



INTRODUCTION TO SOFTWARE



**INTRODUCTION
TO
KAYPRO SOFTWARE**

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USING THE SOFTWARE

Before using this manual, read the KAYPRO User's Guide to learn how to operate your computer.

The software described here is either included with your KAYPRO or is available as an option from your KAYPRO dealer.

If you are using these programs on the KAYPRO 2 or the KAYPRO 4:

1. Put the program diskette into drive A.
2. Into drive B put an empty, formatted diskette to receive the information that you type into the computer. Instructions for formatting a diskette are in the KAYPRO User's Guide.
3. Reset the computer by pressing the reset button on the back panel, or by pressing the CTRL key and the C key simultaneously.
4. Follow the instructions for each program.

Do not cover the write-protect notches on your working diskettes. If these notches are covered, the software WILL NOT OPERATE properly.

If you are using these programs on the KAYPRO 10:

1. From the Master Menu, choose a program; the computer will go to that program.
2. If the program is not on the Master Menu, press ESCape; when you see the A> prompt, find the location of the program by typing: d \$uvs
Press RETURN.
3. When you have found the user area number (UN), continue to the end of the directory. When you see the A0> prompt, type: user
Then type the user area number.
Press RETURN. The A> prompt will appear with the proper user area number.
Now you can use the program.

On the following pages is specific information for starting some of these programs. For full information on each program, consult the manual for that program.

WORD PROCESSING WITH PERFECT WRITER

Included with the Perfect software is a LESSONS disk which introduces you to Perfect Writer commands.

For the KAYPRO 2 or KAYPRO 4:

1. Insert the working copy of the EDIT disk into drive A.
2. Insert the working copy of the LESSONS disk into drive B.
3. Reset the computer as instructed on page 1.
4. After the A> prompt, type: MENU
Press RETURN.

For KAYPRO 10, go to the proper user area by using the instructions on page 1.

THEN —

5. When the Perfect Writer menu appears, type: E
6. When the prompt asks what file you want to edit, type: B:LESSON0
Press RETURN.

After about half a minute, Lesson0 will appear on your screen.

During the lessons, you will be told to leave the lesson and then come back. To get back into each lesson from the Perfect Writer main menu:

- Choose Edit by typing: E
- For the KAYPRO 2 or KAYPRO 4, type the drive letter: B:
- Indicate the lesson number by typing:

LESSON1 (or whatever lesson number)

Don't leave a space between LESSON and the number.

When you are ready to write a document with Perfect Writer:

1. For the KAYPRO 2 and KAYPRO 4, put the working copy of the Perfect Writer EDIT disk in drive A and a formatted disk in drive B.

The KAYPRO 10 is ready if the computer is in the proper user area for Perfect Writer.

2. Call up the menu, and choose Edit by typing: E
3. When asked at the bottom of the screen which file you wish to edit, type:
B:<filename>.MSS

<filename> is a descriptive name of your document-to-be. It can have no more than eight characters. Do not type the angle brackets, < >.

4. A new file screen will appear, and you can start writing.

Two commands should be learned immediately:

The Save File Command

After you have written some text, save that text by holding down the CTRL key and pressing the X key (this will be designated as CTRL-X); then hold down the CTRL key and press the S key (CTRL-S). So the Save File command is:

CTRL-X CTRL-S

In the bottom left corner of the screen, you will see the message, Writing..., as the file is being saved. The message, File Written, will appear when the file has been completely saved.

The Close File Command

When you're through writing, first save the file. Then close the file by typing:

CTRL-X CTRL-C

For complete information, consult the Perfect Writer User's Guide.

On this disk is a file, KPLRN, from which you can learn about CP/M:

1. Follow the directions above for getting ready to use Perfect Writer.
2. Then, when asked for the file name, if you are using the KAYPRO 2 or KAYPRO 4, type: B:
3. Then, type: KPLRN
The KPLRN file will appear for you to read.

PERFECT WRITER CONFIGURATION TIPS

If Perfect Writer is not printing properly, you probably need to configure your working copy of the Perfect Writer EDIT disk for your printer.

For the KAYPRO 2 and KAYPRO 4, do steps 1 and 2:

1. Put your working copy of the EDIT DISK in drive A.
2. Put your working copy of the Perfect Writer INSTALLATION disk in drive B.

For the KAYPRO 2 or the KAYPRO 4 or the KAYPRO 10:

3. Press the RESET button on the back panel.
4. After the A> prompt, type: B:PFCONFIG
Press RETURN.
5. Read the display, and follow the prompts to the master menu.
6. To choose #2 from the menu, type: 2
Press RETURN.
7. When the printer menu appears, choose #1. If your printer is listed, you will use it in the next step.
8. Choose #5 from the printer definition menu. The current default printer and type for console output will be displayed. If your printer was listed in the last step, enter that name. If your printer wasn't listed, enter: PLAIN

The default printer type, PLAIN, works for most dot-matrix printers; the printer type, TELETYPE, works for most letter-quality printers.

9. For the name of the type for console output, enter: CONSOLE
10. Then return to the main menu (choose #6).
11. Lastly, exit the configuration program (choose #6 from the main menu).

One last note: If your printer wasn't listed in step 6, and if the PLAIN, TELETYPE, or VANILLA printer types don't work for your printer, you will either have to define a new printer type (#2 on the printer menu) or update an existing printer definition (#3 on the printer menu), such as PLAIN. You will be asked several detailed questions concerning your printer if you define a new printer type, so either have your printer owner's manual handy or ask your dealer for help.

We have been talking about the program, PFCONFIG, used for configuring Perfect Formatter. The program, PWCONFIG, which is mentioned in the Perfect Writer manual, is for configuring Perfect Writer for a particular computer terminal. It is not included with the Perfect Writer software, because Perfect Writer is already configured for the KAYPRO terminal.

WORDSTAR

For the KAYPRO 2 and KAYPRO 4:

1. Insert the WordStar working copy diskette in drive A.
2. Insert a blank, formatted diskette in drive B.
3. Type: WS
Press the RETURN key. After a short period, commands will appear at the top of the screen.

For the KAYPRO 10, choose WordStar from the Master Menu.

THEN —

4. Choose to open a document file by typing: D
5. Start a file by typing: B:
6. Then type a file name of no more than eight characters. You may add a period and an file type of no more than three letters.
Press RETURN.
7. Start typing on the blank screen.

