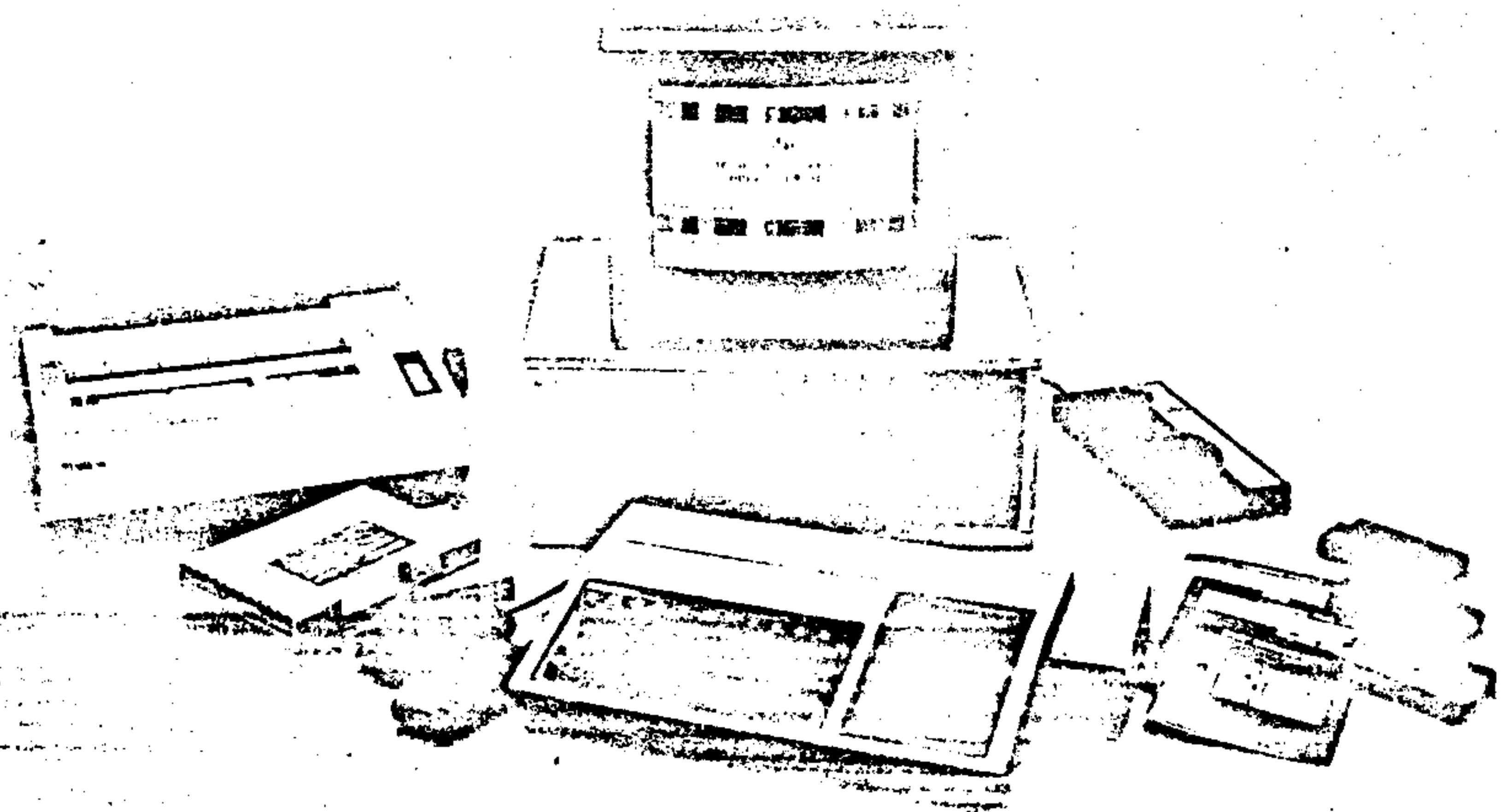


wb/bk

TI-99/4A HOME COMPUTER

Retail Training Guide



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HOW TO USE THE SOFTWARE DEMONSTRATIONS

These demonstrations have been designed to help you demonstrate the many features, applications, and benefits of the TI-99/4A Home Computer.

You will find demonstrations for each of the different types of software, plus a section on TI BASIC and using text-to-speech with the Terminal Emulator II cartridge. Once you use a few of the cartridges, you will find that they are very easy to use and, with the exception of some of the more complex programs, you will find that the computer takes you through the program step-by-step.

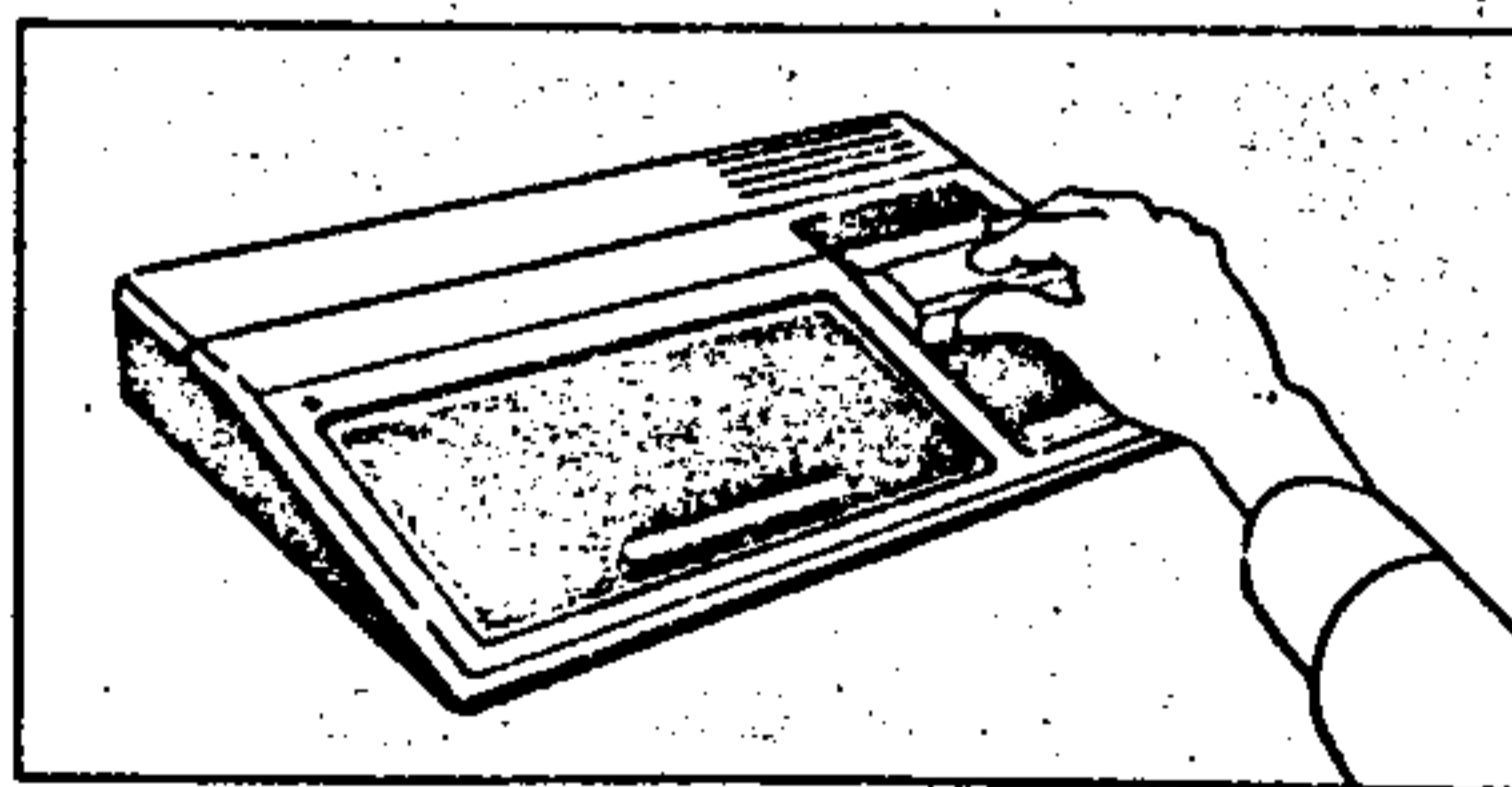
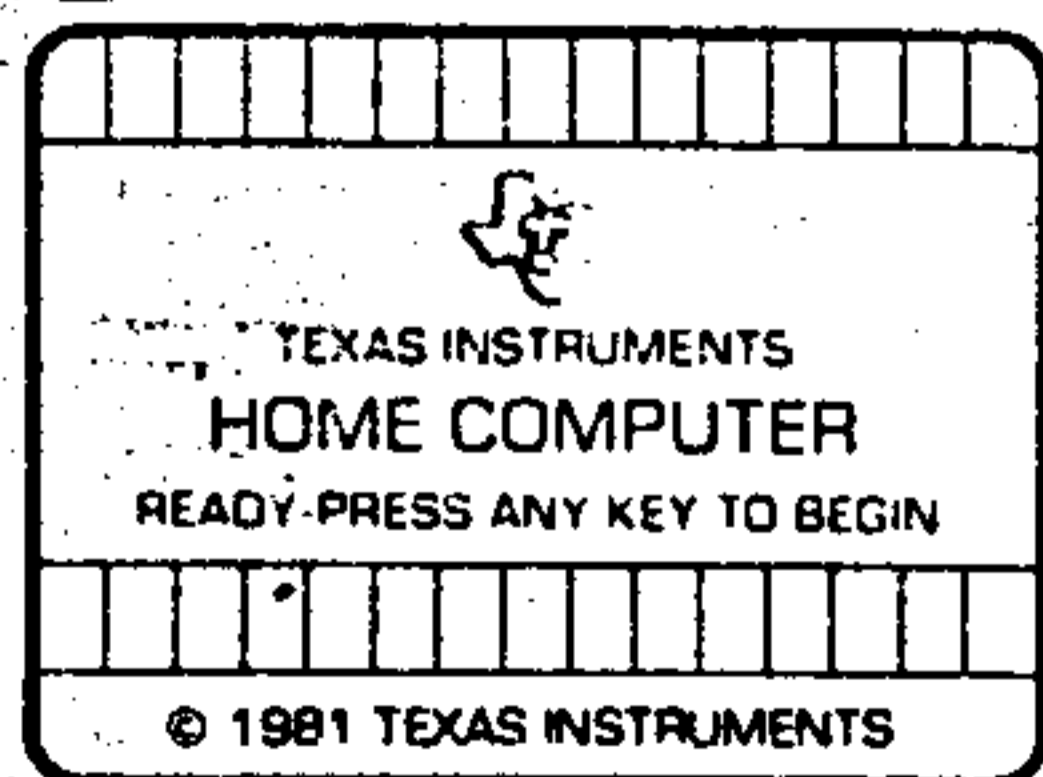
To get started, select a demonstration and follow the easy-to-read instructions.

Be familiar with these basics:

- Hold down the FCTN key and press \pm (QUIT) when you have finished each demonstration. The computer will return to the master title screen, ready for your next demonstration.
- Be sure the ALPHA LOCK key is depressed when you are entering a TI BASIC program or using a cartridge. (The only exception to this would be if you are using the Wired Remote Controllers with a game module; in this case, the ALPHA LOCK key should be UP.)
- If you are demonstrating a cartridge and it is accidentally removed from its slot while the cartridge contents are being used, the computer will behave erratically. To restore the computer to normal operation, turn the console off, wait a few seconds, reinsert the cartridge, and turn the console on again.

To start a demonstration, just snap in a cartridge and go!

1. Be sure the computer is ON. (The ON/OFF switch is on the right front of the unit.) The master title screen is now displayed (as shown left). Slide the cartridge into the slot on the console (as shown right).



2. Press any key to make the master selection list appear. To select the cartridge, press the 2 key.
3. Next, follow the directions for the activity as given. When you finish the activity, return the computer to the master title screen by holding down the FCTN key and pressing the \pm (QUIT) key. Then withdraw the cartridge from the console.

PROGRAMMING IN TI BASIC

What is computer programming? Nothing mysterious! You just tell the computer — in its own language — what to do and when to do it.

The "language" of the Home Computer is a form of BASIC (short for Beginners All-purpose Symbolic Instruction Code) called TI BASIC. As you try out the examples given in this section, you'll probably notice that BASIC looks a lot like English. It's a powerful computer language, yet it's easy to learn and use.

Many books of BASIC programs are available. Since TI BASIC is a "standard" BASIC, many of these prewritten programs can be entered, run on the Home Computer, and stored on cassette tape or diskette with little or no modification. These programs can serve as a source as you develop your own "library" of customized applications. (Note: TI BASIC has special subprograms for graphics and sound, so programs with graphics and sound require more modification.)

Some of the features of this powerful language include:

MODES OF OPERATION

- Command (Immediate) Mode
- Edit Mode
- Execute (RUN) Mode

SPECIAL FEATURES

- Color
- Sound
- Speech
- Lower-case (displayed as small capitals) and upper-case characters
- Definable characters for graphics

EDITING/DEBUGGING

- Within-line editing
- Line Replace
- Line Delete
- Execution TRACE
- BREAK points
- CONTINUE
- RESEQUENCE
- Automatic line numbering (NUMBER)
- Auto-repeat for any key held down more than one second
- ALPHA LOCK key to lock alphabetical characters in upper-case mode
- Error messages in plain English

VARIABLES/FUNCTIONS

- Variable names up to 15 significant characters
- Numeric variables range in value from 10^{-99} to 10^{99}
- String length up to 255 characters
- Standard arithmetic operations
- String concatenation, search, and other powerful string functions
- 13-digit single-precision accuracy
- Full range of built-in numeric functions (including SIN, COS, TAN, etc.)

INPUT/OUTPUT

- INPUT statement with optional prompt message
- PRINT statement with comma, semicolon, and colon separators
- PRINT with tabbing
- PRINT statement with imbedded calculations
- READ and DATA statements
- RESTORE with optional line number

BRANCHING

- IF-THEN statement with optional ELSE clause
- GOTO statement

- FOR-NEXT statement with optional STEP clause
- GOSUB and RETURN statements
- ON GOTO statement
- ON GOSUB statement

RANDOM NUMBERS

- Random numbers between 0 and 1
- RANDOMIZE statement

ARRAYS

- Size of arrays limited only by memory
- Up to 3 dimensions allowed

- Both string and numeric arrays allowed
- Option base statement allows subscripts to begin at 0 or 1

FILE PROCESSING

- Random and sequential file organization
- INPUT, OUTPUT, UPDATE, and APPEND capabilities
- FIXED or VARIABLE length records
- Device-dependent PRINT and INPUT statements
- File storage on both cassette tape and diskette

Since TI BASIC is built-in to your console, simply turn on the power, press any key after the title screen appears, and press 1 for TI BASIC.

Notice the flashing square (cursor) and the "prompting" symbol (>) in the lower-left corner of the screen. These let you know that the computer is waiting for your instructions.

Each of the short programs in this section demonstrates some portions of the computer's capabilities. To enter a program, type the numbered lines, pressing ENTER at the end of each line. Notice that some keys have two characters on the keyface. To type the upper character on such keys, hold down the SHIFT key and press the key with the appropriate character. Other keys have a symbol on the front surface of the key. For example, find the quotation mark symbol (on the front surface of the P key) and the question mark symbol (on the front surface of the I key). To type these symbols, hold down the FCTN key and press the appropriate character key.

If you make a typing error, don't worry! Just hold down the FCTN key and press the ← (S) key to correct a single character; to erase the line, hold down the FCTN key and press the 3 (ERASE) key. Then retype the character or the whole line (including the line number). To "clear" the whole program and start a new one, type NEW and press the ENTER key.

When you have entered a program, type RUN and press ENTER to start the action!

NEW clears the computer's memory and prepares it for a new program.

COUNTING PROGRAM

```

NEW
10 CALL CLEAR
20 PRINT "WATCH ME COUNT"
30 FOR B=1 TO 20
40 PRINT B
50 NEXT B
60 END

```

Press ENTER at the end of every line.

ARITHMETIC PROGRAM

```

NEW
10 CALL CLEAR
20 PRINT "I CAN MULTIPLY!"
30 PRINT
40 FOR A=1 TO 12
50 PRINT "2 TIMES":A;"IS":A;2
60 NEXT A
70 END

```

Press ENTER at the end of every line.

The multiplication operator.

COLOR PROGRAM #1

```
NEW  
10 FOR A=1 TO 16  
20 CALL COLOR(2,A,A)  
30 CALL HCHAR(1,1,42,768)  
40 CALL CLEAR  
50 FOR DELAY=1 TO 200  
60 NEXT DELAY  
70 NEXT A  
80 END
```

"Nested" FOR-NEXT loops.

Press ENTER at the end of every line.

COLOR PROGRAM #2

```
NEW  
10 CALL CLEAR  
20 RANDOMIZE  
30 FOR X=1 TO 50  
40 B=INT(RND*24)+1  
50 C=INT(RND*32)+1  
60 CALL COLOR(2,B,C)  
70 CALL HCHAR(B,C,42)  
80 NEXT X  
90 PRINT "PRESS THE ENTER"  
100 INPUT "KEY TO STOP":KS  
110 END
```

Press ENTER at the end of every line.

Produces a random row number from 1 to 24.

Produces a random column number from 1 to 32.

MUSIC PROGRAM

```
NEW  
10 CALL CLEAR  
20 INPUT "NOTE FREQUENCY?":N  
30 K=2^(1/12)  
40 A=N*K^5  
50 B=N*K^8  
60 C=N*K^13  
70 CALL SOUND(100,N,2,A,2,B,2)  
80 CALL SOUND(200,A,2,B,2,C,2)  
90 END
```

Press ENTER at the end of every line.

When you RUN the music program, you see NOTE FREQUENCY? Type a number from 110 to 440 and press ENTER. The program then repeats two chords based on the note frequency you entered.

If you'd like to try a speech program, see the Terminal Emulator II demonstration for an example.

When you are finished programming in TI BASIC, hold down the FCTN key and press $\frac{\square}{\square}$ (QUIT). The computer then returns to the master title screen.

TERMINAL EMULATOR II

The Terminal Emulator II cartridge lets you instruct the computer to read any display text aloud, and enables your Home Computer to telecommunicate with other systems.

