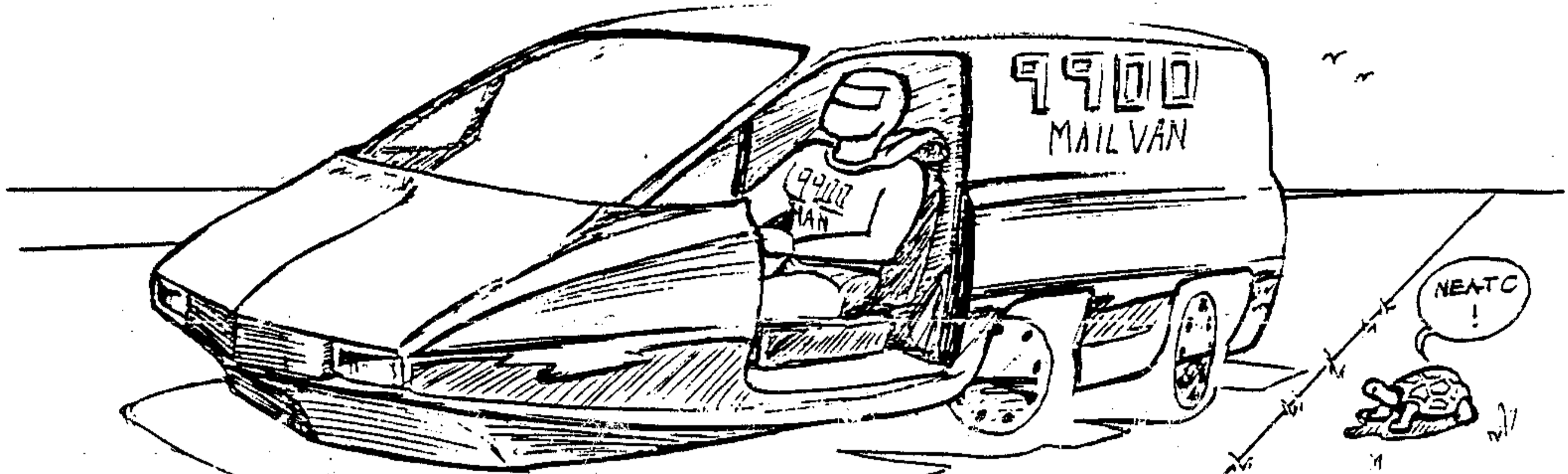
LESSON NUMBER FIVE

If we were in France and we gave a little French child $100 to
do some errands for us, we should write that list of
instructions in French. This would ensure the best results.
That child has grown up speaking and reading French. If we
write that list of instructions with a poor understanding of
French the results could be very bad. That child might read the
list and just sit on the steps of the hotel trying to understand
them. The same thing happens to our computer when we give it a
list of bad instructions. It might just lock up or produce a
bad results.
One way to produce good results is to learn the Computers
Language. The best language to learn would be the Machine Code.
When you learn Assembly Language you naturally begin to
understand Machine Code. However Machine Code is cold and
impersonal (All zero's and ones or Hexadecimal). It lacks the
human touch. Assembly Language is a sort of Interpreter between
our two worlds. We can write things like JMP SCREEN or TEXT
"HELLO" and the assembler program will interpret that into
Machine Code. We don't have to look up Hex codes for the
letters in HELLO or the memory address where the label SCREEN is
located.
At this time I would like to describe The Editor/Assembler. You
write your list of instructions in the Format or rather the
language our Micrpsoprocessor understands. The better we
understand this language the easier it becomes to sit down and

You will recall that the REGISTER is located in an area of
memory we call the WORKSPACE REGISTER AREA. The WORKSPACE
REGISTERS for the BOOTSTRAP programs in ROM and the GROM
programs are located in an area known as SCRATCH PAD RAM. This
RAM area is on a 16 bit data path and is the quickest RAM in
our computer. It is too small to put a program there but we can
use the area for our programs WORKSPACE REGISTER. Yes thats
right, we must make our own WORKSPACE REGISTER AREA for our
program. The instruction to do this is LWPI. Load Workspace
Pointer Immediate.
This instruction is usually the first instruction in a program.
It looks like this: LWPI >F000
This instruction makes a 16 WORD area of CPU Memory into a
WORKSPACE REGISTER AREA.
You may put any RAM address you like after the instruction.
This example starts the WORKSPACE AREA at address >F000.
This makes REGISTER >0 MSB at address >F000 and its LSB at
>F001. REGISTER >2 MSB is at >F002 and LSB at >F003. And so
on. Remember that LOW and HIGH MEMORY are inside the Peripheral
Expansion Box's 32K Card. This means that the data path to the
900 CPU is only 8 bits wide down the black FIREHOUSE CONNECTOR
from the PE box. Our WORKSPACE REGISTER AREA is twice as slow
here than if it were in the SCRATCH PAD RAM area >8300 to >83FF.
This is not great news. We want SPEED after all. And if we are
forced to do our math calculations in the slower RAM area we are
not true 9900 Assembly Language programmers! Well all is not

lost. It turns out we can use this area for our WORKSPACE REGISTER if we are very careful and follow the guidelines spelled out in the Editor Assembler Manual on pages 404 to 406. One of the problems occurs when your program is executed, or started, from a BASIC program by CALL LOAD and CALL LINK, and your program returns control to BASIC, only >8300 to >8317 can be used by your program. Further, if you pass parameters, or variables, with the CALL LINK instruction then only >8300 to >830F is available to you. Now, you can use all of >8300 to 8349 if you decide to use BASIC to load and transfer to your Assembly Language Program and stay there. You only need >8300 to >831F for your WORKSPACE REGISTER AREA. So if you are careful you can use this area. Don't be afraid to use regular RAM for your REGISTERS. Only a programmer looking for optimum SPEED would need to use this area. We only need lightning SPEED for our program. So regular RAM is just fine.

