Timeline 99

The official publication of the Grand Valley TI-99 User Group - Grand Junction, CO 81504

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A MOCK NEWSLETTER FOR THE TI-99 HISTORICAL TIMELINE VOLUME 1, NUMBER 2 – JUNE 1980

Issue #2 - Sorry for the delay in publishing this second issue of the Timeline 99 newsletter. Things have been very quiet on the TI-99/4 Home Computer front since January, with little chatter and even less news. The original plan was to produce a monthly edition, but that plan will have to be modified until such time as Texas Instruments gears up to full speed on the manufacturing and marketing sides of our Home Computer.

Future Life Magazine Features the TI-99/4

- The February 1980 issue of Future Life includes "A Buyers Guide to Home Computers" article beginning on page 45, written by Phillip L. Harrison and Margaret A. Taylor. The Buyer's Guide showcases the Radio Shack TRS-80, Compucolor II, (Commodore) PET, Texas Instruments TI-99/4, Apple II and Apple II Plus home computers. Here is an excerpt from the TI-99/4 section of the Buyer's Guide.

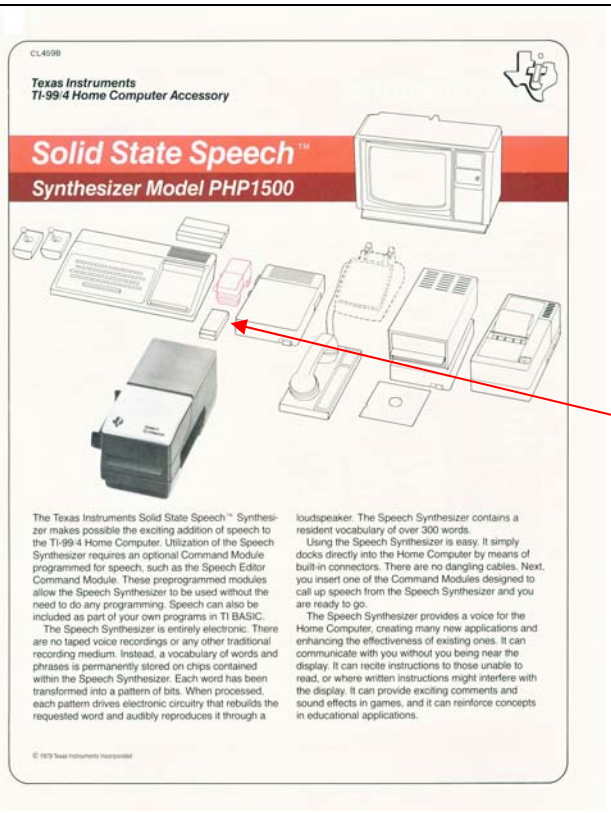
The introduction of the Texas Instruments TI99/4 represents the long-awaited entry of that company into the home computer field. Texas Instruments could very easily swamp the entire industry and the TI-99/4 is a machine with several interesting features.

For starters, the TI-99/4 comes with a 13-inch color monitor with 16-color capability as well as sound (3 tones and 5 octaves). It has a versatile floating-point BASIC language accurate to 13 digits. Data I/O is accomplished by utilizing either one or two cassettes (not included). The internal memory has a non-expandable 16K of RAM. As such, any programs that you write or obtain from outside sources cannot exceed that capability.

Texas Instruments has chosen to bypass pre-programmed cassettes and floppies (though, supposedly, a drive will be available in the future) in favor of using plug-in ROM cartridges called Solid State Command Modules. These cartridges, which look something like 8-track tapes, supply the TI-99/4 with up to 30K of additional memory, but only for specific programs.

Besides helping to keep the initial cost of the computer down (the entire package, including color monitor, lists for $1,150), these modules completely eliminate the need to load programs into memory, since they are memory. This "Command Module" feature, not unique to the TI-99/4 by the way, is an inexpensive way to create a large memory, since RAM is more expensive than ROM. But remember that the additional memory in these cartridges can only be used for one specific purpose and cannot be utilized for any other. This means that you can't program it and you can't store anything on it and you can't modify it. For that you need a cassette or floppy. At present, TI has a small start on a module library, but a great deal more of them will be needed if the versatility of this system is to be realized.

