

READ
ME
FIRST

KAYPRO®

ROBIE
USER'S GUIDE



**THE
KAYPRO ROBIE
USER'S GUIDE**

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February 1985

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Part Number 3318-A

FCC INFORMATION

As Kaypro keeps in step with computer technology, the models have changes which affect FCC ratings. The proper rating is affixed to the back of each computer, and the appropriate FCC information is given here.

FCC INFORMATION FOR CLASS A

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

If this computer is used with peripheral devices, such as a printer or modem, then well-shielded cables must be used to preserve the radio interference characteristics.

FCC INFORMATION FOR CLASS B

This equipment generates and uses radio frequency energy and, if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference in radio or television, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

WARNING: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

INTERNAL MODEM

The Kaypro 300-baud internal modem (model 8101184m) has been found to comply with part 68, FCC rules and has been certified by the Federal Communications Commission.

- * Registration number -- CUL7XL-70818-DM-E
- * Ringer equivalence -- 1.3 A
- * USOC jack number -- RJ11C

NOTE: TO PRESERVE THE EMI CHARACTERISTICS OF THE COMPUTER, EMI-SUPPRESSING CABLES MUST BE USED TO CONNECT TO PERIPHERAL DEVICES:

CABLE APPLICATION	P/N	REMARK
Keyboard to KAYPRO	81-285	Supplied with KAYPRO
KAYPRO Internal Modem to Phone System	81-419	Option
KAYPRO Serial Port to Serial Peripheral (Printer, Plotter, Modem)	81-425	Option
KAYPRO Parallel Port to Printer	81-426	Option

LIMITED WARRANTY

Kaypro Corporation warrants this new Kaypro computer to the original purchaser to be in good working order for a period of ninety days from the date of purchase from an authorized Kaypro dealer. Kaypro makes no other warranty with respect to the computer including, without limitation, no warranties as to its performance, merchantability, or fitness for any particular purpose.

Kaypro shall not be liable for any incidental or consequential damages related to the use of, or possible malfunction of, the Kaypro computer. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty does not cover any computer which has been the subject of abuse, accident, any modification whatsoever, or repairs by unqualified service facilities.

Kaypro will, at its option, repair or replace the product during the 90-day warranty period without charge. In order to obtain warranty service the customer must provide proof of purchase date and return the unit to an authorized Kaypro service facility. Alternatively, the customer may obtain an R.M.A. number from the Kaypro Hardware Technical Support Department at 533 Stevens Avenue, Solana Beach, California 92075, and ship the unit prepaid to Kaypro.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

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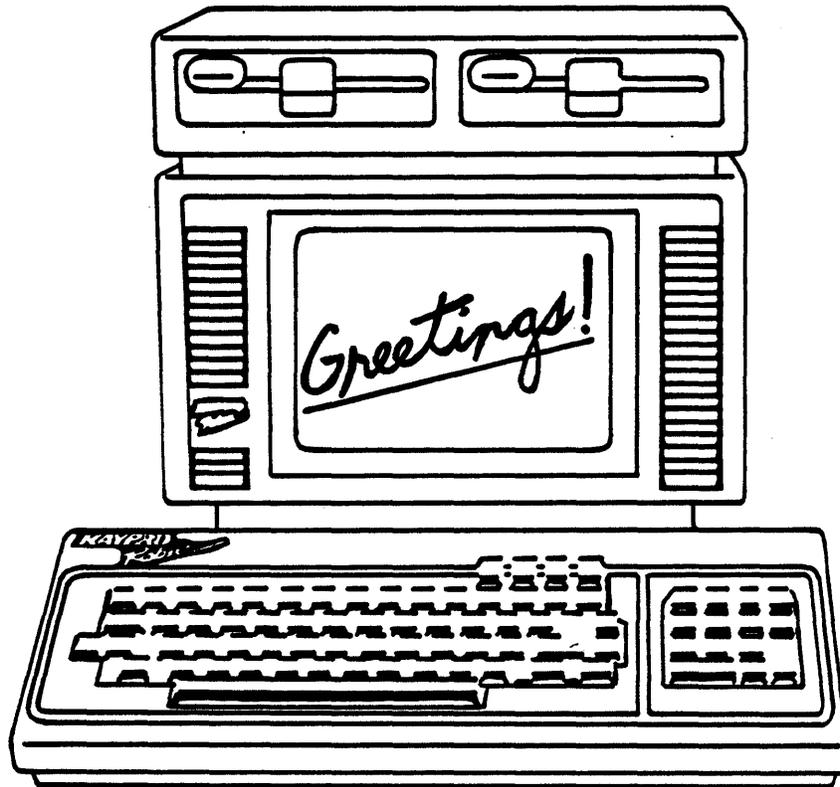
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MEET THE ROBIE!



We hope that you will enjoy many useful and pleasurable years with your computer--whether at business or at home.

If you've never used a computer before, this user's guide has step-by-step instructions to help you get started right away.

If you're an old hand at computer operation, we know you're eager to get started, but PLEASE take a few minutes to read the instructions for getting started with your ROBIE. It will save time and prevent problems.

Many of the terms used in this manual are explained in the glossary at the back.

WHAT YOU WILL NEED

Before you start, you should have:

* Blank diskettes

You should buy good-quality, high-density diskettes pre-formatted 17-sector 192 TPI. Specify Brown Disk UHR II or the Maxell equivalent. Each diskette is capable of holding 2.6 megabytes of information.

A drive-cleaning disk is needed to keep the drive heads clean and in proper working order. The following are approved: Scotch 7440, Head Computer Products, Perfect Data, Floppiclene.

- * A power outlet close to the work surface. The outlet should be grounded and should be on a circuit that isn't loaded with other appliances.

OPTIONAL EQUIPMENT

POWER LINE FILTER

If there is heavy machinery operating from the same power source, or if there are frequent power shortages or surges, it may be advisable to use a power line filter.

BACKUP POWER SOURCE

To provide continuous power in case of a power outage, backup power sources are available from various manufacturers. Contact your dealer about this.

OVERSEAS POWER

If you want to take your computer overseas, your dealer can switch the power supply.

SETTING UP YOUR ROBIE

1. Remove the computer from the box. Save the packing materials in case you ever want to ship your ROBIE. The box should also contain the following:

Manuals for the software
ROBIE ownership documents
Cables for the keyboard and power source

2. Set the ROBIE on the work surface with the wedge-shaped surface down and the part with the power cord facing away from you.
3. Set the keyboard down in front of the main unit.
4. Unwind the AC power cord, but DO NOT PLUG IT IN YET.
5. Remove the coiled keyboard cord from its packing position and plug one end of the cord into the keyboard jack on the rear panel of the computer.
6. Route the coiled cord around the computer, and plug the other end of the cord into the jack on the back of the keyboard.
7. Open the doors of the diskette drives, and remove the cardboard shipping protectors. When you close your computer to carry it, reinsert the protectors. If you ever ship your ROBIE, be sure to place the protectors in the diskette drives, or the drive warranty will be void.
8. Make sure the ON-OFF rocker-type switch on the back of the computer is turned OFF (down).
9. Connect the computer to the power source.

STARTING THE ROBIE

1. Turn on the computer, using the power switch on the back panel.

When the red indicator light on the front panel is illuminated, it tells you that the power is on and a diskette drive is in use.

2. If, after a moment, nothing appears on the screen, use the brightness control knob on the back panel to adjust the brightness.

3. After a few seconds, a system message will appear onscreen.

Before using the diskettes which came with your ROBIE, please continue reading. The sections which follow contain important information concerning the use of diskettes.

TURNING OFF THE ROBIE

1. If you have been using a program, close the file according to the instructions for the program.
2. Remove the diskettes from both drives.
3. Turn off the computer by using the power switch on the back panel.