1. Plug in the TE II cartridge, press 1 for TI BASIC, and see the message "TI BASIC READY" and the prompting symbol (>) followed by a flashing box (the cursor). Enter the following short program by first typing NUM and pressing ENTER. Then type the lines as shown and press ENTER at the end of each line.

```
100 OPEN #1: "SPEECH",OUTPUT
110 INPUT "PHASE - > ";A$
120 PRINT #1:A$
130 GOTO 110
```

When you finish, press, FCTN and 4 together.

2. Now type RUN and press ENTER. The display turns green and the computer asks you to enter your phrase. At this point, you can enter any phrase you want and the Home Computer says it aloud. However, for a demonstration, type SUPERB and press ENTER. The computer speaks the word.

3. You can add inflection symbols to a phrase to change the inflection or shift the stress points. To see how this works, enter the following.

```
^ SUPERB
^ > SUPERB
```

4. As you listen to the computer speak, you may want to specify a certain pitch (higher or lower) and slope (rate at which the pitch changes). To hear the computer speak in a high-pitched voice, enter the following:

```
//20 200
THIS IS A TEST
```

To hear a low-pitched voice, try this:

```
//50 60
THIS IS A TEST
```

For a whisper, the inputs would be:

```
//0 150
THIS IS A TEST
```

Now change the voice back to its normal (default) pitch and slope by entering the following.

```
//43 128
```

5. Continue to experiment with various phrases, including inflection, pitch, and slope, as you desire.

ADDITIONAL INFORMATION:

The world of telecommunications offers something for everyone...stock market quotes, tax advice, computer games, program swapping. The Terminal Emulator II cartridge lets you link your Home Computer to this world with new dimensions in graphics and sound, including text-to-speech capabilities! *Note:* Although the cartridge can exchange textual data with a subscription data-base ser-

vice, not all data-base services are capable of utilizing the cartridge's graphics, sound, speech, and file transfer features. Before attempting to access these features, check with the data-base service.

○ The Terminal Emulator II cartridge features provide:

- **Text and Graphics Modes** — You can receive text or color graphics.
- **Text-to-Speech Capability** — You can instruct the computer to read any displayed text aloud. This feature can also be accessed in TI BASIC! (*Note: The Texas Instruments Solid State Speech™ Synthesizer* must be connected to the computer to utilize the speech capability.*)
- **And much more** — A wide variety of functions makes it easy for you to work with your data.

Note: To activate the Terminal Emulator II cartridge for telecommunications, a TI RS-232 Interface Card* must be attached to the computer. If you are contacting a remote computer via telephone, a TI Telephone Modem** is required in addition to the RS-232 Interface. The RS-232 Interface is not required for utilizing text-to-speech in TI BASIC.

○

* Sold separately: Fits inside the Peripheral Expansion System.

** Sold separately

TOUCH TYPING TUTOR

Touch Typing Tutor teaches you how to type through fun and easy-to-understand lessons at eight different difficulty levels. Great for all ages!

1. After you plug in the cartridge, the title screen appears. Press any key, then press 2 for Touch Typing Tutor. A keyboard appears. The screen automatically advances; however, you can press any key to go on.
2. Three options are listed. Press 1 to go to the lesson segment. A set of instructions appear. Press ENTER to go to the level section. Choose 1 for the beginning level. You are given a choice of two lessons and a review section. Press 1 for Lesson 1-A.
3. A set of letters appear. Type the letters exactly as they appear, including the spaces. Press ENTER after each line. If you make an error, your line disappears and you start over. After you successfully type the line twice, the program advances to a new set of letters.
4. When you want to practice at a higher level, press FCTN and the 9 keys together. If you want to try a diagnostic test or game, press FCTN and 9 together again.

The other features of Touch Typing Tutor include:

- **Diagnostic Tests** — Word per minute timing, analysis, and practice.
- **Games** — Arcade-style game tests your typing accuracy and quickness. Eight levels of difficulty.

HOUSEHOLD BUDGET MANAGEMENT

The Household Budget Management cartridge is a step-by-step guide to better money management. It helps you set budget guidelines, track income and expenses, spot problem areas, and keep easily accessible records.

1. After you plug in the cartridge, the title screen appears. Press any key, then 2, and a display appears offering you a choice of four functions. Press the 1 key for DEMONSTRATION DATA.
2. You will then see a short discussion of the overall functions of the cartridge, the role of the cassette tape or other storage device (diskette), and the demonstration data you're about to see. (Press the ENTER key after you've read each display.)
3. Next, you will see a list offering seven choices. Press the 2 key to select ANALYZE DATA.
4. The next display offers you five specific types of analyses. Press the 2 key for ALL CATEGORIES FOR YEAR-TO-DATE.
5. A table then appears, showing the amounts budgeted in given income categories compared to the actual amounts spent. To see additional categories, hold down the FCTN key and press the ↑ (E) key. *Note:* Holding down FCTN and pressing ↓ (X) moves you back in the list.
6. Now, press the G key and the data is analyzed in bar graph form. Red bars show if you are over budget, and green bars if you're under. The percentage difference is shown also.
7. To explore additional features, follow the displayed instructions. (To use the BACK instruction, hold down the FCTN key and press the 9 key.)

ADDITIONAL INFORMATION:

Most of us would like to be able to make our money go farther. We all realize that better control of our finances requires careful and realistic management of our money. The Household Budget Management cartridge includes easy-to-use procedures that help you analyze, record, and control your personal finances. You can set up a monthly budget by expense category, and the computer can spot "problem areas" to help you stay in control!

The Household Budget Management cartridge features let you:

- Examine sample data and analyses to familiarize yourself with all cartridge features and operations.
- Set up a budget by category. Over 99 category choices let you be as detailed as you like! You can update your budget or change categories easily at any time.
- Enter your actual income and expense information by category each month.
- See full-color graphic analyses of your progress in each category — by month or year-to-date.
- Project your current spending levels for the rest of the year.
- Keep accurate, permanent, and easily accessible records to track your progress — invaluable at tax time.

HOME FINANCIAL DECISIONS

The Home Financial Decisions cartridge is a easy-to-use tool for evaluating everyday financial questions. It helps you make informed decisions regarding general loans, home and car buying, and personal savings.

1. After you plug in the cartridge, the title screen appears. Press any key, then 2. You will see instructions for "Easy 3 Step Use" of the cartridge.
2. Next, you'll see a list offering four major options. Press the 2 key for RESIDENCE.
3. The next display offers you six types of analysis. Press 1 for BUY A HOUSE.
4. Type in the sample information below as it is asked for by the computer. If you type an incorrect number, hold down the FCTN key and press the 4 (CLEAR) key. Then retype the entry. After making each entry, press the ENTER key.

INPUT PROMPT	ENTER	INPUT PROMPT	ENTER
Purchase Price	\$100,000	Annual Property Tax Payments	\$1200
Down Payment	\$20,000	Annual Insurance Payments	\$612
Number of Payments	360	Number of Months Between Closing and End of Year	0
Annual % Interest Rate on Mortgage	17	Your Federal Income Tax Bracket in %	30
Expected Annual % Increase in Market Value	7	Number of Years in this Analysis	1

5. After all the figures have been entered, the display shows a breakdown of the total monthly payment for the house. When you finish looking at the breakdown, press ENTER to continue.
6. The program now displays a breakdown of the yearly value of the house for the number of years you entered (1).
7. If you'd like to try the analysis again with different figures, hold down the FCTN key and press 8 (REDO). The computer returns to the display which asks for the figures. Notice the computer displays the figures you entered earlier. Press ENTER to accept that figure, or type the new value and press ENTER.

ADDITIONAL INFORMATION:

Ready to buy a new home, but concerned about the amount of the payments? How much do you need to save per month for the next 10 years to have \$8000 set aside? You're looking a leasing a car — but what are the financial differences between leasing and buying?

The Home Financial Decisions cartridge features let you evaluate alternatives in each of these areas:

- Loans — Five types of loan analysis are available.
- Residence — Six residence analysis are available.
- Car — You can use six options to help make decisions on buying or leasing a car.
- Savings — Four types of savings analysis are available.

MUNCH MAN

Four cunning Hoonos are in hot pursuit of your Munch Man while he races to an energizer to change the attack. Can he make it to safety or does his fate lie in the mouth of the Hoonos? Munch Man tests your skills as you try to: Score points by connecting the passages with a chain; Score points by capturing Hoonos while your Munch Man is energized; and Avoid being eaten by the Hoonos.

1. After you plug in the cartridge, title screen appears, followed by the "Press any key to begin" message. Press any key.
2. The maze now appears on the display. Looking at the maze, notice the four energizers (flashing symbols) in the far corners, the four Hoonos in their "cells", and your first Munch Man in the center. Note also the two sets of corridors on either side of the maze; if your Munch Man enters one of these corridors, he disappears and reenters on the other side.
3. The object of the game is to connect the passages with one continuous chain without being eaten by a Hoono. When you begin the game, you have three chances to connect the passages. Then, for each 10,000 points you score, you receive another Munch Man.
4. When the maze is displayed with the "ARE YOU READY?" question flashing, press any key to start.
5. To move your Munch Man through the maze, press the arrow keys: (E) -- (S), -- (D), or (X).
6. If a Hoono catches your Munch Man, the maze freezes, returning the Hoonos to their cells, while another Munch Man appears at the center of the maze. However, when the Munch Man eats an energizer, the Hoonos turn black to indicate that the chase is reversed. You win points for each Hoono captured during this time. When the effect of the energizer begins to fade, the Hoonos flash their normal color, and then the maze flashes red. Now the Hoonos chase your Munch Man again.
7. If you completely connect the chain, your Munch Man spins around and then returns to the starting place, ready to begin the next level with a different set of Hoonos.
8. When your last Munch Man is caught by a Hoono, the game is over. Hold down the FCTN key and press 8 (REDO) key to play another game.

* Activities in the cartridge are also designed to work with the optional Wired Remote Controllers.

CAR WARS

Car Wars lets you pit your car against the computer's in an exciting race. Score points by outmaneuvering the computer's car as it tries to run you off the track! The object of Car Wars is to score points by clearing as many dots as possible from the lanes; to avoid the computer's yellow car; and to obtain extra cars by clearing all of the driving lanes on the display.

1. After you plug in the cartridge, a demonstration of Car Wars begins. To stop the demonstration, press any key and the option selection list appears.
2. You are given a choice of three speeds for both cars. Press 1 to choose CREEPIN'.
3. Next, choose the point in the game when the computer's car speeds up. Press 1 for LATE.
4. Now the playing field appears, consisting of dots and solid lines representing car lanes. A red car and a yellow car appear in their starting positions at the bottom of the display. You control the red car; the yellow car is controlled by the computer.
5. To start the game, press any key. Try to maneuver your car through the maze of lanes, without being crashed by the yellow computer car. You get three chances. The number of cars in the pit shows how many chances you have left.
6. To move your car, press the arrow keys, ↑ (E), ← (S), → (D), and ↓ (X). * To move your car *two lanes* over, instead of one, hold the key down for a moment. To accelerate your car, press Y or > (The yellow car automatically doubles its speed sometime during the game, depending on the "speed up" level you selected.)
7. If you successfully clear all the dots without being crashed, bonus points are added to your score and an extra player car is added to the pit.
8. To begin a second round, press any key. If you succeed in clearing all the dots from the field without crashing, the third round begins with *two* computer cars. The game continues in this way with an additional computer car appearing and more points being awarded after every two rounds.
9. The game is over when the computer car crashes all the player cars off the field. To play another game with the same options, hold down in the FCTN key and press the 8 (REDO) key.

*Activities in this cartridge are designed to work with the optional TI Wired Remote Controllers. If using the controllers, press the "FIRE" button to accelerate.

NUMBER MAGIC

Number Magic brings a new, exciting dimension to basic drill and practice in mathematics. With full-color graphics, musical sounds, and thousands of preprogrammed exercises, Number Magic can provide hours of learning and fun for children ages six and up.

1. After you plug in the cartridge, the title screen appears, followed by a display that allows you to choose from three cartridge activities. Press the 1 key to select QUICK QUIZ.
2. QUICK QUIZ begins with a brief title screen. When you're ready to play, press the ENTER key, and HERE WE GO is displayed.
3. Next, a problem is displayed along with the Number Magic rabbit, who hops across the display as you progress. Type your answer to each problem using the appropriate number key(s). HINT: When demonstrating with small children, you can make a paper cutout to cover all keys, but the number keys. This helps the children concentrate just on those keys that produce a response.
4. After 10 problems, you'll see your score and hear musical sound effects to reward you for your good work.

ADDITIONAL INFORMATION:

Number Magic activities can be enjoyed by children alone, with a friend, or in small groups for a "Math Bee." Players can compete at several levels of difficulty and choose to "race the clock" to sharpen their skills. The program automatically keeps score and rewards progress with colorful graphics and sound. Number Magic activities begin with practice in basic skills and move on to more advanced problems or examples you can enter yourself.

The activities in Number Magic include:

- Quick Quiz — Warm up with simple addition and subtraction problems — Number Magic keeps score.
- Comp Quiz — Move on to more advanced problems (+, -, ×, ÷) at a user-selected level of difficulty. The "Race the Clock" option automatically keeps score.
- Electro Flash — Brush up on time tables, addition/subtraction, and more advanced examples. Electronic flash cards cover all of the "basic parts" of mathematics. Race against the clock for "Math Bees" — Number Magic keeps score.

EARLY LEARNING FUN

Early Learning Fun presents eight colorful, easy-to-use, educational activities for preschoolers. This exciting cartridge was developed in cooperation with leading educators to help teach shape and number recognition, counting, sorting, and the alphabet — as well as first computer skills. Fun for children ages 3 through 6!

1. After you plug in the cartridge, a colorful title screen and tone sequence begins. Then a list of the four activity categories appears. —
Note: Any displayed information that should be read to the child by a parent (or older friend) is indicated with a "parent" symbol.
2. Press the 1 key to select NUMBER activities, and you'll see a list of three activities. Press the 2 key for NUMBER PLEASE and read the instructions aloud to your child. HINT: When demonstrating with small children, you can make a paper cutout to cover all keys, but the number keys. This helps the children concentrate just on those keys that produce a response.
3. To start playing, press any number from 1 to 9. A corresponding number of shapes pops on the display, one at a time, with a musical tone for each one. Your child counts the shapes and then sees the number at the center of the screen.
4. Now choose and press another number key. Keep playing until you've entered 5 numbers.
5. After the fifth number, you see a screen asking "WANT TO PLAY AGAIN?" (If you don't, press the SPACE BAR. The cartridge automatically moves on to the next activity.)

ADDITIONAL INFORMATION:

Today, computers are an important part of life for everyone. They're on the scene at home, in business, and more and more as a part of education. The Early Learning Fun cartridge presents bright, colorful, and enjoyable activities which can help teach important preschool skills. With the cartridge, you and your child begin enjoying the activities and learning about the computer together.

Early Learning Fun cartridge activities are arranged in four categories designed to teach and reinforce basic skills that prepare your child for study in arithmetic and reading. There are eight activities in all:

- Number activities
 - Counting Up
 - Number Please?
 - How Many Things
- Shape activity
 - Make a Match
 - Shape Hunt
- Sorting activity
 - Odd One Out
- Alphabet activities
 - Letter Line-Up
 - A is for Apple

Each activity begins with specially designed "parent screens." These screens — labeled with a picture of a parent — contain directions for each activity that can be read aloud to your child. Special 16-color computer pictures and graphics, as well as exciting and enjoyable musical tones, are part of the learning fun!

NUMBER MAGIC

Number Magic brings a new, exciting dimension to basic drill and practice in mathematics. With full-color graphics, musical sounds, and thousands of preprogrammed exercises, Number Magic can provide hours of learning and fun for children ages six and up.

1. After you plug in the cartridge, the title screen appears, followed by a display that allows you to choose from three cartridge activities. Press the 1 key to select QUICK QUIZ.
2. QUICK QUIZ begins with a brief title screen. When you're ready to play, press the ENTER key, and HERE WE GO is displayed.
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4. After 10 problems, you'll see your score and hear musical sound effects to reward you for your good work.

ADDITIONAL INFORMATION:

Number Magic activities can be enjoyed by children alone, with a friend, or in small groups for a "Math Bee." Players can compete at several levels of difficulty and choose to "race the clock" to sharpen their skills. The program automatically keeps score and rewards progress with colorful graphics and sound. Number Magic activities begin with practice in basic skills and move on to more advanced problems or examples you can enter yourself.

The activities in Number Magic include:

- Quick Quiz — Warm up with simple addition and subtraction problems — Number Magic keeps score.
- Comp Quiz — Move on to more advanced problems (+, -, ×, ÷) at a user-selected level of difficulty. The "Race the Clock" option automatically keeps score.
- Electro Flash — Brush up on time tables, addition/subtraction, and more advanced examples. Electronic flash cards cover all of the "basic parts" of mathematics. Race against the clock for "Math Bees" — Number Magic keeps score.

WHY SHOULD A FAMILY BUY THE TEXAS INSTRUMENTS HOME COMPUTER?

The Texas Instruments Home Computer offers something for all members of the family.

1. ENTERTAINMENT

- The Attack
- Football
- Blackjack and Poker
- Yahtzee
- Hustle
- Zerozap
- Connect Four
- Adventure
- Munchman
- Tombstone City
- Indoor Soccer
- Hunt The Wumpus
- Car Wars
- Parsec
- Alpiner
- Chisholm Trail
- Tunnels of Doom
- And more!

2. EDUCATION

- PLATO Series
- Early Learning Fun
- Beginning Grammar
- Number Magic
- TI LOGO and TI LOGO II
- Early Reading
- Touch Typing Tutor
- Early Reading
- Reading Fun
- Reading Rally
- Scholastic Spelling (4 levels)
- Addition and Subtraction (2 levels)
- Multiplication I
- Division I
- Addison-Wesley
- Computer Math Games (2 levels)
- DLM Arcademics™
- Milliken Home Math Series
 - Addition
 - Subtraction
 - Multiplication
 - Division
 - Fractions
 - Decimals
 - Percents
- And more!

3. INFORMATION MANAGEMENT

- Home Financial Decisions
- Household Budget Management
- Securities Analysis
- Personal Record Keeping
- Tax/Investment Record Keeping
- Personal Report Generator
- TI Writer
- Microsoft™ Multiplan™†
- Mailing List
- Checkbook Manager
- Finance Management
- Inventory Management
- TI-Count Series
- Invoice Management
- Cash Management
- Lease/Purchase Decisions
- Personal Tax Plan
- Personal Financial Aids
- And more!