Another interesting feature of the TI-99/4 is the built-in equation calculator, directly accessible from the keyboard, for quick solutions to mathematical problems. Among peripherals currently available is a speech synthesizer, capable of an impressive 200 words. . . with future foreign language capability.



CL495B

Texas Instruments
TI-99/4 Home Computer Accessory

Solid State Speech™
Synthesizer Model PHP1500

The Texas Instruments Solid State Speech™ Synthesizer makes possible the exciting addition of speech to the TI-99/4 Home Computer. Utilization of the Speech Synthesizer requires an optional Command Module programmed for speech, such as the Speech Editor Command Module. These preprogrammed modules allow the Speech Synthesizer to be used without the need to do any programming. Speech can also be included as part of your own programs in TI BASIC.

The Speech Synthesizer is entirely electronic. There are no taped voice recordings or any other traditional recording medium. Instead, a vocabulary of words and phrases is permanently stored on chips contained within the Speech Synthesizer. Each word has been transformed into a pattern of bits. When processed, each pattern drives electronic circuitry that rebuilds the requested word and audibly reproduces it through a loudspeaker. The Speech Synthesizer contains a resident vocabulary of over 300 words.

Using the Speech Synthesizer is easy. It simply docks directly into the Home Computer by means of built-in connectors. There are no dangling cables. Next, you insert one of the Command Modules designed to call up speech from the Speech Synthesizer and you are ready to go.

The Speech Synthesizer provides a voice for the Home Computer, creating many new applications and enhancing the effectiveness of existing ones. It can communicate with you without you being near the display. It can recite instructions to those unable to read, or where written instructions might interfere with the display. It can provide exciting comments and sound effects in games, and it can reinforce concepts in educational applications.

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Future Life (cont'd)

An RS232C interface is also available for outside vendor peripherals, but check on software availability so that your TI knows what to do with it. - Phillip L. Harrison and Margaret A. Taylor

Did you catch that "…with future foreign language capability" phrase? Wow! Sounds great to me. To the left you will see a product specification sheet (CL495B) for the newly introduced Solid State Speech Synthesizer that is mentioned in the Harrison and Taylor article. I'm only guessing, but if you look close you can see a plug-in or slide-in type module for the Speech Synthesizer that just might be where the "future foreign language capability" will come from?

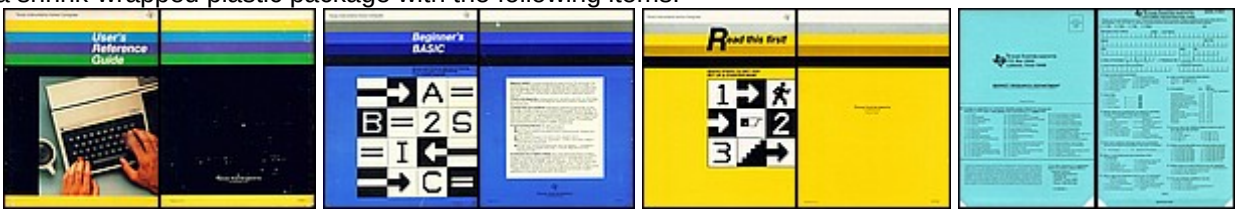
We have recently obtained information and a price list from a new TI-99/4 Retailer named Tam's (213-633-3262), that is located at 9310 Reseda in Northridge, CA 91324. They list the plug-in or slide-in module for the Solid State Speech Synthesizer as PHA 2500 (MSRP $29.95), but call it a "Plug-In Math Speech Module". I'm not sure where math fits into the whole idea of synthesized speech, but maybe? Until I find out differently though, I'm going to hold on to my hope that the plug-in module is really for use in allowing the Speech Synthesizer to support different languages. That would make more sense to me, and it seems more in keeping with TI's plan to introduce the TI-99/4 to the European market at some future point.