The main menu displays the keystrokes for all of the basic text editing commands. This menu is displayed whenever you are working in a file. Choosing Help from the WordStar Main Menu will lead to other menus with information and commands to use.

When you have finished entering and editing your text, save the file and exit by entering CTRL-K X (depress the CTRL key and the K simultaneously, then release both keys and press X).

The WordStar manual will give complete details about the many features of WordStar. It also has information about installing your printer, if that is necessary.

Your WordStar disk has already been installed for your KAYPRO. Please disregard all references in the WordStar manual to terminal installation and the file WSU.COM.

Test your printer, using the file: EXAMPLE.TXT

- If you don't get a printout, check the cable connection.
- If the printout does not display the features of which your printer is capable, such as underscore or boldface, use the INSTALL program for WordStar. You may need help from your dealer.

DATA BASE MANAGEMENT WITH PERFECT FILER

Data base management means that you type in data records, such as lists of customers, employees, clients, or merchandise. This data can then be output as sales records, mailing labels, inventory lists, etc. Perfect Filer is a program which allows you to do this. To use all of the capabilities of Perfect Filer, please read the Perfect Filer manual, and follow the tutorials.

You have the option of using either of two predefined data bases or creating a custom data base. The use on the KAYPRO 2 or KAYPRO 4 of either of the two predefined data bases requires that all files for whichever data base you will use be transferred to another diskette, using the CP/M program titled PIP. To do this:

1. Put the CP/M diskette into drive A.
2. Place a blank, formatted diskette into drive B.
3. Reset the computer by pressing the reset button or by entering CTRL-C.
4. Type: PIP
Press RETURN.
5. When the asterisk appears, remove the CP/M diskette from drive A.
6. Put the FILER disk into drive A.
7. After the asterisk, type the following file names exactly as they appear. Press RETURN after each file name.

```
B: = A: MEMBER.H
B: = A: SS.SAV
B: = A: LFORMDSC.SAV
B: = A: MFORMDSC.SAV
B: = A: LISTFORM.SAV
B: = A: LABEL.TXT
B: = A: DB.TXT
B: = A: DB.DEF
```

B:= A: SSLIST.SAV
B:= A: SSDESC.SAV
B:= A: MAILFORM.SAV
B:= A: LABEL2.TXT
B:= A: DATABASE
B:= A: HASHTAB
B:= A: MAILTEST.MSS

8. Press RETURN again. The A> prompt will appear.

Now those files which were on the diskette in drive A are also on the diskette in drive B. The diskette in drive B becomes the data base diskette.

9. After the A> prompt, type: FILER
Press RETURN.

The prompt will appear:

Enter disk drive containing data base:

10. Type: b

For the KAYPRO 10:

From the Master Menu, choose Perfect Filer. When the prompt appears asking you to enter the disk drive containing the data base, type: a
Press RETURN.

Refer to the tutorial in the Perfect Filer manual for entering and saving data in these preprogrammed data bases. Take your time as you go through it.

RETURN moves the X down a selection menu.

BACKSPACE moves the X up the menu.

Pressing the X key selects that option.

When entering data, do not use RETURN to move from one field to another, as it will add unwanted returns to the printed output.

You can have only one data base on a diskette (KP2 or KP4) and only one data base per user area (KP10). If you want to make another data base, you will have to set up another data base diskette (or user area, following the procedures for setting up a diskette). On the KAYPRO 10, if you will have more than one data base and they will be fairly small, it might be best to put the data bases on diskettes.

GETTING STARTED WITH PERFECT CALC

Perfect Calc has some business, professional, and personal applications already set up for you to use, or you can design your own spreadsheet.

A spreadsheet is a ruled type of paper used in business to organize numbers so that they are easy to use for calculations.

Spreadsheet

With Perfect Calc, you use the spreadsheet on the screen instead of on paper. The boxes taken vertically are columns. The boxes taken horizontally are rows.

Using Perfect Calc consists of:

- putting headings over the columns you will use and giving labels to the rows.
- entering the formulas which will tell Perfect Calc which calculations you want done with the data.
- entering data in the boxes.
- watching the calculations being done.

To use Perfect Calc to its fullest, you should read the manual and do the exercises given in the manual. If, for now, you want to take a peek at Perfect Calc:

For the KAYPRO 2 and KAYPRO 4:

1. Put the Perfect Calc working diskette in drive A. If you are using the KAYPRO 4, put the diskette with the preprogrammed files in drive B.
2. Reset the computer by pressing the reset button on the back panel or entering the command, CTRL-C.
3. Type: DIR B:
Press RETURN.

Now go to step 4.

For the KAYPRO 10:

For now, access Perfect Calc from the CP/M system by pressing ESCape from the Master Menu. In reading the Perfect Calc manual, you will learn how to read files into the spreadsheet; then it becomes practical to use the Master Menu.

1. Type: d \$uvs
Press RETURN.
Files with names or file types containing PC are Perfect Calc files.
Find the user area number for the PC files.
Continue through the directory until you see the A> prompt.
2. Type: user
Type the user area number for the PC files.
Press RETURN.
3. When you see the A> prompt with the appropriate user area number,
type: d
Press RETURN.

NOW — on the KAYPRO 2, KAYPRO 4, or KAYPRO 10:

You will see a list of the names of files for Perfect Calc, some of which are applications already set up to use as they are or to modify.

4. Type: PC B:CHECK.PC
Press RETURN.

The PC tells the computer that you want to use the Perfect Calc program.
CHECK.PC tells the computer that you want to use the check file.

While the program is loading, a blank spreadsheet will be displayed.

After the program has loaded, there will be displayed a check register program.

5. Using the arrow keys, move the cursor to the location following:
Beginning Balance =

Note: You can cancel commands by using CTRL—G.

6. Type an amount.

As you type the amount, it will appear in the status line at the bottom of the screen. If corrections are needed, use the DELETE key.

7. Press the RETURN key.

There will be a pause while the balance is entered.

8. Move the cursor to check number 1.

9. Type the number of the check with which you want to start.

10. Press the RETURN key.

Watch the numbers automatically change to follow the number you have entered. For now, skip the data and description columns.

