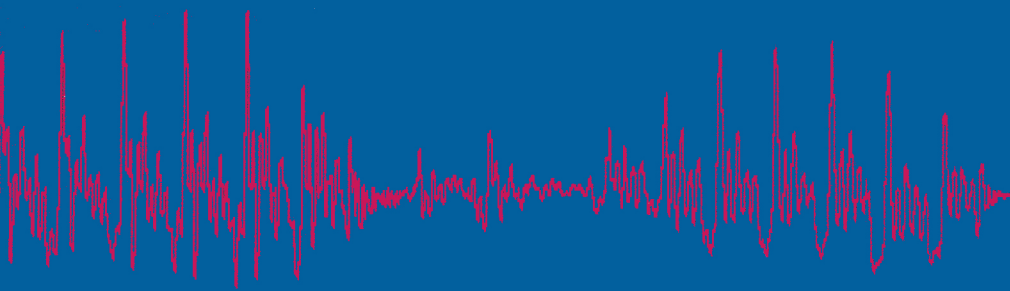


ECHO II SPEECH SYNTHESIZER



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ECHO][SPEECH SYNTHESIZER

INSTALLATION AND OPERATING INSTRUCTIONS

Written by Mike and Fern Kory

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INTRODUCTION

Congratulations on choosing the Street Electronics ECHO][speech synthesis system. Whether you will be using it for games, education, aiding the handicapped or any of its other applications, you will find that the ECHO]['s superior ease of use and speech quality make it the most versatile Apple compatible plug-in speech board on the market today. We are confident that this is only the beginning of a long and satisfying relationship between yourself and the ECHO][. The first thing that you will probably want to do is to sit down and try it out for yourself. That's a good attitude. All we ask is that you control yourself for ten minutes, sit down at your computer with this entire package, and continue reading through this Introduction, the Table of Contents, the Introduction to the Manual, and the Installation instructions. We know that you want to do this right! Within 10 minutes you will be listening to speech from your Apple][!

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INTRODUCTION TO THE MANUAL

We have attempted to make this manual both informative and easy-to-use. It was designed to accomodate the not-so-experienced user as well as the more experienced. Each section is meant to be read from beginning to end and to be used in conjunction with the ECHO][. By the end of each section you should have not only an understanding of the material covered, but also experience with it.

The 3 main sections of the manual concern (1) installation of and introduction to the ECHO][, its software and this manual, also some very basic help for the less experienced Apple user; (2) The TEXTALKER (TM) software tutorial and (3) the SPEAKEASY(TM) software tutorial. There is also a section on the ECHO's exclusive features to aid blind users, a technical or advanced section and various appendices. These sections are all outlined in more detail in the table of contents. Turn the page for installation instructions and you are on your way.

INSTALLATION INSTRUCTIONS

To install the ECHO][(TM), simply plug it into any slot inside your Apple(TM) computer (except 0) as follows:

1. TURN OFF THE POWER TO THE COMPUTER. This is important and will prevent damage to your computer or the ECHO.
2. Push the speaker cable into the jack labelled "speaker" on the ECHO.
3. Remove the cover from your Apple. This is done by pulling up on the cover at the rear edge (the edge farthest from the keyboard) just until the two corner fasteners pop apart. Do not lift the edge any further, but instead slide the cover backwards until it comes free.
4. Inside the Apple, along the rear edge of the large circuit board, there is a series of eight long, narrow sockets called "slots." The slots are numbered 0 through 7, with the leftmost slot (the one to your left as you face the computer from the keyboard end) being slot #0. The ECHO may be installed in any of these slots except this zero slot.
5. Be sure the power is off. To install the ECHO into your chosen slot, insert the gold "fingers" (the gold bars along the lower jutting edge of the ECHO) into the slot using a gentle rocking motion until the board is firmly seated.
6. Attach the speaker to the inside, right wall of

-INSTALLATION INTRUCTIONS-

your Apple using the tape provided.

7. Replace the cover of the Apple by sliding the front edge of the cover into place and then pressing down on the rear corners until they snap closed.

TESTING

If you have some experience with the Apple, you may now test the ECHO by booting the diskette that came with it and running the program called SEC DEMO. This program shows some of the features of the ECHO. To end the program type a Control-C. You should now also copy your diskette. If you do not understand what was just said, don't worry. You will be able to test the ECHO after reading the following two sections on "KEYBOARD NOTATION" and "BOOTING A DISKETTE."

KEYBOARD NOTATION

In this section you will be introduced to a simple notation system which will show you exactly what to type on your Apple keyboard. For instance, when we want you to type the word "HELLO" you will see:

H	E	L	L	O
---	---	---	---	---

Each boxed letter represents a key on your Apple's keyboard. Of course, for some characters you are required to hold down one key while pressing another.

-KEYBOARD NOTATION-

For example, to type an exclamation point (!), you must hold down the SHIFT key while pressing the 1 key (just as you would on an ordinary typewriter). However, we show only the exclamation point.

!

When it is necessary for you to type a "control character" we will print this:

CTL

E

The upper key should be held down while you press the lower key. So, typing a Control-E is similar to typing a Shift-E except that you press the CTRL key instead of SHIFT. Note that when you type a control character nothing will appear on the screen.

ERROR MESSAGES

If you accidentally misspell something then, most likely, the Apple will reject it by printing "SYNTAX ERROR" on your screen and emitting a "beep" from its speaker. This is not a problem, but you will need to type the line over again. REMEMBER: Don't ignore syntax errors--you must retype the line!

BOOTING A DISKETTE

Several programs are included for use with your ECHO and they can be found on the diskette that came with the ECHO. To discover exactly what programs are on the diskette, you must "boot" and "CATALOG" this diskette. The process of adding DOS (Disk Operating System) commands to your Apple is called "booting" the diskette and is accomplished by following the simple steps outlined below.

-BOOTING A DISKETTE-

1. Insert the diskette into the disk drive with the label facing upwards. The edge of the diskette with the label should enter the drive last. If you have more than one drive, place the diskette in Drive #1.

2. Turn on the power to your Apple. If it is already on, then turn it off and then on again. This clears the memory and, on most Apples, automatically boots the diskette. If the disk drive is now making a whirring noise and the red "in use" light on the drive is lit--Congratulations! The deed is done. The diskette is booted and you should skip to step 4. If, on the the other hand, your disk drive is just sitting there not making /a sound, and there is an asterisk (*) in the lower lefthand corner of the screen, then proceed to step 3. Now if your disk drive is not whirring or showing any other signs of activity, and your screen does not show an asterisk (you did remember to turn on your t.v. or monitor, right?), then please check your DOS manual to make sure that your disk drive is installed properly.

3. Type:

Now it should boot. Congratulations. (If it still does not work, then check your DOS manual.)

4. If you have not yet tested your ECHO, type:

-BOOTING A DISKETTE-

To end the program type:

Also, if you have not already copied the diskette do so now by placing your DOS 3.3 Master diskette in drive 1 and typing:

Follow the instructions with this program and when you are finished put the original diskette in a safe place and boot the copy. You should always use a copy.

THE CATALOG

If you have not already done so, please boot the ECHO diskette. The Apple will now respond to commands concerning the diskette. Type:

A "listing" or "catalog" of program names and other information will appear. We will now show you how to interpret and use this information.