If you remember last months description of the 9900 MAIL VANS Instrument Panel you will recall the three Digital Readouts
1. RsThe WORKSPACE POINTER REGISTER.
2. The PROGRAM COUNTER REGISTER.
3. The STATUS REGISTER.

With the LWPI instruction we have entered a new number into the WORKSPACE POINTER REGISTER.

9900 MAN now goes to the new area in memory for the computations with Registers. Any data left in the old WORKSPACE REGISTERS is left alone and remains untouched until you decide to jump back in there. All of my programs start with LWPI. If you are looking at Machine Code in RAM Memory the LWPI instruction is >02E0. It is rare in most programs I have looked at.

When you look at Machine Code in memory and run across >02E0 you can be sure it is an ENTRY POINT into the program. An ENTRY POINT is the first instruction to be read and acted upon by 9900 MAN. All programs have an ENTRY POINT and many of them use >02E0 as a first instruction.

Now you know a MACHINE CODE instruction.

O.K.. You can now put an instruction in a program that 9900 MAN will use to change his WP number in the MAIL VAN.

BEEP
BEEP
BEEP BEEP
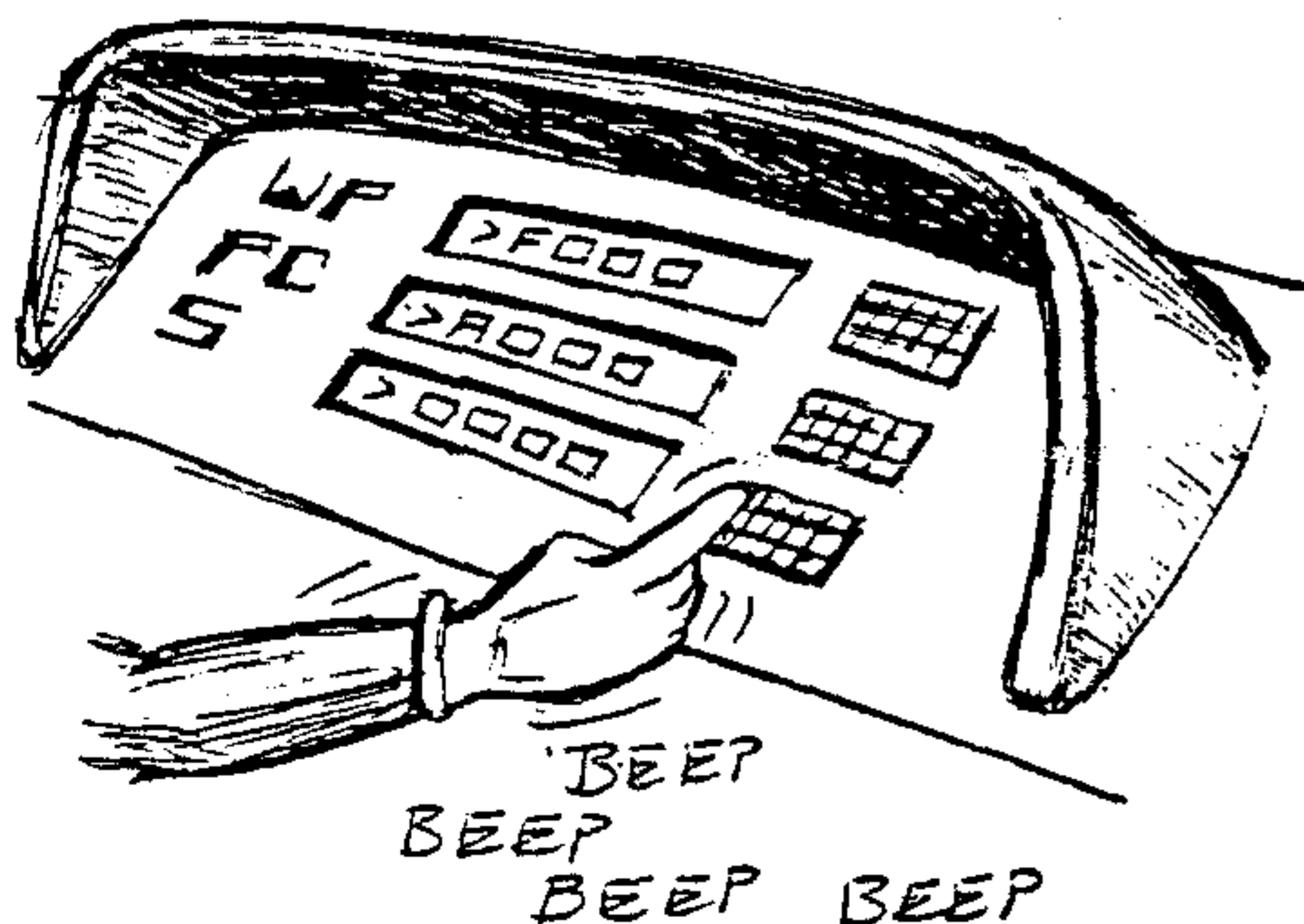
When we decide to write a program we can start with the Mini Memory Module or the Editor Assembler Module. Small experiments are best done in the Mini Memory Module. It is easy to use the Line by Line Assembler. However there is no record for your source code. You can not call back the Source code and trouble