Unpacking the TI-99/4 - YES, you read it right!

I have received my TI-99/4 Home Computer and wanted to share the excitement with you that I felt when it arrived, and I got to open the box. Since the January 1980 Timeline 99 issue, I have done little in the evenings after work but read about it, examine every item of literature and spend time exploring every facet of this marvelous device.

The photo on the left shows what the TI-99/4 "Main Console" is shipped in. It is a sturdy box, with a handy carrying handle on top, that measures approximately 19 inches wide by 21 inches high and 7 inches deep. The photo on the right shows you that the TI-99/4 "Main Console" (the TI-99/4 Home Computer) is well protected in plastic-wrapped foam.

Inside the box you find the 99/4 computer, the AC power brick, the RF Modulator for Monitor hookup and a shrink-wrapped plastic package with the following items:



- 1015963-1: User's Reference Guide
- 1037107-1: Beginner's BASIC manual
- 1037108-1: Set up Guide entitled "Read this first!"
- 1049760-1: Customer Registration card

Unpacking (cont'd)

- 1015992-1: Blank Keyboard Overlay.

The Customer Registration Card is to be returned to the Market Research Department of Texas Instruments in Lubbock, Texas after you provide all the 'usual' registration info, and then check boxes listed under 18 different survey questions.

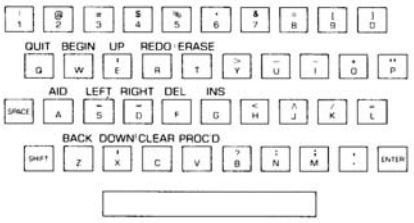
Inside the User's Reference Guide is addendum number 1037194-3, entitled "User's Reference Guide-Basic Reference Section", that explains how TI BASIC programs with "wrap around" line numbers might not print correctly when LISTed to a Thermal Printer or RS232 device. There is also a typo-fix for page 186 of the User's Reference Guide where line 510 of the example Character Definition program shown has a typo.

Standard Keyboard Overlay Change

Minor modifications have been made to the keyboard overlay packed with your TI-99/4 Home Computer. The drawing on page 11 of the *User's Reference Guide* may therefore be incorrect.

The CMD key (SHIFT V) is now labelled PROC'D. The function of this key is explained in appropriate Command Module manuals. Also, the ENTER key is no longer labelled FWD on the overlay.

The new overlay appears below:



Finally, on the back side of the sheet is an illustration of the keyboard overlay that comes with the TI-99/4 Home Computer package. It explains how the drawing of the keyboard overlay on page 11 of the User's Reference Guide may be incorrect because TI made changes to the overlay after the User's Reference Guide was printed. The keyboard overlay illustration referred to on the addendum shows the correct key-stroke patterns.

A quick examination of the Home Computer exterior itself shows that it is approximately 14.75 inches

wide, 10 inches deep (front to back) and almost 3 inches high at the back, sloping down to 1.5 inches at the very front due to the bevel design of the console. It has a Video port, the AC power receptacle and the Cassette Tape drive port on the back panel of the computer. The Wired Remote Controllers port is located on the left side panel while the right side panel has the peripherals port where things like the Solid State Speech Synthesizer are connected. There is also a headphone port on the left side of the front panel and the power on/off switch on the right side of the front panel.

To show the kind of thought that Texas Instruments put into most aspects of the design of the TI-99/4 Home Computer, the peripherals port has a sliding door to cover it when not in use, so dust and dirt can't find their way to the inside of the console. Similarly, the Wired Remote Controller port comes with a small plug that protects it from dirt and dust.

Although the keyboard has a clean, uncluttered look to it, and it does use the standard QWERTY layout, I

found it less than ideal to use. Unfortunately, someone with typing skills, which I don't possess, would likely find it even less friendly than I do. There are 40 keys (41 if you count the spacebar) and they are hard to depress, like the spring under each key has too much tension. They are also too small in my opinion, taking on the look and size of a large calculator type keypad, more than that of a typewriter style keyboard.