STORAGE OF PROGRAMS AND INFORMATION

The ROBIE stores data by means of ROM (Read Only Memory), RAM (Random Access Memory), and diskettes.

ROM is unchanging programs and information which are part of the permanent memory of the ROBIE.

RAM holds 64 kilobytes (65,536 bytes). RAM can be read from and written to. RAM is lost when the computer's power is turned off. If you have input a program, text, or data, it is in RAM, and you will want to save it.

The ROBIE is equipped with two high-density, double-sided, diskette drives. Each diskette is capable of holding 2.6 megabytes (2.67 million bytes) of information. The master diskette contains the CP/M (Control Program for Microcomputers) program, which operates the computer, and programs such as word processing, spreadsheet, etc.

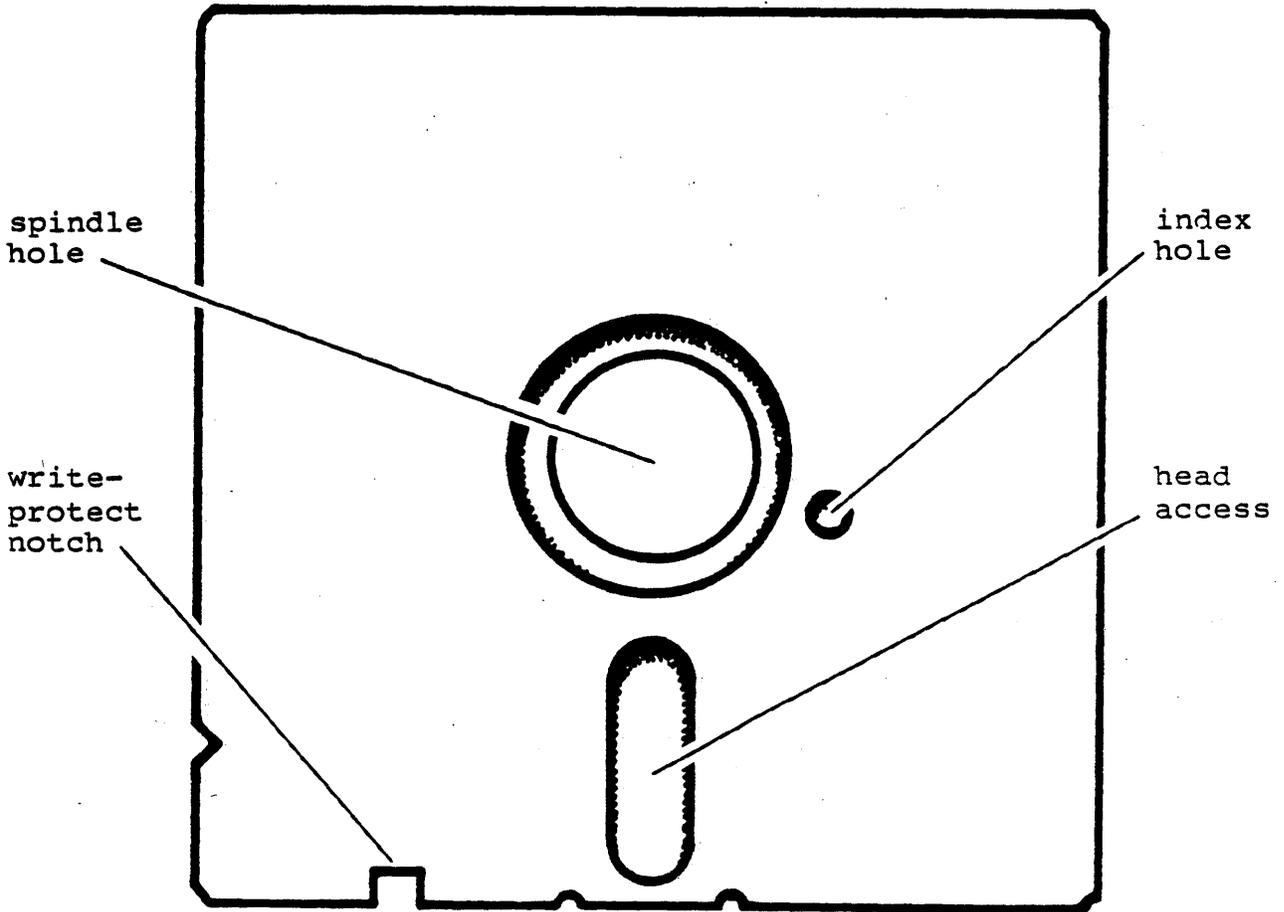
USER AREAS

Each drive is subdivided into sixteen user areas, which have numbers from 0 to 15. (User areas are further explained in the CP/M user's guide.)

Within each of the user areas, you can set up files to hold information, much as a filing cabinet holds information in file folders. There is no specified amount of space in each user area. Each user area takes from the full storage capacity as it needs it. When a file is erased, the space previously taken by the file goes back into main storage. A user area can contain up to 2.67 megabytes if the space on that diskette is not used by other user areas.

CARE OF DISKETTES

Diskettes store data on a magnetic surface that is vulnerable to damage which could result in the loss of data. Here are some guidelines for using diskettes.



WRITE-PROTECT NOTCH: A write-protect notch allows information to be written to a diskette.

- * To ensure that you do not accidentally erase stored information, cover the write-protect notch with the tabs provided with new diskettes.
- * If you want to write information to a diskette, leave the write-protect notch uncovered.

SPINDLE HOLE: The spindle hole is where the drive connects to the recording surface of the diskette. Its function is very much like the center hole of a record album.

INDEX HOLE: The index hole acts as a reference point to keep track of the sectors of a diskette.

STORE INFORMATION FREQUENTLY: Store information as you create it--about two to four times an hour--and store your work whenever you leave the computer, even briefly. The procedure for storing information depends on the program.

CLEAR THE COMPUTER AFTER CHANGING DISKETTES: Do not change diskettes unless the computer is at the Master Menu or the A > prompt. Then clear the computer by pressing the reset button or pressing a CTRL-C.

LABEL DISKETTES CAREFULLY: Use plain "press-apply" labels. First, write the label; then apply it to your diskette. If you must write on a label which is already on a diskette, use only a soft, felt-tip pen, as a ballpoint pen or pencil can damage a diskette.

INSERT DISKETTES CAREFULLY: Holding the diskette with the write-protect notch up and the index hole to the left of the spindle hole, insert the diskette into the drive. Activate the drive by securing the latch.

TO REMOVE A DISKETTE: Store the information which you have entered into the computer, according to the instructions for the program you are using. Open the door. Take the diskette completely out of the drive.

KEEP DISKETTES COVERED: Keep diskettes in their protective covers when not in use. Do not touch the exposed portions of the diskettes.

BACK UP: Back up all files so that, if something unexpected happens to a file, you will still have the information. See the section on Copying Files.

STORE DISKETTES SAFELY: Store diskettes in a container or file in a clean, dry, cool place away from magnetic fields, and away from the computer.