shoot it because the line by line Assembler, true to its name, only assembles source code one line at a time. After you type in LWPI >8320 and press ENTER that line is instantly turned into Machine Code and placed in Memory. To examine that instruction later You must first locate the memory space the instruction resides in and then you must decifer what the Machine Code means. Not a task for a beginner. So a good choice to start with is the Editor Assembler Module. Plug it in and select it from the Module Menu. You will then be facing the Module Main Menu.

At this time we are only interested in the Editor selection. Find the Editor Assembler Disk with EDIT1 on it and load it into Disk Drive one. Select Editor on the Main Menu then Load on the next. DEIT1 will load automatically. After it is loaded "FILE NAME?" will show up with a flashing cursor. If you have a SOURCE PROGRAM on the disk now is the time to load it. However, we don't have such a file so just press the FUNCTION 9 combination. That promot will disappear and you will be faced with 5 options, LOAD, EDIT SAVE, PRINT, and PURGE. Select EDIT. You will be faced with #EOF (VERSION 1.2) or other version number.

Press FUNCTION S (Left Arrow). You should now see numbers on the left side of the screen. Press ENTER several times. You may have guessed by now that you are in the EDITOR. You can write letters with this EDITOR. In fact this is a great word processor. It is dedicated to writing SOURCE CODE but it is equaly good at writing to your Mom.

Press FUNCTION 9 again and you will be in the command line. Be sure that ALPHA LOCK is on. You can now select E(DIT,F(IND,R(EPLACE,M(OVE,I(NSERT,C(OPY,S(HOW,D(ELETE,A(DJUST,T(AB, and H(OME?.

Lets say that we have now finished writing our SOURCE PROGRAM with all of those helpful comments next to the instructions. We now want to Save it. Press FUNCTION 9 twice. You will be back at the 5 selection Menu. Select SAVE. Lets call our SOURCE FILE, DSK1.SOURCE. This will help us identify it later.

Now we have our Letter type file named SOURCE. This is our record. We can load it back into the editor and change it any time.

With this SOURCE file we are ready to run it through the all important ASSEMBLER program.

Press FUNCTION 9 again and you should be back at the Main Menu. Put the Editor Assembler Disk back in the drive.

Select Assembler. The Screen will show # ASSEMBLER #. And prompt with LOAD ASSEMBLER?. With the Alpha lock ley on, press "Y" and the Assembler Program will load. It will then ask for the SOURCE FILE NAME?.

our file is named DSK1.SOURCE. Press ENTER and the Disk Drive will come on for a moment. It will look for that name on the disk. Be sure you have inserted that disk in before pressing ENTER. Then it will ask you OBJECT FILE NAME?. This is the name your program will have. Lets say that it is DSK1.OBJECT. Type that in and press ENTER. Then it will ask LIST FILE NAME?. If you want to print the SOURCE file on your printer put PIO or whatever your printer name is. If you do not want a listing just press enter and it will move to the next selection, OPTION. If you have any special request for the listing of the file you may enter R,L,S and or C. Any combination will do. If

LETTERS to the EDITOR
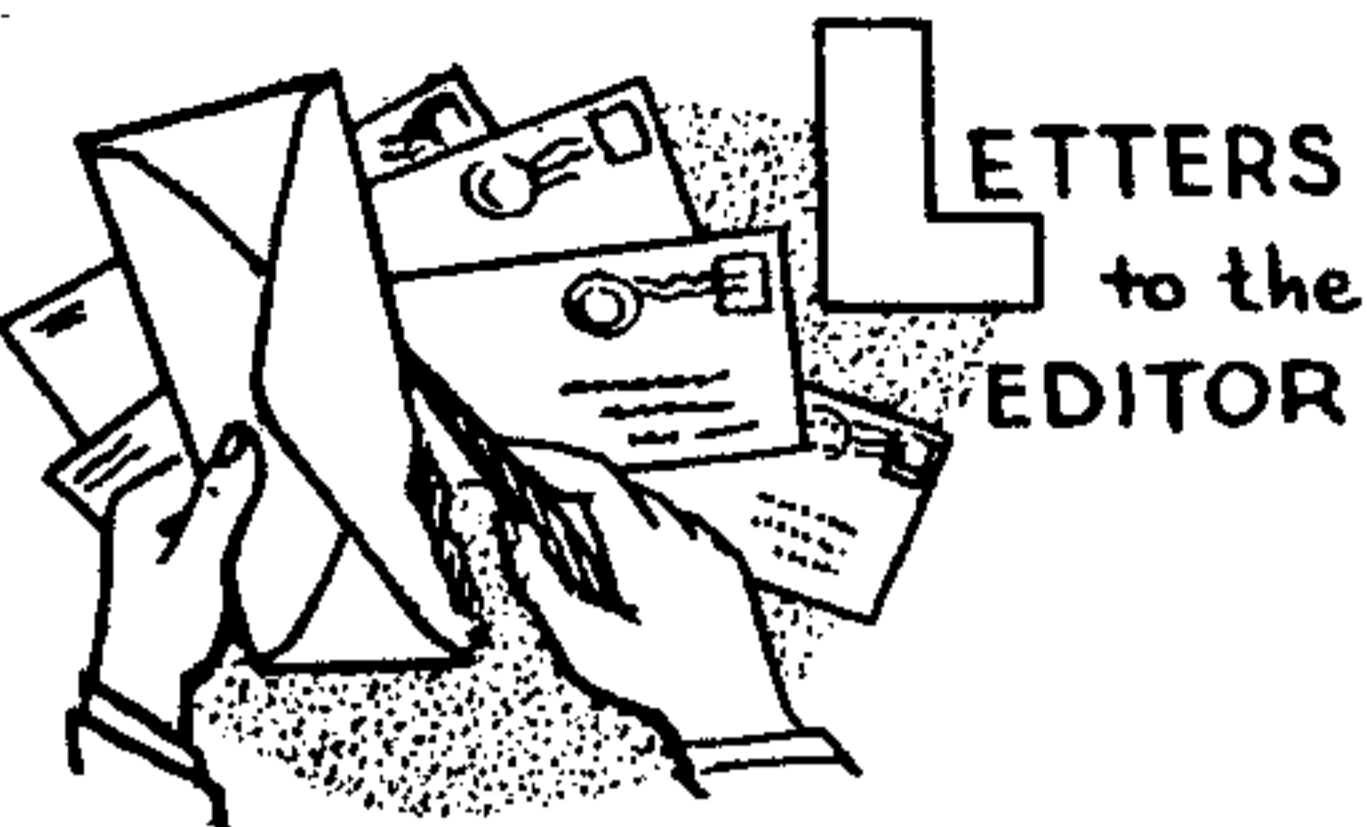
We received your July-August "Spirit of 99" today and I ran the program Keyboard Reader, by Bob Webb. I believe there are two errors in the program as printed.