At the top of the catalog the words "DISK VOLUME 254" appear. Every diskette is assigned a volume number when it is set up to store programs. The volume does not concern us here, so we will not discuss it any further. (If you are really curious you can check your DOS manual). The next line of the catalog looks like this:

-THE CATALOG-

*A 002 HELLO

The word "HELLO" is the name of the first program on the diskette. Whenever this diskette is booted, HELLO is automatically run. This program simply prints a short message and a copyright notice. The number to the left of the program name (002) is a measure of the space on the diskette that is used to store this program. Disks are divided into "sectors," and each sector can hold 256 characters. The HELLO program uses 2 sectors of storage. The letter "A" to the left of the "002" indicates that the program is written in APPLESOFT(TM). APPLESOFT is a version of the BASIC programming language. We will be writing a short and simple APPLESOFT program later on in this manual, and all of our examples will assume that you are using APPLESOFT. You can tell if your Apple is ready to understand APPLESOFT by checking the "prompt" on your screen. If this character, which appears before the flashing square (the "cursor"), is a "]" then your Apple is ready for commands in APPLESOFT. If the prompt is just a flashing square that means that there is more to the catalog. Press any key you like and the catalog will continue to list, one full screen at a time, until the entire catalog has been listed. At this point, the normal prompt will appear (usually a "]" followed by a flashing square).

Instead of the letter "A" you may find any of the following letters:

I : This means that the program is written in "INTEGER BASIC" which is another of the programming languages available for the Apple.

B : This means that the information

-THE CATALOG-

stored here is stored in "Binary " form. It may be a program; it may be data; it could even be a high resolution picture. There is no way to tell from looking at the catalog listing. You just have to trust the literature that comes with the diskette (in this case, you have got to trust us!)

T : The "T" indicates that this is a text file. A text file is characters: letters, words, etc.--that is, "text," stored as a group (file) on the diskette.

The asterisk (*) which precedes the catalog entry indicates that this entry is "locked." "Locking" a program is a way of protecting the program from being accidentally deleted or erased from the diskette. If you did want to erase the program, you would first need to "unlock" it. This procedure is explained in more detail in your DOS manual. Now that you have some familiarity with the catalog, we will now offer a brief explanation of what each of the programs listed on your diskette can do.

SOFTWARE

HELLO is automatically run when you boot this disk. It runs the HELLO.LOGO program and then pauses for about 10 seconds before exiting. You may press any key at any time during the HELLO program and it will exit immediately.

HELLO.LOGO is the program which displays the TEXTALKER LOGO.

ECHO COM is a communications aid for non-oral individuals. This program allows you to create

-THE CATALOG-

messages to be spoken by selecting words and sentences from user created menus.

LIST BUILDER allows you to create word lists for use in the SPELLING TEST program.

LIST0 is a sample word list which can be used with the SPELLING TEST program.

PHONEME TRANSLATOR translates words into their equivalent SPEAKEASY phoneme codes. (More on this in the SPEAKEASY tutorial.)

ROBOT.DEMO loads into memory and displays ROBOT.PICT. It then allows you to type in phrases which will then be spoken in a robotic voice.

ROBOT.PICT is the picture used in ROBOT.DEMO.

SEC DEMO displays SEC DEMO.PICT and gives a short demonstration of the ECHO][.

SEC DEMO.PICT is the picture used by SEC DEMO.

SPEAKEASY is a program which allows you to use speech in your own programs by using special phoneme codes. The advantages of this program over TEXTALKER for certain applications is covered in the SPEAKEASY tutorial.

SPELLING TEST tests spelling ability by speaking words and then checking the typed response for spelling accuracy.

TALKING TYPEWRITER names each character on the Apple keyboard as the key is pressed.

-THE CATALOG-

The TEXTALKER programs allow you to have the Apple say a word when you type in the word. These programs utilize nearly 400 rules of pronunciation to correctly convert your typed text to speech.

Use TEXTALKER if you do not own a RAM card.

TEXTALKER.RAM is used instead of TEXTALKER if you own a RAM card because it loads the TEXTALKER program into your RAM card, thus giving you more available memory for your programs. This version of TEXTALKER also has special features for users who are blind.

TEXTALKER.BLIND contains all the same features as TEXTALKER.RAM, but does not require a RAM card. Use this program if you need the features for the blind, and you do not own a RAM card.

TEXTALKER.RAM.OBJ is the program that is loaded into the RAM card when you run TEXTALKER.RAM. This program can not be run or loaded separately of TEXTALKER.RAM.

TEXTALKER(TM) TUTORIAL

In order for you to get the ECHO to speak you must use one of the following programs: TEXTALKER(TM), TEXTALKER.RAM(TM), TEXTALKER.BLIND(TM) or SPEAKEASY(TM). Once you have run one of these programs you will not need to run it again unless you re-boot a diskette or turn the computer off. Each of these programs, when run, will slightly modify your DOS (Disk Operating System). Because of this it is a good idea for you to initialize any new diskettes with an unmodified DOS, like that on your system master diskette. In the following sections we will assume that you are using the TEXTALKER program. All of the commands used in TEXTALKER are also used in TEXTALKER.RAM and TEXTALKER.BLIND. TEXTALKER.RAM and TEXTALKER.BLIND have a few additional commands designed for users who are blind. These additional commands are covered in the section titled "Features to Aid Blind Users." To run TEXTALKER type:

B	R	U	N	T	E	X	T	A	L	K	E	R	RETURN
---	---	---	---	---	---	---	---	---	---	---	---	---	--------

Note that you should type "BRUN" and not "RUN." If you typed "RUN" your Apple responded with a "FILE TYPE MISMATCH ERROR" because this is a binary file and not an APPLESOFT file. If you made this error you should simply retype the line. After the disk drive stops whirring you will see the following message on your screen:

-TEXTALKER TUTORIAL-

```
TEXTALKER (TM)
ECHO ][ SPEECH GENERATOR
VERSION 1.3
COPYRIGHT 1981 VISEK,MAGGS,STREET & KORY
]
```

Do not worry if the version number is different. Running TEXTALKER.RAM or TEXTALKER.BLIND is accomplished in the same way (except that you would type a different program name of course). We will cover SPEAKEASY in a separate section.

You are probably ready to hear the ECHO speak.
Type:

```
P R I N T " H E L L O " RETURN
```

You probably noticed that the ECHO said each letter as you typed it and, when you pressed RETURN, that it said the word "HELLO." If this was not the case, then make sure that you typed exactly what is shown above, especially the quotes. (Notice that the ECHO did not say anything when you typed the quotation marks. Later we will show you how to have punctuation spoken.) If you want to hear it again, then just type it again. What did we just do anyway? Well, the word "PRINT" is an APPLESOFT BASIC command. Anything in quotation marks that follows this command will be printed on the screen. The TEXTALKER program is also at work. It looks at everything printed to the screen and pronounces it to the best of its ability. Pressing the RETURN key signals the Apple that this is the end of the command, and that it should now carry out that command--in this case it should print and speak the

-TEXTALKER TUTORIAL-

word "HELLO." Using this information you can now make the ECHO say anything that you want. For example, you could type:

P R I N T " I A M E C H O " RETURN

Go ahead and play around a little, it will help you to get a feel for the ECHO and also allow your ear to become better accustomed to the ECHO's speech. Try CATALOGing the diskette again and listen to the ECHO read it to you.

MISPRONUNCIATION

Welcome back. While typing in phrases for the ECHO to speak, you may have come across a word or two which the ECHO has mispronounced. Although the TEXTALKER program uses many rules (almost 400 in fact) to guide it in correctly pronouncing your text, English is so full of exceptions to these rules, such as compound words and foreign words, that it is simply not feasible to make a perfect speech synthesizer for a microcomputer. With a few simple guidelines, you can help to bridge the gap between the ECHO and perfection. Our first example involves a compound word, but the solution to the problem applies to more than just this type of exceptional word. Type:

P R I N T " T Y P E W R I T E R " RETURN

The ECHO said what sounded like "Tipwriter." Now type it again and leave a space between "type" and "writer."