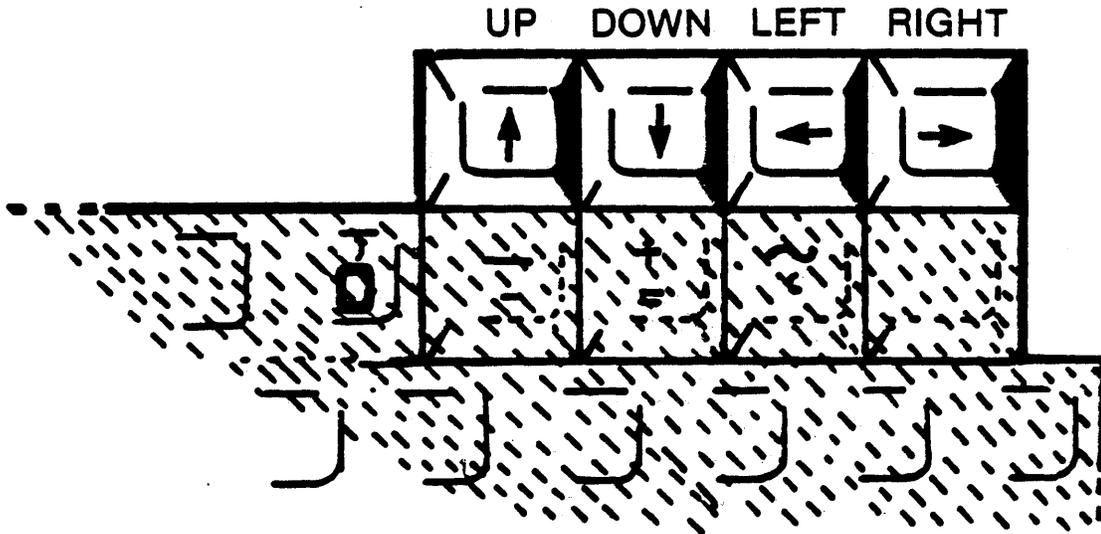
POWER: Do not turn the computer ON or OFF with a diskette in the drive.

HANDLE DISKETTES WITH CARE: Do not flex or bend diskettes.

THE CURSOR AND CURSOR KEYS

The cursor is a flashing place marker to show where information can be entered. The next character you type will appear at this location.

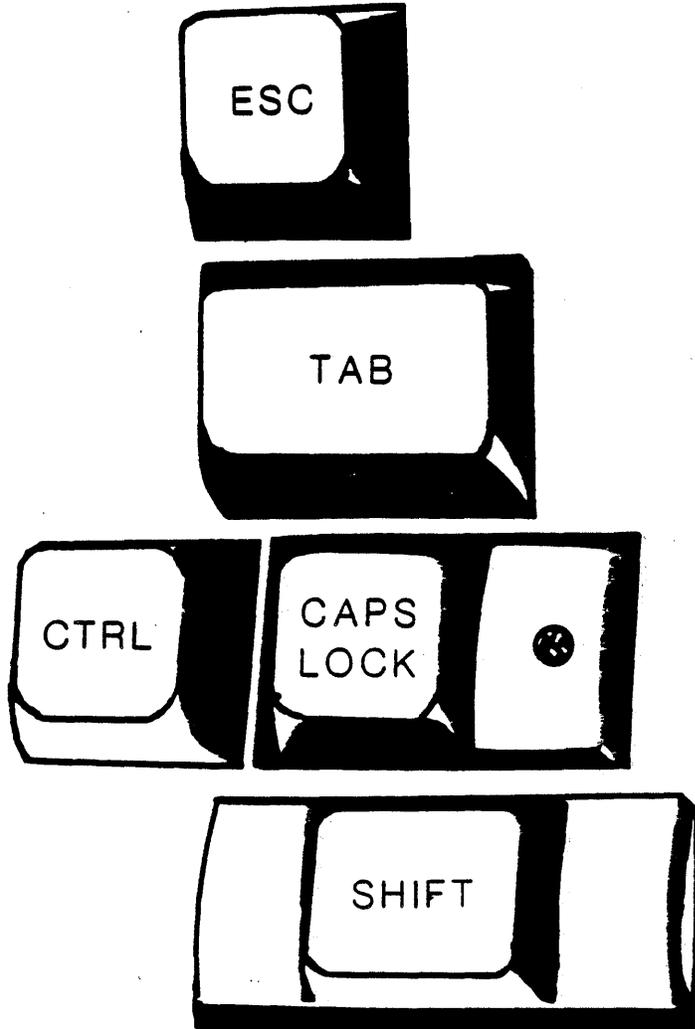
When you are using certain programs, you can use the cursor keys (arrow keys) to move the cursor freely in any direction on the screen:



These keys will not function in this manner in CP/M.

You can change the arrow keys to act as any character or control key that you desire. Look in the index under "keys, changing."

KEYS ON THE LEFT OF THE KEYBOARD



The ESCape key is used according to instructions.

The TAB key moves the cursor horizontally a set number of spaces and inserts those spaces, depending on the program in use.

The CONTROL key is used simultaneously with letter keys to do certain functions. Depress the CTRL key; then, while it is depressed, type the letter. Sometimes the control function will display as a ^ character followed by a second character.

The CAPS LOCK key puts alphabetic characters in upper case. Press once to activate it (the red light on the key goes on), and press again to deactivate it.

The SHIFT key is used simultaneously with letter keys to put alphabetic characters in upper case. It also accesses the characters on the upper part of keys which have two characters, for example, @ and ?.

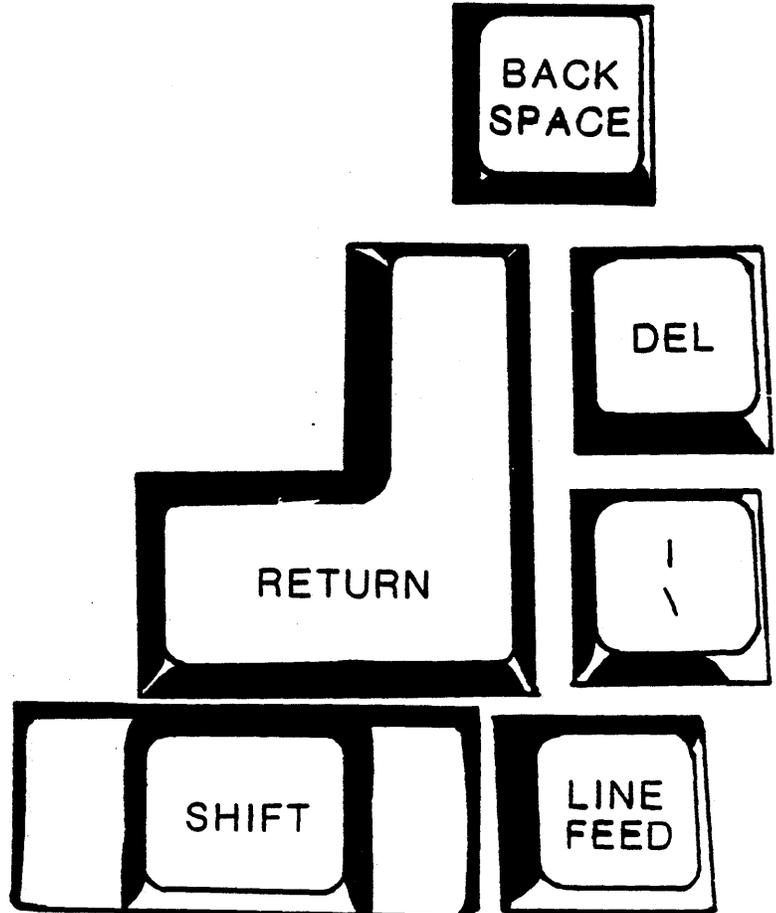
KEYS ON THE RIGHT OF THE KEYBOARD

The BACKSPACE key moves the cursor backward, sometimes deleting the character over which it moves, depending on the program being used.

The DELETE key repeats the previous character on the screen while deleting it in memory. You will see this happen if you use the key to correct what you type after the A> prompt. It has other functions, depending on the program being used. For instance, in word processing programs, it simply deletes the previous character, much like a self-correcting typewriter.