4. COMPUTER LITERACY

- TI BASIC
- Extended BASIC
- TI LOGO
- Editor/Assembler
- UCSD Pascal††
- TI Pilot
- TI Forth**

5. DATABASE ACCESS

- TEXNETSM
- The SourceSM
- UPI
- AP
- Mail Scan
- Mobile Restaurant Guide
- Unistox
- Catalog Shopping
- Cineman
- Wire
- Chat
- Musicsource
- And more!

*Trademark of DLM Corp.

** Available 2H83

† Trademark of the Microsoft™, Inc.

†† Trademark of the Regents of the University of California at San Diego

WHAT POINTS AND ISSUES DO I COVER TO SUCCESSFULLY SELL THE TI-99/4A?

- *Emphasize Software as the major selling point* — TI has more software for the Home Computer than any other company. And each new program is just one in a series of Educational, Information Management, and Entertainment selections.
- *Provide software literature* regarding the wide selection of Command Cartridges (85 +), floppy disks, and cassette tapes available from TI and independent sources (1500 +).
- *Promote TEXAS INSTRUMENTS' reputation* for creating high technology, quality, and innovative consumer electronic products.
- *Promote the ease of use* — a leadership feature of the TI Home Computer System.
- *Demonstrate TI's creative leadership in speech capability* — the talking Home Computer.
- *Demonstrate the outstanding color resolution and sound/music capability* unmatched by any other company.
- *Emphasize the TI-99/4A is the only personal computer* powerful enough to allow commands for color, sound effects, music, and synthesized speech to be incorporated within the same program — a must in home education.
- *Point out our full line of hardware accessories* — including the new Peripheral Expansion System — expandability unmatched by any other home computer.
- *Point out the wide selection of programming languages* available for the TI 99/4A — TI BASIC, Extended BASIC, Assembly, Pascal, TI Pilot, TI LOGO, and TI Forth*.
- *Provide information on consumer data bases* that are available using the TI-99/4A, RS-232 Interface Card, Terminal Emulator II, and Phone Modem.
- *Emphasize the Advantages of the Peripheral Expansion System* — Convenience, Expandability, Attractiveness.
- *Emphasize Relative Cost* — the TI-99/4A offers the most memory for the \$, best color for the \$, most languages for the \$, best screen display for the \$, best graphic resolution for the \$, and most expandability for the \$. You can buy other Home Computers for less, but why bother?

QUESTION: *Can I edit or change Solid State Software™?*

ANSWER: No. The Solid State Software™ Command Cartridges are programs locked in integrated circuit chips. They are not user alterable at this time. However, the Mini-Memory cartridge is designed to let you write programs in Assembly Language and store the programs directly on the cartridge.

QUESTION: *Why not more business programs?*

ANSWER: The TI-99/4A was designed from the very outset to be a true *home-use* computer. This does not rule out its application in many *small* business situations. In fact, independent services have written *many* small business applications (see Software Program Library). However, our major software thrust will continue to be geared for the home.

QUESTION: *What microprocessor do you use, and what are its advantages?*

ANSWER: We use the 9900 series microprocessor. It allows us to operate and do some very sophisticated things as far as signal processing is concerned, especially when using peripheral devices. Why did we use that particular microprocessor? The 9900 series microprocessor is a 16-bit microprocessor and currently the state of the art. The 16-bit TMS 9900 Microprocessor is most accurate, allows two computer words to be processed at a time, has more memory storage, allows use of disk drive with 16K RAM, and is exponentially more powerful than an 8-bit microprocessor.

QUESTION: *Is system documentation (schematics) available?*

ANSWER: Yes. Schematics can be obtained by sending \$15 plus \$2 for postage and handling plus applicable local and state tax to:

Texas Instruments
c/o The Dealer Parts Department
P.O. Box 53
Lubbock, TX 79408

QUESTION: *What is the power consumption of the Home Computer and the monitor?*

ANSWER: The power consumption of the home computer plus monitor is about the same as a 150-watt light bulb.

QUESTION: *Why is your BASIC so slow?*

ANSWER: Our BASIC is not so slow. We've run benchmark tests using the Kilobaud Magazine benchmarks, which along with several others, show our BASIC to be neither the fastest nor slowest available.

QUESTION: *Can you connect the Home Computer to large computer data bases?*

ANSWER: Yes. With the use of the Telephone Modem, Terminal Emulator II Cartridge, and the RS-232 Interface, our computer can be connected to large computer data bases such as Micronet, The SOURCESM, CompuServe, Dow Jones, etc. Information about these data bases can be obtained by calling the toll-free Consumer Hotline.

QUESTION: *What cassette recorders can be used to store data on the 99/4A?*

ANSWER: The TI Program Recorder has been designed specifically for use with the Home Computer. In addition, the Program Recorder can be used for regular recorder functions. There are regular cassette recorders which can be used with the Home Computer. However, they may not work as well as the Program Recorder.

QUESTION: *Can the computer do things for my home — turn on lights, regulate the temperature, burglar alarms, etc.?*

ANSWER: At the present time the only things standing between these sorts of functions and our current computer are simple peripheral devices that will plug in the computer.

QUESTION: *Is it durable? Will it withstand electrical shock via static electricity, keyboard abuse, etc.?*

ANSWER: We have produced what is probably the most durable computer that's ever been made. We applied all we have learned from our years of experience in building handheld calculators to the TI-99/4A. For example, it has been designed to withstand a static electricity shock in excess of 50,000 volts with no physical damage to the computer. The only change occurring at that particular point is that some data in RAM may be changed or lost. As far as physical abuse to the keyboard, it's probably one of the most rugged keyboards that's ever been put into any computer. The key mechanism itself was designed to be used in a desk top commercial calculator. These calculators receive thousands of keystrokes per day. We have a very durable, very hard to hurt computer. It's been designed to operate under conditions far in excess of those you would ever encounter in your home.

QUESTION: *How much information can I store on a disk?*

ANSWER: Our current disk will store about 90K bytes of data, which is about the same as ninety thousand keystrokes of information (per diskette, per drive).

QUESTION: *What type of diskettes do I need to use with a TI disk system?*

ANSWER: The TI disk system requires 5 ¼ inch, single-sided, single density, soft-sectored diskettes.

QUESTION: *Can I use a double-sided diskette with my disk drive system?*

ANSWER: A double-sided diskette may be used with a third party double-sided disk drive. The Disk Manager II Cartridge is required (packaged with the TI Disk Controller Card). Consumers should call the Consumer Hotline for more information.

QUESTION: *What type of diskette do I use with a double-sided disk drive?*

ANSWER: Use 5 ¼ inch, double-sided, single-density, soft-sectored diskettes. (The Disk Controller Card will NOT adapt to a double-density drive.)

QUESTION: *What is double density?*

ANSWER: Double density allows twice as many bytes of information per track; therefore, a double-density diskette would store twice as much data.

QUESTION: *How many tracks are on a single-sided diskette? A double-sided diskette?*

ANSWER: Compare a diskette to a book. Within a book are chapters comprised of pages. You can think of the diskette tracks as the chapters of a book and, likewise, the sectors as the individual pages.

A single-sided diskette is divided into 40 circles or tracks. The tracks are numbered from 0 to 39, starting at the outside track. Each track is divided into nine sectors. Thus, there are 360 sectors, each capable of housing up to 256 bytes of information, or 2048 bits.

A double-sided diskette has 80 tracks. The tracks are numbered 0 to 39 on one side and 40 to 79 on the other side. Each track is divided into nine sectors giving a double-sided diskette 720 sectors.

QUESTION: *Is the new Peripheral Expansion System compatible with the old "train" peripherals?*

ANSWER: Yes, the new Expansion Box will plug into the TI-99/4A console or into the old style peripherals.

TROUBLESHOOTING

In the event that you have difficulty with your computer, the following instructions may help you to analyze the problem. You may be able to correct your computer problem without returning it to a service facility. If the suggested remedies are not successful, contact the Consumer Relations Department by mail or telephone (refer to IF YOU HAVE QUESTIONS OR NEED ASSISTANCE later in this section). Please describe in detail the symptoms of your computer.

If one of the following symptoms appears while operating with the optional peripheral(s) or accessories, remove the device. If the symptom disappears, refer to the manual for the peripheral or accessory in question.

SYMPTOM

Console indicator light will not come on when switch is turned on.

No picture.

No sound.

Cassette recorder will not operate when connected to console, but does work properly when not connected.

Cassette recorder will not Save or Load data properly.

Remote Controls will not operate.

Remote Controls will not make objects move upward.

BASIC program is cleared by insertion of a Module/Cartridge.

Stray characters appear or other erratic operation occurs or computer will not respond to keyboard input.

A Command Module/Cartridge especially designed to verify proper operation of the major functions of your system is available at your retailer. You can also purchase the *Diagnostic* cartridge for use at home.

REMEDY

- Check that transformer power cord is plugged into the wall.
- Ensure that power cord is connected to the rear of the console.
- Check that power is on, and screen controls are set for optimum picture. Ensure that cables are properly connected as specified in the Color Monitor Operating Guide and Warranty.
- See that volume control is turned to proper level.
- Check connection of cables.
- Ensure that cassette is connected to the 9-pin connector on the rear of the unit. (Not on left side.)
- See "General Information."
- Remember that the cassette motor is controlled by the computer. Read the instructions in the "Cassette Interface Cable" section.
- Ensure that unit is connected to the 9-pin connector on the *left* side of the computer console. (Not on rear.)
- Remember that only certain software is designed for use with the Remote Controls.
- Check to insure the Alpha Lock Key is not down.
- This is a normal reset procedure designed to protect your color screen.
- Static electricity discharges from the user to the console can alter program data stored in the internal memory. To correct this problem turn the console off and then on.

TEXAS INSTRUMENTS GENERAL INFORMATION

Retail Training Guide



**TEXAS
INSTRUMENTS**

99/4A

**HOME COMPUTER
RETAIL TRAINING GUIDE**



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INTRODUCTION

THE TEXAS INSTRUMENTS 99/4A HOME COMPUTER SYSTEM

The TI-99/4A Home Computer System developed by Texas Instruments offers all members of the family a unique home enrichment tool. It is an advanced home computer designed to *adapt* to the needs of the family that has little or no knowledge of computers or programming.

The initial TI-99/4A Home Computer consists of the *console* and *TV adapter* — which connects the console to your TV set. The programming language "BASIC" is contained within the console, and manuals are provided, so nothing additional needs to be purchased to start using the computer and learning about programming.

In minutes, you have a "feel" for it. It teaches. It entertains. *It makes learning fun.* It's the most fascinating thing to ever happen to leisure time at home. The easy-to-use Texas Instruments Home Computer.

The heart of the system is a library of Texas Instruments Solid State Software™ Command Modules/Cartridges and a growing list of programs developed by independent sources. There are currently more than 65 rugged, permanent, plug-in Command Module/Cartridges and over 2000 programs available in diskette and cassette formats* to provide a wide array of capabilities for any member of the family.

These include:

1. **Entertainment** — TI Invaders, Munchman, Car Wars, Tombstone City, The Attack, Chisholm Trail, Parsec, Alpinert, Adventure, and more.
2. **Education** — TI LOGO, Early Reading, Addition and Subtraction I, Scholastic Spelling, Multiplication I, Touch Typing Tutor†, and more.
3. **Personal Finance/Home Management** — Home Financial Decisions, Household Budget Management, Personal Record Keeping, TI Writer†, Microsoft™ Multiplan†, and more.
4. **Database Access** — THE SOURCE™ UPI, AP, Dow Jones, airlines schedules, travel guides, national catalogs and more.

If you do want to program — or want to learn — TI BASIC is built into the TI Home Computer. With other systems, it's not. You'll pay extra for it, and have to load it into the machines each time you need it. So, the TI Home Computer saves you time and money.

TI BASIC is a rich and versatile programming language designed to make programming easy for you. It is fully compatible with ASCII and the BASIC specifications of the American National Standards Institute. You can apply it to the most demanding problems because it's powerful and accurate, yet it's one of the easiest program languages to learn.

* These programs require the use of additional devices — a cassette recorder and cable for cassette programs and a Peripheral Expansion Box, Disk Drive, and Disk Controller Card for diskette programs.

† Available 4Q82

TI LOGO, developed by Texas Instruments and the Massachusetts Institute of Technology, is available for children in kindergarten through grade 6. For the advanced programmer, Extended BASIC, Editor/Assembler, TI Pilot, and UCSD Pascal* are available.

Texas Instruments offers the finest support in the industry after you purchase the TI-99/4A.

- *Factory representatives demonstrating the TI-99/4A at retail outlets across the nation.* Besides demonstrating the computer, a representative can also answer your questions about the right software and peripherals for your needs.
- *A Toll-Free Hotline Number for all your computer questions.* 1-800-858-4565.
- *42 TI Consumer Exchange Centers throughout the U.S. and Canada.* If your computer requires service, instead of returning the unit to the dealer or to a service facility, you may elect to exchange the unit for a factory-reconditioned computer by bringing it in person to the nearest TI Exchange Center. (For further details, call the Toll-Free Hotline Number.)
- *Over 45 TI-99/4A Users' Groups.* There are now more than 45 TI Users' Groups in the U.S. and around the world. These groups are composed of TI Home Computer owners who exchange software programs and other helpful information. To join, refer to the User's Newsletter or call the Toll-Free Hotline.
- *Software availability and support.* Texas Instruments offers almost 200 pre-programmed packages including more than 65 easy to use, plug-in Solid State Software™ Command Modules/Cartridges. Independent sources offer more than 2000 additional programs.
- *Quarterly Home Computer Users' Newsletter.* Texas Instruments publishes a free quarterly newsletter for TI-99/4A users to keep you informed of the latest hardware and software developments. Just fill out and return the warranty card to receive your free subscription.
- *The 99'er Magazine.* An independent source publishes the *99'er Magazine* every month. The *99'er* is filled with news and features on the 99/4A, peripherals, software, and events.
- *The TI Computer Advantage Club.* For more information on the TI Computer Advantage Club, call Toll-Free 1-800-858-4069. (In Texas call 1-800-642-1318).

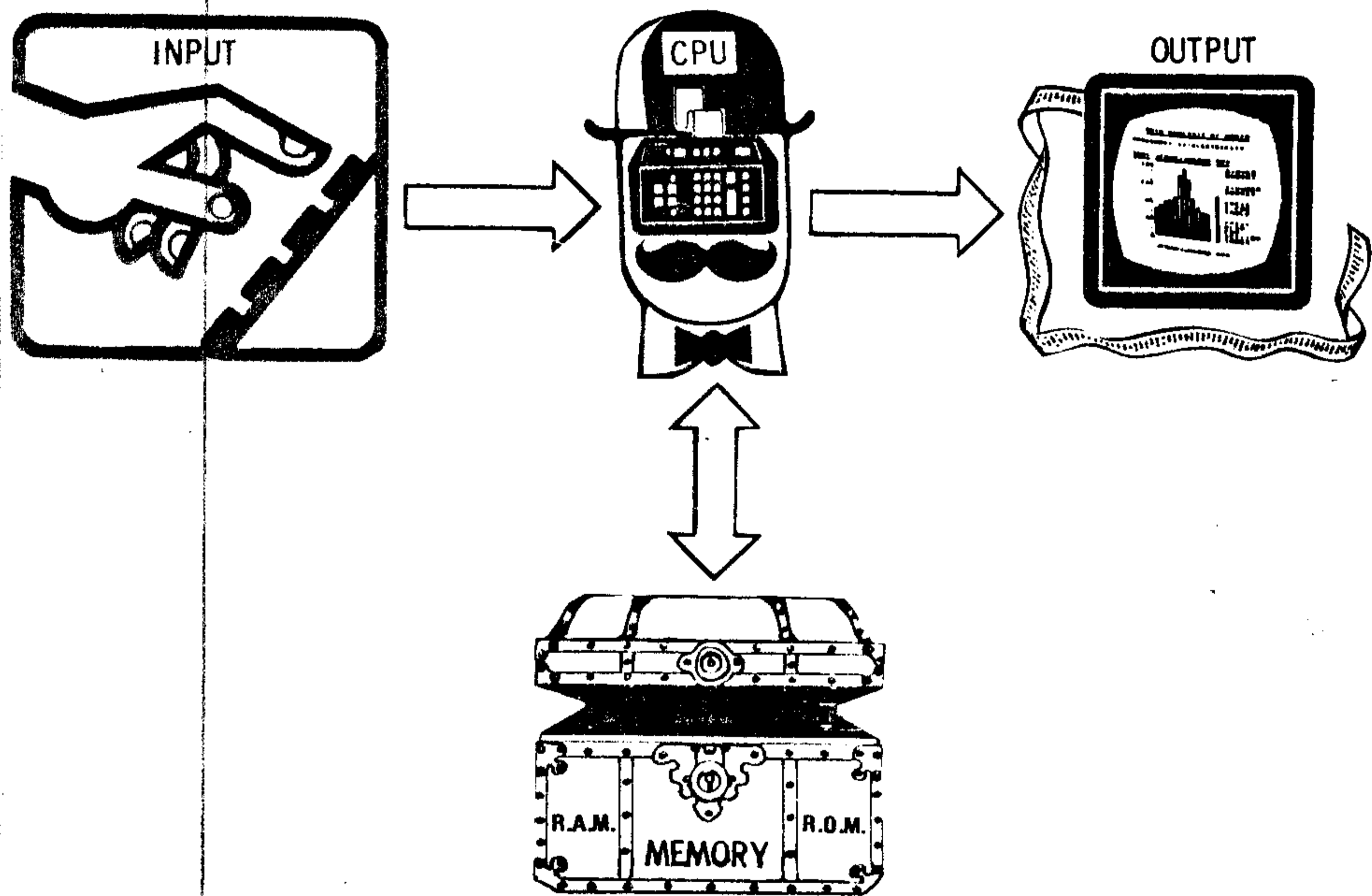
You can join the club and sign up for courses that get you or your child up and running on the computer. Courses are available for adults and young people ages 8 and up. Instruction is given by qualified instructors.

