



DUR NEXT MEETING will be on friday,

JUNE 17, 1983 at 7:30 pm

PLACE: KEY BANK BLDG.

SW corner of Rt. 20 and Rt. 155

TOPICS:

Debug your basic programs...This informative demonstration will make it easier for you to get your programs up and running.

String handling...the methods needed to use both cassette and disk file handling efficiently. Can also be used for general data storage

Parsec: Can you back in or out of fuel tunnels?? How about moving to the right of some enemy ships?? Dur demonstrator can!!!!

Many of your questions answered!! If you ask.

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## Mini Memory

MINI-MEMORY... To buy or not to buy? That is the question. TI's Mini-Memory Command Module is an interesting and eye-catching module. But, what does it do and is it really worth buying? The Mini-Memory really is a module packed with a lot of features and we will discuss the many things that it can do.

One of the most interesting features of this module is that it never forgets (Well, almost never). The module contains 4K of battery-backed CMOS RAM. In other words, it has 4K of memory that is retained even when removed from the module slot of the console. What happens when the battery goes dead? No, you don't replace it yourself. It just happens to be spot welded in place! When your battery does go dead, you take it to your local TI Exchange Center, where you exchange it for a new one.

But, that's not all. This module contains many other features. For one, it adds the following subroutines to your BASIC language.

- 1) CALL INIT
- 2) CALL LOAD
- 3) CALL LINK
- 4) CALL PEEK
- 5) CALL PEEKV
- 6) CALL POKEV
- 7) CALL CHARPAT

Most of these subroutines are used in conjunction with assembly language routines.

Along with adding subroutines (which are contained in an additional 4K of ROM) it provides you with an interesting way of handling data. The 4K of RAM may be handled as if it was a high speed disk drive with 4K of storage. You can open a port under the name "MINIMEM" and access it in the same way as a cassette or disk drive. Also, the mini-memory will retain all of this data, which will eliminate the long waits of loading data from cassette tape. If you own the 32K memory expansion, you may also access the 2 parts of this memory in the same way. These are accessed by "EXPMEM1" and "EXPMEM2". This would give you a total of 36K of fast-access data storage.

Not only can you store data though; You can actually store a short BASIC program in the mini-memory. So, if you have a frequently used short program, you can store it in the mini-memory, and you have in effect made your own command module. Assembly language programs may be stored in the same way, but not while a BASIC program is in.

Now for what you've all been waiting for. The Mini-Memory also comes with a cassette-based Line By Line Assembler. This allows you to write assembly language programs with no other additional hardware. But, there are many limitations.

- 1) A complete understanding of assembly language MUST be known to be able to utilize the mini-assembler. There are no "teach-yourself" books supplied. The Editor/Assembler Manual would be highly recommended. (available for under \$15.00 from TI)
- 2) Not all of the 9900 directives are allowed with the mini-assembler. This limits your ability to code precisely.
- 3) Your source code is not retained, and cannot be saved, so editing is close to impossible.
- 4) You are limited to approximately 800 bytes for your actual assembly language program because the mini-assembler is contained in the same memory space.

The Mini-Memory does contain many features. But are they features that you are looking for, and can you make use of them. If you are a serious assembly language programmer, then I would highly suggest investing in an Editor/Assembler as opposed to the Mini-Memory. But, with the Editor/Assembler you need the 32K, and at least one disk drive.

In my next article I will compare the Mini-Memory to the Editor/Assembler as related to programming in TMS 9900 Assembly language.

As a mother I'm very interested in the educational value of the computer for my children. We have two, Tommy 4 and Joey 2. We have bought 3 educational moduals for them. Early Learning Fun, Addition and Subtraction I, and Number Magic. Each of these has excellent graphics and sound. Addition and Subtraction also has voice to prompt you. When you get a correct answer you are rewarded with a tune, and a display of color graphics. This all helps to keep the child interested. Let me tell you a little about each of these moduals.

Early Learning Fun is for learning the very basics. It teaches the child shapes, numbers, letter recognition, counting, sorting, and the alphabet. When Tommy first started playing with it, he came to me one day and said "I want to play the king game." I was baffled. I soon found that he wanted to play "A is for Apple", one of the Alphabet activities, which has a picture of a queen in it.