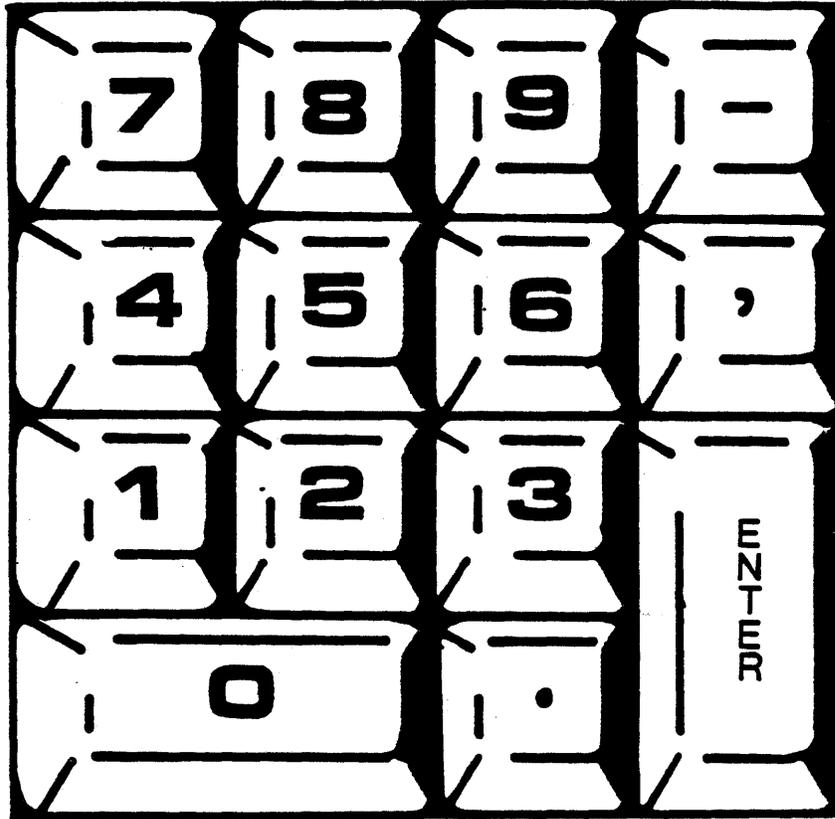
The RETURN key moves the cursor down a line and returns the cursor to the left of the screen. It also tells the computer to execute a command and has various other uses. <RET> and <CR> are computer symbols to indicate that you should press the return key.

The LINE FEED key moves the cursor down one line with no return to the left.



THE NUMERIC KEYPAD

To the right of the main keyboard is a numeric calculator-style keypad which is useful for rapid entry of numerical data. When you have keyed all the digits of a number, press ENTER.

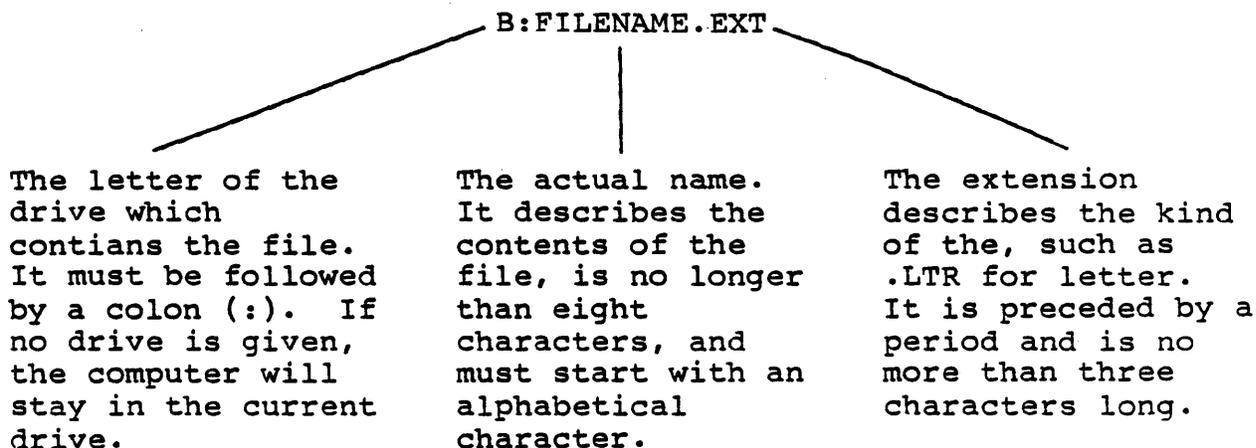


You can change the keys on the numeric keypad to act as any character or control key that you desire. Look in the index under "keypad, reconfiguring."

With the exception of a few control keys, such as CTRL, ESC, and RETURN, the keys, including the cursor movement keys, will automatically repeat when held down.

NAMING FILES

Files must be named according to a given format, and the file names must be typed correctly.



There are some characters that you must NOT use in a file name:

< > () \ ; : = ? * [] . , _ % |

We recommend that you use only the letters A to Z and the numbers 0 to 9, as some programs may have problems with other characters.

When creating a file, use upper case letters. However, when accessing programs, you may type file names and drive names in lower case. M-BASIC only recognizes file names in upper case.

In computer books, the generic name for a file is <filename>. When you see this, substitute the name of the file you want to use, but do not type the angle brackets < >. Include the file type, if there is one.

COPYING DISKETTES

Before you can use the software which came with your ROBIE, a working copy must be made of the master diskette. Continual use of your master diskette will eventually lead to excessive wear and failure. Therefore, a working copy is made, and, when that copy wears out, another can be made from the master diskette.

To prevent any accidental erasures of information, cover the write-protect notch of the master diskette before you make the first working copy. Cover the notch with one of the tabs which have been provided.

To copy diskettes:

1. Turn on the ROBIE, using the power switch on the back panel of the computer.
2. Insert a working copy (or the master diskette if a working copy is to be made) into drive A with the index hole to the left of the spindle hole.
3. Close the drive door.
4. When the Master Menu appears, select: Utilities
5. From the submenu, select: Disk Utility
6. From the final menu, select: Copy
7. Replace the working copy or the master diskette in drive A with the diskette to be copied. Leave the master diskette or working copy in drive A if it is to be copied.
8. Put a new, empty diskette into drive B with the index hole to the left.
9. To start the copying process, press the RETURN key.

The track numbers will display as they are being copied (0 through 319).

CP/M will be written to the disk, and the program will return to the Diskette Copying display.

10. Remove the original diskette from drive A.
11. Remove the copy from drive B.
12. Store the original diskette in a safe place for future use.

FINDING FILES

All the files can be listed on the screen so that you can find the exact spelling of file names, user area numbers, and number of bytes used by each file.

1. From the Master Menu, press ESCape.

There will appear on the screen: AØ>

This means that the active drive is A, and the current user area is Ø. This is a CCP (Console Command Program) prompt. When you see an A> or B>, the CCP is waiting for you to give it a command.

The computer will automatically look for files on the diskette in drive A if another drive name isn't specified.

2. To list the files in the current user group, type: d
Press RETURN.

The files in the current user area (AØ) will be listed alphabetically with the size of the files. If there are more file names than the screen can display, on the bottom line, a prompt will tell you to "Press space to continue".

3. To list all files of the diskette in the currently-logged drive, type: d \$uvs
Press RETURN.

The \$uvs is a combination of switches which also can be used individually.

\$u - shows files in all user areas

\$v - shows user number and file attributes

\$s - shows system files which don't normally show in the directory

4. Move to user area 1 by typing: user 1
Press RETURN.

There will be an A1> to show that the computer is in user area 1.

5. Type: d
Press RETURN.

The files which are in drive A, user area 1, will be listed.

6. Move to each of the other user areas as you did above; then list its directory. If you are new to computers, you will not understand what the file names signify, but descriptions of many of them are given on the next pages.
7. While in drive A, you can list files on a diskette in drive B by typing: `d b:$uvs`
Press RETURN.