* *Trademark of the Regents of the University of California at San Diego.*

**IMPORTANT
COMPUTER BUZZWORDS**

**AND
WHAT IS A MICROCOMPUTER?**

WHAT IS A MICROCOMPUTER?



A MICROCOMPUTER HAS FOUR BASIC PARTS:

1. **INPUT** — The way information is taken from the outside and put into the computer for processing . . . eg. keyboard, cassette, floppy disk, or command module.
2. **OUTPUT** — Where processed information and results of calculations go out . . . eg. monitor, TV, printer, or disk.
3. **MEMORY** — Where information is stored . . . eg. RAM, ROM.
4. **CPU (CENTRAL PROCESSING UNIT)** — The brain; conducts all information in and out of the three parts of the computer.

TERMINOLOGY

BASIC



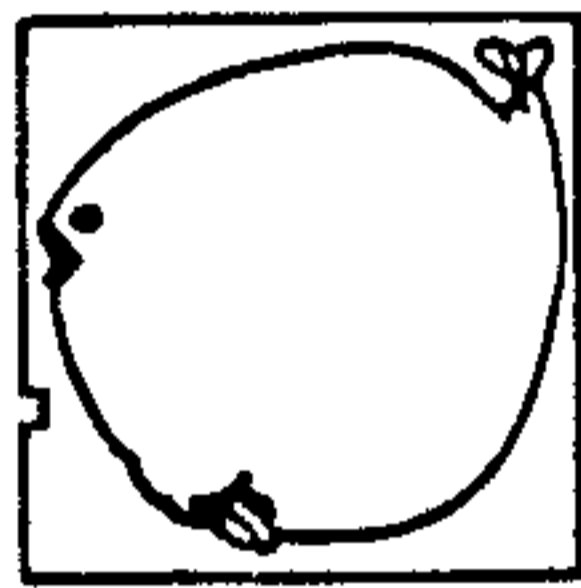
Acronym for **B**eginners **A**ll-Purpose **S**ymbolic **I**nstruction **C**ode. An easily learned language developed at Dartmouth College. The most popular language for home computers.

DISK DRIVE



A piece of electronic hardware that stores programs on a floppy disk.

DISKETTE
(Floppy Disk)



A flexible 5 1/4 inch disk of recording material used to store data and programs.

HARDWARE



The physical structures (i.e. keyboard, monitor, printer) that make up a computer.

RAM
(Random Access Memory)



Memory which one *reads* (calls up data) or *writes* (enters information or instructions). Data is lost when power is turned off.

ROM
(Read Only Memory)



Any memory in which information or instructions have been *permanently* fixed. Data stored whether or not power is applied.

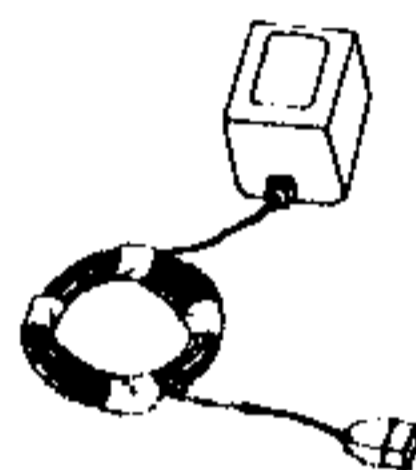
SOFTWARE



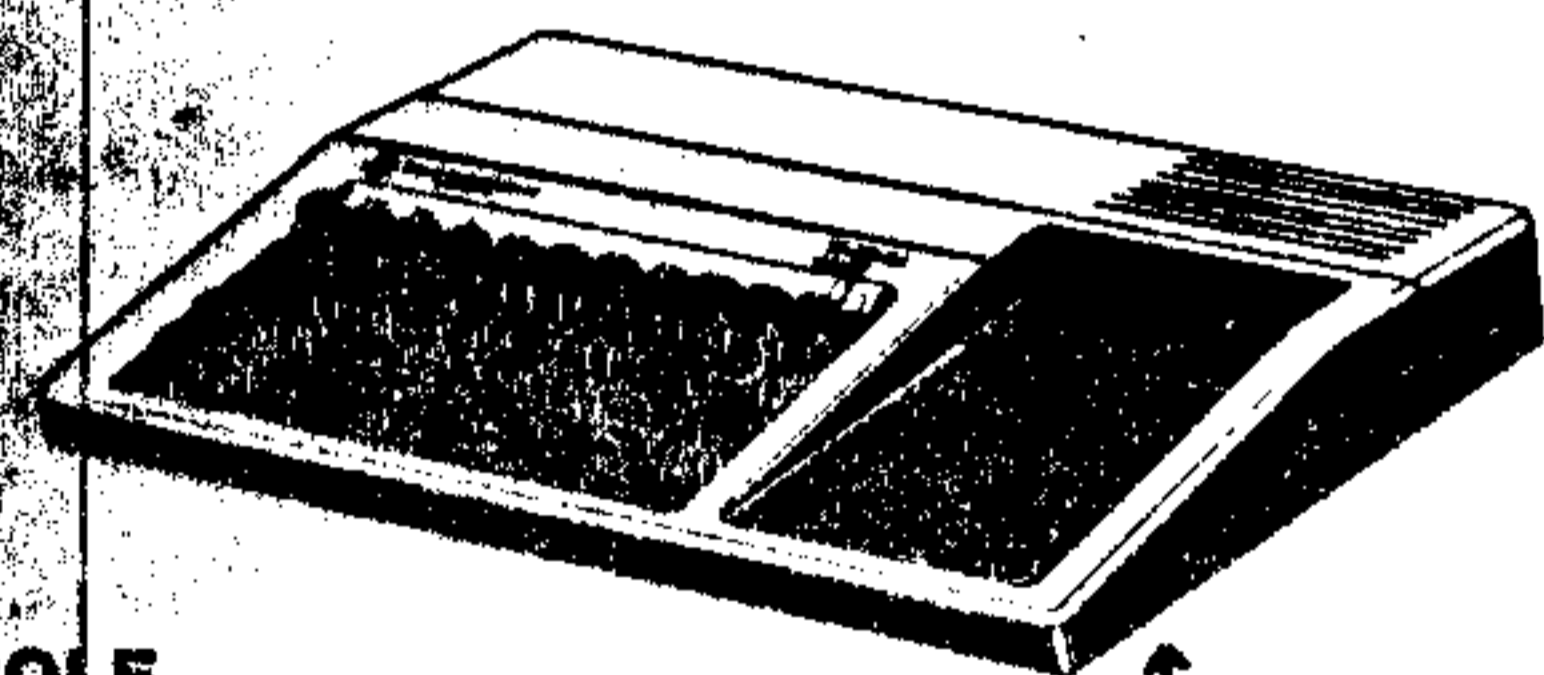
Computer programs written on paper or stored on cassette tape, a floppy disk, or command modul

THE INITIAL SYSTEM

T.V. ADAPTER

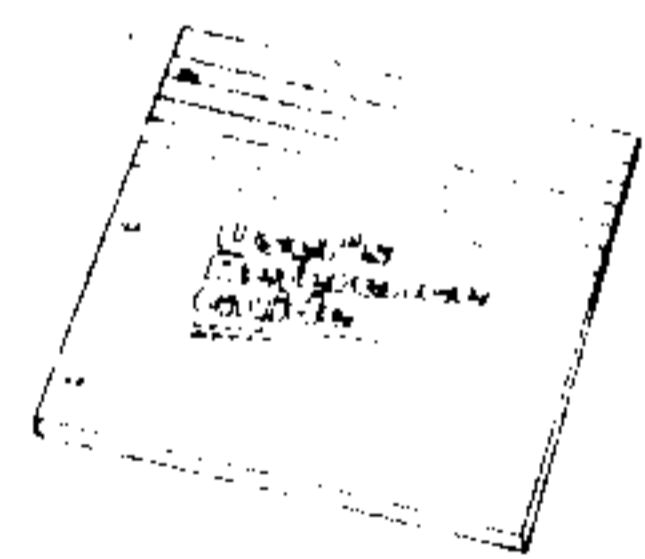
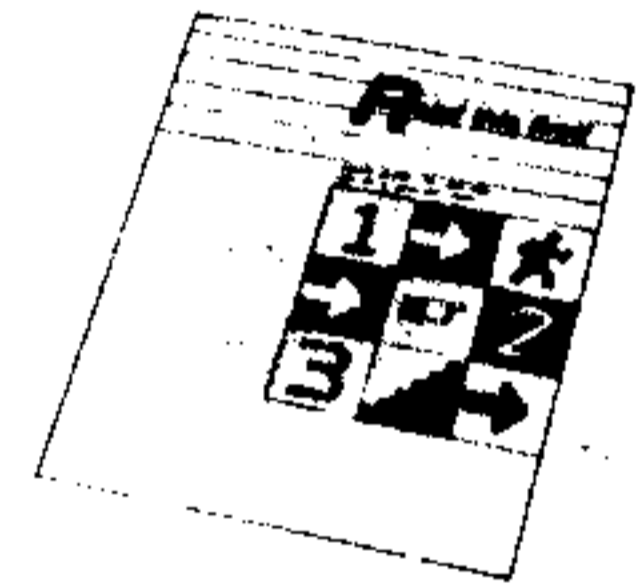
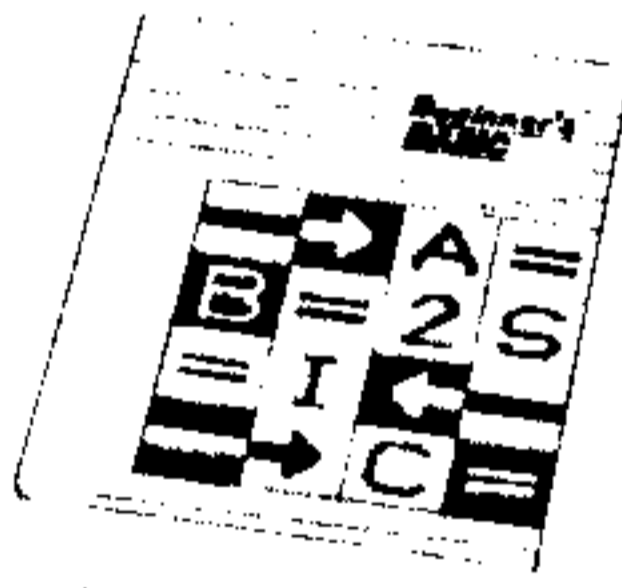


**AC
POWER CORD**



CONSOLE

**BASIC
CONTAINED
IN CONSOLE**



THE INITIAL SYSTEM

The initial system consists of:

1. The TI-99/4A Console

2. T.V. Adapter

3. AC Power Cord

4. Two Reference Manuals:

- **Beginner's Basic** — A text written to provide insight into the programming capabilities of the unit and an example of how each program command is used.
- **User's Reference Guide** — A text written in dictionary format containing an explanation of all the programming capabilities of the unit and an example of how each program command is used.

5. **Read This First** — A booklet providing a concise explanation of how to set up and quickly begin using the TI-99/4A.

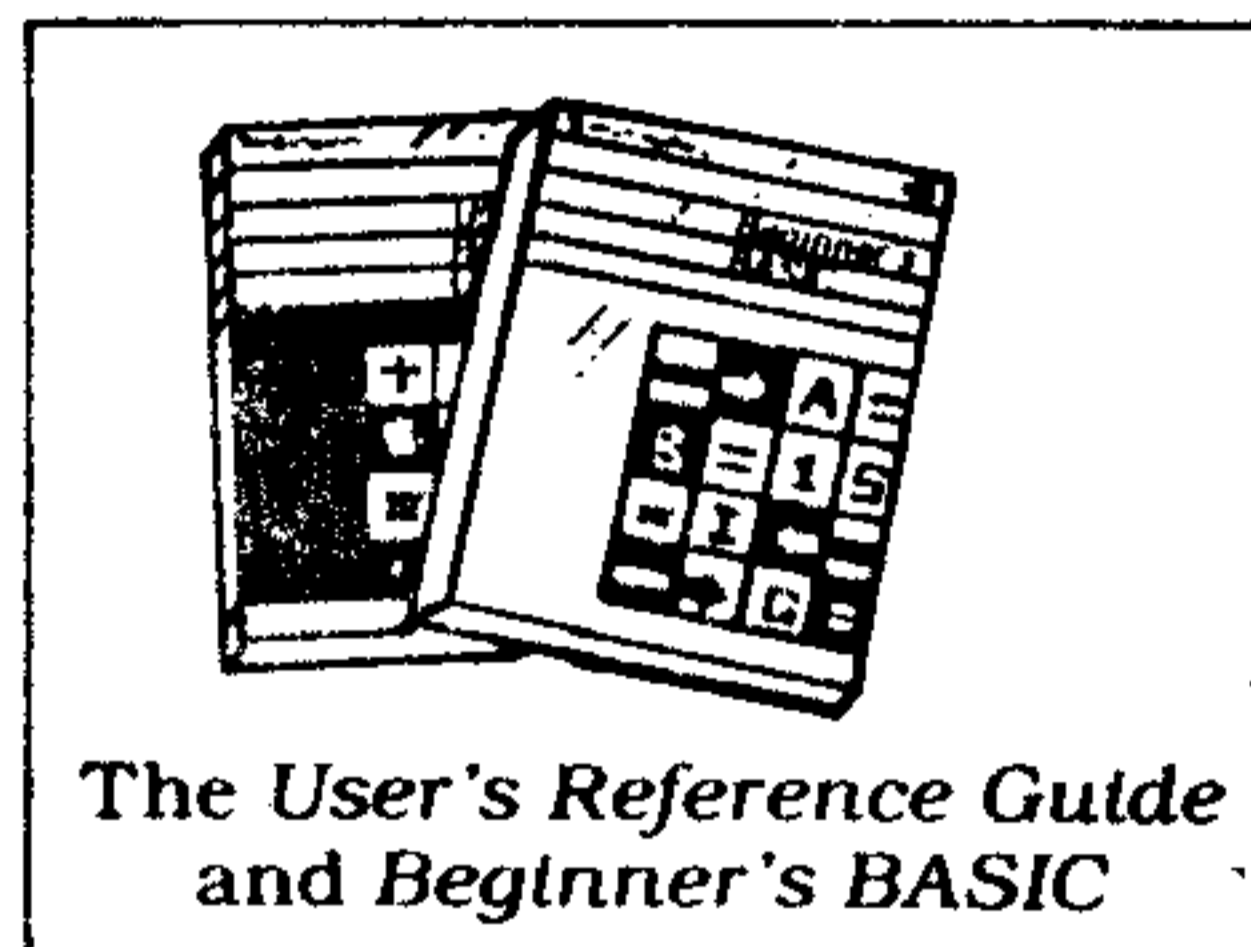
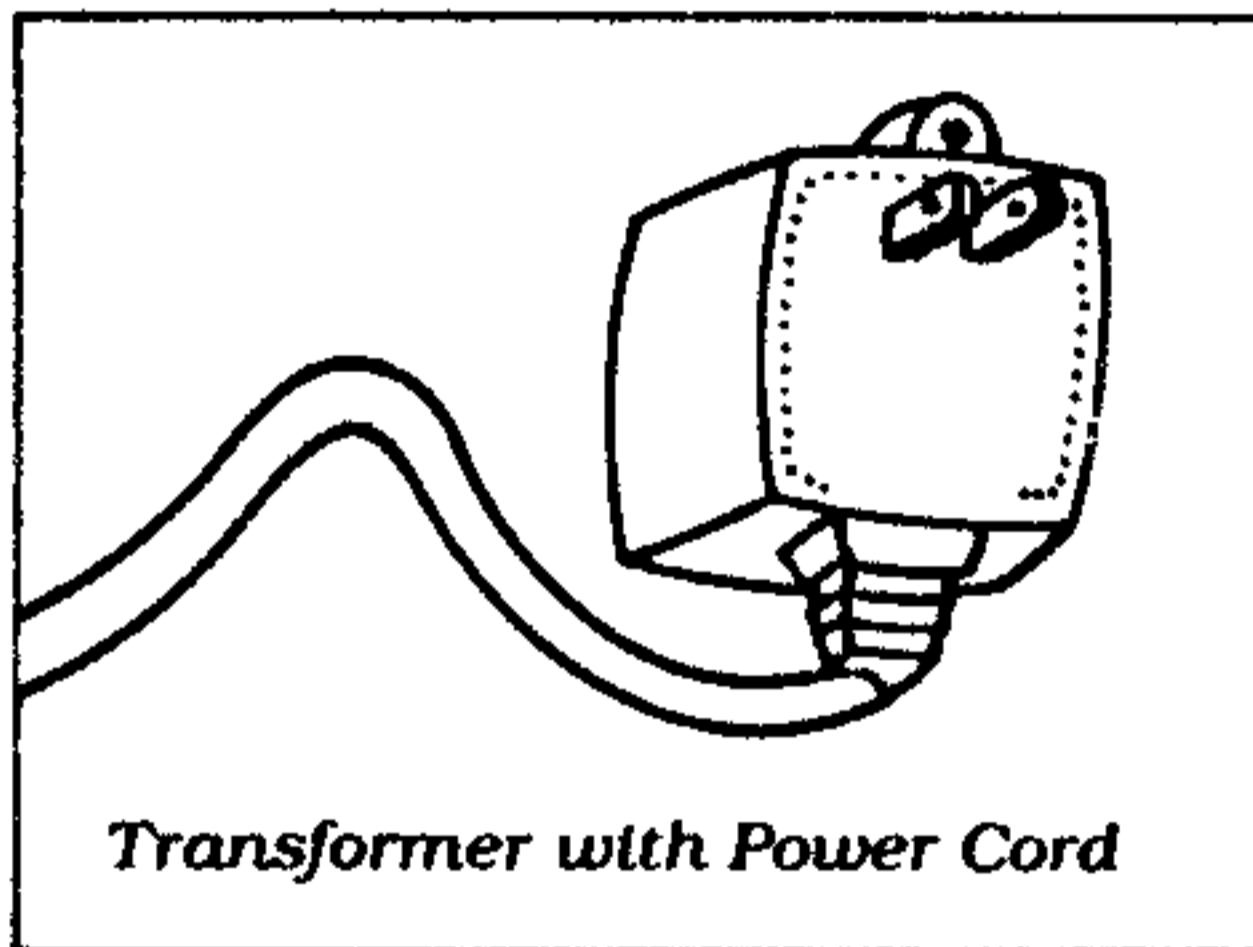
With the initial system, one can immediately start to use the computer. The programming language "BASIC" is contained within the Console so nothing additional needs to be purchased to start learning about programming.