Line 320 should read:

320 IF BLANK>1000 THEN

This line, as printed in the newsletter, will not allow the computer to go into the screen-saver mode, it just restarts the program.

Line 350 is completely missing. This is the line that displays the actual key pressed. I think it should read:

350 DISPLAY AT(12,12):CHR$(K)

I found another addition interesting. By adding a line:
"315 DISPLAY AT(22,4):BLANK" one can watch the timer count up to 1001 before switching the screen off.

I trust you do not mind me showing you these discrepancies. As editor of our newsletter, I felt they should be brought to your attention.

We are sorry to hear that you will be reducing your newsletter distribution. We have always enjoyed the contents of the Spirit of 99. But we know what you are going through. Our club has gone from over 300 members (1984-5) to about 30 dues-payers now. If it were not for our library and DOM sales, we would not be able to publish our newsletter as postage is our largest expense. We are fortunate in a way, we own our copy machine, bought when membership was high, the treasury very well and we got a good deal on a used machine. Except for postage to mail it, the paper for the newsletter is our greatest expense in the production of the newsletter.
4A Forever
Dave Swartz,
Editor, TIC-TOC

Thanks Dave for your letter pointing out the errors in the program. When I first copied the program I made the mistakes that you mentioned. Then I went back and corrected them, ran the program and it was OK, but I forgot to save the corrected program. Later I converted it to a DV/80 text file for publication, but it was the uncorrected program. I goofed. -ED..

###

Today The Jan/Apr newsletter back issues arrived, with your nine letter. I want to thank you for handling my problem so promptly. I'm surprised that the lack of my apartment number would prevent mail delivery.

So I spent a fascinating afternoon studying the newsletters. What a wealth of fun stuff! I subscribe to at least 5 newsletters -from LA to England, and I must say yours are right up there with the best of them!

It must be really great to have the fabulous guru of the 99/4A world, Mr. Tigercub, himself as a member of your group. Wow! I've been a fan of his ever since I discovered his Tigercub Tips and Nuts & Bolts many years ago.

And Irwin Hott. What a guy! I had the privilege of seeing a video tape of his ALSAVE demo at the 1990 TI Multiuser Group Conference at Lima, Ohio. I've always felt that TI's outstanding speech capabilities have been underappreciated and underused. So I was very happy to finally get my hands on Irwin's disk TEXTSPEECH UTILITIES.

I must end this before it turns into a book, but I want to let you know how much a lot of us orphans out here appreciate your efforts to keep our 99/4A alive and well.
James B. Johnson

##

There is an item at the bottom of page 12 in the April 1992 Spirit of 99 Newsletter which refers to 24 pin printers. It says that a 24 pin printer can not be used with the 99/4A. I use an Epson LQ 510 prnter (24 pin). This letter is printed with that printer. Am I missing something? It seems to print much nicer letters than the old printer I had - a Star SG-10, 9 pin printer. There is no mention in my Epson manual about 9 pin emulation. I believe it prints with 24 pins

What was that article all about? Am I operating with nine pins and don't know it?
John Onderdonk

Your letter is proof that we can use a 24 pin printer with our 99/4A. One of our supporters wanted to know if he could use a 24 pin printer and after investigation I was informed that it would not work. That is how the item got printed in our newsletter. Sometimes you have to go with the best information at hand thinking it is correct. Thank you for your letter. -ED..