Another way to list a file directory is to use the DIR command. This command will not give statistics on the amount of space occupied by the files. The DIR command is used as follows:

1. To list files of the current user area on the logged diskette, type: `DIR`
Press RETURN.
2. To list files in another user area, change to that user area by typing: `USER #` (where # is the desired user area number)
Press RETURN.
Then type: `DIR`
Press RETURN.
3. To list the files of the same user area on the other drive, type: `DIR B:` (or `A:`, as the case may be)
Press RETURN.

Utility files, such as STAT, D, PIP, etc., can be used from any user area, but the computer must be in drive A. If you want to use utility files from another drive, you must PIP the desired files to that drive.

If you want to return to the Master Menu, at the `A0>` prompt, type: `MASMENU`
Press RETURN.

The Master Menu program creates and uses temporary files named `$$$SUB`. These files should not be erased.

If you want to change the Master Menu, request Part #2420-A, Changing the Master Menu, from the Publications Department of Kaypro Corporation.

The Master Menu display is optional and can be bypassed so that the `A0>` will appear each time the ROBIE is turned on or reset.

To prevent the Master Menu from appearing, type: `nomenu`
Press RETURN.

To reinstall the Master Menu for display, type: `yesmenu`
Press RETURN.

These changes only apply to the diskette on which they were made, they are not part of the permanent memory of the ROBIE.

FILES ON THE ROBIE

As you look at the directory of files, you may wonder what they are. Files which come with the ROBIE change, but here are some comments, first, about file type and, then, about specific files.

If a file has a file type, such as .COM, you can type the name of the file (without .COM) and get the program. Some file types are specific; other types have a traditional use.

FILE TYPES

.ASM	assembly language source
.BAK	an automatically-created backup file
.BAS	BASIC language source
.CMD	DBase source
.COM	an executable command file
.CSD	data file for CalcStar
.DAT	data file
.DBF	data file for DBase II
.DEF	definition file
.DMP	dump file--created when CalcStar file is dumped to a disk
.DOC	document file
.DTA	data file
.FIL	fill file--filled with text for programs
.FMT	format screen
.FRM	ReportForm for DBase II
.INS	data file for installation program
.LOG	log-in of variables for MicroPlan
.MEM	memory variables for DBase II
.MSK	mask for CalcStar
.NDX	index file
.NUM	serial number file
.OVL	overlay file
.OVR	overlay file
.PRN	ReportStar text files
.RPT	specification file for ReportStar
.SUB	submit file
.SYS	system file
.TXT	text for a program

SPECIFIC FILES

Below are listed alphabetically some details of some of the files which may have come with your ROBIE. This list is subject to change.

KAYPRO.LRN A text file containing information concerning the operation of your KAYPRO.

ANAGRAM.COM A WORD Plus program which will unscramble words to help you solve puzzles.

DICTIONARY.COM A WORD Plus program which alphabetizes all the words in a document

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.

HOMONYMS.TXT A WORD Plus program which contains a list of "HOMOPHONES" (words that sound alike, but that are spelled differently).

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.

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 The main dictionary used by The WORD Plus.

MARKFIX.COM A WORD Plus program which marks misspelled words in a document and corrects words during spelling checking.

MBASIC.COM M-BASIC is the CP/M version of the high-level language BASIC-80--an easy-to-use BASIC interpreter with features that can be used by both the beginner and the experienced programmer.

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.

PLAN.COM MICROPLAN command program.

PRINT.TST A file used by WORDSTAR to test your printer.

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 (e.g., correcting misspelled words, adding words to the dictionary, marking for correction).

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.

TW.COM The WORD Plus.

UPDICT.CMP The update dictionary for The WORD Plus.

WC.COM Used by The WORD Plus to count the number of words in a document.

WINSTALL.COM 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 The word-processing program, WordStar. Also all files starting with WS.

COPYING FILES

Here is the procedure to use every time you copy files.

1. Insert a blank diskette in drive B with the index hole to the left as previously instructed.
2. Clear the computer by entering CTRL-C.
3. At the A> prompt, type: PIP
Press RETURN.
An asterisk will appear.

The general form of the command is:

```
b:=a:<filename>[gØv]
```

b: is the drive you are copying TO
= signifies EQUALS
a: is the drive you are copying FROM
<filename> is the file name, including the
period and the file type, if any.
g stands for Get From
Ø is the user area number
v stands for Verify

4. You can copy as many files as the diskette will hold. When you are finished, and after the asterisk appears, press RETURN.

For example, to copy the file, example.txt, from the diskette in drive A, user 8, to user Ø of the diskette in drive B:

1. At AØ>, type: pip
Press RETURN.
2. Type: b:=a:example.txt[g8v]
Press RETURN.
3. When the asterisk appears, press CTRL and C simultaneously.
The AØ> will appear.
4. You can check drive B for the file by typing: d b:
Press RETURN.

Note: A .\$\$\$ means the transfer was not completed. The file name appears on the directory with .\$\$\$ as the file type, but no information is in the file. Usually this happens when there is not enough room on the diskette for the file you want to transfer.

COPYING FILES FROM ONE USER AREA INTO ANOTHER USER AREA

1. This procedure must be done from the drive containing the working copy of the master diskette.
2. To get the correct spelling for the file you want to transfer, list the directory by typing: `d`
Press RETURN.

The directory lists files without the period between the file name and the file tag. The period must be included in your file name.

3. Type the number of the user area into which you want to copy the files, for example: `user 10`
Press RETURN.
4. To copy a file from (for example) user area 2 into the currently-logged user area on drive A, substitute the name of your file for filename and type: `PIP A:=A:filename[G2OV]`
(For an explanation of G2OV, consult the section on PIP in the CP/M manual.)
Press RETURN.

The square brackets must be square brackets, not parentheses. To correct an error in typing, use the BACKSPACE key. Type accurately, or else you may see an INVALID FORMAT error message. To check to see whether the file has been copied, type: `D`
Press RETURN

5. To copy ALL files from one user area into another user area, for example, user area 2, the command form is:
`pip a:=a:*. *[g2OV]`
6. To copy a file from a user area in drive A to the user area of the same number in drive B, type: `pip b:=a:filename[OV]`
Press RETURN.
7. To copy a file to a user area on B from a different user area on A, go to the user area on A which corresponds to the user area to which you want to copy the file. In this example, 2 denotes the user area from which the file will be copied. Type: `PIP B:=A:filename[g2ov]`
Press RETURN.

ERASING FILES

To erase a file:

1. Go to the user area containing the file.
2. Type: era
3. Add the file name with its file type.
Press RETURN.

Example: era vehicle.exp

4. If the file is on the diskette in the other drive (B for instance), type: era B:vehicle.exp
Press RETURN.

BACKING UP FILES

Data files, especially business data files, such as those from an accounting system, should have a backup similar to the following system.

1. At the end of day 1, back up all data on a blank diskette. This diskette, or diskettes, is the Grandfather.
2. At the end of day 2, back up all data on a second blank diskette. This diskette is the Father.
3. At the end of day 3, back up that day's data on the Grandfather diskette. This process will overwrite the old information with new data. This diskette is now the new Father, and the old Father becomes the Grandfather.
4. Repeat this procedure at the end of each business day.

These steps illustrate a simple backup schedule for data diskettes. The worst that can happen is that two days' data will have to be reconstructed. Some companies will carry this sequence to a Son generation of backup and always keep the Grandfather in another location. The old Grandfather (new Son) is brought in each day for backup, and the old Father (new Grandfather) is removed from the premises. That way, even a fire or other catastrophe will not destroy the business records. We are talking about the accounting records of a business. Without them a business cannot survive.

PUTTING A FILE ON THE SCREEN OR ON PAPER

To quickly check the contents of a document file by putting it on the screen:

1. If the file is on drive A, then, using your file name and extension, type: TYPE FILENAME.EXT
Press RETURN.

If the file you want is on drive B, type:
TYPE B:FILENAME.EXT

The contents of the file will quickly scroll by on the screen.