**GETTING SET-UP
AND STARTED**

This booklet provides a concise explanation of how to set up your computer so that you can begin using it quickly. We suggest that you "Read This First" one time completely — to see how easy it is. Following the steps outlined here, you can be using your computer within a few minutes after its arrival.

UNPACK AND CHECK THINGS OVER

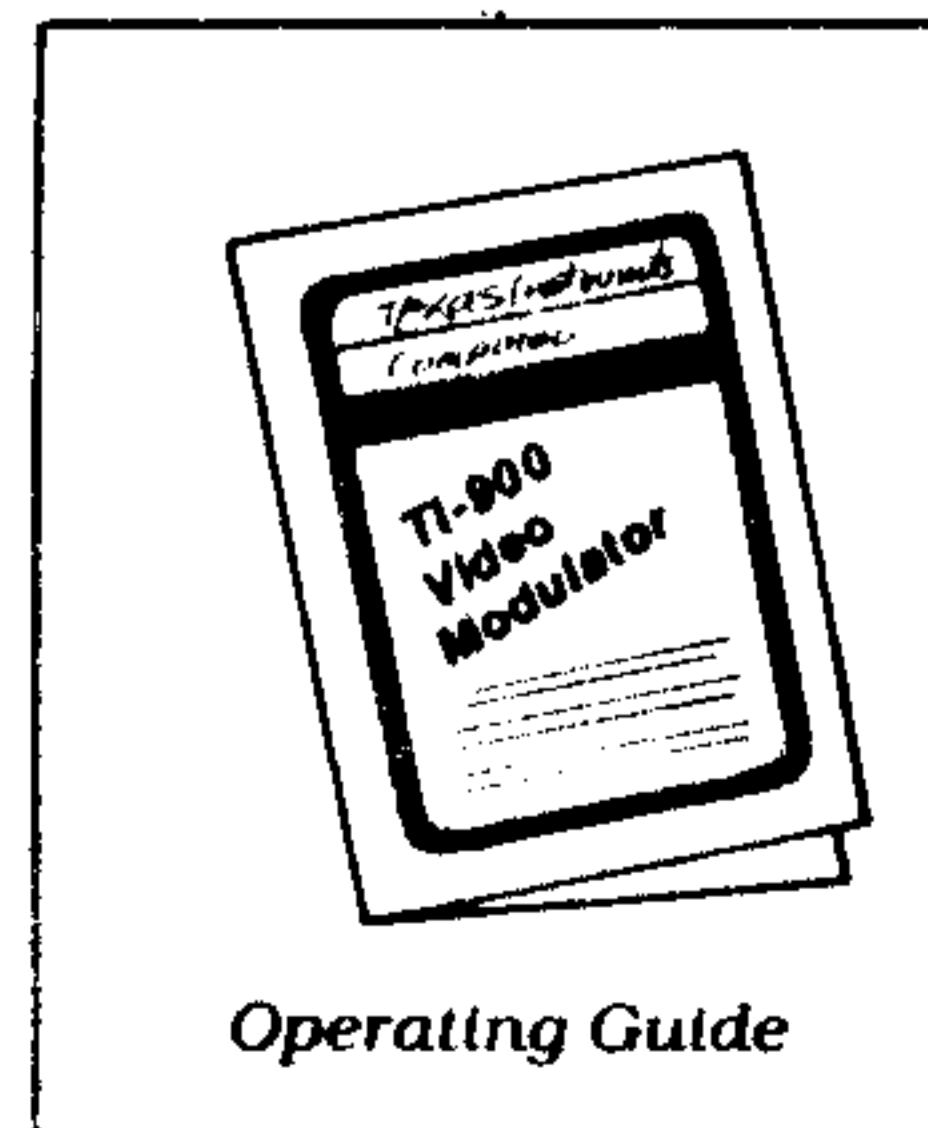
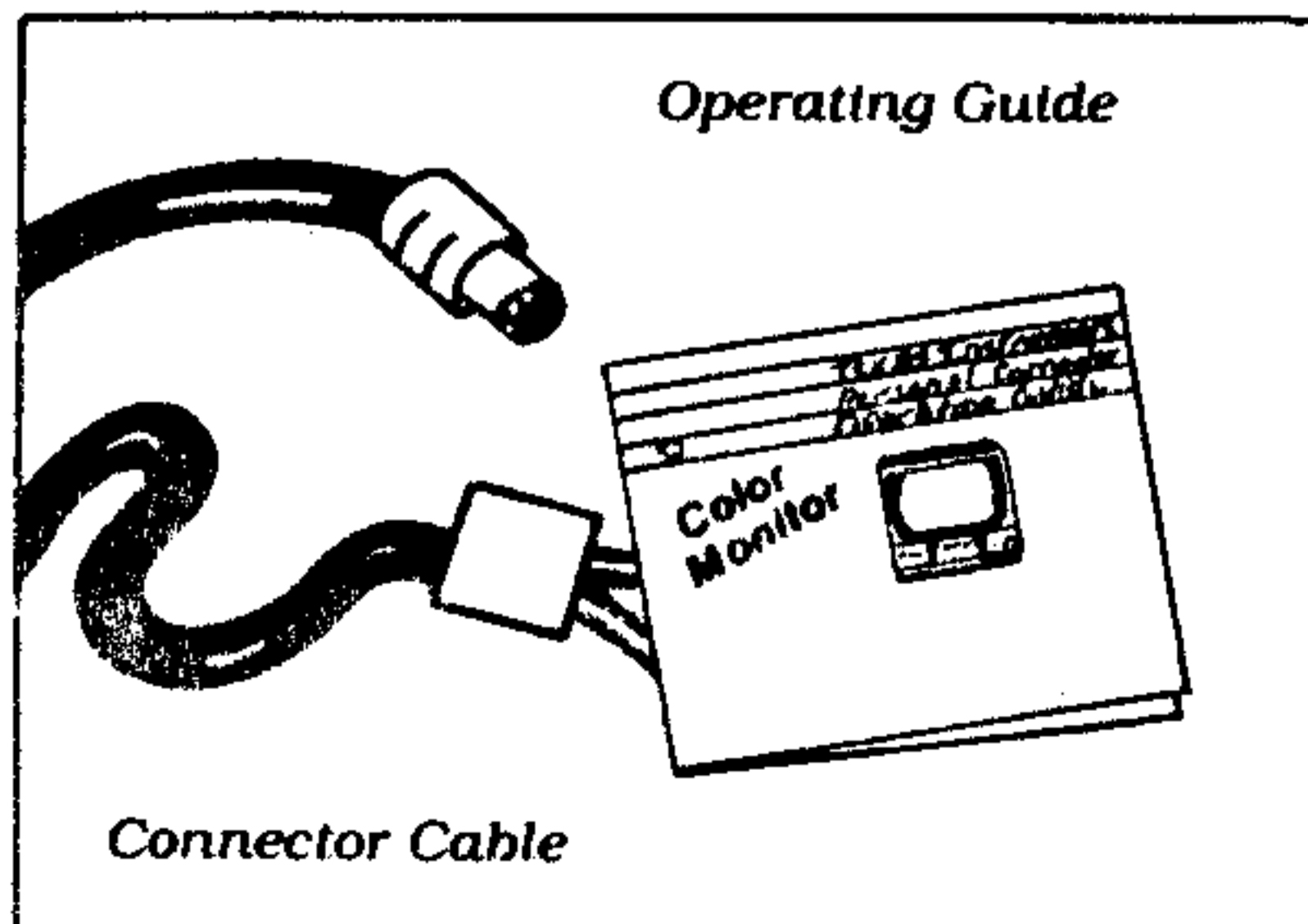
Packed in the box with the main console, you'll find a transformer with power cord, a packet of owner's information, and two additional books:



If you purchased the TI Color Monitor, unpack it. Along with the monitor, you will find the operating guide and a connector cable:

OR

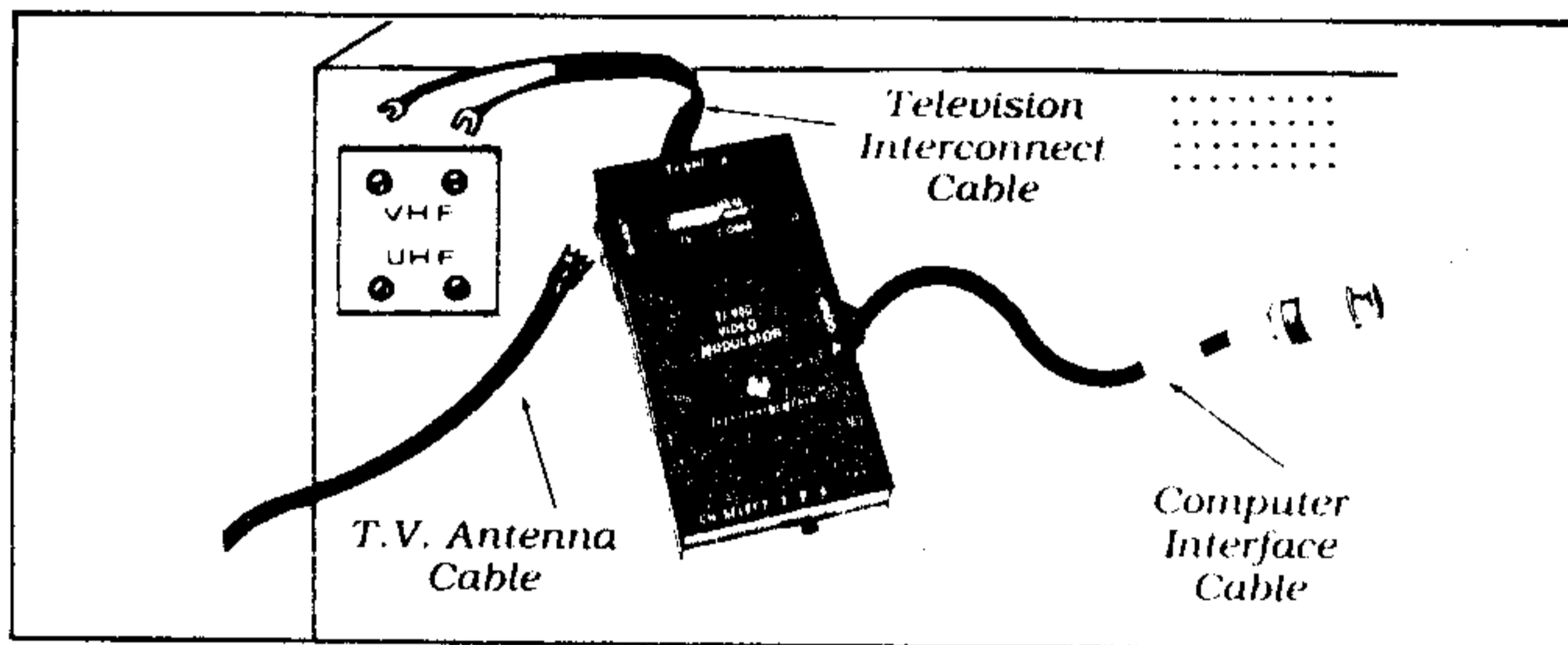
If you purchased a TI-900 Video Modulator to use with your television set, unpack it. In addition to the Video Modulator (with all connecting cables attached), you will find the operating guide:



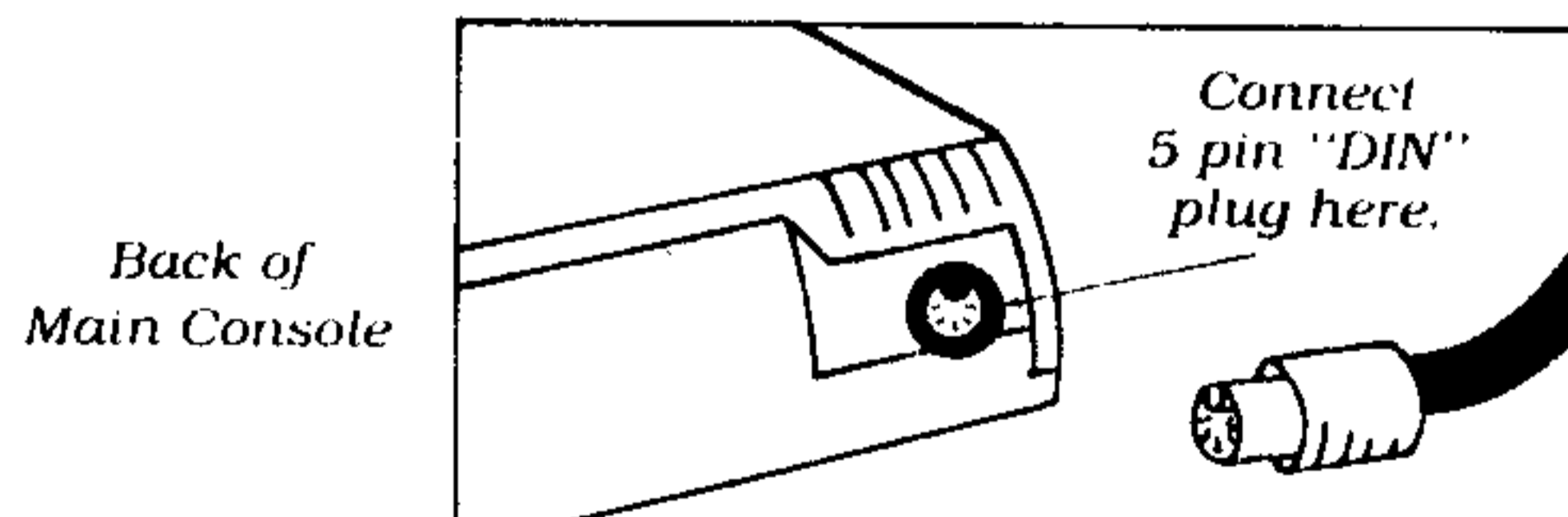
If You Are Using Your Television Set and the TI-900 Video Modulator

Connecting your computer to a television set requires the use of the TI-900 Video Modulator. To install the modulator, follow these steps.

1. Remove the VHF antenna cable from your television set. (If your set does not have a standard antenna hookup similar to the one shown below, please consult the Video Modulator manual for more details.)
2. Connect the television interconnect cable, marked "TV VHF" on the TI-900 Video Modulator, to the VHF antenna terminals on your television set.



3. Connect the VHF antenna cable that you just removed from your television set to the Video Modulator terminals, marked "ANT."
4. Remove the paper backing from the double-sided tape on the modulator and press the unit against a flat surface on your television set.
5. Connect the 5-pin "DIN" plug of the computer interface cable into the 5-pin socket on the back of the console.



Once the modulator is installed, set the "CH. SELECT" switch on your Video Modulator and the channel selector on your television set to the same channel, either channel 3 or 4. If there is a television station operating on one of these channels in your area, set the "CH. SELECT" switch and the television to the other channel.

Then, to use your television set as a computer display, set the "TV/COMP." switch to "COMP." (When you are ready to watch television again, set the "TV/COMP." switch to "TV.")

SET IT UP

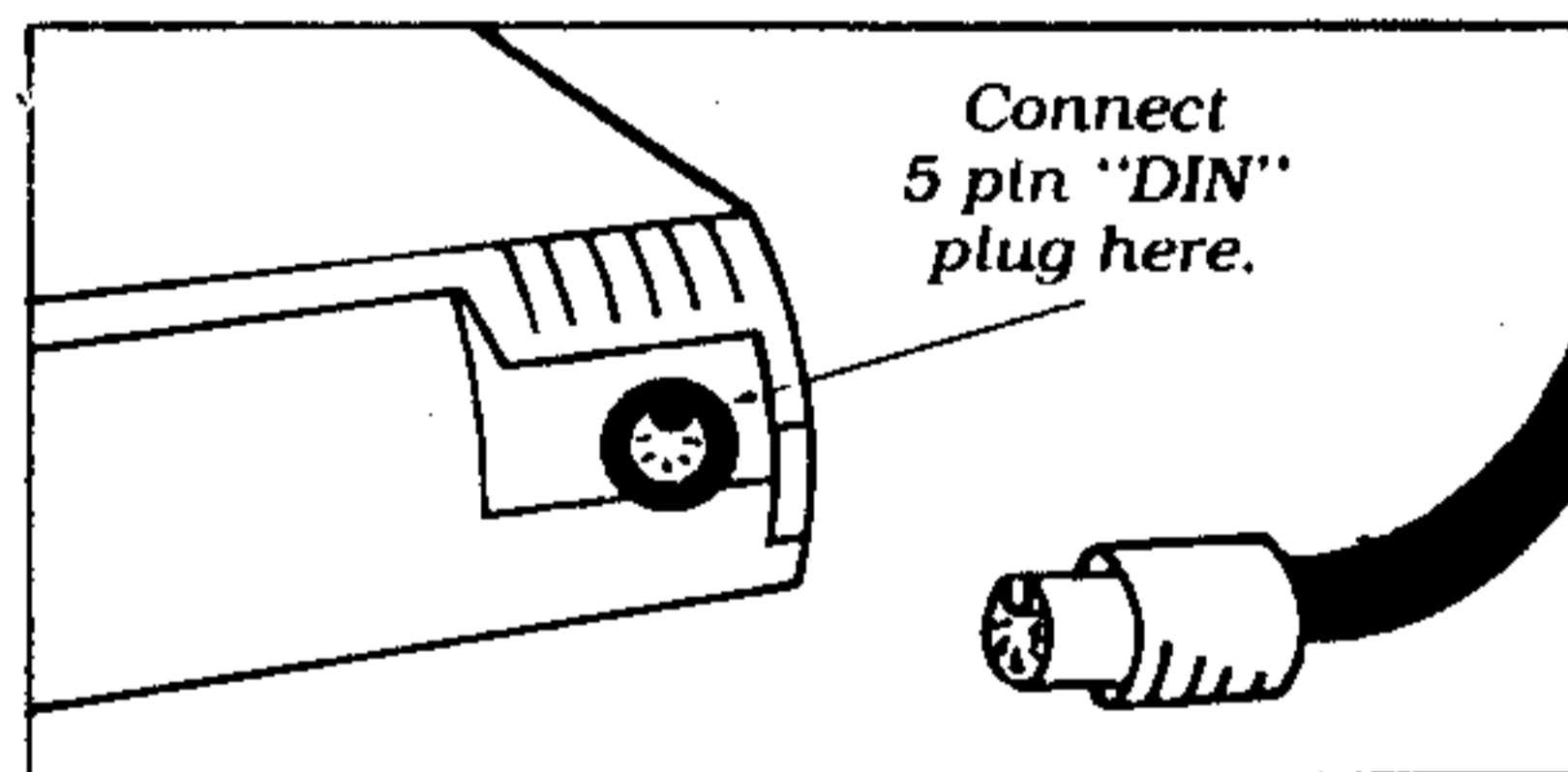
First, select the right location for your computer system. Place the system on a hard-topped surface, such as a table or desk, in a spot where sunlight or bright light won't fall directly on the screen. Also, ventilation is necessary to keep your system running properly. Be sure air can flow freely through all the ventilation slots on the bottom, back, and top of the console and the TI Color Monitor or television set. (For more details, see the *User's Reference Guide* and *Operating Guide* for the monitor.)