11. Move the cursor to the Paid column.

12. Type the amount of the check.
Press RETURN. The register balance is automatically calculated.

13. Press the ESCAPE key.

14. Simultaneously press the shift key and the period (.) key.

The cursor will go to the bottom of the spreadsheet, where you will see a register (records) balance and a reconciliation balance.

15. Go to the top of the spreadsheet by simultaneously pressing the shift key and the comma (,) key.

When your checks are returned from the bank, you can enter a 1 in the Cleared column by each returned check, and your reconciliation balance will be automatically figured!

You can design your own spreadsheets and put in your own formulas for calculations. Read the Perfect Calc manual to learn to use the program to its fullest.

PROFITPLAN/MICROPLAN

THE MATHEMATICAL SPREADSHEETS

ProfitPlan and MicroPlan are similar and share the same command set. Therefore, we have combined them into one introductory section. Refer to the appropriate manual for more details.

Budgeting, forecasting, and financial planning are available with ProfitPlan/MicroPlan. Select a command, and ProfitPlan/MicroPlan will ask you for the necessary data and prompts on the screen.

Getting Started With ProfitPlan/MicroPlan

For the KAYPRO 2 and KAYPRO 4:

1. Insert your working copy of ProfitPlan/MicroPlan in drive A. The display will show: A>

For the KAYPRO 10:

1. Choose ProfitPlan/MicroPlan from the Main Menu, or find the proper user area, and go to that area.

Then —

2. Type: PLAN
Press RETURN.

The spreadsheet will appear on the screen.

Note: When HOME and CANCEL keys are mentioned, use the ESCape key.
When the BACKSPACE key is mentioned, use the DELete key.

On the right side of the display are the first 20 commands. Commands 1 through 6 are for groups of command headings; typing one of these numbers gives you access to a group of commands:

FORMAT includes commands 16 through 28. With them you can name rows, name columns, specify width and move columns, set decimals, etc.

DATA includes commands 29 through 39. You can enter data, move the data pointer, fix, nullify, and go to.

MATH includes commands 40 through 58. They provide the means to add, subtract, multiply, divide and perform all four operations with a constant, as well as round off, etc.

PRINT includes commands 80 through 86. These enable you to choose report options, print reports on the printer, save to a disk file, etc.

STATUS includes commands 90 through 102. These display, and allow entry of, range settings, mode selection, and the order in which computations are made.

UTILITY includes commands 105 through 118. These enable you to retrieve your table from a disk, save data on a disk, clear all data, reset, list and erase.

To cancel a command for ProfitPlan, press the DELeTe key.

To cancel a command for MicroPlan, press the ESCape key.

To access PC files, precede the file name with: PC and a space.

ProfitPlan/MicroPlan comes with tutorial material in the manual. Refer to the ProfitPlan/MicroPlan manual for further details.

A SPELLING CHECKER — THE WORD PLUS

The WORD Plus not only checks the spelling of a document, but it:

- finds rhyming words
- looks up correct spelling
- locates anagrams
- counts the words you have written
- locates homonyms
- lists the frequency of words used
- alphabetizes word lists

Complete instructions are in the WORD Plus manual.

MICROSOFT BASIC-80 — THE PROGRAMMING LANGUAGE

M-BASIC is the CP/M version of the high-level language BASIC-80. It is an easy-to-use BASIC interpreter which incorporates features which can be used by the beginner and the experienced programmer alike.

If you are not familiar with the BASIC programming language, read the Micro-Soft BASIC manual. Also, there are a variety of books available on the subject. To get you started:

1. Turn on or reset the computer.
2. Put your working copy of the M-BASIC disk in drive A.
3. After the A> prompt, type: MBASIC
Press RETURN.
4. After you see OK on the screen, accurately type in the following:

```
10 INPUT "PICK A NUMBER";X
20 Y = X * X * X
30 PRINT X;" CUBED EQUALS ";Y
```

5. To run this program, type: RUN
Press RETURN.
6. To return to CP/M, type: SYSTEM
Press RETURN.

This is just a short example. The M-BASIC diskette is almost completely full of files. So, if you want to save the programs you write, it would be best to save them on a formatted diskette in drive B.

S-BASIC — The Compiler

S-BASIC is a structured programming language. If you are not familiar with programming, the S-BASIC manual provides a good introduction and needed reference material. The first two chapters, however, were written so that you could use any word processing or text editing system to write your S-BASIC programs.

To use S-BASIC on the KAYPRO 2 or KAYPRO 4, you will use two diskettes:

- A word-processing / S-BASIC diskette, which will be the diskette you use to write your programs.
- A blank, formatted diskette, which will be the diskette on which you store your programs in the form of files.

Make the word-processing / S-BASIC diskette by copying files from your CP/M / S-BASIC and word-processing disks onto a blank, formatted disk.

1. Put the working copy of the CP/M S-BASIC diskette in drive A.
2. Put an empty, formatted diskette into drive B. (To format a diskette, see that section of your User's Guide.)
3. Reset the computer by pressing the reset button on the back panel or entering a CTRL-C.
4. When you see the A> prompt, type in the following. The asterisk (*) appears when the computer is ready for another line. After typing each line, press RETURN.

```
A>PIP
```

```
*B: = A:SBASIC.COM[OV]
```

```
*B: = A:OVERLAYB.COM[OV]
```

```
*B: = A:BASICLIB.REL[OV]
```

```
*B: = A:USERLIB.REL[OV]
```

```
*B: = A:PIP.COM[OV]
```

```
*B: = A:STAT.COM[OV]
```

```
*
```

5. After the last asterisk, take the CP/M S-BASIC diskette out of drive A, and put the working copy of the WordStar/Word Plus diskette in its place.
6. Enter the following line in the same manner as in step 4. Do not type the first asterisk.

```
*B: = A:WS*. *[OV]
```

7. When you see the last asterisk, take the WordStar diskette out of drive A, and put the CP/M S-BASIC diskette back into drive A. Now you should see the following on the screen:

```
A>PIP
*B: = A:SBASIC.COM[OV]
*B: = A:OVERLAYB.COM[OV]
*B: = A:BASICLIB.REL[OV]
*B: = A:USERLIB.REL[OV]
*B: = A:PIP.COM[OV]
*B: = A:STAT.COM[OV]
*B: = A:WS*. *[OV]
```

8. Press RETURN.
9. Type: SYSGEN
Press RETURN.
10. Wait until the display shows:

```
KAYPRO SYSGEN VER 2.2
SOURCE DRIVE NAME (OR RETURN TO SKIP)
```

Press: A

11. The message will appear:

SOURCE ON A, THEN TYPE RETURN

Press the RETURN key.