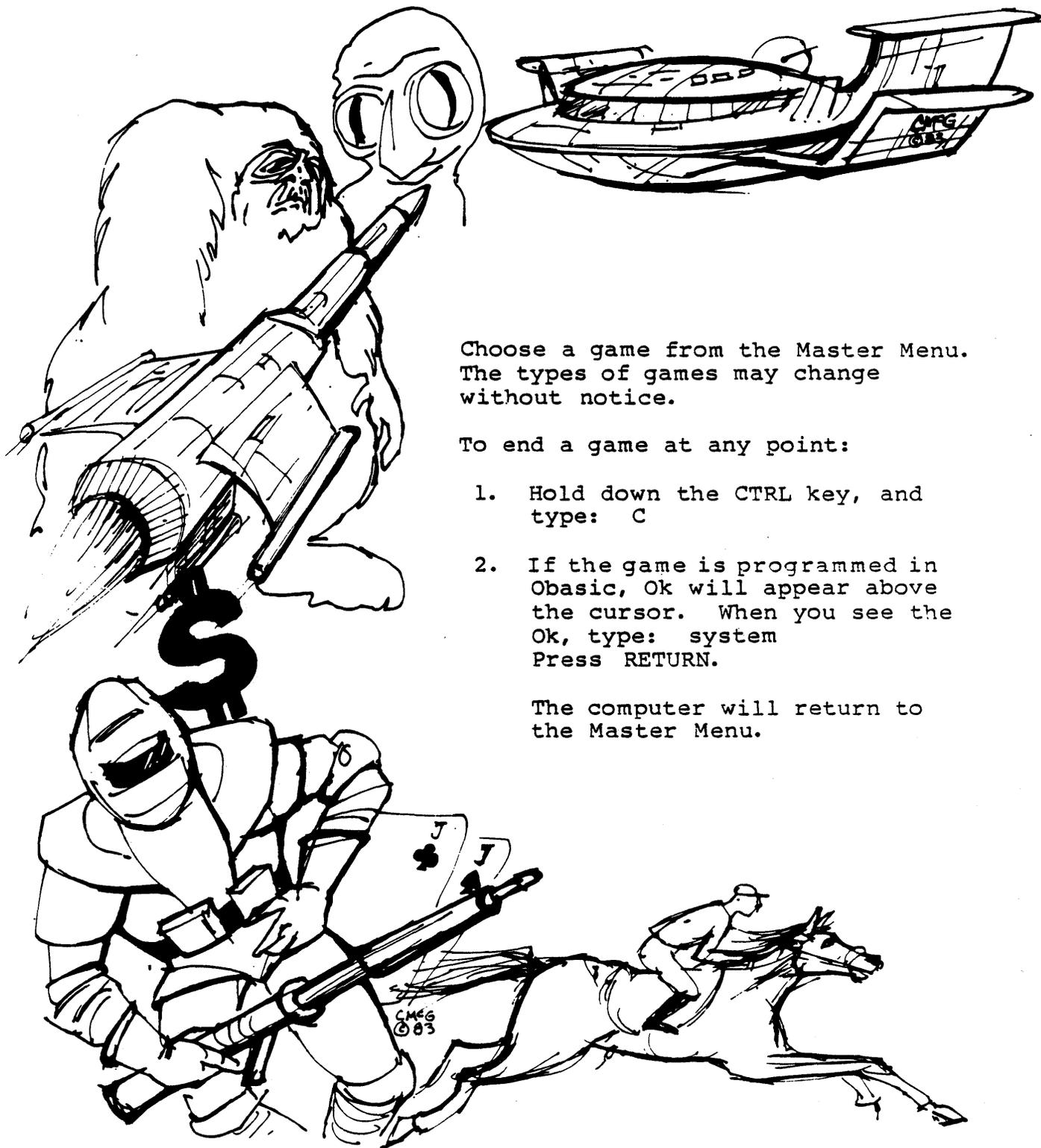
2. To stop the scrolling, enter the command: CTRL-S
3. To restart the scrolling, again enter the command: CTRL-S

To print a text file to a printer without using a word processing system:

After the TYPE command, enter the command: CTRL-P
Press RETURN.

Anything printed on the screen is also echoed to the printer until you enter another CTRL-P.

THE GAMES



Choose a game from the Master Menu. The types of games may change without notice.

To end a game at any point:

1. Hold down the CTRL key, and type: C
2. If the game is programmed in Obasic, Ok will appear above the cursor. When you see the Ok, type: system
Press RETURN.

The computer will return to the Master Menu.

Biorhythm (BIO.BAS)--This computerized study of biorhythmic curves plots your biorhythm for a number of days. The resulting graph indicates whether your physical, mental, and emotional rhythms are high, low, or critical.

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

Horse Races (HORSE.BAS)--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.

Star Trek (STRTRK.BAS)--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.

Star Traders (TRADE.BAS)--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 stock and increase your holdings in companies such as BETELGEUSE LIMITED.

Clone Wars (CLONE.COM)--The Clone Master has caught you in a maze of rooms (successive screens). To leave a room, press the keys on the keypad to move your man to the key which is in one corner of the room. On the way to the key, you can win points by shooting clones. To do this, press a keypad key to set the direction; then press the space bar to shoot. If you gather three or more keys, you may beat the ROBIE computer and put your first name (only) on the scoreboard. You can stop motion by pressing the period key (.) and start motion by pressing any other key.

Aliens (ALIENS.COM)--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 - In this version, you can stop and direct the laser base left or right.
- 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.

Ladder (LADDER.COM)--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. Before the game, you can change the speed by choosing from five levels of difficult. Start off at level one if you know what's good for you.

Catchum (CATCHUM.COM)--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.

SETTING THE BAUD RATE

When the ROBIE is first turned on, or when the reset button is pressed, the baud rate for the serial ports is set to 300 baud. To change the baud rate, use one of the following programs.

The first two programs are effective until the computer is turned off or the reset button is pushed.

BAUDM.COM Sets the baud rate of the serial data I/O port

BAUDP.COM Sets the baud rate of the serial printer port

You can use the program, CONFIG.COM, to permanently alter any of the following features for the program in drive A.

- baud rate
- cursor key definitions
- numeric keypad definitions

To run these programs, type the program name, but do NOT type: .com
Press RETURN.

USING THE REAL-TIME CLOCK

The real-time clock of the ROBIE can be accessed through MBASIC or a CP/M command file. The procedure in MBASIC is:

1. Go to the user area which contains MBASIC.
2. Type: MBASIC CLOCK
Press RETURN.
3. When the prompt asks if you want to reset the clock, type: N

The clock gives the year, month, day of the week, hour in military style, seconds, and hundredths of seconds.

To exit the program:

1. Press ESCape.
2. When the prompt asks if you want to reset the clock, press ESCape.
3. Type: SYSTEM
Press RETURN.

The Master Menu will reappear.

The TIME command can be used to access the clock as follows:

1. From any user area type: TIME
Press RETURN.
2. If the clock has not been set, then a message will appear asking for the correct time and date. Enter the information exactly as requested.
3. When the data has been correctly entered, the date and time will be displayed. Press any key to return to the system.

USING GRAPHICS ON THE ROBIE

The ROBIE has graphics capability. However, it needs a program to tell it what to do. If you are able to write these programs, then the information you need is on the following pages. If you are not able to write the programs and want to use the ROBIE graphics capability for business or other purposes, then it is best to find someone to write a program to do what you want.

VIDEO GRAPHICS AND ATTRIBUTES COMMAND SET

The ROBIE has a graphics and attributes set that currently includes drawing and erasing lines, drawing and erasing pixels, inverse video, reduced intensity, blinking fields, graphics characters, cursor positioning, and cursor on/off.