The Atari 400 personal computer that I played with at the local Computerland store recently has a membrane style keyboard that is even worse than the TI-99/4 keyboard to type on, but I still think Texas Instruments made a mistake in opting for this type of keyboard design. However, I may be off base. Perhaps the computer buying public will love it? I don't.

Unpacking (cont'd)

Hooking up the TI-99/4 Home Computer is a breeze. Although I appreciated the "Read this first!" booklet included in the package, it is almost unnecessary.

Once the computer is powered on by sliding the on/off switch (located at the front right of the console) to the right, you are greeted by a colorful splash screen (left photo) that displays each of the 16 colors the 99/4 is capable of supporting in two lines of bars. There is also text displayed that reads, "Texas Instruments Home Computer, Ready-Press Any Key To Begin, and ©1979 Texas Instruments". There is also a little 'beep' that sounds.

After 'any key' is pressed another beep sounds and you arrive at the 99/4's menu (right photo). It offers the opportunity to press 1 for TI BASIC or 2 for Equation Calculator. If you are lucky enough to have purchased one of the Command Modules for the 99/4 Home Computer and have it plugged into the module port to the right of the keyboard, you will see the name of that module listed as option number 3 on this menu. Sweet stuff! I will try to delve deeper into the use of the Equation Calculator in a future issue of the Timeline 99 newsletter.

TI-99/4 Technical Specifications

CL467A is the technical specifications sheet for the TI-99/4. These spec sheets are not readily available to anyone but an authorized TI-99/4 Home Computer retailer, but let's just say that I 'have a friend'. CL467A lists the following about the TI-99/4 Home Computer.

CPU: 9900 Family, 16-bit microprocessor, plus 256-byte scratchpad RAM.

Memory: Total combined memory capacity: 72K bytes. Internal ROM memory supplied: 26K bytes. External ROM memory: (Solid State Software Command Modules) Up to 30K bytes each. RAM memory supplied: 16K bytes.

Keyboard: 40-key staggered Qwerty, full travel. Overlay for second functions.

Sound: 5 octaves, 3 simultaneous tones plus noise generator. From 110 Hz to beyond 40,000 Hz.

Power: 110 V, 60 Hz, 20 W. Wall mounted console transformer, UL listed 8' power cord.

I/O: Composite video and audio output for monitor. Interface for up to 2 audio cassettes. 44-pin peripheral connector—up to 3 peripherals attached to system. System memory and address signals available at peripheral connector. Remote control interface.

Built-in Software: 14K byte BASIC interpreter. Internal Graphics Language interpreter, not user accessible. Equation calculator. Internal 4.4K byte monitor, not user accessible.

Size: 25.9x38.1 x 7.1 cm (10.2x 15.0 x2.5in.)

Weight: Less than 2.3 kg. (5 lbs)

Three Month Limited Warranty: On TI console, monitor and Command Module hardware.

*Editor's Note: You will also find good information on warranty and repair beginning on page 208 of the User's Reference Guide. I recommend that you actually do fill out the Customer Registration card discussed earlier. The TI-99/4 is an electronic device, and any electronic device can fail.

CPU Chip (NMOS): TMS9900 16-bit microprocessor. Minicomputer instruction set including hardware multiply and divide. Architecture with 16 general registers. Can address up to 64K bytes of memory. 4 interrupt lines.

TI-99/4 Technical Specifications (cont'd)

Video Display Processor Chip (NMOS): Controls display memory and generates composite video signal. 24 lines of 32 characters with 8x8 dot resolution. Provides sixteen colors: white, gray, magenta, light yellow, yellow, light red, medium red, dark red, cyan, light blue, blue, light green, medium green, dark green, black, transparent. Provides 32 sets of 8 characters each with different foreground/background colors. Addresses up to 16K bytes of RAM for CPU or display.

Sound Controller Chip (I^2L): 3 voices with 5 octave musical resolution. 15 bit programmable noise source. 100 mW audio drive with 30 db control in 2 db steps.

Solid State Software" Command Modules: Up to 30K bytes PMOS ROM. Up to 8K bytes NMOS ROM. Simple plug-in module.