P R I N T " T Y P E W R I T E R " RETURN

-TEXTALKER TUTORIAL-

Often breaking up the word is all that is needed to correct the pronunciation of an exceptional word. For more examples of this, type: "equals" (E QUALS), "create" (CRE ATE), and "program" (PRO GRAM).

Other words may need to be misspelled for them to be pronounced correctly. For instance, type:

P R I N T " R O B O T " RETURN

Notice that the first "O" is mispronounced. We need to change the vowel sound from a short sound to a long sound. (Remember "sounding out" words phonetically when you learned to read? If you don't remember--the "short o" sound is the "o" in "rock" and the "long" sound is found in "row." The long sound of each vowel is its name.) Try typing "ROWBOT" instead of "ROBOT." By following the "o" with a "w" we have made the pronunciation of the "o" as a long "o" more consistent with the patterns of English speech. (The word "robot" is foreign.) Along the same lines we can change the short "a" sound to a long one by spelling it "ay," and the short "e" will be pronounced "long" if it is doubled ("ee"). To make a vowel go from long to short, try doubling the following consonant. Using these hints, your own common-sense knowledge of English, and experimentation (which is really the key), correct pronunciation will be made simple. Now, what if you want the ECHO to pronounce one of these exceptional words correctly and also print it on the screen spelled correctly? This is not difficult and we will show you how soon.

-TEXTALKER TUTORIAL-

PRINT or ?

This is a good time to look at an easier way to type PRINT. APPLESOFT BASIC allows an abbreviation for the word "PRINT" and that is the question mark (?). Try it.

[?] ["] [H] [E] [L] [L] [O] ["] [RETURN]

We will continue to use PRINT in our examples, but feel free to type the question mark instead. Also, notice that you have been hitting the RETURN key at the end of each line. We are going to stop telling you do this each time. You must take care to remember to hit RETURN after each command, however, so that the Apple knows that you are done with that line.

Another point of general interest concerns the RESET key. When you press RESET, or CTRL and RESET on newer Apples, the TEXTALKER program no longer works. The program is still there, but it can not react to what is being printed to the screen, so it just sits there. To revive TEXTALKER (or TEXTALKER.RAM or TEXTALKER.BLIND) type:

[P] [R] [#] [0]

Note that the last character is a zero, not the letter "0". Give it a try; press RESET and then type PR#0 as shown above.

-TEXTALKER TUTORIAL-

TEXTALKER COMMANDS

The TEXTALKER program has several different modes in which it can operate. The rest of this tutorial will explain these to you. Type:

CTT
P R I N T " E O "

or...

CTT
? " E O "

Are you still remembering to press RETURN? If you are carefully following instructions, you did not type a space after control-E. You should never type a space after control-E. Now type:

P R I N T " H E L L O "

The ECHO did not make a sound! Control-E (common notation for the result of pressing the control key and another letter at the same time) precedes all ECHO commands so ,whenever you print a Control-E, the TEXTALKER program interprets the following characters as a command. In this case the character following was an "O." This command puts the ECHO into "Output only" mode (get it? "O" for "Output"). In this mode the computer will print to the screen but the ECHO will remains silent. Now type:

CTT
P R I N T " E T "

-TEXTALKER TUTORIAL-

This command puts the ECHO into a "Talk only" mode. In this mode the ECHO will speak, but nothing will be shown on the screen. Type:

P R I N T " H E L L O "

To return to the first mode, in which the ECHO does Both printing and talking, type:

CTL
P R I N T " E B "

Test this mode by printing a message on the screen.

Notice that all of the commands have been preceded by a Control-E. Now suppose that for some very practical reason (or even a totally impractical reason) you do not wish to use Control-E to indicate a TEXTALKER command. You have to ability to change this if you so desire. To change the Control-E to Control-Q type:

CTL CTL
P R I N T " E Q "

Now Control-Q is the new command character. To double-check the change, type the following commands:

CTL
P R I N T " E T "
P R I N T " H E L L O "

Notice that "HELLO" was printed on the screen,

-TEXTALKER TUTORIAL-

which it should not have been if we had activated the "Talk only" mode in this usual way. Now type:

CTI
P R I N T " Q T "

P R I N T " H E L L O "

Now the "Talk only" mode is in effect. Return to the "Both" mode by typing:

CTI
P R I N T " Q B "

And let us also change the command character back to a Control-E. Type:

CTI CTI
P R I N T " Q E "

You may change the command character to any control character. But you should not make it Control-M (which will act just like the RETURN key), Control-U (the →), Control-H (the ←) or Control-J (a linefeed).

USING THE ECHO WITHIN A PROGRAM

To demonstrate how to use the ECHO from within your own program, we will now write a short APPLESOFT BASIC program. To speed things up, first issue the "Output only" command (CONTROL-E O), and then type:

N E W

to let your Apple know you are about to type a "new" program. Now type the following lines exactly as shown (including the line numbers). End each line by pressing the RETURN key, of course.

-TEXTALKER TUTORIAL-

```
10 INPUT A$  
20 PRINT A$  
30 GOTO 10
```

Now type:

and double check your listed program with the program in the manual. If there is a mistake you just have to retype the line containing the mistake (including the line number).

A BASIC PRIMER

Those of you who know BASIC should skip this section. If you do not know much BASIC--stick around. The three line program that you just typed in is a BASIC program. In BASIC, each command or instruction must be preceded by a number, which is called a line number. The Apple will perform these commands in numerical order. The numbers do not need to be in increments of one however. (For example, in your program the computer will do line 10 and then line 20--it will not sit there waiting for line 11.) Our program will therefore perform as follows... The first line (line 10) uses the BASIC command "INPUT." When the Apple encounters this command it will print a question mark and wait for the user (that's you) to type a response as an input. The program will store what you have typed in its memory and label it "A\$." We will assume that you type in the word "HELLO" as an input. Line 20 contains the "PRINT" command. We have used the PRINT command before, but only as followed by a phrase within quotation marks. Since A\$ is not in

-TEXTALKER TUTORIAL-

quotes, the computer will not print the characters "A" and "\$," but will instead print the "value" of A\$, which is the input/response to line 10--the word "HELLO." Therefore, when the Apple encounters line 20, it will print "HELLO." Line 30 simply tells the computer to "GO TO" line 10 and start all over again by first asking for an input and then printing the input and then starting all over again... Let's try running the program. Type:

R **U** **N**

Enter any word you like when you see the question mark, and press RETURN. The Apple will obediently print the word that you entered and then ask you for another word. To end this limited game, type:

CTL

C **RETURN**

in response to the input request (the question mark). The program will stop and your Apple will tell you that you stopped it at line 10 of your program, or, in its words, "BREAK IN LINE 10." Now you can turn the speech function back on and have both that and the screen output by issuing the now familiar ECHO command:

CTL

P **R** **I** **N** **T** **"** **E** **B** **"**

Now RUN the program again. Note that you do not have to put quotation marks around your response to the input request to hear it spoken unless the phrase contains a comma. Also, keep your response

-TEXTALKER TUTORIAL-

down to less than six lines (your Apple manuals can explain the reason for this if you are curious). Type in a few of your favorite phrases, and also try typing the commands that you have learned. If you do type a phrase which contains a comma, the ECHO will pause at the comma. Also note that if you type:

CTL

E **T** **H** **E** **L** **L** **O** **RETURN**

the TEXTALKER program will stop printing to the screen as soon as you enter the T command--even before you press RETURN.