If You Are Using the TI Color Monitor

Connecting your computer to the TI Color Monitor requires only two simple steps, using the cable packed with the monitor.

1. Connect the 5-pin plug (called a "DIN" plug) to your computer console at the point shown.

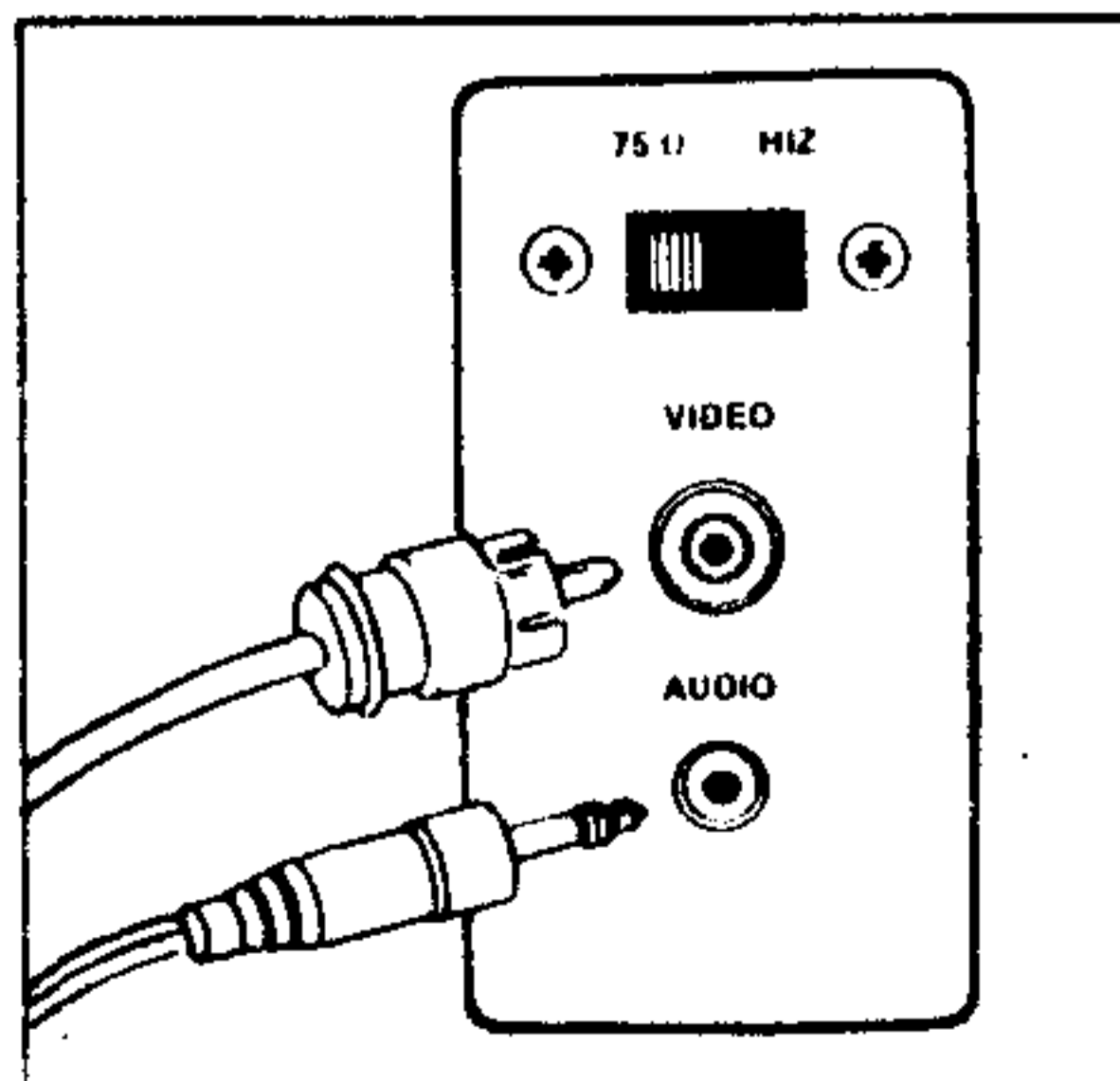
Back of
Main Console



2. The other end of the cable (with two plugs) connects to your monitor.

Connect the larger plug to the outlet labeled "VIDEO" on the back of your monitor as shown below.

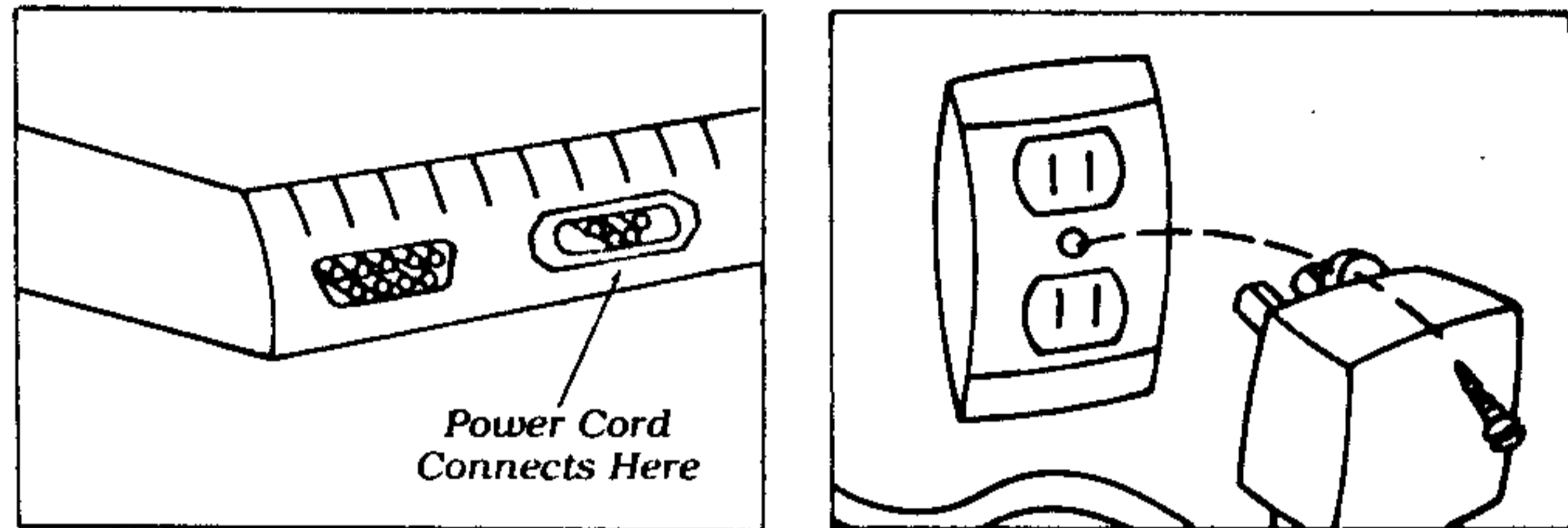
Connect the smaller plug to the outlet labeled "AUDIO" on the back of your monitor as shown below.



Note: Do not attach the console directly to a television set using this cable. Connection of the console to a television receiver must be made using the TI-900 Video Modulator.

Connect Power Cords

Next, connect the power cord (with transformer) to the computer. Connect the small 4-pin plug end into the outlet on the back of the computer as indicated below. *Notice that the pins only line up one way.*



Then, plug the power transformer into a regular wall outlet. It is best to plug the transformer into a wall outlet that is continuously "live," not one controlled by a wall switch. You may want to secure the power transformer to the wall outlet as in the sketch above. (Note: Some wall plates may not have a screw location that matches the transformer.)

Finally, plug either the monitor or television power cord into a continuously "live" wall outlet. (The color monitor is designed to operate on 120 volt 60 Hz AC. DO NOT ATTEMPT TO OPERATE THE UNIT ON DC. The power supply cord has a plug with two blades and one grounding pin as a safety feature. DO NOT ATTEMPT TO PLUG THE POWER CORD INTO A 2-HOLE WALL OUTLET. If the plug does not fit your wall outlet, contact an electrician.)

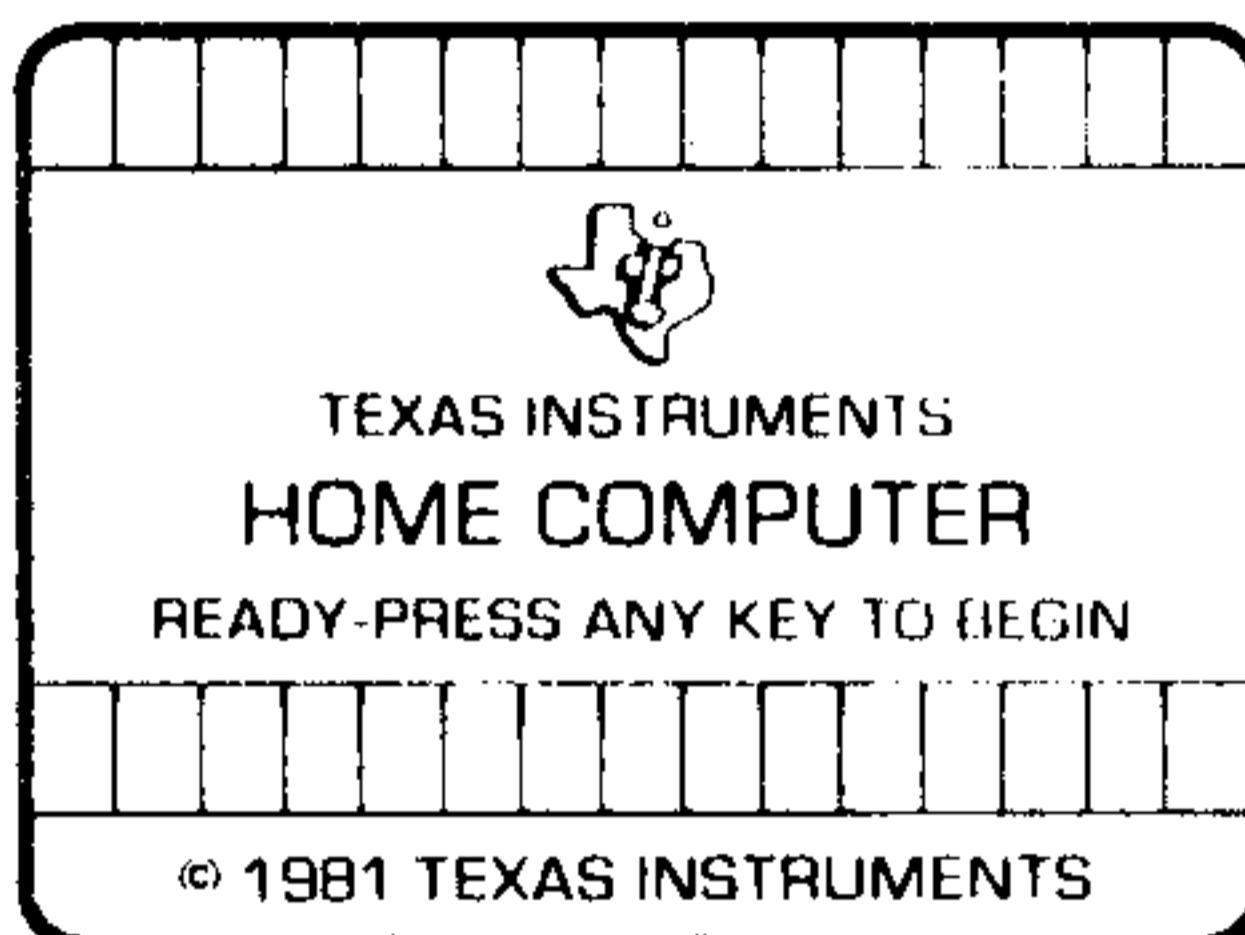
Check the Connections

Before you turn on your computer, follow these steps:

- Check to see that all connections are secure.
- Make sure both the computer and the monitor or your television set are plugged into a live wall outlet.
- If you are using your own television set and a TI-900 Video Modulator, set the "TV/COMP." switch on the modulator to "COMP," and be sure that the "CH. SELECT" switch on the modulator and the channel selector on your television are set to the same channel (either 3 or 4, whichever is not a broadcasting channel in your area).

TURN IT ON — HERE'S WHAT YOU'LL SEE:

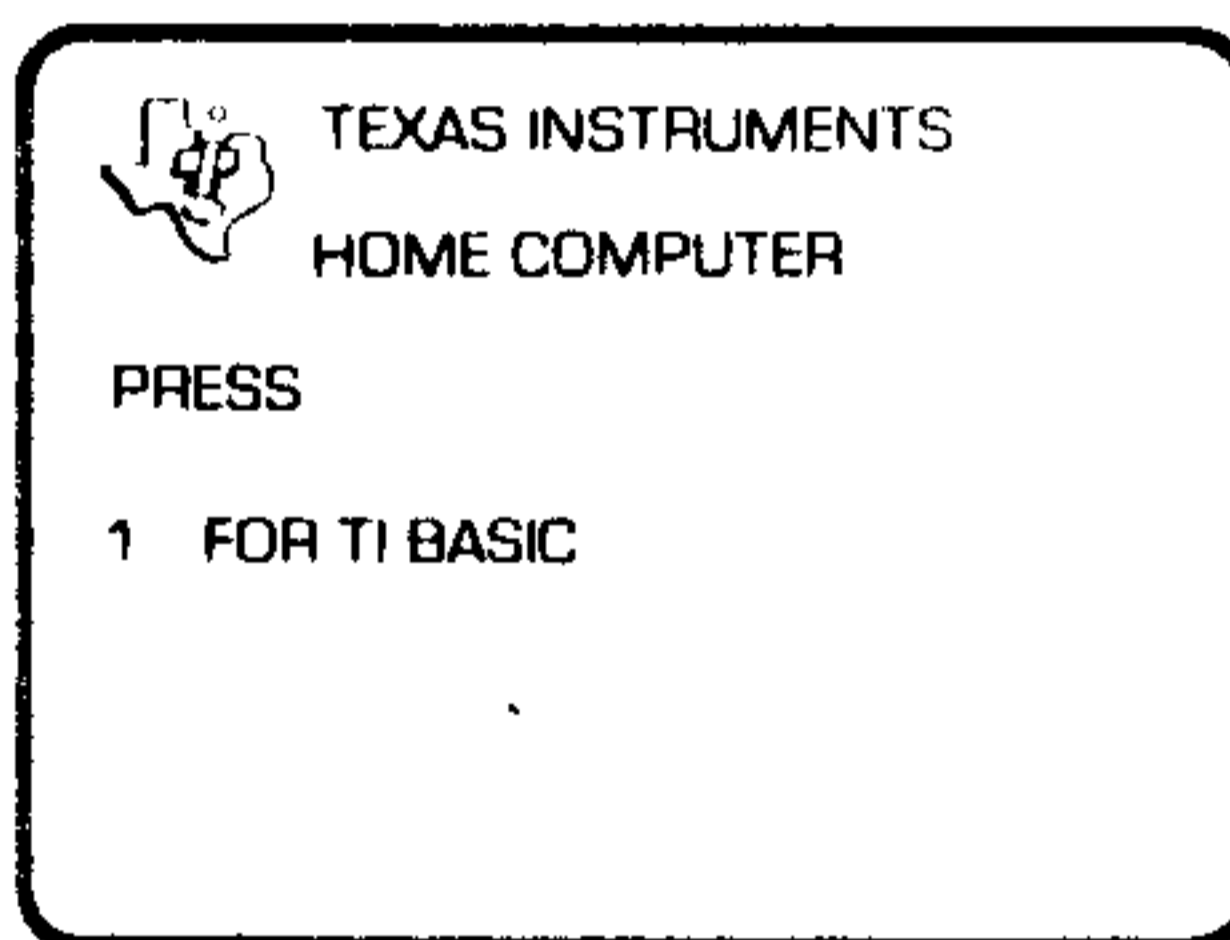
First, turn on the monitor or your television set, and let it warm up for a few seconds. Then switch on the console. (The on/off switch is on the lower right front of the console.)



Here's what you'll see: The computer's Master Title Screen.

At this point you may need to adjust the picture for clarity. If you are not able to obtain a proper picture, see "In Case of Difficulty" in the *Operating Guide* for the TI Color Monitor or for the TI-900 Video Modulator.

Next, press any key on the keyboard. You'll then see a "master selection list" that lets you choose the function you'd like to use.



If you press the 1 key, you select TI BASIC — and are set to start programming the computer yourself. (If you want to learn about programming from the "ground up," the *Beginner's BASIC* book will show you the way. If you're already an experienced programmer, a section of the *User's Reference Guide* gives you a detailed description of TI BASIC.)

If you have a *Solid State Software*[™] Command Module plugged into the slot on the console, the name of the program also appears on the master selection list. Press the 2 key to select the module program.

Note: If you accidentally leave your computer on for a long period of time, the screen automatically goes blank after about ten minutes of non-use. Press any key to bring the display back again.

NEXT STEPS...

Now you're ready to begin using your computer. If you would like to see your computer in action, try one of TI's Command Modules or refer to "Applications Programs" in your *User's Reference Guide*.

To be certain that you're taking complete advantage of your computer's features and benefits, we'd suggest you take a few extra minutes to get acquainted with your *User's Reference Guide*. It has the details and facts you'll need if a question should arise.

Above all, enjoy your Texas Instruments computer. It can be a valuable tool allowing you to gain better control of your resources, a patient teacher opening new vistas in education, and a stimulating entertainment center for your home!

