Texas Instruments
Home Computer
Accessory

Solid State
Speech*
Synthesizer
Model PHP1500

TEXAS INSTRUMENTS
INCORPORATED
DALLAS, TEXAS

IMPORTANT

Record the serial number from the bottom of the Speech Synthesizer and the purchase date in the space below. The serial number is identified by the words "SERIAL NO." on the bottom case. Always reference this information in any correspondence.

PHP1500 _____ _____

Model No. Serial No. Purchase Date

Solid State
Speech*
Synthesizer
Model PHP1500

Gives your TI Home Computer a voice of its own — adds new excitement and enjoyment to computer applications through spoken words, phrases, and sentences.

*_Solid State Speech_ is a trademark of Texas Instruments.

Solid State Speech™ synthesis is a Texas Instruments innovation which reconstructs a human voice on a single chip of silicon (an integrated circuit). Without using traditional recording methods, such as tapes or records, you can:

- include spoken directions and comments in programs you write
- combine verbal and visual reinforcement in programmed educational activities
- add sound effects and comments to games
- give instructions to non-readers

Note: *A specialized* Solid State Software™ *Command Module must be plugged into your computer console to activate the Speech Synthesizer.* You can use the Speech Editor Command Module or any other module which is programmed for speech. such as the Early Reading Command Module.

The Speech Editor Command Module gives you instant access to the nearly 400 words and phrases in the Speech Synthesizer's resident vocabulary (see page 10). You can arrange them in any order, creating the phrases and sentences you want the computer to say. Also, by selecting TI BASIC when this Command Module is plugged into the console, you can utilize the subprograms, CALL SAY and CALL SPGET, to write your own "speaking" programs. (These features are explained fully in the manual that accompanies the Speech Editor Command Module.)

Certain other Command Modules are also programmed to work with the Speech Synthesizer. While you're using one of these modules. the computer "talks" its way through the activities using the Speech Synthesizer's resident vocabulary, plus any additional words or phrases contained in the Command Module itself. You'll hear directions,

encouragement, and praise for good moves or correct responses, as well as verbal reminders and promptings when an incorrect entry is made.

Plug-In Speech Modules

For topics that require a specialized vocabulary, Plug-in Speech Modules can supplement the Speech Synthesizer's resident vocabulary. These small modules plug directly into the Speech Synthesizer itself. To access these additional vocabulary words and phrases, the Speech Editor Command Module must be inserted into the computer console. Your vocabulary list then includes the Speech Synthesizer's resident vocabulary and the vocabulary of the Plug-in Speech Module.

Each of the Plug-in Speech Modules is sold separately, and several of these modules are planned. Ask your retailer for the latest list.

For Further Information

The following articles contain discussions of speech synthesis technology:

Larry Brantingham. "Speech Synthesis with Linear Predictive Coding." *Interface Age*, June, 1979, pp. 72-75.

N.C. Pearson. "Electronics Speaks Out." *Design News*, April 9, 1979, pp. 76-79.

Richard Wiggins and Larry Brantingham. "Three-Chip System Synthesizes Human Speech." *Electronics*, August 31, 1978, pp. 109-116.

SET-UP INSTRUCTIONS

The Speech Synthesizer is designed to be a permanent addition to your computer system. Once installed, it is best left in place. The unit will perform its duties whenever it's called upon. When not in use, it has no effect on the other operations of your computer.

No additional power source is necessary to operate the Speech Synthesizer, since it receives all of its power requirements from the main console. Whenever you connect more than one accessory (including the Speech Synthesizer) to your computer, the Speech Synthesizer must be connected to the console first. Two other accessories can be connected in line to the right of the speech unit.
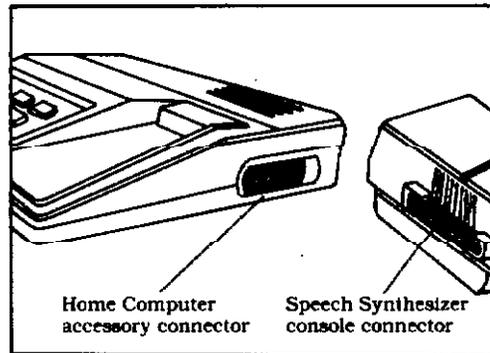
```
                 CAUTION
    The electronic components of the
    Speech Synthesizer can be
    damaged by static electricity
    discharges. To avoid damage, do
    not touch the connector contacts or
    expose them to static electricity.
```
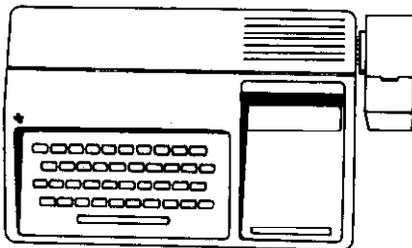
Connecting the Speech Synthesizer

1. Turn the computer console OFF. Then turn off and disconnect any accessories plugged into the right-hand side of the console.