To make our program even easier to use, we will modify it slightly. First, exit the program by typing:

CTL

C **RETURN**

To add the following lines to the program, simply type them in:

```
5 PRINT CHR$(5)"O"
```

```
15 PRINT CHR$(5)"B"
```

These lines will automatically assume their place in proper numerical order within your program. Now change line 30 by typing:

```
30 GOTO 5
```

The Apple will automatically replace the old line 30 with the new one. Now type:

L **I** **S** **T**

Compare your program to the following listing. If there are any mistakes, just retype the line containing the mistake.

-TEXTALKER TUTORIAL-

```
5 PRINT CHR$(5)"O"  
10 INPUT A$  
15 PRINT CHR$(5)"B"  
20 PRINT A$  
30 GOTO 5
```

Again, if you know BASIC, skip this section. You see that the new line 5 uses the now familiar PRINT command, but that following it we have "CHR\$(5)." This is a BASIC command equivalent to typing Control-E. (E is the fifth letter of the alphabet, hence the "5" in parenthesis.) After this comes the letter "O" in quotes. These two parts of line 5 combine to be the equivalent of typing "Control-E O." The reason we use the CHR\$ command is that when you type Control-E, nothing shows on the screen, but while using the new command we can now easily check to see if we remembered to enter Control-E in the program. Line 15 prints out the ECHO's "Both" command and line 30 now jumps to line 5, the new beginning of the program.

Our new program works as follows: Line 5 puts the ECHO in "Output only" mode. This way, when you type your response to line 10, the ECHO will not speak, which allows you to type faster. Line 15 puts the ECHO in "Both" mode, so that line 20 both prints and speaks your input. Line 30 starts the program over again. You may stop the program as you did before by typing a Control-C instead of an input.

You can probably now see how we would have a word spelled correctly on the screen, and yet spelled incorrectly for the ECHO to pronounce. First we would put the ECHO in "Output only" mode and print

-TEXTALKER TUTORIAL-

the correctly spelled word (e.g. ROBOT). Then we would put the ECHO in "Talk only" mode and print the word spelled as we would spell it for pronunciation (i.e. ROWBOT).

RATE MODES

We are now ready to cover some additional modes. First, if it is not already running, RUN the program that you typed in. Now enter a sentence at least a few words long (e.g. "RUBBER BABY BUGGY BUMPERS"), then type:

CTL
E C

Now type the same sentence again. You are now in "Compressed" mode in which the speech is compressed--that is, faster. Some people find the fast mode difficult to understand at first, but only until they have become accustomed to it. Once you have more experience with the ECHO, you may find that you are always using the compressed mode. To return to the slower mode type:

CTL
E E

You are now in "Expanded" mode in which the sounds are expanded and, therefore, slower. Type in another phrase to make sure you entered the "Expanded" mode command correctly.

PRONUNCIATION MODES

Currently you are in "Word" mode, in which the ECHO pronounces whatever you type as a word. You may also have it spell out everything letter by letter by typing:

CTL

E L

Type a few phrases in "Letter" mode and then return to "Word" mode by typing:

CTL

E W

PUNCTUATION MODES

You may remember that, earlier in this tutorial, we promised to show you how to get the ECHO to say the quotation marks as you typed them in; we will do that now. The punctuation mode that you are in now pronounces only unusual punctuation (e.g. "#", "\$", "%", "&", "=", "@", "+", ">", "<" and "/") and also a "." if followed immediately by another character. (For an example of this last point have the ECHO say "2.9%.") This mode is known as the "Some punctuation" mode. To get the ECHO to pronounce Most of the punctuation characters type:

CTL

E M

The ECHO will now pronounce all punctuation characters except spaces, line feeds (Control-J)

-TEXTALKER TUTORIAL-

and carriage returns (Control-M or RETURN). The ECHO will say even these if you type:

CTL
E A

This command puts you in "All punctuation" mode. To return to the standard "Some punctuation" mode, enter:

CTL
E S

PITCH MODES

It is also possible to adjust the "Pitch" of the ECHO. Type:

CTL
E 4 0 P

Type in a short phrase. Notice that the voice of the Echo has a higher pitch now. You may vary the pitch by varying the number in the command from 1 to 63. Try some different pitches now. When you are done, return the pitch level to a middle value, or back to the original pitch level of 22. Now type "ARE YOU HAPPY?". Listen carefully as the ECHO's pitch changes at the end of the sentence. Since the sentence ends in a question mark, the pitch rises, just as it does in normal human speech. Compare this with "ARE YOU HAPPY" (no punctuation) and "ARE YOU HAPPY." (with a period). When the sentence ends in a period, exclamation point or a colon, the ECHO's pitch will drop. If the sentence ends with a question mark or

-TEXTALKER TUTORIAL-

semi-colon the pitch will rise. Notice too that some variations in pitch exist within each word.

If you would like the ECHO to speak in a robotic tone, you can put it in "Flat pitch" mode by typing:

CTL

E 2 2 F

You may vary the pitch by changing the number here from 1 through 63 also. Type in a few phrases and notice that when the ECHO speaks now, its pitch does not vary within the sentence.

VOLUME MODES

If you are working/playing with the ECHO late at night, you, or perhaps a loved one, may appreciate the ECHO's ability to speak at different volume levels. To set the volume, use the ECHO command :

CTL

E 5 V

The number may vary from 0 through 15. You may also use this mode to create special effects such as an "echo" for the ECHO. Try setting the volume at different levels. Notice that at the higher levels, the volume of fricatives (F,H,S,SH,TH) increases without a corresponding increase in the the volume of some of the other sounds. Also, the lower levels sound like a whisper. To adjust the volume without these effects, you may turn the volume potentiometer on the ECHO itself. The potentiometer is the small knob near the top of the

-TEXTALKER TUTORIAL-

ECHO with word "VOL" located to its immediate left. Turning the knob counter clockwise lowers the volume and turning it clockwise increases the volume.

LIST CONTROL COMMANDS

The last two commands can best be explained without running the program that you have typed in.

Remember that to stop the program you type:

CTL

C

RETURN

Now set the ECHO into the "Both" mode and type:

C **A** **T** **A** **L** **O** **G**

To halt the ECHO in mid sentence type the following without pressing RETURN:

CTL

S

To continue the catalog press any key. Now type:

C **A** **T** **A** **L** **O** **G**

again and, while it is listing, type the following, again without pressing RETURN:

CTL

X

Note that the catalog continues to list, but that the ECHO remains silent. Control-X puts the ECHO

-TEXTALKER TUTORIAL-

in "Output only" mode until the Apple requests an input. After the catalog stops listing, the Apple waits for a command (input) which puts the ECHO back into "Both" mode.

This about concludes our discussion of the TEXTALKER commands and operating modes. You should know that you may combine the modes in many different combinations. You can have, for example, the "Flat pitch" mode and "Letter" mode and the "All punctuation" mode all active at the same time. If you need to review these commands; see the reference card for a complete listing, along with brief explanations of the commands.

SPEAKEASY(TM) TUTORIAL

The SPEAKEASY program generates speech very differently from the TEXTALKER programs. In the TEXTALKER programs, you printed a word and the ECHO spoke the word. In SPEAKEASY you will be printing phonemes to generate speech. Phonemes are the smallest distinguishable sound units of a language. The word "speech," for example, is composed of six letters, but only four phonemes: they represent the "s" sound, the "p" sound, the "long e" sound and the "ch" sound. Since SPEAKEASY works at the phoneme level, you will be able to have words pronounced exactly as you wish. SPEAKEASY was developed to be used within your programs, to give them new animation and uses. Also, if you do not have a RAM card or can not spare the 8K of memory that the TEXTALKER programs require, SPEAKEASY will give you speech capability while using only 3K of memory.