12. Wait until you see the message:

FUNCTION COMPLETE
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)

Type: B

13. You will see:

DESTINATION ON B, THEN TYPE RETURN

Press RETURN.

14. Wait until you see:

FUNCTION COMPLETE
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)

Press RETURN.

15. Take the diskette out of drive B, and label it: WS/S-BASIC

You now have the diskette you need to begin learning how to program in S-BASIC computer language on the KAYPRO 2 or KAYPRO 4.

For the KAYPRO 10, follow the instructions given on page 1 of this manual for going to the proper user area.

To get you started, let's write a short program in S-BASIC.

1. Turn on your computer, or if it's already on, reset the computer by entering CTRL-C.
2. Put the WS/S-BASIC diskette into drive A.
3. Put a blank, formatted diskette in drive B.
4. Then, to map the disk into memory, enter CTRL-C.
5. To create a new file, after the A> prompt, type: WS
Press RETURN.
6. When the OPENING MENU appears, select the non-document mode (the mode for writing program source code) by typing: N
Press RETURN.
WordStar will ask for the file name of the file to edit.

7. Type: TRYOUT.BAS
Press RETURN.

8. Type the following, including PRINT and the quotation marks:

PRINT "This is my first S-BASIC program."

Press RETURN.

9. To save this program, enter: CTRL-K X
(Press CTRL and, while holding it down, type K, release both keys, then press X).

The top line on the screen will display a message telling you that your file is being saved.

10. When you see:

Warm Boot

A>

Then type: SBASIC TRYOUT.BBX
Press RETURN.

Entering SBASIC TRYOUT.BBX starts the compiler. Your program will be written on the screen, and the message will appear:

***** End of program *****

It will take a while to compile your program. When it is done, you will see:

Compilation complete

Warm boot

A>

For more information on compiling, refer to your S-BASIC User's Guide.

Now you're ready to run your first program.

10. Type: B:TRYOUT
Press the RETURN key.
On the screen you'll see:

This is my first S-BASIC program.

Congratulations, you have written and run your first S-BASIC program!

That's the procedure to follow every time: create a new file, write your program, save it, and compile it.

To make a listing of a program on your printer, substitute the name of your file for NEWFILE, and type: SBASIC NEWFILE.AZY

or enter: PIP LST: = NEWFILE.BAS

Now that you know the fundamentals of programming in S-BASIC, you will want to read your S-BASIC manual to learn more.

VIDEO CONTROL SEQUENCES FOR S-BASIC

To do fancy things on the screen when programming in S-BASIC, you need to use the following control codes. These codes are KAYPRO-specific.

ACTION	SBASIC STATEMENT
Sends beep to keyboard	PRINT CHR(7);
Moves cursor to left without deleting	PRINT CHR(8);
Moves cursor down one line. If already on bottom line, scrolls and moves cursor to lower left-hand corner.	PRINT CHR(9);
Moves cursor up one line. If already on top line, has no effect.	PRINT CHR(11);
Moves cursor to beginning of current line	PRINT CHR(13);
Clears from cursor position to end of screen	PRINT CHR(23);
Clears from cursor position to end of line	PRINT CHR(24);
Clears entire screen and homes cursor	PRINT CHR(26);
Homes cursor to upper left-hand corner	PRINT CHR(30);
Displays lower-case alphabet	PRINT CHR(27); "A";
Displays lower-case as Greek letters	PRINT CHR(27); "G";
Inserts a line	PRINT CHR(27); "E";
Deletes a line	PRINT CHR(27); "R";
Positions cursor to specific row and column on screen	PRINT CHR(27); "="; CHR(row + 32); CHR(column + 32);

CBASIC — THE OTHER COMPILER

CBASIC, like S-BASIC, is a compiled language, which means that a text editor is required to write the source code. Also like S-BASIC, line numbers are required only for lines that are targets for GOTO or GOSUB statements.

Unlike S-BASIC, CBASIC allows a little more flexibility in the use of variables; they do not have to be declared prior to use. Also, in CBASIC the compiler outputs in intermediate code instead of stand-alone programs. The compiled CBASIC program has a file type of .INT and must be run with the run-time interpreter CRUN238.COM.

CBASIC consists of only four files. For the KAYPRO 2 and KAYPRO 4, these are on the MicroPlan/CBASIC diskette. For the KAYPRO 10, choose CBASIC from the Master Menu, or follow the directions on page 1 of this manual to go to the proper user area.

- CBAS2.COM – the compiler
- CRUN2.COM – old version of run-time interpreter
- CRUN238.COM – the run-time interpreter
- XREF.COM – cross-reference lister

In order to start using CBASIC on the KAYPRO 2 and KAYPRO 4, you will need two diskettes:

- One diskette containing the following files:

WS.COM	
WSOVR1.OVR	(feel free to substitute your
WSMSG5.OVR	favorite editor for these three)

and

CBAS2.COM	
CRUN238.COM	
XREF.COM	(we will not be using XREF.COM now,
	but put it there for later use)

- One blank diskette for program source files.

1. Use PIP to transfer the files to the command diskette.
2. Use the blank option of the COPY program to create a blank, formatted diskette.

Should you have any questions on the use of PIP or COPY, refer to the user's guide for your computer.

3. When you have created the two diskettes required, put the command diskette, with WordStar and the compiler, in drive A.
4. Place the program diskette in drive B.
5. Reset the computer by pressing the reset button on the back panel or by entering CTRL-C.

Now we will learn some CBASIC.

1. Start WordStar. If you need help, refer to previous sections on WordStar or S-BASIC.
2. From the OPENING MENU, open a file under the N option. The N option stands for Non-Document mode and is the method of writing source code with WordStar. In the N mode WordStar doesn't insert page breaks, margin justification, or word wrap. Do not use the D (document) mode, as the compiler will do some weird things.
3. When asked for the file name, enter: B:TEST.BAS.
Press RETURN.
4. WordStar will tell you that TEST.BAS is a NEW FILE. Then you will see a blank screen with status line and the MAIN MENU. Type in the test program exactly as it appears below.

```
REM THIS IS A PROGRAM TO TEST THE CBASIC COMPILER
PRINT CHR$(26)
PRINT:PRINT:PRINT
PRINT "Cute trick, huh!"
```

- The first line is a remark statement and allows the programmer to write notes to anyone reading his source code. The compiler ignores them completely.