###

AUTOMUSIC

Here is a short program that I have seen in several newsletters and I kept passing it up. Since I saw it in so many publications I had to type and run it. Surely it must be something to get such a wide publication. Well I find that it does have a very appealing sound to the ear, so here it is for your listening. The author is supposed to be a 12 year old. There is a constant changing of notes which has a very soothing effect to my ears. How such a short program accomplish this is remarkable.

```
100 REM ECHO
110 DIM A(6)
120 RANDOMIZE
130 DATA 247,262,294,330,249
,392,440
140 FOR B=0 TO 6
150 READ A(B)
160 NEXT B
170 B=INT(RND*7)
180 C=B
190 D=B
200 GOTO 240
210 D=C
220 C=B
230 B=INT(RND*7)
240 CALL SOUND(-200,A(B),0,A
(C),9,A(D),19)
250 CALL KEY(0,E,F)
260 IF F=0 THEN 210
```

THE BLOOD BANK
by Walter H. Blood
Reprintd from K.C.
99'ER CONNECTION
JAN-FEB 1992

****

Here's a hymn out of the
Methodist Hymnal - "Here I
am, Lord"
****

100 DISPLAY AT(4,7)ERASE ALL
:"HERE I AM LORD"
110 DISPLAY AT(10,7):"Words
and music":;;TAB(7);"by DAN
SCHUTTE"
120 DISPLAY AT(19,5):"TI99/4
A translation":;;;TAB(5);"by
WALTER H. BLOOD"
200 DIM A(97),B(97),C(97),D(
97)
210 FOR K=1 TO 97
220 READ A(K),B(K),C(K),D(K)
230 NEXT K
240 T=25
245 DISPLAY AT(1,7)ERASE ALL
:"Here I am, Lord"
250 DISPLAY AT(16,1):"Here I
 am, Lord.":"Is it I,Lord?":
"Ihave heard you":"calling i
n the night."
260 DISPLAY AT(20,1):"I will
 go lord,":"if you lead me."
:"I will hold your people":"
in my heart."
300 FOR I=1 TO 3
310 ON I GOSUB 600,700,800
320 FOR J=0 TO 1
330 FOR K=1 TO 29
340 CALL SOUND(T*A(K),B(K),0
,C(K),0,D(K),0)
350 NEXT K
360 FOR K=30 TO 37
370 L=K+J*8
380 CALL SOUND(T*A(L),B(L),0
,C(L),0,D(L),0)
390 NEXT K
400 NEXT J
410 FOR K=46 TO 97
420 CALL SOUND(T*A(K),B(K),0
,C(K),0,D(K),0)
430 NEXT K
440 NEXT I
450 CALL CLEAR
460 END
600 DISPLAY AT(3,1):"I,the L
ord of sea and sky, Ihave he
ard my people cry.   All who
 dwell in dark & sin my hand

will save."
610 DISPLAY AT(8,1):"I who m
ade the":"stars of night,":"
I will make their":"darkness
bright.":"Who will bear my
light":"to them?"
620 DISPLAY AT(14,1):"Whom s
hall I send?"
630 RETURN
700 DISPLAY AT(3,1):"I, the
Lord of snow & rain, I have
borne":"my people's pain.":"
I have wept for love of them
They turn away.":;;
710 DISPLAY AT(9,1):"I will
break their":"hearts of ston
,":"give them hearts":"for l
ove alone.":"I will speak my
word to them"
720 DISPLAY AT(14,1):"Whom s
hall I send?"
730 RETURN
800 DISPLAY AT(3,1):"I, the
lord of wind & flame,I will
tend the poor & lame,I will
set a feast for them.My hand
 will save.":;;
810 DISPLAY AT(8,1):"Finest
bread I will provide till th
eir hearts":"be satisfid.":"
I will give my life to them.
"
820 DISPLAY AT(12,1):"Whom s
hall I send?":;;;;;
830 RETURN
1000 DATA 20,9000,247,9000,1
0,392,247,9000,10,370,247,90
00,30,392,247,165
1010 DATA 10,294,247,165,20,
262,165,110,20,294,165,110,4
0,294,185,147
1020 DATA 20,247,196,165,10,
392,247,196,10,370,247,196,2
0,392,247,147
1030 DATA 10,392,247,131,10,
330,247,131,20,249,185,123,2
0,392,247,165
1040 DATA 20,440,294,196,20,
440,294,185,20,294,247,196,1
0,494,294,247
1050 DATA 10,440,294,247,20,
392,330,247,10,392,294,247,1
0,370,294,247
1060 DATA 20,392,262,196,10,
392,294,196,10,370,294,196,2
0,330,330,196
1070 DATA 20,330,294,196,20,
262,165,110,20,330,262,165,2
0,370,262,165
1080 DATA 20,392,262,165,20,