There are a couple of ways to run SPEAKEASY. The TEXTALKER programs contain SPEAKEASY, so if you have already put TEXTALKER into memory, then SPEAKEASY is also already in memory. If you want to just use SPEAKEASY, and we will assume in our examples that this is the case, then just "boot" the diskette (this procedure is explained in detail in the section called "Booting a Diskette") and type:

B R U N S P E A K E A S Y

Using the SPEAKEASY (TM) program rather than a TEXTALKER program insures that SPEAKEASY will work even if you press RESET or issue a "PR#" command.

-SPEAKEASY TUTORIAL-

Your monitor or television screen should look like this:

```
SPEAKEASY
ECHO II PHONEME GENERATOR
VERSION 1.1
```

```
COPYRIGHT 1981 STREET ELECTRONICS CORP.
```

```
]
```

Don't worry if your version number is different.

ENCODING PHONEMES

To use SPEAKEASY you will need to have the reference card handy. There you will find a table which shows all of the phonemes and associated SPEAKEASY codes that you will be using to create speech. The first column contains an example of a common word containing a clear instance of a sound. The second column shows the common dictionary symbol for the sound, and the third shows the symbol that you will actually be typing into the computer to represent that sound. Using this table we can see that the word "speech" (to continue with our previous example) would be written in SPEAKEASY code as SP&C. The word "echo" would be EKO.

To actually hear the ECHO speak these words, type in the following short program:

```
20 V$=CHR$(22)
30 PRINT V$"EKO"
40 PRINT V$"SP&C"
50 PRINT "DONE"
```

-SPEAKEASY TUTORIAL-

Now type:

L I S T

Double check your listing of the program you just typed in against the listing in this manual. As always, if there are any mistakes retype the line and list again. The way this program will work is that line 20 will make "V\$" equal to a Control-V ("V" being the 22nd letter of the alphabet). This is done because every word that you want to have spoken by SPEAKEASY will have to be preceded by a Control-V. Line 30 will print the "value" of V\$ (Control-V), thus alerting the SPEAKEASY program that it must speak the phoneme codes which follow it (E,K, and O). Line 40 will similarly say "S," "P," "&" and "C." Line 50 will print "DONE" without speaking because there is no Control-V preceding it. Try the program now by typing:

R U N

It is useful to note that SPEAKEASY will pronounce everything following a Control-V until it encounters a "carriage return." In BASIC a carriage return is automatically generated at the end of each PRINT command unless it is followed by a semi-colon (;). To better understand and use this feature, retype lines 30 and 40 like this:

```
30 PRINT V$"EKO";  
40 PRINT "SP&C"
```

Type "LIST" to review the program and double check your changes and then "RUN" the program again. This time the ECHO said both "EKO" and "SP&C" even

-SPEAKEASY TUTORIAL-

though, on line 40, "SP&C" was not preceded by a Control-V (V\$). This is because line 30 ended with a semi-colon which cancelled the carriage return which would have told SPEAKEASY to stop speaking.

THE PHONEME EDITOR

SPEAKEASY also includes a phoneme editor which makes experimentation with putting words into their phoneme codes easier. To enter the editor simply type:

You will now see a quotation mark for a prompt.
Now type:

The ECHO will say "EKO." Note that a Control-V was not necessary. You can continue to type in words and hear them pronounced in this manner, making changes using the Apple's normal editing commands. You may also type in more than one encoded word at a time. Try typing "I am ECHO" which encodes as:

When you are finished experimenting, you can quit the editor by pressing RETURN instead of entering any phoneme codes. Use this editor to type in the words for the rest of the examples presented.

-SPEAKEASY TUTORIAL-

INFLECTION/STRESS

Type:

E K O

Listen carefully. Now type:

E 3 K O

Note that this time the "E" is more stressed. The number 0,1,2 or 3 following a vowel, diphthong or "r-colored vowel" (you will see these categories on your reference card) determines the stress of that phoneme. If no stress number is given then a value of 2 is used. Using a 3 gives greater stress by making the phoneme higher in pitch, longer in duration, or both. Try retyping "E3KO" and substituting 2,1 and 0 for the 3. The 1 reduces the stress placed on the phoneme by making it lower in pitch and shorter. A stress of 0 reduces the sound to what is termed a "schwa." The schwa also has its own code (') which can be used.

PITCH AND RATE

The base pitch of the ECHO is set using the same commands that we used in TEXTALKER (i.e. Control-E40P, Control-E40F...). These are outlined in more detail in the TEXTALKER tutorial. You may also set the rate of speech (speed) using TEXTALKER commands (i.e. Control-E C and Control-E E). These commands can not be issued from within the phoneme editor, however. (If you have already tried it, press Control-RESET.) To issue these commands,

-SPEAKEASY TUTORIAL-

exit the editor by pressing RETURN instead of entering any phonemes. Now enter the command as you would in TEXTALKER, for example:

CTL
P R I N T " E 4 O P "

Now re-enter the editor by typing:

& RETURN

SPEAKEASY allows you to adjust the pitch within a word too. Simply insert a number from 1 through 9 anywhere within a word except following a vowel or a diphthong (where it would be considered a stress number). The base pitch is 5 and 9 is the highest pitch. The pitch will remain at the new level until it is reset, or until the first "stop consonant" or "fricative" is encountered. Try typing:

9 ! 3 7 A M 5 A N 3 E 3 K 1 O 3

The numbers in bold print set the pitch level, while the numbers following the vowels set the stress level as explained earlier. This may seem a little confusing at first, so try experimenting with different combinations and familiarize yourself with the system.

Another way to modify the pitch is by using the symbols ">," "<" and "=". The ">" symbol will set up a pattern of rising pitch, the "<" symbol sets up a pattern of falling pitch, and flat pitch is set up using the "=" symbol. All sounds will continue to vary in the pitch pattern that you have

-SPEAKEASY TUTORIAL-

set until either a fricative, stop consonant, or a pitch level change is encountered. Try typing the word "help" using these symbols. You might type:

H > E E E E L L L L P

or...

H < E E E E E E E E E E E E > L L
L L L L L L L L L L L P RETURN

VOLUME CONTROL

SPEAKEASY allows you to adjust the volume of speech within your programs by using "+" and "-." Typing a "+" increases the volume and the "-" decreases it. You may also type a series of "+"s or "-"s, just as you did with the pitch symbols. For example type:

E K O - - E K O - - E K O - - E K
O + + + + + E K O RETURN

The volume will remain modified until it is explicitly changed again using the "+" or "-" commands. When TEXTALKER or SPEAKEASY is first RUN, the volume is already set at about the maximum level. Increasing the volume one level above this will increase the volume of fricatives without a corresponding increase in the voiced sounds.

PAUSES

The SPEAKEASY program ignores spaces between words although we recommend that you type them for better

-SPEAKEASY TUTORIAL-

legibility. To make SPEAKEASY pause, use a comma. The comma may be followed by a number to vary the length of the pause. A 1 is a short pause while a 9 gives a long pause. Type in this demonstration:

E	K	O	E	K	O	,	1	E	K	O	,	3	E	K	O	,
5	E	K	O	,	7	E	K	O	,	9	E	K	O	E	K	O
RETURN																

If no number is used, a value of 2 is assumed.

Try:

E	K	O	,	E	K	O	,	2	E	K	O	RETURN
---	---	---	---	---	---	---	---	---	---	---	---	--------

The pauses between the words are identical.