2. The console connector on the Speech Synthesizer projects from the left side of the unit. The accessory connector on the Home Computer is located on the right side of the computer console and is protected by a small sliding door. Carefully slide this door upward so that the connector is visible.

Home Computer
accessory connector

Speech Synthesizer
console connector

3. Make sure the console and the Speech Synthesizer are parallel, with the connectors aligned. Then hold the console firmly with your left hand, and gently push the Speech Synthesizer connector onto the console connector. (Note that as you face the front of the console, the product name appears on the top of the Speech Synthesizer case.)

4. Turn on your monitor and computer console. The master title screen appears.

5. Now test the operation of the Speech

Synthesizer. using either the Speech Editor Command Module or another Command Module which is programmed for speech. (Follow the installation and application instructions included in the manual for each module.) If the unit does not appear to be operating correctly, see "In Case of Difficulty" on page 16.

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CAUTION

Always turn off the computer and
its accessories and disconnect the
Speech Synthesizer from the
console before moving the units.
The connectors between the
console and the Speech Synthesizer
are not designed to support the
speech unit's weight. Moving the
console with the Speech
Synthesizer attached can damage
both devices. To transport or store
the Speech Synthesizer, use the
original packing materials.
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SPEECH SYNTHESIZER RESIDENT VOCABULARY

The Speech Synthesizer contains a resident vocabulary of 373 words and phrases. Two basic criteria were used to compile this list:

- The word or phrase is used in everyday speech.
- The word or phrase is related to the operation of the computer.

Note: Some of the words in the resident vocabulary have more than one pronunciation. In those cases, the word is listed twice with a "1" after the second listing. Each pronunciation is provided in parentheses after the word. When using one of these words, include the "1" with the second listing if that is the pronunciation required. For more information on using the resident vocabulary, refer to the Speech Editor Command Module owner's manual (it also lists the resident vocabulary).

– (NEGATIVE)	AS	COMES
+ (POSITIVE)	ASSUME	COMMA
.(POINT)	AT	COMMAND
0	B	COMPLETE
1	BACK	COMPLETED
2	BASE	COMPUTER
3	BE	CONNECTED
4	BETWEEN	CONSOLE
5	BLACK	CORRECT
6	BLUE	COURSE
7	BOTH	CYAN
8	BOTTOM	D
9	BUT	DATA
A(ā)	BUY	DECIDE
A1(ə)	BY	DEVICE
ABOUT	BYE	DID
AFTER	C	DIFFERENT
AGAIN	CAN	DISKETTE
ALL	CASSETTE	DO
AM	CENTER	DOES
AN	CHECK	DOING
AND	CHOICE	DONE
ANSWER	CLEAR	DOUBLE
ANY	COLOR	DOWN
ARE	COME	DRAW

DRAWING FOR HAD IS LOOKS NICE TRY
E FORTY HAND IT LOWER NINE
EACH FOUR HANDHELD UNIT J M NINETY
EIGHT FOURTEEN HAS JOYSTICK MADE NO
EIGHTY FOURTH HAVE JUST MAGENTA NOT
ELEVEN FROM HEAD K MAKE NOW
ELSE FRONT HEAR KEY ME NUMBER
END G HELLO KEYBOARD MEAN O
ENDS GAMES HELP KNOW MEMORY OF
ENTER GET HERE L MESSAGE OFF
ERROR GETTING HIGHER LARGE MESSAGES OH
EXACTLY GIVE HIT LARGER MIDDLE ON
EYE GIVES HOME LARGEST MIGHT ONE
F GO HOW LAST MODULE ONLY
FIFTEEN GOES HUNDRED LEARN MORE OR
FIFTY GOING HURRY LEFT MOST ORDER
FIGURE GOOD I LESS MOVE OTHER
FIND GOOD WORK I WIN LET MUST OUT
FINE GOODBYE IF LIKE N OVER
FINISH GOT IN LIKES NAME P
FINISHED GRAY INCH LINE NEAR PART
FIRST GREEN INCHES LOAD NEED PARTNER
FIT GUESS INSTRUCTION LONG NEGATIVE PARTS
FIVE H INSTRUCTIONS LOOK NEXT PERIOD

PLAY
PLAYS
PLEASE
POINT
POSITION
POSITIVE
PRESS
PRINT
PRINTER
PROBLEM
PROBLEMS
PROGRAM
PUT
PUTTING
Q
R
RANDOMLY
READ(rēd)
READ1(rēd)
READY
  TO START
RECORDER
RED
REFER

REMEMBER
RETURN
REWIND
RIGHT
ROUND
S
SAID
SAVE
SAY
SAYS
SCREEN
SECOND
SEE
SEES
SET
SEVEN
SEVENTY
SHAPE
SHAPES
SHIFT
SHORT
SHORTER
SHOULD
SIDE

SIDES
SIX
SIXTY
SMALL
SMALLER
SMALLEST
SO
SOME
SORRY
SPACE
SPACES
SPELL
SQUARE
START
STEP
STOP
SUM
SUPPOSED
SUPPOSED TO
SURE
T
TAKE
TEEN
TELL