- The next line, PRINT CHR\$(26), sends a code to your KAYPRO that erases the screen and places the cursor on line one, column one.
 - Three PRINT statements, separated by colons, illustrate multiple commands on one program line. They simply move the cursor down three lines.
 - The last line is a message to indicate that the program functioned properly, or else it would not have reached this point.
5. Now that you have entered the program, save the file. Then it will have to be compiled and tested. To save the file, enter CTRL-K X (press the CTRL and K at the same time, then release both keys and press X).
 6. You should now see the A> prompt. Next comes compilation of our source code into an .INT file. Enter the command line: CBAS2 B:TEST Press RETURN.

The following output should appear on your screen.

```
CBASIC COMPILER VER. 2.08
COPYRIGHT 1981 COMPILER SYSTEMS INC.
```

Following the sign-on message from the compiler, your program is listed on the screen with a line number in front of each line.

If the compiler finds any mistakes in your source code, it will tell you. In the sign-off message a recap of the compiler statistics is printed.

The compiler sign-off should read:

```
NO ERRORS DETECTED
CONSTANT AREA:      8
CODE SIZE:          34
DATA STMT AREA:     0
VARIABLE AREA:      0
```

Followed by:

```
Warm Boot
```

```
A>
```

7. To test your program, enter the following command line: CRUN238 B:TEST
Press RETURN.

The run-time interpreter will sign on.

```
CRUN VER 2.38  
COPYRIGHT 1981 COMPILER SYSTEMS, INC.
```

At this point, the screen should clear, and your message should print three lines from the top of the screen. Below the message you should see:

```
Warm Boot
```

```
A>
```

If all of this occurs as described, your introduction to CBASIC has been a success. If not, recheck the source code, the compiler, and run-time command lines.

For programs that you intend to keep permanently, transfer CRUN238.COM and all .INT files to a separate run-time diskette. This way the run-time diskette is all that you need to run your completed programs.

The CRUN2.COM file on your MicroPlan/CBASIC is an older version of the run-time interpreter. It is included so that commercially-available programs which can't use CRUN238.COM may be run on your system. Remember, use CRUN238.COM with programs which you write.

Further advice on CBASIC and instructions on how to use XREF.COM are found in the CBASIC manual.

dBASE II

dBASE II is a user-friendly programming language, and data base management system. dBASE will respond to real-time commands to update a data base, generate reports, and sort data base files without spending weeks or months in program development.

dBASE II, when used as an interpreted language, allows people who are not professional programmers to write effective programs. The English-like command structure provides an easily-learned alternative to BASIC for learning the art of programming.

A MULTI-FORMAT PROGRAM

There is a pair of programs on the CP/M diskette for the KAYPRO 2 which makes it possible for your KAYPRO 2 to read from and write to diskettes which use the Osborne, Xerox, and TRS-80 disk formats.

The INITDISK Program

INITDISK is used to initialize a disk to a particular format. It performs the same function as the BLANK option in the COPY program which comes with the KAYPRO, but, in addition to the KAYPRO diskette format, you can also prepare a diskette to operate in the Osborne, Xerox, and TRS-80.

Here is the procedure for using INITDISK:

1. Place the CP/M disk into drive A. On the screen you will see the A> prompt.
2. Type: initdisk
Press RETURN.

On the screen will appear a menu of supported disk formats.

3. When you are asked which disk format you would like to use, select the KAYPRO format, by typing the KAYPRO format number: 0
Press RETURN.
4. As the message tells you, place the disk to be initialized into drive B.
5. Press RETURN to start the initializing process, or press any other key to abort.
6. Put a blank disk to be initialized to the KAYPRO format into drive B.
Press RETURN.

Messages will alternate between "Initializing" and "Verifying" until all the tracks are initialized. Occasionally, you may notice a "Retry": followed by a number flash on the screen. This tells you that an error has

been detected and the track is being reinitialized. If the error persists and the retry count reaches 9, INITDISK will consider that track to be permanently bad and will continue with the next track. When the initializing is finished, the number of permanent errors detected will be given. If there are any permanent errors, don't use this disk, as it will cause problems. If there were no permanent errors, then the disk is ready for use.

7. When prompted, "Hit any key to continue", press any key.

Now your diskette is ready to use in a KAYPRO computer. We will use this disk in our examples.

The SETDISK Program

SETDISK allows you to copy files between the KAYPRO disk format and the selected format.

For our example, we will assume that you have a file on a single-density Xerox disk named "SAMPLE.TXT. We want to place this file on a KAYPRO format diskette (the one that we initialized previously). Here is the procedure for using SETDISK:

1. Place the CP/M diskette with the UniForm files into drive A. You will see the A> prompt.
2. Put the XEROX-formatted disk into drive B.
3. Type: `setdisk`
Press RETURN.

A table of currently-supported diskette formats will display. Then the A> prompt will display again.

4. As the single-density Xerox format is number 3, type: `setdisk 3`
Press RETURN.

A message will appear:

Drive B set to: XEROX 820 (SD)

This message reminds you that drive B has been altered to accept the

displayed format. It is printed every time a warm boot is performed until one of the following conditions occurs:

- The power is turned off
- The computer is reset, using the reset button
- The SETDISK program is used to select some other diskette format for drive B.

5. Type: `pip`
Press RETURN.
An asterisk (*) will display.

6. Remove the CP/M diskette from drive A, and replace it with the diskette you are copying to.

7. Put the Xerox-formatted disk which contains the file, SAMPLE.TXT, into drive B.

8. Type: `PIP a:=b:sample.txt`
Press RETURN.

The file will be copied from drive B (Xerox format) to drive A (KAYPRO format). When the copying is finished, an asterisk will display.

9. Remove from drive A the disk containing the file, SAMPLE.TXT.

10. Insert into drive A the CP/M working disk.

11. Press the RETURN key. The A> prompt will appear.

You have just copied a file in the Xerox SD format to a KAYPRO-formatted diskette.