SPEAKEASY is really not difficult to use, though, due to its high degree of flexibility, you probably feel that there is an awful lot to remember.

Practice by using the sample vocabulary in Appendix A and also a dictionary, which will help you encode words when used in conjunction with your reference card. There is also a program on the diskette called "PHONEME TRANSLATOR". This program will show the phonemes that TEXTALKER generates when it translates text to speech.

FEATURES TO AID BLIND USERS

Extra commands designed to help the blind user are contained in both TEXTALKER.RAM and TEXTALKER.BLIND. You will want to use TEXTALKER.RAM if you own a RAM card; otherwise use TEXTALKER.BLIND.

Type:

B R U N T E X T A L K E R . R A M

or

B R U N T E X T A L K E R . B L I N D

After the disk stops spinning, the following message will be displayed on the screen:

TEXTALKER (TM)
ECHO II SPEECH GENERATOR
VERSION 1.3

COPYRIGHT 1981 VISEK,MAGGS,STREET & KORY

Type in the word "PRINT", but do not press RETURN. Now press the left arrow key (←) a few times. Notice that as you back up the cursor, the ECHO will pronounce the letters that the arrow is passing over. Now press the right arrow key (→) a few times. It also speaks. The right arrow will do this in all versions of TEXTALKER, but the left arrow speaks only in TEXTALKER.RAM and TEXTALKER.BLIND. Only the characters normally pronounced in the punctuation mode currently set will be spoken.

-FEATURES TO AID BLIND USERS-

MODES

LINE REVIEW MODE: provides a controllable audio cursor. You may move this invisible cursor around the screen to review what is currently on the screen. To explore this, first type:

H O M E

This is an APPLESOFT command which clears the screen. Now type:

C A T A L O G

Since TEXTALKER begins in the "Both" mode, the catalog will be both spoken and printed to the screen.

To review the catalog which is now on the screen you must first type in the Line Review command:

CTL
L

The ECHO responded to this command by saying "review." It is now expecting Line Review commands. When you first enter Line Review mode you may enter any of the following commands (but do not type anything yet).

Any letter from A through X: Typing one of these letters will cause the audio cursor to be positioned at the beginning of the line which numerically corresponds to the letter selected. Pressing the letter "A" will position the cursor at the beginning of the first line. Pressing "B" will place it at the beginning of the second line, and

-FEATURES TO AID BLIND USERS-

so on to the twenty-fourth line (X).

Z : Pressing Z will place the audio cursor at the same vertical and horizontal position as the normal video cursor.

SPACE BAR: Pressing the Space Bar will cause the ECHO to tell you the current vertical and horizontal position of the cursor. It will then exit line review mode.

A Control Character: Typing a Control character will change the command used to enter Line Review mode. This procedure is identical to that used to change the Control-E command in TEXTALKER.

Now press the Space Bar. The ECHO responded by saying a letter, corresponding to the vertical position of the cursor, and then two numbers, which correspond to the horizontal position of the cursor. The leftmost position is zero. To reenter the Line Review mode type:

CTL

L

and then...

D

The ECHO confirmed your choice by saying "Line D." There are now several new commands available to you. You may find it helpful to use your reference card as we explain them to you.

-FEATURES TO AID BLIND USERS-

Press the right arrow twice:



Please remember that commands in Line Review mode should not be followed by pressing RETURN.

The ECHO just said "disk volume." Now press the left arrow once:



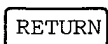
The ECHO said "volume." (The last word it had spoken.) Now type:



and



The ECHO said the letters "v," "o" and "l." What did we just do? When you first entered Line Review mode you were also in Word mode; that is, pressing the arrow keys moved the cursor right or left by one word at a time. Pressing the letter "T" allows you to Toggle between (switch between) Word mode and Letter mode. In Letter mode the cursor moves letter by letter. Press "T" again. You are now back in Word mode. Press the arrow keys and check if you are not convinced. Now return the cursor to the beginning of the line and press:



-FEATURES TO AID BLIND USERS-

The ECHO said "Disk Volume 254." This is because pressing the RETURN key causes the ECHO to speak the entire line, starting from its current position. When it finishes speaking the line, the cursor will be back at the leftmost position of the same line.

To move the cursor from line to line type:

i

and you will move up one line. To move down one line type:

/

When moving up and down the cursor will always move to the beginning of the new line. Try moving to line F (the fifth line) and experiment with these new commands on the first catalog entry. Now move back to line C and type a comma:

,

The ECHO will say "to" and wait for you to indicate up to what line you would like it to read. You will respond with a letter corresponding to a line number greater than (further along in the text than) the current line. For example press:

G

The ECHO will now read lines C through G to you.

-FEATURES TO AID BLIND USERS-

Finally, pressing:

ESC

will exit Line Review Mode, leaving you exactly where you were before you entered it. Since Line Review mode exits with all APPLESOFT variables and pointers intact, you may enter Line Review mode any time a program prompts you for a answer. Simply type:

CTL

L

then review the screen using the appropriate commands and exit Review mode before answering the question.

TECHNICAL or ADVANCED INFORMATION

The heart of the ECHO][is Texas Instruments' TMS 5200 speech processor. This circuit is an upgraded version of the one used in the Speak & Spell (trademark of Texas Instruments) which models the human vocal tract using LPC (Linear Predictive Coding). Instead of storing the actual speech signal, only those parameters needed to describe each speech sound are stored. This accounts for the compactness of the TEXTALKER system, which takes up no more memory than a HIRES page.

TEXTALKER uses nearly 400 rules of pronunciation and many common exceptions to these rules to analyze a word. After analyzing the word, TEXTALKER generates the standard SPEAKEASY phoneme and pitch codes. TEXTALKER then sends these codes to SPEAKEASY which actually pronounces the word. TEXTALKER is ,therefore, just a simpler way for the user to access SPEAKEASY. You may see the actual codes that TEXTALKER generates by running the PHONEME TRANSLATOR program that you will find on your TEXTALKER MASTER disk.

TEXTALKER AND PR#0

If you type PR#0 when TEXTALKER is installed, TEXTALKER actually does the equivalent of a PR#0 and an IN#0. Therefore, any device previously activated by a IN#n will be disconnected.

-TECHNICAL or ADVANCED INFORMATION-

USING TEXTALKER AND SPEAKEASY
FROM MACHINE LANGUAGE

To use TEXTALKER when programming in machine language simply do a JSR to "COUT" (\$FDED) putting the character to be sent into the accumulator. For example, the following program will result in the ECHO saying "HI."

```
A9 C8      LDA #$C8      ;"H"
20 ED FD    JSR $FDED     ;COUT
A9 C9      LDA #$C9      ;"I"
20 ED FD    JSR $FDED     ;COUT
A9 8D      LDA #$8D      ;[RETURN]
20 ED FD    JSR $FDED     ;COUT
60         RTS           ;DONE
```

SPEAKEASY is accessed similarly except that that all phoneme strings must begin with a Control-V (\$96) and end with a RETURN (\$8D). For example, to say "HI" you would write the following routine:

```
A9 96      LDA #$96      ;CTRL-V
20 ED FD    JSR $FDED     ;COUT
A9 C8      LDA #$C8      ;"H"
20 ED FD    JSR $FDED
A9 A1      LDA #$A1      ;"!"
20 ED FD    JSR $FDED
A9 B3      LDA #$B3      ;"3"
20 ED FD    JSR $FDED
A9 8D      LDA #$8D      ;[RETURN]
20 ED FD    JSR $FDED
60         RTS           ;DONE
```


-TECHNICAL or ADVANCED INFORMATION-

CHANGING THE FREQUENCY

All ECHOs are set at the factory to speak at the same pitch and rate of speed. However, you may modify this by adjusting the frequency potentiometer (pot) on the ECHO. Adjusting this pot will modify both the pitch and rate of speech. A higher frequency will cause the ECHO to speak faster and with a higher pitch. Lowering the frequency will do the opposite. The pot is in the upper left hand corner of the ECHO, under the word ECHO and above the word "FREQ". Before you make any adjustments, you should do two things: first, turn off the power; second, you should make a small mark on the pot so you will be able to return it to its original position if you desire. Now, insert a small screwdriver in the slot on the pot, and turn it counter clockwise to lower the frequency and clockwise to increase the frequency.