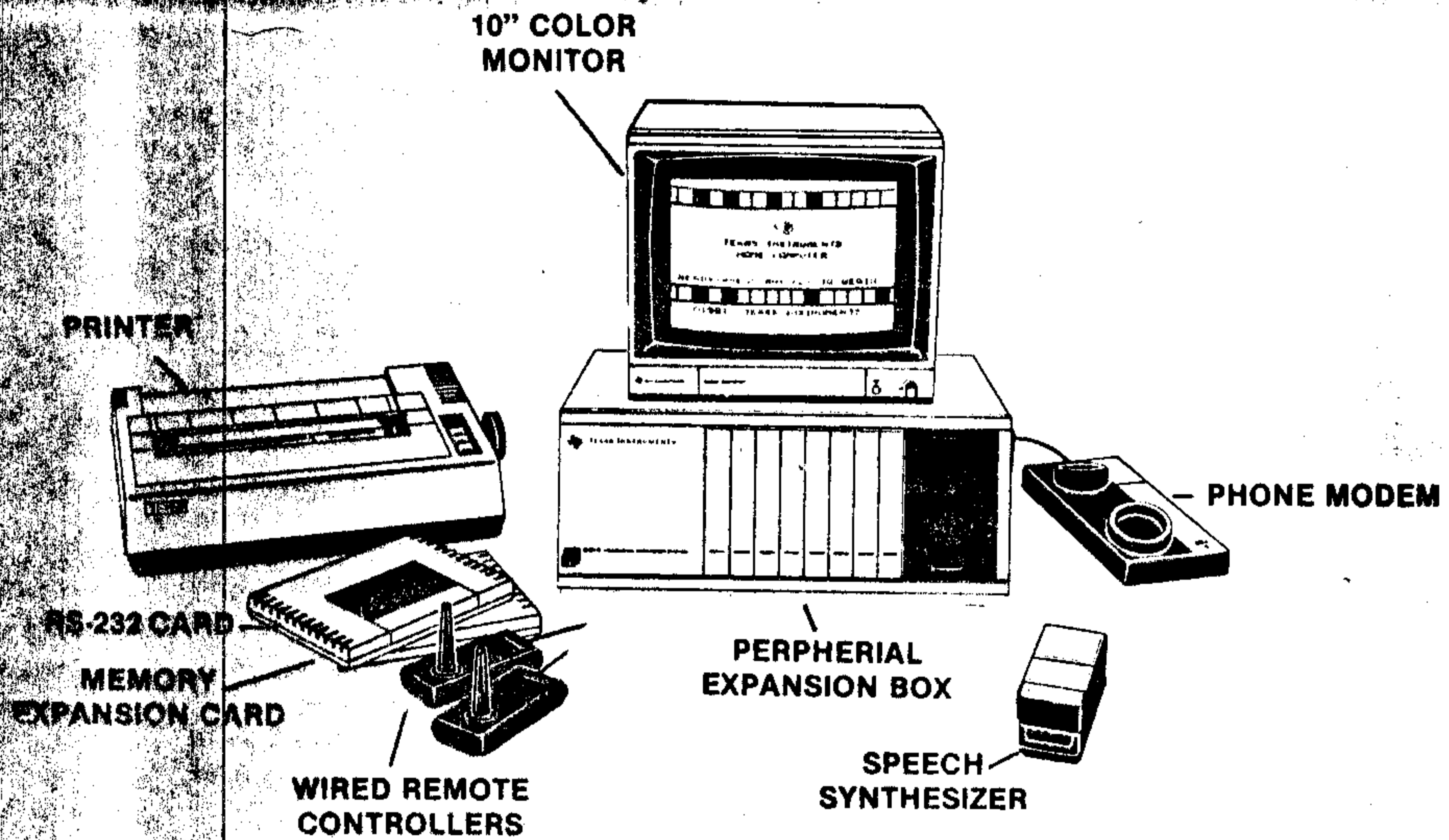
A Note on Memory Capacity:

"Resident memory capacity" is a measure of how much information your computer can store and handle, which in turn provides a general indication of how useful it will be. (Memory is typically measured in "bytes," or thousands of bytes, called "K-bytes.")

Your TI-99/4 Home Computer is equipped with an internal 16K-byte Random Access Memory (RAM), *in addition to the built-in memory for TI BASIC!* This powerful memory is at your disposal, ready to handle short, simple programs and long, complex applications with equal ease.

TI's plug-in Command Module software actually adds to your computer's resident memory. Each module is essentially a pre-programmed memory that expands the power, versatility, and capability of your Home Computer. (Command Module packages can actually expand the total memory capacity of your TI-99/4 to 72K-bytes.)

HARDWARE ACCESSORIES



Also Available:

- DISK CONTROLLER CARD
- P-CODE CARD
- DISK DRIVE
- CASSETTE RECORDER
- CASSETTE INTERFACE CABLES

HARDWARE ACCESSORIES

A wide variety of accessories is available for use with TI-99/4A console. These accessories expand the capabilities of the initial system, letting you build your system as you need it.

PERIPHERAL EXPANSION SYSTEM

The Peripheral Expansion System eliminates the "train" concept of our first generation hardware accessories. These accessories are now placed on cards and mounted inside an attractively styled (similar to a stereo component) **Peripheral Expansion Box*** which utilizes a single power cord. The magic of the new Box is that it is fully compatible with the old-style hardware. Peripheral cards available include:

- **Disk Memory System***

The Texas Instruments Disk Memory System is a mass storage system, consisting of a Disk Controller Card and one to three Disk Memory Drives. The new Expansion System allows one of the Disk Memory Drives to be mounted inside the Peripheral Expansion Box. With the system, you can save your computer programs for use at a later time, as well as enjoy pre-programmed applications available on diskette. In addition, some of the Command Module/Cartridges are designed to let you store data and results from your computations.

The Disk Manager Command Module/Cartridge is packaged with each Disk Drive Controller Card. With the cartridge, you can catalog a diskette, name diskettes or files, delete files, copy diskettes or files, protect your files, and test the operation of your disk system.

- **Memory Expansion Card***

The Texas Instruments Memory Expansion Card adds 32K bytes of Random Access Memory to the computer's built-in memory. This expanded memory is designed for use with TI Extended BASIC, Editor/Assembler, TI LOGO, or any other Solid State Software™ Command Module/Cartridge designed to utilize the additional memory.

- **RS-232 Interface Card***

The Texas Instruments RS-232 Card is a communications adapter that enables you to connect a wide range of accessory devices to the TI-99/4A. You can list programs on a printer, send and receive data from a terminal, exchange TI BASIC programs directly between TI Home Computers, and much more.

- **P-Code Card***

The Texas Instruments P-Code Card allows the computer to access the UCSD p-System† and a variety of programming languages including UCSD Pascal† and Pilot.

* Sold separately

† UCSD p-System is a trademark of the Regents of the University of California at San Diego

SOLID STATE SPEECH™ SYNTHESIZER*

The Texas Instruments Solid State Speech™ Synthesizer gives your TI computer a voice of its own and adds new excitement and enjoyment to computer applications through spoken words, phrases, and sentences. To activate the Speech Synthesizer, you must also have a specialized Command Module/Cartridge, the Terminal Emulator II Command Module/Cartridge, or any other cartridge which is programmed for speech. With the Terminal Emulator II Command Module/Cartridge, you can make the computer say nearly any word, phrase or sentence.

TELEPHONE COUPLER (MODEM)*

Added to the Peripheral Expansion Box with RS-232 Card, the Telephone Coupler (Modem) enables your computer to communicate over telephone lines with another similarly equipped computer. With the Terminal Emulator II Command Module/Cartridge, you can access subscription data base services.

WIRED REMOTE CONTROLLERS*

The lightweight, compact Wired Remote Controllers add greater freedom and versatility to games, graphics, and sound applications on your computer, without the need for keyboard interaction. You can use the Remote controllers with certain software applications or with your own TI BASIC programs.

CASSETTE INTERFACE CABLE*

You can further expand your computer system by using audio cassette tape recorders. TI BASIC allows you to store and retrieve data you enter in the computer (programs, numerical data, etc.). By recording data on a cassette tape, you can save it as a permanent record. Later you can load the data from the cassette tape into the computer's memory if you want to use that information again. Several of the command modules also use this feature to save and load data you've used in the module.

10-INCH COLOR MONITOR*

The Texas Instruments Color Monitor is a high quality unit specially matched for use with the TI Home Computer. The Home Computer connects via cable directly to the video input on the Color Monitor which eliminates the chance for interference and distortion from a tuner. Therefore, the picture quality will be superior to pictures acquired using a normal home TV set and a monitor.

IMPACT PRINTER*

The TI-99/4A Impact Printer provides easy to read printed copies of programs and data using standard paper. The TI Impact Printer can print screens from certain command modules and also produce hard copies of illustrations, graphs, charts, and other visuals. It features a speed of 80 characters per second and a 9x1 dot-matrix print head. This 80 column printer can adapt its type font to handle up to 132 columns.

* Sold separately

THREE-MONTH LIMITED WARRANTY

THIS TEXAS INSTRUMENTS COMPUTER CONSOLE WARRANTY EXTENDS TO THE ORIGINAL CONSUMER PURCHASER OF THE CONSOLE.

WARRANTY DURATION

This Computer console is warranted for a period of three (3) months from the date of the original purchase by the consumer.

WARRANTY COVERAGE

This Computer console is warranted against defective materials or workmanship. This warranty is void if the console has been damaged by accident, unreasonable use, neglect, improper service or other causes not arising out of defects in materials or workmanship.

WARRANTY DISCLAIMERS

Any implied warranties arising out of this sale, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the above three-month period. Texas Instruments shall not be liable for loss of use of the Computer console or other incidental or consequential costs, expenses, or damages incurred by the consumer or any other user.

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you.

LEGAL REMEDIES

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

WARRANTY PERFORMANCE

Please first contact the retailer from whom you purchased the console and determine the exchange policies of the retailer.

During the above three-month warranty period, your TI Computer console will be repaired or replaced with a new or reconditioned console of the same or equivalent model (at TI's option) when the console is returned either in person or by prepaid shipment to a Texas Instruments Service Facility listed below.

Texas Instruments strongly recommends that you insure the console for value, prior to shipment.

The repaired or replacement console will be warranted for three months from date of repair or replacement. Other than the cost of shipping the unit to Texas Instruments or postage, no charge will be made for the repair or replacement of in-warranty consoles.

CUSTOMER EXCHANGE SERVICE CENTERS

NOTE: Do not mail units to these addresses, except those marked with a ■ which handle both in-person and mail-in exchanges. Before going to the Exchange Center, it is advisable to telephone the exchange office for information regarding office hours and availability of specific models.

Arizona

Texas Instruments Exchange Center
8102 N. 25th Avenue
Phoenix, AZ 85017
Telephone: (602) 864-1992

California

Texas Instruments Exchange Center
5180 Airway Drive, Building K
Costa Mesa, CA 92626
Telephone: (714) 540-7190

■ Texas Instruments Consumer Service

851 South Douglas Street
El Segundo, CA 90245
Telephone: (213) 973-1803

Texas Instruments Exchange Center
4555 View Ridge Avenue, Suite B
San Diego, CA 92123
Telephone: (714) 268-1250

Texas Instruments Exchange Center
100 California Street, Suite 480
San Francisco, CA 94111
Telephone: (415) 392-6840

Texas Instruments Exchange Center
5555 Betsy Ross Drive
Santa Clara, CA 95054
Telephone: (408) 748-2350

Texas Instruments Exchange Center
2120 Erwin Street
Woodland Hills, CA 91367
Telephone: (213) 704-7757

Colorado

Texas Instruments Exchange Center
9725 East Hampton Avenue
Denver, CO 80231
Telephone: (303) 695-2839

Connecticut

Texas Instruments Exchange Center
9 Barnes Industrial Park Road
P.O. Box 3035
Wallingford, CT 06492
Telephone: (203) 265-5323

Florida

Texas Instruments Exchange Center
2765 Northwest 62nd Street
Fond Lauderdale, FL 33309
Telephone: (305) 973-8515

Texas Instruments Exchange Center
2001 Marland Center Parkway
Maitland, FL 32751
Telephone: (305) 646-9660

Georgia

Texas Instruments Exchange Center
5000 N.E. Expressway, Bldg. #9
Atlanta, GA 30341
Telephone: (404) 451-8558

Hawaii

■ Texas Instruments Exchange Center
1600 Kapiolani Blvd
Pan Am Bldg., Suite 1420
Honolulu, HI 96814
Telephone: (808) 955-6808

Illinois

Texas Instruments Exchange Center
575 West Algonquin Road
Arlington Heights, IL 60005
Telephone: (312) 437-5660

Indiana

Texas Instruments Exchange Center
500 S. Lynhurst, Suite J-300
Indianapolis, IN 46241
Telephone: (317) 244-6846

Kentucky

Texas Instruments Exchange Center
10101 Linn Station Road
Suite 650, Plaza East
Louisville, KY 40223
Telephone: (502) 426-1632

Massachusetts

Texas Instruments Exchange Center
504 Totten Pond Road
Waltham, MA 02154
Telephone: (617) 890-1106

Michigan

Texas Instruments Exchange Center
5377 West 12 Mile Road
Farmington Hills, MI 48018
Telephone: (313) 555-7552

Minnesota

Texas Instruments Exchange Center
7625 Parklawn Avenue
Edina, MN 55435
Telephone: (612) 830-1616

Missouri

Texas Instruments Exchange Center
8080 Ward Parkway, Suite 110
Kansas City, MO 64114
Telephone: (816) 523-1110

Texas Instruments Exchange Center
11861 Westline Industrial
St. Louis, MO 63141
Telephone: (314) 569-7620

New Jersey

Texas Instruments Exchange Center
1255 Westfield Avenue
Clark, NJ 07066
Telephone: (201) 574-9800

New York

Texas Instruments Exchange Center
#1 Huntington Quadrangle, Suite 3C10
Melville, LI, NY 11747
Telephone: (516) 546-8666
(212) 895-8097 Local Manhattan

Texas Instruments Exchange Center
1210 Jefferson Road
Rochester, NY 14623
Telephone: (716) 424-7160

Texas Instruments Exchange Center
16 Computer Drive West
Albany, NY 12205
Telephone: (518) 459-5495

North Carolina

Texas Instruments Exchange Center
Eight Woodlawn Green, Suite 100
Charlotte, NC 28210
Telephone: (704) 527-1068

Ohio

Texas Instruments Exchange Center
4124 Linden Avenue
Dayton, OH 45432
Telephone: (513) 258-3163

Texas Instruments Exchange Center
2412 Commerce Park Road
Beachwood, OH 44122
Telephone: (216) 464-4288

Oklahoma

Texas Instruments Exchange Center
3105 E. Skelly Dr., Suite 110
Tulsa, OK 74105
Telephone: (918) 749-5724

Oregon

■ Texas Instruments Exchange Center
6700 Southwest 105th
Krohn Square, Suite 110
Beaverton, OR 97005
Telephone: (503) 645-6758

Pennsylvania

Texas Instruments Exchange Center
420 Rouser Road
Coraopolis, PA 15108
Telephone: (412) 771-8112

Texas Instruments Exchange Center
575 Virginia Drive
Ft. Washington, PA 19034
Telephone: (215) 646-5459

Texas

Texas Instruments Exchange Center
1106 Clayton Lane
15 Twin Towers West Bldg., Suite 305
Austin, TX 78723
Telephone: (512) 458-5408

Texas Instruments Exchange Center
10775 Rockley
Houston, TX 77099
Telephone: (713) 777-4450

Texas Instruments Exchange Center
9777 West Gulfbank
Houston, TX 77040
Telephone: (713) 947-2522

Texas Instruments Exchange Center
1001 E. Campbell Road
Richardson, TX 75080
Telephone: (214) 680-5032

Virginia

Texas Instruments Exchange Center
1745 Jefferson Davis Hwy
Crystal Square 4, Suite 600
Arlington, VA 22202
Telephone: (703) 892-1578

Washington

Texas Instruments Exchange Center
725 152nd Avenue, NE
Redmond, WA 98052
Telephone: (206) 881-3080

Wisconsin

Texas Instruments Exchange Center
205 Bishops Way, Suite 217
Brookfield, WI 53005
Telephone: (414) 784-2194

Canada*

Geophysical Services Incorporated
1111 8th Street, SW
Calgary, Alberta
Canada T2K 1G1
Telephone: (403) 245-1218

■ Geophysical Services Incorporated

41 Shelley Road
Richmond Hill, Ontario
Canada L3C 5G1
Telephone: (416) 884-9181

Geophysical Services Incorporated

90-10451 Shellbridge Way
Richmond, British Columbia
Canada V6X 2W8
Telephone: (604) 278-1871

*Canadian Residents Only

MAIL-IN SERVICE ONLY

Texas

Texas Instruments Repair Service
2503 N. University Drive
Lubbock, TX 79415

CUSTOMER SERVICE AND EXCHANGE CHARGES

The service and exchange charges for the TI-99/4A and its associated peripherals are shown in the new price guide. For quick reference, these are listed below.

MODEL	EXCHANGE	REPAIR*
TI-99/4A Console	\$45.00	\$25.00 Minor 40.00 Major 80.00 Critical
Color Monitor	65.00	35.00 Minor 60.00 Major 100.00 Critical
T.V. Adaptor	18.00	16.00
Speech Synthesizer	43.00	40.00
RS-232 Interface	55.50	52.50
Disk Drive Controller	63.00	60.00
Disk Drive	83.00	80.00
Solid State Printer	73.00	70.00
Modem	55.50	52.50

Call your nearest TI Exchange Center for repair or exchange charges for specific Command Modules.

The Home Computer and associated peripherals and software carry a 90 day warranty. *In-warranty exchanges will be made at no charge.*

* Plus shipping and handling

CUSTOMER EXCHANGE AND MAIL-IN SERVICE

EXCHANGE SERVICE

If your Texas Instruments Home Computer console, Color Monitor, or accessory requires service, instead of sending the unit to the TI Service Facility for repair or replacement, you may elect to exchange it for a factory-reconditioned unit of the same model (or equivalent model specified by TI) by bringing the unit *IN PERSON* to the nearest Texas Instruments Exchange Center (see following page). *PLEASE CALL THE CENTER FOR AVAILABILITY OF REPLACEMENT UNITS.*

The following terms and conditions apply for in-warranty units:

1. Exchange service is offered to the original purchaser or end user and is not available to retailers or dealers.
2. Exchange is offered for repairable, defective Texas Instruments brand name Home Computer products **ONLY**. Units damaged by accident or misuse beyond economical repair will not be exchanged.
3. The replacement unit will be warranted for a period of three months. *A handling fee will be charged by the exchange center for in-warranty exchange of the unit.*
4. Exchanges must be made in person and cannot be made by mail.