TEN
TEXAS
  INSTRUMENTS
THAN
THAT
THAT IS
  INCORRECT
THAT IS
  RIGHT
THE(thē)
THE1(thə)
THEIR
THEN
THERE
THESE
THEY
THING
THINGS
THINK
THIRD
THIRTEEN
THIRTY
THIS
THREE

THREW
THROUGH
TIME
TO
TOGETHER
TONE
TOO
TOP
TRY
TRY AGAIN
TURN
TWELVE
TWENTY
TWO
TYPE
U
UHOH
UNDER
UNDER-
  STAND
UNTIL
UP
UPPER
USE

V
VARY
VERY
W
WAIT
WANT
WANTS
WAY
WE
WEIGH
WEIGHT
WELL
WERE
WHAT
WHAT
  WAS THAT
WHEN
WHERE
WHICH
WHITE
WHO
WHY
WILL
WITH

WON	YELLOW
WORD	YES
WORDS	YET
WORK	YOU
WORKING	YOU WIN
WRITE	YOUR
X	Z
Y	ZERO

SERVICE INFORMATION

In Case of Difficulty

If the Speech Synthesizer does not seem to be operating properly, check the connection between the unit and the main console. If the connectors have begun to separate, turn the computer off and press the Speech Synthesizer and console back together. Then turn the computer on and check the operation of the speech unit.

If the speech unit is still not operating properly, turn the computer off again and disconnect the Speech Synthesizer from the console. Verify that the Home Computer is working properly without

the Speech Synthesizer. If so. reattach the unit to the console beginning with Step 2 of the installation process.

If you have additional difficulty with your computer or Speech Synthesizer, see the "Maintenance and Service Information" section of the *User's Reference Guide.*

If the Speech Synthesizer is in warranty, it will be repaired or replaced at our service facility under the terms of the Limited Warranty. (See below for information about our optional Exchange Center service.) 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 serves the entire United States, it is not feasible to hold units while providing service estimates. For advance information concerning our service charges, please call our toll-free number listed on page 19.

Exchange Centers (Local Service Options)

If your Speech Synthesizer requires service, instead of returning the unit to a service facility for repair or replacement, you may elect to exchange the unit for a factory-reconditioned Speech Synthesizer of the same model (or equivalent model specified by TI) by going 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 Speech Synthesizer unit.** Out-of-warranty exchanges will be charged at the rates in effect at the time of the exchange. Please refer to the enclosed Exchange Service listing, or call the Consumer Relations Department for exchange fee information and the location of the nearest exchange center.

If You Have Questions or Need Assistance

If you have questions concerning Speech Synthesizer repair, please call our Consumer Relations Department at 800-858-4565 (toll-free within the contiguous United States except Texas) or 800-692-4279 (within Texas). The operators at these numbers cannot provide programming assistance.

For technical questions related to programming, specific speech applications, etc., you can call 806-741-2663. Please note 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 containing 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, publish, reproduce, or dispose of the information in any way without compensation to me."

20

THREE-MONTH LIMITED WARRANTY FOR SPEECH SYNTHESIZER AND/OR PLUG-IN SPEECH MODULE

THIS TEXAS INSTRUMENTS SPEECH SYNTHESIZER AND PLUG-IN SPEECH MODULE WARRANTY EXTENDS ONLY TO THE ORIGINAL CONSUMER PURCHASER OF THE SPEECH SYNTHESIZER OR MODULE.

WARRANTY DURATION

This Texas Instruments Speech Synthesizer and/or Speech Module is warranted for a period of three (3) months from the date of the original purchase by the consumer.

21

WARRANTY COVERAGE

This Texas Instruments Speech Synthesizer and/or Speech Module is warranted against defective materials and construction. This warranty covers the electronic and case components of the Speech Synthesizer or Speech Module. These components include all semiconductor chips and devices, plastics, boards, wiring and all other hardware contained in this Speech Synthesizer or Speech Module ("the Hardware"). This limited warranty does not extend to the programs contained in the software module and in the accompanying book materials("the Programs"). **THIS WARRANTY IS VOID IF THE SPEECH SYNTHESIZER OR SPEECH MODULE HAS BEEN DAMAGED BY ACCIDENT, UNREASONABLE USE, NEGLECT, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIALS OR CONSTRUCTION.** '

22

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 PRODUCT 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.

23

WARRANTY PERFORMANCE

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

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

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

24

TEXAS INSTRUMENTS CONSUMER SERVICE FACILITIES

U.S. Residents
Texas Instruments Service Facility
2303 North University
Lubbock, Texas 79415

Canadian Residents
Geophysical Services Incorporated
41 Shelley Road
Richmond Hill, Ontario, Canada
L4C5G4

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information.
Texas Instruments Consumer Service
831 South Douglas Street
El Segundo, California 90245
(213) 973-1803
Texas Instruments Consumer Service
10700 Southwest Beaverton Highway
Park Plaza West
Beaverton, Oregon 97005
(503) 643-6758