SPEAKEASY PHONEME CATEGORIES

The types of sounds represented by the phoneme codes are divided into six categories. A brief description of each category follows. (It is NOT necessary that you understand these definitions for you to be able to use SPEAKEASY. These brief explanations are provided for your personal enrichment.)

VOWELS: In pronouncing vowels the air flows uninterrupted through the vocal cords and lips. (The English vowels are a,e,i,o and u.)

DIPHTHONGS: These are the combination of two vowel sounds within one syllable. (Commonly there is only

-TECHNICAL or ADVANCED INFORMATION-

one vowel per syllable.) To get a feel for this phenomenon, say the word "cake" very slowly and listen to how the "long a" sound moves into a "y" sound before the final "k."

"R" COLORED VOWELS: The "r" following these vowels modifies the sound of the vowel.

VOICED CONSONANTS and UNVOICED FRICATIVES: Each of the voiced consonants is created by vibrating your vocal cords. Place your fingertips against your adam's apple and say the voiced consonant "zzzzzzzzzz." The sensation you feel with your fingertips is the vibration of the vocal cords. Contrast this with the lack of sensation which should result when you say the unvoiced fricative "ssssssssss." The "s" sound is not produced by vibrating the vocal cords, but through friction, produced as air flows over various parts of the vocal tract.

STOP CONSONANTS: The flow of air is completely cut off before we pronounce a stop consonant. Say the word "tall." Because the "l" is not a stop consonant, we flow smoothly from the "a" sound to the "l" sound. Now say "tab." "B" is a stop consonant and you will find that you actually pause, very briefly, before you pronounce the "b."

USING THE ECHO][WITH COMMERCIAL PROGRAMS

You may use TEXTALKER to make some programs speak which were not explicitly designed to run with a speech synthesizer. You would do this by running a TEXTALKER program before running your program.

However, there are limitations:

(1) You must be able to run your program without booting another diskette. The reason for this is that the TEXTALKER programs modify DOS when they are first run. If you boot another diskette you replace the modified DOS with a new DOS.

(2) For similar reasons, your program must not modify DOS when it runs.

(3) If your program resets memory pointers (i.e. HIMEM, LOMEM), or requires more than 30K of memory, you will need to use TEXTALKER.RAM.

APPENDIX A - SAMPLE PHONEME VOCABULARY

A - @	N - EN
AND - AND	NO - NO
ANSWER - A3NS'R	NUMBER - NUMB'R
APPLE - A3P'L	
	O - O3
B - B&	OFF - *F
BYTE - B!3T	ON - *N
	OPEN - OP'N
C - S&	
CATALOG - KA3DIL*G	P - P&
CORRECT - KORE3KT	PROGRAM - PRO3GRAM
D - D&	Q - K%3
DECIMAL - DE3SIM'L	QUESTION - KWESC'N
DIVIDE - DI!V!3D	
	R - ;R3
E - &	RETURN - R&T'R3N
EQUALS - &3KW'LS	
EXCLAMATION -	S - ES
EKSKL'M@3SHUN	SORRY - S;R3&
	SPELL - SPEL
F - EF	
FIRST - F'IRST	T - T&
	THAT - (AT
G - J&	THE (&3
GOOD - GQ3D	THOUSAND -)#3ZS'ND
H - 'C	U - %3
HELLO - HEL01	UNDERSTAND -
	UND'RSTA3ND

-APPENDIX A - SAMPLE PHONEME VOCABULARY-

I - !3

INCORRECT - INKORE3KT

J - J@

K - K@

KEYBOARD - K&3BORD

L - EL

M - EM

MEMORY - MEM'R&1

MULTIPLIED - MULTIPL!1D

V - V&

W - DUBI%1

WHERE - W@R3

WRONG - R*/

X - EKS

Y - W!3

YES - YES

Z - SZ&

APPENDIX B
USING THE ECHO TO ANSWER A TELEPHONE
WITH AN APPLE-CAT MODEM

The ECHO may be used in conjunction with a modem with "automatic answer" capability, to enable you to receive information over the telephone. It can even be used this way as a telephone answering machine. We are including a listing of a sample program which uses the ECHO][and an Apple-Cat (TM of Novation Inc.) modem with the Touch Tone (TM of the Bell System) decoding option.

This program allows you to telephone your Apple computer and to check and modify an itemized inventory. By following the instructions included with the Apple-Cat modem, you could also develop the capability of storing voice messages on a tape recorder like an answering machine.

Our sample program does the following things. First, when you call your Apple, the modem will answer the phone. The ECHO will then ask you for a password, and then an inventory item number. You respond to these prompts by simply typing in the numbers on any Touch Tone telephone. The modem will decode the Touch Tones and make them available to the program, which will send them to the ECHO to be spoken.

The program has quite a few remark statements, which should help you follow and better understand its logic.

You connect the ECHO to the Apple-Cat as follows:

1. Purchase a cable which has a mini-jack on one

-APPENDIX B - ANSWERING THE PHONE WITH AN ECHO-

end, and stripped wires on the other end. Radio Shack sells one as part number 42-2434.

2. Plug the mini-jack into the ECHO.

3. Connect the stripped ends of the cable to the Apple-Cat so that the wire which corresponds to the tip of the cable (positive) is connected to pin 24 of the interface pins on the Apple-Cat. The other wire (negative) must be connected to pin 25. If you are unable to purchase a connector to fit on these pins, you will have to solder the connection. Soldering may, however, void your Apple-Cat warranty--check with Novation.

```
0 REM  ECHO AND APPLE CAT EXAMPLE
4 SL = 2: REM  SLOT NUMBER OF CAT
5  DIM C(20),N(20)
7  D$ =  CHR$ (4)
8  PW$ = "321": REM  THIS IS YOUR PASSWORD
10 REM  CAT INVENTORY
20  GOSUB 1000
30  POKE 2040 + SL,0: REM  FORCE INITIALIZATION
40  PRINT D$"PR#"SL: PRINT  CHR$ (16): PRINT
D$"PR#0": REM  ENTER PHONE MODE (16= CTRL P)

50  PRINT D$"IN#"SL: REM  WAIT FOR A PHONE CALL
60  GET A$: IF A$ =  CHR$ (13) THEN 100: REM  WE
GOT A PHONE CALL
70  IF A$ = "Q" THEN  END : REM  IF A Q WAS TYPED
AT THE KEYBOARD THEN QUIT
80  GOTO 60: REM  IF NOT Q THEN TRY AGAIN
100 REM  ANSWER PHONE
```