ANOTHER MULTI-FORMAT PROGRAM

You cannot normally take a 5¼ " diskette from one brand of computer and use it in another manufacturer's computer. MFDISK is the Kaypro Corporation's answer to this common problem. By using MFDISK, you can read diskettes from, and create diskettes to be read by, seventeen other computers. More computer formats are being developed, and as they are added to the list of available formats, your dealer or your local KUG will have access to them.

MFDISK enables you to assign one, or both, of your disk drives to a format alien to the KAYPRO line of computers.

Sample Screen:

Kaypro Multi Format Disk v.X.X

12-10-83

A: No Disk Entered.

B: No Disk Entered.

Kaypro Single Density
Kaypro Double Density
Kaypro Double Sided/Density
Osborne I, Single Density
Osborne I, Double Density
Xerox 820, Single Density
Xerox 820, Double Density

TRS-80 Single Density
TRS-80 Model III
IBM PC, Double Density
IBM PC, Dbl Sided/Dbl Density
TI Professional, Double Density
Morrow Micro Decision
Zenith Z-10, Double Density
NEC PC-8100a

Do you want to S)elect a disk, F)format a disk, or R)eturn to complete selection, and go to CP/M?

Enter your choice by typing the first letter. S for Select, F for Format, or R for Return to CP/M.

S)elect — Assigns an alien format to either drive A, or drive B.

F)format — Formats a diskette in the chosen format, then assigns that format to the chosen drive.

R)eturn — Exits the MFDISK program, the alien format becomes effective upon exiting to CP/M.

Once Select or Format has been chosen, an indicator will appear above the first menu choice.

1. Use the arrow keys to move the indicator to the disk format you wish to assign, and press RETURN.

The program will then ask you to which diskette you want to assign this format, A or B.

Note — On the KAYPRO 10 there is only one floppy drive; therefore the alien format is always assigned to drive C.

2. When using the Select option:

The program will prompt you to place a diskette of the selected format in the chosen drive. A DISK MUST BE PLACED IN THE DRIVE FOR THE PROGRAM TO FUNCTION.

When utilizing the Format option:

- a. Place the indicator over the disk format wanted, and press RETURN.

The program will ask you which drive to use.

This is followed by the warning that the formatting process destroys any information already on the diskette.

- b. If you have selected drive A, an additional prompt is given to remove the systems diskette from drive A.
- c. At this point, place a diskette in the target drive and press "Y".

As the formatting takes place, status messages at the bottom of the screen tell which track is being formatted and tell of any errors that are encountered. When formatting is complete, the main menu will reappear.

- d. Press R, for Return, and the selected drive and format assignments become effective.

Once MFDISK has been run, each time a warm boot occurs, the system will tell you what the drive assignments are. These drive assignments remain active until MFDISK alters the assignment or the computer is reset. A report of "No Disk Entered" indicates that the drive has not been assigned to an alien format.

When all work with diskettes in an alien format has been completed, press the reset button on the back panel. If this is not done, some programs will not run properly.

Sample Session

For this example, we will assume that you wish to move a file, called FOO.DOC, from a NEC PC-8000a diskette to a diskette for your KAYPRO 4.

1. Prepare a diskette to receive the file from the NEC diskette.
 - a. Use the COPY program to format the diskette to the KAYPRO format.
 - b. Put the CP/M file, PIP.COM, on it.
2. Place the diskette with MFDISK in drive A.
3. Put the NEC PC-8000a diskette in drive B.
4. Type: MFDISK
Press RETURN.

5. When the MFDISK menu appears on the screen, press S.

An indicator will appear just above the first diskette format.

6. Use the arrow keys to move the bar until it is on top of "NEC PC-8000a". Press RETURN.
7. When the prompt asks for which disk drive to change, press B.
8. The main menu for MFDISK will return to the screen. Put the diskette that is to receive FOO.DOC in drive A.

9. Now press R.

You will see the following message on your screen:

```
{Warm Boot}  
A: = No Disk Entered  
B: = NEC PC-8000a
```

```
A0>
```

This message indicates that drive A is in KAYPRO format and drive B is in NEC PC-8000a format. A message like this will be displayed whenever a warm boot occurs and one drive is assigned to an alien disk format.

Note — Remember, on the KAYPRO 10 drive C is the only drive that can be assigned to an alien format.

SUPRTERM

SUPRTERM is a communications and terminal emulation program designed for the KAYPRO line of computers. Almost any modem may be used, but SUPRTERM was designed with the Hayes Smartmodem in mind.

With SUPRTERM you can access the major information services and bulletin board systems. Your KAYPRO may even be used as the terminal for another conventional system.

The SUPRTERM manual gives complete details on using this program.

B-TREE

B-Tree enables experienced applications development personnel to reduce the number of times a disk is accessed to find a record in a large file that appears on secondary storage, such as floppy diskettes or hard disk. Its features include overflow handling, duplicate keys, node compression, variable-length keys, key insertion and deletion, and multiple keys.

The main program, provided in source form, is composed of many procedures and functions for both the primary operations described below, as well as support operations.

The Procedures and Functions for accessing the tree are as follows:

```
P      CREATE.BTREE <DIR>, P1, P2, P3
P      OPEN.BTREE <DIR>, P1, P2, P3
P      CLOSE.BTREE
F      <VAR> = SEARCH( <KEY> )
F      <VAR> = SEARCH.NEXT
F      <VAR> = SEARCH.LAST
P      INSERT <KEY>, TAG
P      DELETE.KEY <KEY>
```

where:

P and F stand for Procedure and Function.

DIR is a valid file name.

P1 is the maximum key size.

P2 is the number of keys per node.

P3 is the maximum number of nodes in the tree.

<KEY> is a key.

Please note that, as source is provided, the above may be modified as and if necessary for optimizing a specific application.

This program is available as an option from your dealer.

TINKERKIT

Tinkerkit has BIOS, ROM, and utility source listings. It is for the use of experienced systems development personnel.

THE GAMES

There are a variety of games on the M-BASIC diskette which are in the public domain. These games are written in O-BASIC. There are also some copyrighted games included on the M-BASIC diskette. They are listed on the following pages.

To play the O-BASIC games which are listed below:

1. On the KAYPRO 2 and KAYPRO 4, put the games diskette in drive A. Reset the computer. On the KAYPRO 10, go to the appropriate user area, according to the procedures on page 1 of this manual.
2. In the following line which you will type, substitute the name of the game you want where it says <game>. Do not type the angle brackets, < >.