DRAWING GRAPHICS

To draw graphics on the ROBIE, the screen is treated as an array 100 pixels high, and 160 pixels wide. Any spot on the screen can be addressed by a vertical coordinate (ranging from 32 to 131) and a horizontal coordinate (ranging from 32 to 191). The pixel in the upper left corner of the screen has coordinates of 32,32. It would seem natural to start the numbering of coordinates at 1 or 0. However, some byte values of 32 or less are interpreted by BDOS as control keys.

Line and pixel graphics are drawn on the screen by writing an escape sequence to the console output. For the purpose of drawing lines and pixels, an escape sequence is a 4- or 6-byte sequence defined as follows:

Escape sequence =

ESC <sequence-type> <V1> <H1> [<V2> <H2>]

where:

- 1) ESC is an ASCII 27 (1B hex).
- 2) <sequence-type> is a character of the set:

*	to write a pixel
(space)	to erase a pixel
L	to draw a line
D	to delete a line

- 3) V1, H1, V2, H2 are 1-byte values indicating locations on the screen.

To write a pixel:

The sequence-type must be a "*"
H2 and V2 are not used
V1 is the vertical coordinate of the pixel.
H1 is the horizontal coordinate.

To erase a pixel:

The sequence-type must be a space.
H1, V1, H2, and V2 are the same as above.

To draw a line:

The sequence-type must be an "L".
H1 is the horizontal coordinate of the first point of the line.
V1 is the vertical coordinate of the first point.
H2 is the horizontal coordinate of the last point.
V2 is the vertical coordinate of the last point.

To delete a line:

The sequence-type must be a "D".
H1, V1, H2, and V2 are the same as above.

CURSOR POSITIONING

When positioning the cursor on the ROBIE, the screen is treated as an array 25 characters high, and 80 characters wide. Any spot on the screen can be addressed by:

a vertical coordinate (ranging from 32 to 56)

a horizontal coordinate (ranging from 32 to 111).

The character in the upper left corner of the screen has coordinates of 32,32.

The cursor can be moved to a desired position on the screen by writing an escape sequence to the console output. For the purpose of cursor positioning, an escape sequence is a 4-byte sequence defined as follows:

Escape sequence = ESC EQUALSIGN <V1> < H1>

where:

- 1) ESC is an ASCII 27 (1B hex).
- 2) EQUALSIGN is the character '=' (3D hex).
- 3) V1, H1 are 1-byte values indicating the location on the screen.

Escape sequence = ESC <on-off-code> <attribute-code>

where:

- 1) ESC is an ASCII 27 (1B hex)
- 2) <on-off-code> is a:

B to set an attribute ON, or
C to set it OFF.

- 3) <attribute-code> has a value of 0 through 4, as follows:

0 = inverse video,
1 = reduced intensity,
2 = blinking,
3 = underline,
4 = cursor.

Default for these attributes is:

inverse video	= off
reduced intensity	= off
blinking	= off
underline	= off
cursor	= on

Comments:

- 1) A line drawn from point A to point B will not always look the same as a line from B to A; it will be a mirror image.
- 2) Graphics characters, pixels, and lines cannot write over normal characters.

SUMMARY OF COMMANDS

Graphics commands:

Set pixel	ESC, * , V1, H1
Clear pixel	ESC, , V1, H1
Set line	ESC, L , V1, H1, V2, H2
Delete line	ESC, D, V1, H1, V2, H2

Attribute commands:

	To Turn ON:	To Turn OFF:
Inverse video	ESC, B, 0	ESC, C, 0
Reduced intensity	ESC, B, 1	ESC, C, 1
Blinking	ESC, B, 2	ESC, C, 2
Underlining	ESC, B, 3	ESC, C, 3
Cursor	ESC, B, 4	ESC, C, 4

VIDEO COMMAND PROTOCOL FOR THE ROBIE

The Kaypro video section was originally designed to imitate most of the control sequences of a Lear-Siegler ADM-3A terminal. For most commercial software, this meant that you could "install" or customize the display characteristics by choosing ADM-3A from the menu. For custom software or those instances where there is no choice of "ADM-3A" on the menu, the video command protocol for the ROBIE is:

Control Characters

Action	Dec	Hex
-----	---	---
Ring Bell	07	07
Cursor left (non-destructive)	08	08
Cursor Right	12	0C
Cursor Down	10	0A
Cursor Up	11	0B
Erase to end of screen	23	17
Erase to end of line	24	18
Clear screen, home cursor	26	1A
Home cursor	30	1E

ESCAPE Sequences

Insert line	ESCape,R
Delete line	ESCape,E
Cursor address	ESCape,=,row+32,col+32
Reverse video start	ESCape,B,0
Reverse video stop	ESCape,C,0
Half intensity start	ESCape,B,1
Half intensity stop	ESCape,C,1
Blinking start	ESCape,B,2
Blinking stop	ESCape,C,2
Underline start	ESCape,B,3
Underline stop	ESCape,C,3
Cursor on	ESCape,B,4
Cursor off	ESCape,C,4
Video mode on	ESCape,B,5
Video mode off	ESCape,C,5
Remember current cursor position	ESCape,B,6
Return to last remembered cursor position	ESCape,C,6
Status line preservation on	ESCape,B,7
Status line preservation off	ESCape,C,7

CONTROL KEY AND FUNCTIONS

The control key (CTRL) is used with other keys to control functions. To use it, press the control key simultaneously with other keys; for some functions you must then press the RETURN key.

The following are the control key functions in CP/M. The functions may be different for different software programs. Consult the appropriate software manual for the use of control functions for that particular program.

Control key functions in CP/M:

DEL	Delete and echo the last character typed at the console (same as rubout).
CTRL-C	CP/M system reboot (warm start).
CTRL-E	Physical, not logical, end of line. Carriage is returned, but line is not sent until RETURN key is pressed.
CTRL-G	Bell; sounds an audible bell (from keyboard).
CTRL-H	Backspace; move cursor left one character position.
CTRL-I	Horizontal tab, moves cursor to the next defined tab stop. (CP/M assumes tab stops at every 8th position.)
CTRL-J	Linefeed: move cursor down one line.
CTRL-M	Carriage return; return cursor to left margin.
CTRL-R	Retype current command line. Types a "clean line" following character deletion with rubouts.
CTRL-U	Delete the entire line typed at the console.
CTRL-X	Same as CTRL-U.

CONNECTING A PRINTER

Parallel Printer

Your KAYPRO computer comes equipped with a Centronics-type connector on the back panel, labeled: PARALLEL PRINTER OUTPUT. If you have a printer with a similar 36-pin connector, then all you need is a standard parallel printer cable (available from your dealer) to connect the two units. If you have a non-standard connector on your printer or cannot find a suitable cable already assembled, then the following pin assignments and definitions should be useful to the person who fabricates your cable.

1	STROBE ----->	A negative going signal to printer which indicates that the data being sent is valid.
2	DATA 0 ----->	
3	" 1 ----->	
4	" 2 ----->	
5	" 3 ----->	Data lines to printer.
6	" 4 ----->	
7	" 5 ----->	
8	" 6 ----->	
9	" 7 ----->	
10	Not connected	
11	BUSY ----->	The KAYPRO expects a low signal on this line from the printer to indicate readiness to receive a character. A high signal indicates that the printer is BUSY, and the KAYPRO should not send.
12-15, 17, 19-25		
27-33, 35, 36		Not connected
16, 26, 34		Ground
18		Spare

Note that the BUSY line is read by the KAYPRO as ACTIVE when left disconnected. If you tell your computer to print something when there is no printer there, your computer will sit patiently and wait for a printer to say that it's ready for data. And wait and wait and... Press the reset button on the back panel.