-APPENDIX B - ANSWERING THE PHONE WITH AN ECHO-

```
105 P$ = ""
115 PRINT ",,,,,,,,,": REM  DELAY
120 PRINT "HELLO, PLEASE TYPE IN YOUR PASSWORD"
140 GET A$: IF A$ = CHR$ (13) THEN 900: REM
TIME OUT SO HANG UP
150 IF A$ = "#" THEN PRINT : GOTO 170
160 P$ = P$ + A$: GOTO 140
170 IF P$ < > PW$ THEN 900: REM  WRONG PASSWORD
SO HANG UP
180 PRINT
190 PRINT "PLEASE ENTER PART NUMBER"
195 C$ = ""
210 GET A$: IF A$ = CHR$ (13) THEN 900: REM
TIMEOUT SO HANGUP
220 IF A$ = "#" THEN 300: REM  END OF PART NUMBER
230 IF A$ = "*" THEN 180: REM  '*' MEANS START
OVER
240 C$ = C$ + A$
250 PRINT A$: GOTO 210
300 REM  SEE IF VALID PART NUMBER
305 PRINT
310 C = VAL (C$)
320 FOR A = 1 TO X: IF C(A) = C THEN 340
325 NEXT A
330 PRINT "BAD PART NUMBER": GOTO 900: REM  IF
BAD PART THEN HANG UP
340 PRINT "THE CURRENT INVENTORY OF PART NUMBER
"C",IS "N(A)","ITEMS"
350 PRINT ",,,": REM  PAUSE
360 PRINT "ENTER A ONE IF YOU WOULD LIKE TO
REMOVE ITEMS FROM INVENTORY"
370 PRINT ",,,"
380 PRINT "ENTER A TWO TO CHECK THE INVENTORY OF
ANOTHER PART"
390 PRINT ",,,"
```


-APPENDIX B - ANSWERING THE PHONE WITH AN ECHO-

```
400 PRINT "ENTER A STAR IF YOU ARE DONE"
420 GET A$: IF A$ = CHR$ (13) THEN 500
430 IF A$ = "*" THEN 900
440 IF A$ = "2" THEN 180
450 IF A$ < > "1" THEN 500
462 K$ = ""
465 PRINT "PLEASE ENTER AMOUNT TO REMOVE"
470 GET A$: IF A$ = CHR$ (13) THEN 500
475 IF A$ = "#" THEN 500
480 IF A$ = "*" THEN 460
490 PRINT A$
495 K$ = K$ + A$: GOTO 470
500 REM REMOVE ITEMS FROM INVENTORY
510 N(A) = N(A) - VAL (K$)
530 GOTO 340
900 REM HANG UP
905 PRINT "GOOD BYE"
910 PRINT D$"PR#"SL: PRINT CHR$ (26): PRINT
D$"PR#0"
920 GOTO 40
1000 REM INIT ARRAY
1010 X = 1
1020 READ C(X),N(X)
1030 IF C(X) = 9999 THEN RETURN
1040 X = X + 1: GOTO 1020
2000 DATA 1234,500
2010 DATA 321,250
2020 DATA 555,365
7060 GET A$: IF A$ = CHR$ (13) THEN 100
9999 DATA 9999,9999
```

BLIND USER COMMANDS

These commands are available when using
TEXTALKER.BLIND and TEXTALKER.RAM.

CTRL-L enters Line Review mode. One of the
following commands must immediately follow:

- A thru X : Selects line to review. A is the
top line.
- Z : Selects current line and horizontal
position.
- SPACE : Speaks the current position on
screen and then exits.
- CTRL-n : n may be any letter except H,J,M or
U. Changes command to enter Review
mode.

Once in Review mode these commands are available:

- SPACE : Same as above except does not exit.
- T : Toggles between Word and Letter mode.
- ← : Left arrow moves the audio cursor to
the left.
- : Right arrow moves the audio cursor to
the right.
- ; : Moves audio cursor to the beginning
of line above current line.
- / : Moves audio cursor to the beginning
of line below current line.
- , : Echo will say "to" and wait for a
letter. The Echo will then read all
lines from the current line to the
line corresponding to the letter
entered.
- RETURN : Echo will read entire line starting
at current position.
- ESC : Exits Line Review mode.

MEMORY USAGE

	<u>INITIAL</u>	<u>INSTALLED</u>	<u>HIMEM</u>
TEXTALKER	\$7400-\$75FF	\$7600-\$95FF	30208
TEXTALKER.BLIND	\$7100-\$72FF	\$7300-\$95FF	29440
TEXTALKER.RAM	\$9300-\$950F	\$D800-\$FFFF	-----
SPEAKEASY	\$8900-\$89FF	\$8900-\$95FF	35328

TEXTALKER COMMANDS

OUTPUT MODES

PRINT ONLY	CTRL-EO
TALK ONLY	CTRL-ET
*BOTH	CTRL-EB

PITCH (n=1 to 63) *22

FLAT	CTRL-EnF
------	----------

*INTONATION	CTRL-EnP
-------------	----------

VOLUME (n=0 to 15) *12

	CTRL-EnV
--	----------

RATE

COMPRESSED (FAST)	CTRL-EC
-------------------	---------

*EXPANDED (SLOW)	CTRL-EE
------------------	---------

PUNCTUATION SPOKEN

*SOME (#\$%&+/- = @)	CTRL-ES
----------------------	---------

MOST	CTRL-EM
------	---------

ALL (LF,CR,SPACE)	CTRL-EA
-------------------	---------

PRONUNCIATION

*WORDS	CTRL-EW
--------	---------

LETTERS	CTRL-EL
---------	---------

CHANGING CTRL-E

CTRL-E CTRL-n

where n is any letter except H,J,M, or U.

*modes set automatically when TEXTALKER is first run.

SPEAKEASY COMMANDS

All phoneme words must be preceded by a CTRL-V.
PITCH, RATE and VOLUME commands are the same as in
TEXTALKER.

SPEAKEASY PHONEME CODES

VOWELS

<u>cat</u>	a	A
<u>lot</u>	o	;
<u>caught</u>	ô	*
<u>let</u>	e	E
<u>see</u>	ē	&
<u>hid</u>	i	I
<u>book</u>	oo	Q
<u>but</u>	u	U
<u>due</u>	ōō	:
<u>about</u>	ə	'

DIPHTHONGS

<u>cake</u>	ā	@
<u>tie</u>	ī	!
<u>toe</u>	ō	O
<u>pound</u>	ou	#
<u>toil</u>	ôī	?
<u>you</u>	ū	%

"R" COLORED VOWELS

<u>car</u>	är	;R
<u>chair</u>	âr,er	@R
<u>her</u>	ũr,ẽr	'R
<u>hear</u>	êr	&R
<u>fire</u>	īr	!R
<u>for</u>	ôr	OR
<u>tour</u>	oor	QR
<u>hour</u>	our	#R

INFLECTION

STRESSED - 3 NORMAL - 2 REDUCED - 1 SCHWA - 0

PITCH

RISE - > FLAT - = FALLING - < PAUSE - ,

VOICED CONSONANTS

<u>let</u>	l	L
<u>many</u>	m	M
<u>no</u>	n	N
<u>sing</u>	ŋ	/
<u>red</u>	r	R
<u>this</u>	ʔ	(
<u>very</u>	v	V
<u>wet</u>	w	W
<u>yes</u>	y	Y
<u>zero</u>	z	Z
<u>azure</u>	zh	X

STOP CONSONANTS

<u>bat</u>	b	B
<u>dog</u>	d	D
<u>get</u>	g	G
<u>kick</u>	k	K
<u>pet</u>	p	P
<u>tie</u>	t	T
<u>check</u>	ch	C
<u>job</u>	j	J

UNVOICED FRICATIVES

<u>fit</u>	f	F
<u>hat</u>	h	H
<u>see</u>	s	S
<u>she</u>	sh	\$
<u>think</u>	th)