294,220,147,20,294,247,147,2
0,294,185,147
1090 DATA 20,294,262,147,20,
262,220,110,20,330,262,110,2
0,370,294,196
1100 DATA 20,392,294,196,20,
440,330,196,20,440,262,196,2
0,440,294,220
1110 DATA 20,440,330,220,20,
440,330,196,60,440,294,185,2
0,294,147,9000
1120 DATA 20,440,330,262,40,
392,294,247,60,294,247,196,2
0,9000,9000,9000
1130 DATA 20,392,247,165,20,
440,294,185,40,494,294,196,6
0,392,294,247
1140 DATA 20,9000,9000,9000,
20,392,294,247,20,440,294,24
7,20,494,392,247
1150 DATA 20,494,370,247,20,
494,330,196,20,494,294,196,2
0,523,262,220
1160 DATA 20,494,262,165,20,
440,294,196,20,392,294,196,4
0,440,330,196
1170 DATA 20,440,330,220,20,
440,330,196,20,440,330,185,2
0,9000,9000,9000
1180 DATA 20,294,147,9000,20
,440,330,262,40,392,294,247,
60,294,247,196
1190 DATA 20,9000,9000,9000,
20,392,294,247,20,440,294,26
2,20,494,392,294
1200 DATA 20,494,370,294,20,
392,330,262,20,392,294,262,2
0,392,294,247
1210 DATA 20,9000,9000,9000,
20,392,294,247,20,440,294,18
5,30,494,294,196
1220 DATA 10,494,262,196,20,
494,247,175,20,392,247,175,2
0,494,262,165
1230 DATA 10,494,262,196,10,
440,262,196,20,392,330,262,2
0,440,262,185
1240 DATA 100,392,247,196
****
For anyone who does not yet
have Extended Basic I have
written   alternate   program
lines   to handle   the print
routines.
****
100 CALL CLEAR
110 PRINT TAB(7);"HERE I AM,
LORD":;;;;;;;;;;TAB(7);"Word
s and music "
120 PRINT :TAB(7);"by Dan Sc

hutte":;;;;;;;;;;;
130 PRINT :TAB(5);"TI99/4A t
ranslation":;;;TAB(5);"by WAL
TER H. BLOOD":;;;;;
242 GOTO 300
245 CALL CLEAR
247 PRINT TAB(7);"Here I am,
 Lord"
249 RETURN
250 PRINT :"Here I am, Lord.
":"Is it I, Lord?":"I have he
ard you"
260 PRINT "calling in the ni
ght.":"I will go Lord,":"if
you lead me."
270 PRINT "I will hold your
people":"in my heart.";
280 RETURN
600 GOSUB 245
610 PRINT :I, the Lord of se
a and sky, I have heard my p
ople cry."
620 PRINT "All who dwell in
dark & sin my hand will save
."
630 PRINT :I who made the":"
stars of night,":"I will mak
e their"
640 PRINT "darkness bright."
:"Who will bear my light":"t
o them?"
650 PRINT :"Whom shall I sen
d?"
660 GOSUB 250
670 RETURN
700 GOSUB 245
710 PRINT:"I, the Lord of sn
ow & rain, I have borne":"my
people's pain."
720 PRINT "I have wept for l
ove of themThey turn away.":
"I will break their"
730 PRINT "hearts of stone,"
:"give them hearts":"for lov
e alone."
740 PRINT "I will speak my w
ord to themWhom shall ? send
?"
750 GOSUB 250
760 RETURN
770 GOSUB 245
810 PRINT :"I, the lord of w
ind & flame,I will tend the
poor & lame,"
820 PRINT "I will set a feas
t for them.My hand will save
."
830 PRINT :"Finest bread I w
ill provide till their heart
s":"be satisfied."   END

```
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
I                                                    I
I   RECYCLE USED PRINTER PAPER, MAKE SCRATCHPADS   I
I                                                    I
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
```

Reprinted from OZARK 99ER NEWS 5/92

Do you find your printer generates a lot of wastepaper either by skipping the first sheet, or by printing hard copies that were slightly different than you intended?

Most of us use these wasted sheets for doodling, notes, or whatever comes to mind. (I haven't heard of anyone still building paper airplanes.) Those sheets of wasted paper can be used as notepads, if they could be held together.

To make notepads, first cut the paper to the size desired. The best way is to use a paper cutter. By cutting the paper into halves, quarters or eights, you can create notepads for almost any purpose.

To make the pads, make sure the edges of the papers are as perfectly even as you can make them. If you leave the perforated edges on the paper, you can merely staple the sheets together. The result is a pad that has perforations which permit easy removal of one or more sheets of notepaper. Dress up the pad a bit by folding a piece of adhesive tape over the top so it comes down to the perforations on front and back.

To make a more professional pad, aline the notepapers carefully with the edges of two straight edged pieces of wood and clamp them tightly. Craft sticks, such as used in ice cream bars, work well. After the wood and notepaper have been clamped together, the edge can be made more even by sanding lightly with medium grit sandpaper. Lay the sandpaper down on a flat surface and run the notepad across the grit lightly until as smooth as you want it to be.

When smooth and even, coat the clamped edge of the pad with some Elmer's rubber cement and allow to dry perfectly. Several thin coats is better than one thick coat, but remember to let the cement dry between coats.

I find the cutting of paper, alignment of the paper and the clamping takes only between 5 and 10 minutes, depending on how large a pad I am making. I use spring loaded clamps normally available in hardware stores or lumberyards. Since I use a belt sander, touching up the edge takes only about 20-30 seconds. I like to hang the pad vertical by placing the clamps on a couple of books or blocks of wood. This permits me to coat the edge of the pads without having the fear of the cement running over the edges. Since I like to use several coats of cement, I let the pad hang and apply another coat every 15 to 30 minutes. Rubber cement dries quickly. About 3-4 coats are generally sufficient.