Type: OBASIC <game>

Press RETURN.

3. To break any game in midplay, enter the command: CTRL—C
4. To return to the CP/M operating system after a game is over or after a CTRL—C (you'll see the word "Ok" on the screen in either case), type: SYSTEM

Press the RETURN key.

5. Once you have an "Ok" on the screen, you can call up any of these games by typing: LOAD "GAME.BAS"

GAME is the name of the game you want to play, and it should be all in capital letters.

Press the RETURN key.

6. After the next "Ok," type: RUN
Press RETURN.

The game should appear.

The following is a list of the games and a short description of each:

STRTRK — This exciting game is suitable for players from the beginner to the expert. It puts you in command of a Federation star ship, with warp drives, phasers, and photon torpedoes at your disposal to combat Klingons.

TRADE — A game for 1 to 4 players. The object is to establish interstellar trade routes and amass vast amounts of money based on stock purchases, mergings, and splits, using the resulting dividends to buy more stocks and increase your holdings in companies such as BETELGEUSE LIMITED. This computerized board game is one of the hottest games going.

CHASE — Caught in a maze of high-voltage fence posts and five security machines, your task is to destroy all of the security machines before they get you.

BLKJK — Play casino blackjack against the computer. You can wager up to \$500 with casino rules, including insurance, splits, and doubling down.

WUMP — This is the game of Hunt the Wumpus. Try to catch the Wumpus in a cave of 20 rooms while avoiding bottomless pits and super bats. Each turn you can move to another room or shoot a crooked arrow. The Wumpus is sleeping, and if you wake him, he may eat you. Watch out, I smell a Wumpus.

HORSE — Go to the track, and bet on horses to win, place, and show. Watch SEA BISCUIT, GALLANT FOX, CITATION, and the rest as they come around the bend into the home stretch.

ROCKET — This is a lunar-landing simulation game where you start off at 500 feet above the lunar surface at a downward velocity of 50 ft/sec with 120 units of fuel. You specify how much fuel you want to use for each turn, and down, or up, you go. Good luck, and keep an eye on your fuel.

TAXMAN — This well-named game starts off with the question: "Hi, I'm the taxman. Do you want the regulations?" Sound familiar? Well, you can beat the taxman at his own game. Begin with a list of whole numbers, and play by taking a number from the list. The taxman gets all of the factors of your number that are left. You proceed by choosing numbers until all the numbers are gone. The one with the highest total wins.

BIO — This computerized study of biorhythmic curves plots your biorhythm for a number of days. You input your birthday in a six-number string, with the year

first, then the month, and then the day (for example, March 2nd, 1948, would be: 480302); then input the current date in the same manner. The resulting graph indicates whether your physical, mental, and emotional rhythms are high, low, or critical.

* * *

The following three copyrighted games are included with the M-BASIC files. To play any of the three games listed below, at the A> prompt type in the name as shown.

LADDER — A game in which you have lads that you move left, right, up, or down with the blue keypad (4 = left, 6 = right, 8 = up, 2 = down, and any other number to stop), and jump over obstacles with the space bar. Avoid the rolling barrels (o), grab the ampersands (&) along the way for bonus points, and climb up the ladders (H) to the highest level to reach the dollar sign and onto a new screen. Watch out for the fifth screen, though, it's a killer. There are five levels of difficulty, which you can choose before the game, that will increase the speed, if you desire. Start off at level one if you know what's good for you.

CATCHUM — This game puts your cats (C) in a maze of dots, which you eat as you go along, avoiding the monster A. There are four energy o's that will transform the A's into m's so that you can eat them for bonus points. Also, you can gain extra points by nabbing the dollar sign when it appears. You move with the blue keypad (4 = left, 6 = right, 8 = up, and 2 = down). There are nine levels of difficulty, which can be set before the game starts. The levels of difficulty change the speed of the game. If you're really hot at Catchum, try level 9. It'll cool you down.

ALIENS — Attention, alien invasion in progress! Man the laser base, and fire upward toward the encroaching aliens. Get bonus points for hitting the saucers flying across the top of the screen. Watch it, because every time you shoot and miss, you lose a point, and every time your laser base gets hit, you lose 25 points. This game is actually six games in one. Call up from the menu the game you want to play:

- 1) (Bloodbath) — For this one, the laser base never stops moving. Fire upward at the aliens, and get them before they crush you.
- 2) (We come in peace) — You can stop and direct the laser base left or right in this version.

- 3) (The aliens strike back) — In this version, the aliens have the ability to fire back at you, so watch out.
- 4) (Invisible alien weasels) — The aliens are invisible here, so keep on your toes. Beeps will let you know when you've got one with your trusty laser beam.
- 5) (Klinker) — Here the barriers, as well as the aliens, are invisible. So watch where your laser beam goes when you fire it.
- 6) (The black hole) — Hold onto your senses for this one. Not only are the barriers and aliens invisible, but your laser base is also invisible. This one is definitely not for beginners.

FILE DESCRIPTIONS

Below are listed alphabetically some of the files which may be found on your floppy diskettes or hard disk. This list is subject to change.

ALIENS.COM	One of the games described in the games section
ANAGRAM.COM	A WORD Plus program which will unscramble words to help you solve puzzles.
BASICLIB.REL	Support file used by S-BASIC
BIO.BAS	Plots biorythmic curves. This program is described in the games section.
BLKJK.BAS	One of the games described in the games section
CANDR-C.COM	A support utility for CBMENU. This file performs the compilation and execution requests for CBMENU's "compile and run" option.
CANDR-S.COM	A support utility for SBMENU. The file performs the compilation and execution for SBMENU's compile and run option.
CATCHUM.COM	One of the games described in the games section
CATCHUM.DAT	The data file used with CATCHUM.COM
CBAS2.COM	C-BASIC source code of file type .BAS must be compiled before it can be executed. CBAS2 compiles C-BASIC source code, producing compiled intermediate code of file type .INT.
CBMENU.COM	On the KAYPRO 10, CBMENU allows the user to develop, compile, and execute C-BASIC applications without interfacing with the A4> of CP/M. Identical results may be achieved by executing the appropriate files from the A4/ prompt of CP/M.