Remote Controls: 2 controllers. Cable: twin cable with single connector, 4' long. 8 direction control—up, down, left, right and diagonals. Fire button. Controls designed for use with either hand.

Solid State Speech^{tm} Synthesizer: Uses Speak & Spell" technology. Approx. 300 words in unit. Plug-in vocabulary expansion. Hundreds of words can be added. Interfaces via I/O port.

RS-232 Interface: Provides interface to RS-232 type computer peripherals, such as printers, plotters, digitizers, D/A converters, terminals, and data tablets. Dual port, two standard DB-25 connectors.

Recorder Interface: 1 or 2 standard audio cassette units (not included) interface through a cassette interface. Cable: twin cable with single connector, 2' long. Each record recorded twice for 600 baud effective recording rate. Checksum added to end of each double recorded record. Operator interaction fully prompted. Provides mass non-volatile program/data memory storage. A number of standard cassette recorders can be used with the TI-99/4. For best operation, however, they should have such features as: tone control, microphone jack, remote jack, earphone or external speaker jack, digital tape counter. Check with your dealer and/or the "User's Reference Guide" for details.

TAM'S Price List - As mentioned earlier in this newsletter, here is the contents of the Tam's Price List. Note that PHA = Accessory, PHC = Computer, PHM = Command Module, PHP = Peripheral.

MODEL	NAME	TAM'S	LIST
PHC004M	99/4 Home Computer (console & monitor)	999.95	1400.00
PHC004C	99/4 Console Only	699.95	950.00
PHC4000	99/4 13" Color Monitor Only	399.95	450.00
	Command Modules		
PHM3000	Diagnostic	29.95	29.95
PHM3001	Demonstration	69.95	69.95
PHM3002	Early Learning Fun	29.95	29.95
PHM3003	Beginning Grammar	29.95	29.95
PHM3004	Number Magic	19.95	19.95

MODEL	NAME	TAM'S	LIST
PHM3005	Video-Graphs	19.95	19.95
PHM3006	Home Financial Decisions	29.95	29.95
PHM3007	Household Budget Management	44.95	44.95
PHM3008	Video Chess	69.95	69.95
PHM3009	Football	29.95	29.95
PHM3010	Physical Fitness	29.95	29.95
PHM3011	Speech Editor	44.95	44.95
PHM3012	Securities Analysis	54.95	54.95
PHM3013	Personal Record Keeping	49.95	49.95
PHM3014	Statistics	54.95	54.95
PHM3015	Early Reading	54.95	54.95
PHM3016	Tax/Investment Record Keeping	69.95	69.95
PHM3017	Terminal Emulator	44.95	44.95
PHM3018	Video Games	29.95	29.95
PHM3019	Disk Manager (One Disk Manager Module is packed with each Disk Controller)	49.95	49.95
	Milton Bradley Gamevision Cartridges		
4964	ZeroZap	24.95	29.95
4965	Connect Four	24.95	29.95
4966	Hangman	24.95	29.95
4967	Yahtzee	24.95	29.95
	Optional Accessories		
PHA2000	Dual Cassette Cable	14.95	14.95
PHP1100	Wired Remote Controllers (Joysticks)	34.95	34.95
PHP1500	Solid State Speech Synthesizer	134.95	149.95
PHA2500	Plug-in Math Speech Module	29.95	29.95
PHP1600	Telephone Coupler	202.95	224.95
PHP1700	RS-232 Accessories Interface	202.95	224.95
PHP1800	Disk Drive Controller	269.95	299.95
PHP1850	Disk Memory Drive	449.95	499.95
PHP1900	Solid State Printer (Thermal Printer)	359.95	399.95
PHA2100	R.F. Modulator	67.50	75.00
PHA1950	Thermal Paper (2 pack)	12.95	12.95

Until next issue...

Bill Gaskill - Editor

Software shown to the left, from left to right

- Math Pack (tape)
- Personal Finance (tape)
- Personal Finance (disk)
- Programming Aids I (disk)