After cementing has been completed, remove the clamps and gently peel the wood strips from the pad. As you use the pad, you will find the notepaper will peel off the pad as easily as it does from professionally made notepads. (Bill Berendts)

END

TI WORLD NEWS August 1992

compiled by Jim Peterson

The Chicago International World Faire is scheduled for October 30-31, 1992, at the Elk Grove Holiday Inn in Elk Grove, Ill. For information, contact the Chicago Users Group, 2515 Marcy, Evanston IL 60201-1111.

The TI-Faire is scheduled for Nov. 28-29 at the Ashfield Boys High School in Ashfield, New South Wales, Australia. For information, contact the TISHUG user group, PO Box 1089, Strawberry Hills NSW 2012 Australia.

Fest West "North" 93 is scheduled for Feb. 13-14 at the Howard Johnson Hotel in Salt Lake City, Utah. Contact the Fest West "North" 93 Committee at 1396 Lincoln Apt B, Ogden Utah 84404 or call the Salt Flats BBS (308) 394-0064.

A TI/Geneve Club/Support Group has been started on the Prodigy system. There is no fee other than the regular Prodigy fee. To join it, contact Edward Kuehn (DTVH43A) or Frank DeCandia (VSSN89A). Standard Prodigy BBS rules apply. TI-related notes should be written to the Computer Club section under the Other PC Topics section and should start with TI.

Bud Mills Services expects to be soon offering the SCSI hard and floppy disk controller for the TI 99/4A and Geneve. It will handle any combination of up to 7 SCSI hard and floppy drives, both 3.5 and 5.25 inches, and even a CD ROM player. It will read and write TI floppies in all current formats as well as PC compatible floppies, thus allowing direct exchange of data between TI and PC. The controller will be offered together with the SCSI drive, to insure compatibility.

The M.U.N.C.H. user group is offering a "Protect Your Investment" video showing how to take apart and clean the TI computer, and related subjects. It is avalable for $9.95 plus $3 S&H from Jim Cox, 905 Edgebrook Drive, Boylston MA 01505.

Don O'Neil has cancelled his Accelerator project. Due to technical incompatibilities between the TMS99105 and the TI-99/4A, it would not function without major modification of the TI console which would be beyond the capability of the average TI user; also the projected cost would have been too high for most users. O'Neil is promising to develop an inexpensive alternative using the 9995 microprocessor.

END

GRAPHING DATA
WITH
MULTIPLAN

Reprinted from
PUG PERIPHERAL

Lets explore Multiplan's graphing capabilities. We'll start by graphing a set of numbers. Clear your screen and use the FORMAT WIDTH command to change the width of column 1 to 4 characters. Next format column 2 so it will graph the data instead of printing numbers. select the FORMAT CELLS command. In the "cells;" field type C2. Tab over to the "alignment:" field, enter L to left justify the data and tab over to the "format code:" field, and enter an astrik. The astrik is what selects the graphic capability.

Now type the following values in column 1, rows 1 through 10:4,9,10,7,5,8,11,15 ,6,18. Now move ther cell pointer to R1C2, press Value, and move cell pointer to R1C1. The command line displays:

Value:RC[-1]

When you press ENTER, four astriks, left-justified, are displayed in column 2. This is the graphic representation of the value 4 in R1C1. Copy this formula down nine rows. Hit Function 8 to recal and your screen should display graphics for the remaining numbers in the column:

```
     1 2
 1 4  ****
 2 9  ########
 3 10 ########
 4 7  *******
 5 5  *****
 6 8  ########
 7 11 ########
 8 15 ########
 9 6  ******
10 18 ########
```

The numbers 9 or less are represented by astriks in column 2. If a value in column 1 is larger than 9, number signs (#) are printed in column 2 to indicate there is not suffecient room to graph the data. Multiplan does this because the current column width is 10 characters. Notice in row 3 that even though column 2 is 10 characters wide, Multiplan still requires that empty space on the right of the column. Therefore the number signs are printed instead of astriks for number 10.

You an change the width of column 2 in order to graph the data accurately. Using the FORMAT WIDTH command, change the width of column 2 to the maximum, 32. All of your data should now be

graphed completely.

```
     1 2
 1 4  ****
 2 9  *********
 3 10 **********
 4 7  *******
 5 5  *****
 6 8  ********
 7 11 ***********
 8 15 ***************
 9 6  ******
10 18 ******************
```

SCALING YOUR GRAPHICS

Even with a column width of 32 characters, the numbes you want to graph may be too large to fit the column. One way to correct this is to reduce all the numbers in the same proportion. For example, change the numbers in column 1 to the following:27,43,37,25,41,38,31,29,36,35 Even at maximum column width, several of the rows in column 2 are filled with number signs. To correct this, reduce the values in column 1 by half: move the cursor to R1C2, press EDIT, and divide the reference to RC[-1] by 2. Your command line now reads:

EDIT:RC[-1]/2

Press ENTER and copy the formula down the remaining nine rows. Recalc and your screen should now look like this:

```
 1 27 **************
 2 43 ***********************
 3 37 ******************
 4 25 *************
 5 41 *********************
 6 38 *******************
 7 31 ****************
 8 29 ***************
 9 36 ******************
10 35 ******************
```

The process of changing data by a proportion is called scaling. Scaling down, as in the example, is dividing data by a value so it will display in an area of limited size: the graph represents half the actual data. Scaling is very useful in graphing values that are too large to fit in the column or are so large that the resulting strings of astriks are uninformative. Of course you can also scale up, or increase the length of the strings of astriks. To sacle up, you multiply the data by a constant instead of dividing. Scaling up is often useful when the values to be graphed are very small.