Out-of-warranty units will be exchanged for a flat fee based on the latest repair rates, and the replacement unit will be in warranty for three months. For additional information, please call the Texas Instruments Consumer Relations toll-free number.

MAIL-IN SERVICE

If you are unable to exchange your unit *IN PERSON* at one of the exchange offices, you may elect to mail your unit to one of the Mail-In Service Centers. Out-of-warranty units will be repaired or replaced (at TI's option) with the same or equivalent reconditioned model for a flat fee based on the latest repair rates. The following terms and conditions apply for in-warranty units:

1. The unit should be mailed postage prepaid to one of the Mail-In Service Centers (see following page).
2. The unit will be repaired or replaced (at TI's option) with the same or equivalent reconditioned model.
3. In the event of replacement with a reconditioned model the replacement unit will be warranted for three months.
4. Other than the postage requirement, no charge will be made for such repair, adjustment, and/or replacement for in-warranty units.

MAILING HINTS

Texas Instruments strongly recommends that you package the unit properly to protect against damage and also insure the product prior to mailing.

CUSTOMER MAINTENANCE AND SERVICE INFORMATION

When returning your computer for repair or replacement, return the computer console, power cord, and any Command Module/Cartridges which were involved when the difficulty occurred. For your protection, the computer should be sent insured. Texas Instruments cannot assume any responsibility for loss or damage to the computer during shipment. It is recommended that the computer be shipped in its original container to minimize the possibility of shipping damage. Otherwise, the computer should be carefully packaged and adequately protected against shock and rough handling. Send shipments to the appropriate Texas Instruments Service Facility listed in warranty. Please include information on the difficulty experienced with the computer as well as return address information including name, address, city, state and zip code.

If you cannot determine whether the console or the TI Color Monitor/Video Modulator has failed, both units must be returned.

If the computer is in warranty, it will be repaired or replaced under the terms of the Limited Warranty. Out-of-warranty units in need of service will be repaired or replaced with reconditioned units (at TI's option), and service rates in effect at the time of return will be charged. Because our Service Facility served the entire United States, it is not feasible to hold units while providing service estimates. For advance information concerning our flat-rate service charges, please call our toll-free number.

NOTE: The Color Monitor is too large to be sent via U.S. parcel post (fourth-class mail) but may be sent via first-class mail or by common carrier.

EXCHANGE CENTERS

If your computer requires service, instead of returning the unit to your dealer or to a service facility for repair or replacement, you may elect to exchange the unit for a factory-reconditioned computer of the same model (or equivalent model specified by TI) by bringing it in person to one of the exchange centers which have been established across the United States. A handling fee will be charged by the exchange center for in-warranty exchanges of the computer console and/or TI Color Monitor/Video Modulator. Out-of-warranty exchanges will be charged at the rates in effect at the time of exchange.

To determine if there is an exchange center in your area, look for Texas Instruments Exchange Center in the white pages of your telephone directory, or look under the Calculator and Adding Machine heading in the yellow pages. Please call the exchange center for availability and exchange fee information. Write the Consumer Relations Department for further details and the location of the nearest exchange center.

IF YOU HAVE QUESTIONS OR NEED ASSISTANCE

FOR GENERAL INFORMATION

If you have questions concerning computer repair, or peripheral, accessory or software purchase, please call our toll-free Customer Relations Department at 800-858-4565. The operators at these numbers cannot provide technical assistance.

FOR TECHNICAL ASSISTANCE

For technical questions about programming, specific computer applications, etc., you can call 806-741-2663. We regret that this is not a toll-free number, and we cannot accept collect calls.

As an alternative, you can write to:

Consumer Relations Department
Texas Instruments Incorporated
P.O. Box 53
Lubbock, Texas 79408

Because of the number of suggestions which come to Texas Instruments from many sources (including both new and old ideas), Texas Instruments will consider such suggestions only if they are freely given to Texas Instruments. It is the policy of Texas Instruments to refuse to receive any suggestions in confidence. Therefore, if you wish to share your suggestions with Texas Instruments, or if you wish us to review any BASIC language program which you have developed, please include the following statement in your letter:

"All of the information forwarded herewith is presented to Texas Instruments on a nonconfidential, nonobligatory basis; no relationship, confidential or otherwise, expressed or implied, is established with Texas Instruments by this presentation. Texas Instruments may use, copyright, distribute, reproduce, or dispose of the information in any way without compensation to me."

WHAT POINTS AND ISSUES DO I COVER TO SUCCESSFULLY SELL THE TI-99/4A?

- *Promote TEXAS INSTRUMENTS' reputation* for creating high technology, quality, innovative consumer electronic products.
- *Promote the ease of use aspect* — a leadership feature of the TI Home Computer System.
- *Demonstrate TI's creative leadership in speech capability* — the talking home computer.
- *Demonstrate the outstanding color resolution and sound/music capability* unmatched by any other company.
- *Emphasize the TI-99/4A is the only personal computer* powerful enough to allow commands for color, sound effects, music, and synthesized speech to be incorporated within the same program — a must in home education.
- *Point out our full line of hardware accessories* — including the new Peripheral Expansion System — expandability unmatched by any other home computer.
- *Provide software literature* regarding the wide selection of Command Modules/Cartridges (65 +), floppy disks, and cassette tapes available from TI and independent sources (2000 +).
- *Point out the wide selection of programming languages* available for the TI-99/4A — BASIC, Extended BASIC, Editor/Assembler, Pascal, TI Pilot, and TI LOGO.
- *Provide information on consumer data bases* that are available using the TI-99/4A, RS-232 Interface Card, Terminal Emulator II, and Phone Modem.
- *Emphasize Cost* — the TI-99/4A offers the most memory for the \$, best color for the \$, most languages for the \$, best screen display for the \$, best graphic resolution for the \$, and most expandability for the \$.

A COMPARISON CHART OF PERSONAL COMPUTERS

	TEXAS INSTRUMENTS 99/4A	ATARI 800	IBM PERSONAL COMPUTER	APPLE II PLUS	VIC 64
RETAIL PRICE	\$200-\$250*	\$650-\$700	\$1285	\$1100-\$1200	\$480-\$580
ROM	28K	10K	40K	14K	20K
RAM	16K	16K	16K	48K	64K
MAXIMUM RAM	52K	48K	256K	64K	80K
KEYBOARD	48 KEY TYPEWRITER	81 KEY TYPEWRITER	83 KEY TYPEWRITER	52 KEY TYPEWRITER	88 KEY TYPEWRITER
LANGUAGES	BASIC, EXTENDED BASIC, ASSEMBLY, PILOT, PASCAL, TI-LOGO	BASIC, ASSEMBLY, PILOT	BASIC, ASSEMBLY, PASCAL	BASIC, ASSEMBLY, COBOL, FORTRAN, PASCAL, PILOT, LOGO	BASIC, PILOT, PASCAL, LOGO ASSEMBLY
COLOR	YES (16)	YES (16)	YES (16)	YES (15)	YES (16)
BASIC LANGUAGE BUILT-IN	YES	NO	YES	YES	YES
ANIMATED GRAPHICS	YES	YES	NO	NO	YES
SOLID STATE SPEECH CAPABILITY	YES (OPTIONAL)	NO	NO	NO	NO
SOLID STATE SOFTWARE	65	15	NO	NO	YES (LIMITED)
WORD PROCESSING	YES (4082)	YES	YES	YES	YES
ELECTRONIC SPREADSHEET	YES (4082)	YES	YES	YES	YES
SOUND	3 VOICES 5 OCTAVES	4 VOICES 4 OCTAVES	1 VOICE	1 VOICE	3 VOICES 9 OCTAVES
SCREEN DISPLAY	32 OR 40 X 24	40 X 24	40 X 25	40 X 24	40 X 25
GRAPHIC RESOLUTION	256 X 192	280 X 192	320 X 200	280 X 192	320 X 200
CPU/MPU	TMS-9900 16 BIT	6502 8 BIT	8088 16 BIT	6502 8 BIT	6510 8 BIT

*INCLUDES MANUFACTURER'S REBATE

WHAT POINTS AND ISSUES DO I COVER TO SUCCESSFULLY SELL THE TI-99/4A?

- *Promote TEXAS INSTRUMENTS' reputation* for creating high technology, quality, innovative consumer electronic products.
- *Promote the ease of use* aspect — a leadership feature of the TI Home Computer System.
- *Demonstrate TI's creative leadership in speech capability* — the talking home computer.
- *Demonstrate the outstanding color resolution and sound/music capability* unmatched by any other company.
- *Emphasize the TI-99/4A is the only personal computer* powerful enough to allow commands for color, sound effects, music, and synthesized speech to be incorporated within the same program — a must in home education.
- *Point out our full line of hardware accessories* — including the new Peripheral Expansion System — expandability unmatched by any other home computer.
- *Provide software literature* regarding the wide selection of Command Modules/Cartridges (65 +), floppy disks, and cassette tapes available from TI and independent sources (2000 +).
- *Point out the wide selection of programming languages* available for the TI-99/4A — BASIC, Extended BASIC, Editor/Assembler, Pascal, TI Pilot, and TI LOGO.
- *Provide information on consumer data bases* that are available using the TI-99/4A, RS-232 Interface Card, Terminal Emulator II, and Phone Modem.
- *Emphasize Cost* — the TI-99/4A offers the most memory for the \$, best color for the \$, most languages for the \$, best screen display for the \$, best graphic resolution for the \$, and most expandability for the \$.

MOST COMMONLY ASKED HOME COMPUTER QUESTIONS

QUESTION: *Will it drive a large printer?*

ANSWER: Yes, the TI-99/4A along with the RS-232 Interface unit will drive any printer that can be driven via the RS-232 standard. This includes most current line printers, such as the OMNI 810, which is made by TI, and other printers which are on the market. In addition, the RS-232 Peripheral Card features as a parallel interface for those printers which do not use RS-232.

QUESTION: *Can you print the contents of any screen?*

ANSWER: The answer to this is no. However, through BASIC a program can be written that will print the contents of a screen. It is now impossible to print the contents of some command module generated screens.

QUESTION: *Can I do fine line graphics?*

ANSWER: Yes. The resolution of the screen is 32 characters by 24 characters. We can break that down a step further in that each character consists of an eight-by-eight dot matrix. So that comes out to a final resolution of 32 times 8, which is 256, by 24 times 8 — 192. Any character that can be defined in an eight-by-eight dot matrix can be put on the screen and called by a character number, which allows for the generation of all sorts of graphic elements. The TI-99/4A can do dot-addressable (bit-map) graphics with specialized software.

QUESTION: *Will the cost come down like the calculator did?*

ANSWER: The cost will conceivably reduce slightly. As we are able to make more and more units we will naturally come down a cost learning curve. However, the large amount of circuit board and plastic tooling and other hardware contained in the home computer will keep it from following the same behavior as calculator pricing. The price should come down a little, but not nearly like that on calculators. The important thing to remember is: If you wait around for the cost to come down drastically, *you may be waiting forever*, and in the meantime, you are not able to capitalize on the powerful benefits of owning a home computer.

QUESTION: *Will it be obsolete next month?*

ANSWER: An emphatic no. The TI-99/4A is designed to support a wide variety of peripheral devices which add to its function and its usefulness. As a result of this, when a new peripheral comes out, you simply plug it into the TI-99/4A.

QUESTION: *What is the warranty like?*

ANSWER: If the computer fails within the first ninety days because of defective materials or workmanship, it will be replaced free of charge. If a failure occurs after the ninety-day period, the computer will be repaired for a small fee, depending on the severity of the problem. There are 42 exchange centers located around the United States where you can exchange your computer for a working computer for a small fee. These are the same repair and exchange centers that currently handle our calculator products.

For specific information about repair charges, call 800-858-4565.

QUESTION: *Can I edit or change Solid State Software™?*

ANSWER: No. The Solid State Software Command Modules/Cartridges are programs locked in integrated circuit chips. They are not user alterable at this time. However, the Mini-Memory cartridge is designed to be alterable.

QUESTION: *Why no business programs?*

ANSWER: The TI-99/4A was designed from the very outset to be a true *home-use* computer. This does not rule out its application in many *small* business situations. In fact, independent services have written *many* small business applications (see Software Program Library). However, our major software thrust will continue to be geared for the home.

QUESTION: *What microprocessor do you use, and what are its advantages?*

ANSWER: We use the 9900 series microprocessor. It allows us to operate and do some very sophisticated things as far as signal processing is concerned, especially when using peripheral devices. Why did we use that particular microprocessor? The 9900 series microprocessor is a 16-bit microprocessor and currently the state of the art. The 16-bit TMS9900 Microprocessor makes it more accurate, allows two computer words to be processed at a time, has more memory storage, allows use of disk drive with 16K RAM, and is exponentially more powerful than an 8-bit microprocessor.

QUESTION: *Is system documentation (schematics) available?*

ANSWER: Yes. Schematics can be obtained by sending \$15 plus \$2 for postage and handling plus applicable local and state tax to:

Texas Instruments
c/o The Dealer Parts Department
P.O. Box 53
Lubbock, TX 79408

QUESTION: *What is the power consumption of the home computer and the monitor?*

ANSWER: The power consumption of the home computer plus monitor is about the same as a 150 watt light bulb.

QUESTION: *Why is your BASIC so slow?*

ANSWER: Our BASIC is not so slow. We've run benchmark tests using the Kilobaud Magazine benchmarks, which along with several others show our BASIC to be neither the fastest nor slowest available.

QUESTION: *Why so much "bad press" lately?*

ANSWER: Many recent articles have appeared that contrast the TI-99/4A to computers intended primarily for hobbyists or business use. The claim is that currently the market is for computers that serve *these* markets, and that by building a computer for the *home* we've missed the boat. In fact, we didn't miss anything. We know that the home market for computers will be much slower to mature than the currently active hobbyist and business markets, and it also will be much larger. The home market is one we know well, and have built into with our calculators and learning aids for years. (Incidentally, many members of the press were once skeptical that *calculators* would never sell into the home — they would be used only by accountants and businessmen in offices.) We will continue building products for the home market, and the TI-99/4A is our first personal computer for that market. For a while we can certainly understand some of the short-term skepticism of the press. In the

QUESTION: *Can you connect it to large computer data bases?*

ANSWER: Yes. With the use of the telephone modem, Terminal Emulator II Command Module, and the RS-232 Interface, our computer can be connected to large computer data bases such as MICRONET, SOURCE, COMPUSERVE, DOW JONES, etc. Information about these data bases can be obtained by calling the Toll-free Consumer Hotline.

QUESTION: *Can the computer do things for my home — turn on lights, regulate the temperature, burglar alarms, etc.?*

ANSWER: At the present time the only things standing between these sorts of functions and our current computer are simple peripheral devices that will plug in the computer.

QUESTION: *Is it durable? Will it withstand electrical shock via static electricity, keyboard abuse, etc.?*

ANSWER: We have produced what is probably the most durable computer that's ever been made. We applied all we have learned from our years of experience in building handheld calculators to the TI-99/4A. For example: it has been designed to withstand a static electricity shock in excess of 50,000 volts with no physical damage to the computer. The only change occurring at that particular point is that some data in RAM may be changed or lost. As far as physical abuse to the keyboard, it's probably one of the most rugged keyboards that's ever been put into any computer. The key mechanism itself was designed to be used in a desk top commercial calculator. These calculators receive thousands of keystrokes per day. We have a very durable, very hard to hurt computer. It's been designed to operate under conditions far in excess of those you would ever encounter in your home.

QUESTION: *How much information can I store on a disk?*

ANSWER: Our current disk will store 87K bytes of data, which is about the same as eighty-seven thousand keystrokes of information (per diskette, per drive).

QUESTION: *Is the new Peripheral Expansion System compatible with the old "train" peripherals?*

ANSWER: Yes, the new Expansion Box will plug into the TI-99/4A console or into the old style peripherals.

AUDIO CASSETTE RECORDER INFORMATION

To utilize properly the SAVE/LOAD routines in TI BASIC and certain Solid State Software[†] Command Modules/Cartridges, the polarity of the cassette recorder's drive-motor control must be compatible with the circuitry of the Texas Instruments TI-99/4A Home Computer. If the two are not compatible, the drive motor of the recorder will not be activated by the computer during the SAVE or LOAD routine.

The following have been evaluated and found to operate properly with the Texas Instruments Home Computer. Typical volume and tone control settings (highest treble positions) are indicated. Adjustments may be required for best performance, depending upon the individual recorder and tape used. Some recorders perform better because of their high-frequency response, which is necessary for good data recovery from computer.

Name	Model Number	Volume Setting	Tone Control
General Electric	3-5121B	3.5	4
	3-5105B	3.5	4
	3-5105C	3.5	4
	3-5105D	3.4	4
	3-5105F	3.5	4
	3-5105G	3.5	4
	3-5154A	-	-
Marantz Superscope	C2L00LP	8.0	N/A
Panasonic	RQ2309A	5.0	10
Sears	2165	mid-range	N/A
	21686	mid-range	High
JC Penney	6568	mid-range	High

Tapes should be C-60 (30 minutes per side) or shorter. Longer tapes increase drag, which can affect the speed regulation of your recorder and interfere with the recovery of computer data. Some suggested types are:

Brand	Type
Scotch	Master
TDK	SA, Maverick, AD, D
Verbatim	Digital Cassette

NOTICE: These recorders and tapes are listed only because their compatibility with the Texas Instruments Home Computer has been determined. Texas Instruments does not endorse these products, nor does it represent that these are the only recorders or tapes which may be compatible. In addition, Texas Instruments can assume no responsibility for any design changes made by cassette recorder or tape manufacturers that might affect the use of a specific recorder or tape with the Texas Instruments Home Computer.

**CONSUMER
TOLL-FREE HOTLINE**

FOR ALL YOUR COMPUTER QUESTIONS

(800)858-4565