CHASE.BAS	One of the games described in the games section
CRUN2.COM	Compiled C-BASIC code may be executed (run) using CRUN2. This file is provided to allow execution of C-BASIC code which was compiled under versions of CBAS prior to CBAS2.
CRUN238.COM	Compiled C-BASIC code may be executed using CRUN238. This file is provided to allow execution of C-BASIC which was compiled under CBAS2.
DICTSORT.COM	A WORD Plus program which sorts all the words in a document into alphabetic order.
DPLAY.BAS	This program illustrates the sequential access of a random disk file, specifically working with the record.sequential on/off. Then all variables of a random record must be read or written in one statement. If it's on, you can read or write part of a random record.
FAC.BAS	This program computes the factorial of an inputted number once the program has been compiled.
FIND.COM	A WORD Plus program which searches the dictionary for word patterns. FIND will help you solve a variety of word puzzles, locate rhyming words, and much more.
GRAPHICS.BAS	For the KAYPRO 10. Section of S-BASIC code to be included in an S-BASIC program. It is a set of procedures to draw simple geometric shapes in graphics.
GRAPHICS.DOC	For the KAYPRO 10. This is documentation for the GRAPHICS.BAS program.
HOMONYMS.TXT	A WORD Plus program which contains a list of words which confuse many people. Most of these are "HOMOPHONES" (words that sound alike when pronounced, but that are spelled differently).
HORSE.BAS	One of the games described in the games section
HYEXCEPT.TXT	A WORD Plus program. This is a list to which the user adds words which are the user's exceptions to hyphenation rules.

HYPHEN.COM	A WORD Plus program which automatically hyphenates words. It can read a document file and insert soft hyphens into words longer than a given length, or it can be used on-line to list hyphenation points for words you type.
INCOME.LOG INCOME.TBL	Two files used in the MICROPLAN INCOME MODEL
KP-RESET.COM	This program resets the numeric keypad to values which have been configured into the BIOS.
LADDER.COM	One of the games described in the games section
LADDER.DAT	The data file used with LADDER.COM
LOOKUP.COM	A WORD Plus program which "un-spells" words, finds them in the dictionary, and prints out any matches of likely corrected spellings.
MAINDICT.CMP	This is the main dictionary used by The WORD Plus.
MARKFIX.COM	A WORD Plus program which marks misspelled words in a document and corrects (fixes) words during spelling checking.
MBASIC.COM	M-BASIC is the CP/M version of the high-level language BASIC-80. It is an easy-to-use BASIC interpreter which incorporates features that can be used by both the beginner and the experienced programmer.
MBMENU.BAS	MBMENU is a menu program written in M-BASIC which can be entered from the master menu. Menu selections include: M-BASIC, Ø-BASIC, and twelve games. The program creates or appends a submit file, placing two records in the file (the first record contains MBASIC MBMENU, the second contains selection's command name). the \$\$\$SUB file executes (from the bottom up) when the system is entered.
MPERROR.FIL	Contains messages for different errors that MICROPLAN may encounter
MPFORM.OVL	Used by MICROPLAN
MPHELP.FIL	Contains help messages for MICROPLAN

MPLOGIC.OVL	Used by MICROPLAN
MPMENU.FIL	Contains menu prompts for MICROPLAN
MPPRINT.OVL	Used by MICROPLAN
MPSERIAL.NUM	Contains the serial number assigned to your disk by CHANG LABS
MPSET.OVL	Used by MICROPLAN
MPSETUP.FIL	Used to store customized parameters for MICROPLAN
MPSHOW.OVL	Used by MICROPLAN
MPSTAT.OVL	Provides statistical capabilities for MICROPLAN
OBASIC.COM	O-BASIC is an older version of M-BASIC. The following games are written in O-BASIC: Bio, Blkjk, Chase, Horse, Rocket, Strtrk, Taxman, Trade, and Wump.
OVERLAYB.COM	This is a support file of S-BASIC.
PLAN.COM	Is the actual MICROPLAN command program
PRINT.TST	This program is a test file used by WORDSTAR to make sure that your printer will print correctly.
REVIEW.COM	A WORD Plus program. After SPELL has finished, control will pass to this program which will allow the user to choose from several options (i.e. correcting misspelled words, adding words to the dictionary, marking for correction).
ROCKET.BAS	One of the games described in the games section
SBASIC.COM	This is the S-BASIC compiler.
SBMENU.COM	For the KAYPRO 10. Allows the user to develop, compile, and execute S-BASIC application without interfacing the A5> of CP/M. Identical results may be achieved by executing the appropriate files from the A5> prompt of CP/M.

SPELL.COM	This program is used by The WORD Plus to read through a document and write out a list of all words that it didn't find in the dictionary.
STRTRK.BAS	One of the games described in the games section
TAXMAN.BAS	One of the games described in the games section
TRADE.BAS	One of the games described in the games section
TW.COM	This is The WORD Plus.
UPDICT.CMP	This program is the update dictionary for The WORD Plus.
USERLIB.REL	Support file used by S-BASIC
WC.COM	This program is used by The WORD Plus to count the number of words in a document.
WINSTALL.COM	This is an installation program for WORDSTAR.
WORDFREQ.COM	A WORD Plus program which compiles a list of words from a text file. It also keeps track of how many times each word appears in the document. After this, a file with a .FRO extension is run to create a list of all words in the document and to indicate how many times each word is used.
WS.COM	This is the word-processing program, WORDSTAR.
WS.INS	This is a support program to the WORDSTAR installation process.
WSKP.COM	This program initializes the numeric keypad to be used as a function keypad. Note: This program will only run on CP/M 2.2D. If you need to use this program, have your dealer load CP/M 2.2D; then run PUTSYS.COM and PUTOVL.COM. If these are not run, then trying to operate WSKP.COM will hang the machine.
WSMSG.S.OVR	This is a support file for WORDSTAR.
WSOVLYL.OVR	This is a support file for WORDSTAR.

WUMP.BAS	One of the games described in the games section
XAMN.BAS	This program lets you examine a disk for bad sectors; look at and change data in sectors; map a disk or file; and compute logical blocks.
XREF.COM	Identifiers used in a C-BASIC program may be listed alphabetically, using XREF. The identifier usage (function, parameter, or global) is provided, along with a list of each line where that identifier is used.