                                        END

1 and a new line 20 :: GOTO 200 at the beginning of the program. Comparison with the original listing makes this easy to correct.

TEXTLOADER loads into memory and remains there, so that you can load other text files by simply typing -
CALL LINK("OLD"<"DSKn.filename"). The file loads and converts rapidly, displaying each line as it does so. Sometimes a line which has been corrupted will be reported as a syntax error and omitted, but sometimes it will be omitted without being reported, and sometimes it will not be detected until you try to run the program. Occasionally, especially when working with 28-character lines, you may get all sorts of invalid error messages. Apparently the program in memory differs from the screen display, and it may be impossible to debug in such cases.

Other features allow you to merge a converted text file into a program in memory rather than overwriting it, and to read and run a batch file of command type instructions, such as -
CALL FILES(1)
NEW
RUN "DSKn.bigprogram"

An improved general-purpose memory image program loader is also included.

XLATE is a public domain program, available on my TI-PD disk #1083. TEXTLOADER is a fairware program available on my TI-PD disk #1104.

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you do not want any options just press ENTER. Look at page 33 and 34 of the EDITOR ASSEMBLER MANUAL for OPTIONS and this procedure.
BOOOOOM. The Disk Drive Takes off and suddenly the screen goes blank and prints out ASSEMBLER EXECUTING. Then it is all over.
0000 ERRORS show up on the screen, hopefully, and PRESS ENTER TO CONTINUE shows up.
If there are ERRORS it will show you the number and tell you ehat line number they are on.
We now have an OBJECT FILE named OBJECT and we can run it with the start name specified in the SOURCE FILE PROGRAM. More on that later. For now we are just happy to know how to operate the Assembler. If you want to practice typing in a program page 342 to 344 in the Editor Assembler Manual is a great beginner program.
Next Month I will talk about that program and what all of that means.
If you do not type in that program don't worry. It will be explained in next months lesson. It will give you a sense of accomplishment though if you try and succeed. It is a nice simple example of using the monitor and moving things about. See you next month.

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COME ON----
JOIN THE FUN!

B B Q TIME!

C.O.N.N.I. ANNUAL PICNIC

When: Sunday, September 13, 1992
Where: Sharon Woods Metro Park.
(borders Cleveland Ave. and Schrock Rd.)
Time : 11:00 AM to ?

Provide your own meat, drink and table ervice. An extra covered dish for all to share would be appreciated. Charcoal will also be needed.

Facilities at the park include shelter houses, (with grills), a nice lake, two walking paths and a 4 mile bicycle/jogging trail.

If you stay for early evening you will see a number of deer.

Look for a sign on Chuck's van. Let's have a big turnout.
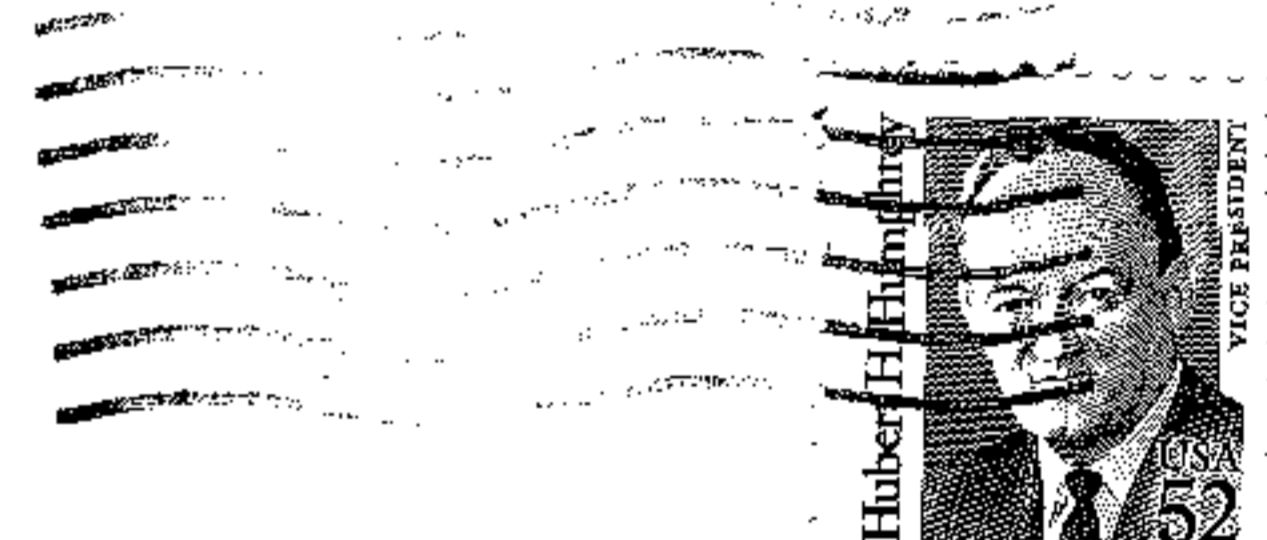
MEETING DATES
FOR
1992

3RD SATURDAY

19 SEP 1992
17 OCT 1992 *
21 NOV 1992 *
19 DEC 1992

* Meeting will be
held at the Janis
Center due to OSU
football games.

4TH WEDNESDAY

23 SEP 1992
28 OCT 1992
24 NOV 1992
22 DEC 1992

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