There are four different activities with at least one option for each.

NUMBERS has three options.

"Counting Up" Learning to count in sequence.

"Number Please" Reinforces number identification and counting skills.

"How Many Things" This is a true counting activity.

SHAPES has two.

"Make a Match" Introduces five geometric shapes and has the child match one from the left with the one on the right.

"Shape Hunt" Combines counting with matching.

SORTING has only one.

"Odd One Out" Uses the five shapes to reinforce the ability to discriminate between "same" and "different". Four shapes appear, the child has to pick out the different one.

ALPHABET has two.

"Letter Line Up" Teaches the letters of the alphabet in order and the concept of their initial sound.

"A is for Apple" The child is asked to match the letter with the object that begins with that letter.

This modual is recommended for ages 3 to 6, but even our 2 yr. old is starting to recognize letters, shapes, and pictures. Everywhere we go he picks out the letters that he knows.

Addition and Subtraction I is a bit advanced for Tommy, but he has been learning to count from it. It is recommended for kindergarten and first grade. Tommy calls it the "red game" (as the modual is red instead of black) We are not about to tell him that is not a game. It has nine activities.

Counting Bars: Teaches counting consecutively from 0 to 9.

Getting Ready: Counting pictures.

Addition Action: Adding pictures and seeing the problem written out.  $1+1=2$

Add Another Way: Adding one number over the other.

Subtraction Action: Subtracting pictures and seeing the problem written out.

Subtract Another Way: Subtracting numbers one over the other.

Across and Down: Both addition and subtraction done across and down with the same numbers.

Addition Table: Filling in the table from 0 to 9.

Subtraction Table: Filling in the table from 0 to 9.

Number Magic is a drill and practice of basic mathematics, with full color graphics and sound. Recommended for ages 6 and up. There are activities in all four mathematical functions addition, subtraction, multiplication, and division. There are three activities in Number Magic.

QUICK QUIZ: For the beginner. Randomly selects addition and subtraction problems to present for the child to answer. There are two levels of difficulty.

COMP QUIZ: Offers two ways to test and build skill and speed in problem solving. In Memory Bank the child supplies ten problems. Or let the computer select the problems. There are four levels of difficulty in any of the four mathematical functions. The child has the option to give the answer or fill in the missing number and to be timed.

ELECTROFLASH: Helps develop speed and skill in the four basic math tables. The child chooses which math table and for what number (from 0-9). The child also has the option to give the answer or fill in the missing number and be timed.

The computer makes learning fun rather than a drudgery.



## FROM THE CONSOLE OF THE PRESIDENT

In recent months some have asked about this users group's history and what it's goals are. In this months column we will try to answer these questions. The group was founded some two years ago by Paul Amadeo our current vice president. The group was started for the purpose of information exchange so each member would not have to repeat the mistakes made in times past but could learn from the successes of all the others. One out growth of this was the start of the swap club. After attending several meetings where he was told they wanted to start a swap club Mike Henery finally agreed to start one. After writing a charter and making the changes the group wanted what is now our swap club was on it's way. Last fall when Paul felt it was time to expand again the group meetings were moved and new elections were held.

Our purpose is still pretty much the same. Our main objective is still to help you obtain the knowledge needed to get the most out of your computer. We do this in many ways. The monthly meeting is often used as a what's new and going on in TI. A number of small special interest groups have started so that all interested can pool their ignorance on a given subject. Many contacts have been made with people who have already done what you have been trying to do for weeks. We hope in the months ahead we can continue to learn from each other.

Some may have wondered about club business, I have felt we should waste as little time as possible at our monthly meetings on things that do not help you use your computer. If you are convinced I am doing this wrong please let me know and we will make the necessary changes

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WANTED: Someone to do typing and reformatting of letters. Full system is needed including modem and ti-writer. Call Phil Gillispie at 370-4591.  
(5 to 10 hours per week)

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Another "Test Mode" has been discovered!!!! Along with Munch-Man and Alpiner it was discovered that the disk version of TI Invaders has a test mode and pause. (Sorry non-disk owners)

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Last few days of the FREE expansion box, remember the deal ends June 30th see your retailer.

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For Sale: One TI disk drive see Jon or Rich at meeting or call 843-0637.