Serial Printer

Your KAYPRO was designed to be as easy to use as possible. The standard KAYPRO expanded system consists of your computer connected to a standard parallel printer via the parallel connector, and to a modem via the RS-232C serial connector. However, if you have a serial printer, you will need to adapt the serial interface for your printer.

The following information is provided to aid such modifications. But please note that KAYPRO Corporation makes no guarantees about the suitability of a given serial printer for use with the KAYPRO's RS-232C serial interface. The reasons for some of the difficulties are given here, but before you purchase any serial printer, insist upon a demonstration of its operation.

There are three things you must do if you are to use a serial printer with the ROBIE computer:

1. You must tell CP/M to redirect the printer output to the serial interface. Use STAT to change the physical assignment like this: `A>STAT LST:=TTY:`

You can make the change from a parallel printer (LPT:) to serial (TTY:) permanent on some of your diskettes by using the CONFIG program on your CP/M S-BASIC diskette.

2. You should make sure that the line being used by your computer for data transmission (pin 3 of the serial printer connector) is connected to the printer's data reception pin.
3. The remaining task is to take care of the handshaking signal lines. You can strap the signals so that they are always true. The potential problem with defeating the handshaking lines in this manner is that you have to limit your baud rate to avoid overwriting the printer's internal buffer. For example, if you leave the KAYPRO's baud rate at 300 baud, your printer must be able to print at least 30 characters per second.

If you have problems with overwriting the buffer in your serial printer, you will have to implement some handshaking to correct the problem. The KAYPRO uses pin 20 (CLEAR TO SEND, see the following figure) as an indicator of printer readiness. For proper handshaking, the serial printer must produce a "not busy" signal for pin 20 that is high when the printer can accept data. Details of the handshaking your printer requires should be in its owner's manual.

I/O PORT PIN ASSIGNMENTS

KAYPRO ROBIE SERIAL PRINTER PORT (DCE)

GROUND	1		
RxD	2	14	
TxD	3	15	
	4	16	
N/C	5	17	
	6	18	
GROUND	7	19	
	8	20	CTS
	9	21	
	10	22	
N/C	11	23	N/C
	12	24	
	13	25	

KAYPRO ROBIE SERIAL DATA PORT (DTE)

GROUND	1		
TxD	2	14	
RxD	3	15	
RTS	4	16	
CTS	5	17	
+5V	6	18	
GROUND	7	19	
DCD	8	20	DTR
	9	21	
	10	22	
N/C	11	23	N/C
	12	24	
	13	25	

KAYPRO ROBIE PARALLEL PRINTER PORT

PSTROB	1	19	
D0	2	20	
D1	3	21	
D2	4	22	
D3	5	23	
D4	6	24	
D5	7	25	
D6	8	26	GROUND
D7	9	27	
	10	28	
BUSY	11	29	
	12	30	
	13	31	
	14	32	
	15	33	
GROUND	16	34	GROUND
	17	35	
SPARE	18	36	

I/O PORT ADDRESSES

<u>Use</u>	<u>Port# (hex)</u>	<u>Device</u>	<u>Function</u>
Keyboard:			
	05	ZSIO 1 Chan. B	Keyboard data(R/W). Eight-bit data from keyboard.
	07	ZSIO 1 Chan. B	Keyboard control/status I/O.
Video:			
	1C	6545/6845 EA	CRT controller status/control I/O.
	1D	6545/6845 EA	CRT controller data I/O.
=====			
Parallel Printer: (output only)			
	18 - 1B	74 373	Parallel printer port (write only).
=====			
Serial Printer I/O:			
	08 - 0B	WD 1943 COM 8116	Baud rate for serial printer port.
	0C	ZSIO 2 Chan. A	Serial printer data I/O (RS-232C).
	0E	ZSIO 2 Chan. A	Serial printer control/status I/O.
=====			
Serial Data I/O:			
	00 - 03	WD 1943 COM 8116	Baud rate for serial data port (write only).
	04	ZSIO 1 Chan. A	Serial data port (RS-232C). Data I/O.
	06	ZSIO 1 Chan. A	Serial data port (RS-232C). Status/control I/O.

<u>Use</u>	<u>Port# (hex)</u>	<u>Device</u>	<u>Function</u>
Real-time clock:		(NS-MM58167A)	
	20	PIO Chan. A	Real-time clock register select and interrupt status. Bit functions: 0 lsb register select (output). 1 " " 2 " " 3 " " 4 msb register select (output). 5 not used 6 rtc interrupt output (input). 7 rtc not standby interrupt output (input).
	22	PIO Chan. A	Real-time clock PIO control port.
	24	MM 58167A	Real-time clock data I/O.

=====
Internal Modem:

0D	ZSIO 2 Chan. B	Internal modem data I/O port.
0F	ZSIO 2 Chan. B	Internal modem status/control I/O port.
21	PIO Chan. B	Internal modem control lines. Bit functions. 0 lsb digit to dial (output). 1 " " 2 " " 3 msb digit to dial (output). 4 0=touch tone. 1=pulse dial. -ate on modem chip. 5 0=not loop back (test mode). 6 0=off hook (on line). 7 1=digit present to dialer chip, not BSTROBE input present next digit from dialer chip.
23	PIO Chan. B	Modem PIO control port.

<u>Use</u>	<u>Port# (hex)</u>	<u>Device</u>	<u>Function</u>
System:	14 - 17	74 373	<p>System output port.</p> <p>Bit functions.</p> <p>0 0=Select floppy A (C on K10).</p> <p>1 0=Select floppy B (Hard disk on K10).</p> <p>2 0=Select side 2.</p> <p>3 PSTROB.</p> <p>4 0=Floppy motor on (48 tpi drives).</p> <p>1=Select high speed (High density drive). * see note</p> <p>5 0=Select double-density.</p> <p>6 0=Select normal character set.</p> <p>7 0=Select 64K RAM.</p> <p>1=Select ROM (RAM 8000-FFFF).</p>
		74 244	<p>System input port.</p> <p>Bit functions.</p> <p>0 0=floppy A selected (C on K10).</p> <p>1 0=floppy B selected (Hard disk on K10).</p> <p>2 0=Side 2 selected.</p> <p>3 PSTROB.</p> <p>4 0=motor is on (48 tpi floppy).</p> <p>5 0=Double-density is selected.</p> <p>6 0=Parallel printer is busy.</p> <p>7 0=64K RAM is selected.</p> <p>1=ROM (RAM 8000-FFFF) selected.</p>

* Note on high-density drives:

A 1 in bit position 4 will select high speed on the high-density diskette drive. To reset the drive to low speed it is necessary to change this bit to a 0 AND open the drive door, then close it.

<u>Use</u>	<u>Port# (hex)</u>	<u>Device</u>	<u>Function</u>
------------	------------------------	---------------	-----------------

Disk Controller Ports:

	10	1793	Floppy disk controller status/command I/O port.
	11	1793	Floppy disk controller track register I/O port.
	12	1793	Floppy disk controller sector register I/O port.
	13	1793	Floppy disk controller data register I/O port.

MEMORY MAP OF THE ROBIE COMPUTER

CBIOS	EE00H
BDOS	E600H
CCP	DE00H
TRANSIENT PROGRAM AREA	100H
CP/M BUFFERS	00H

ASCII CHART

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
=====			=====			=====			=====		
0	00	NUL or ^@	32	20	Space	64	40	@	96	60	`
1	01	SOH or ^A	33	21	!	65	41	A	97	61	a
2	02	STX or ^B	34	22	"	66	42	B	98	62	b
3	03	ETX or ^C	35	23	#	67	43	C	99	63	c
4	04	EOT or ^D	36	24	\$	68	44	D	100	64	d
5	05	ENQ or ^E	37	25	%	69	45	E	101	65	e
6	06	ACK or ^F	38	26	&	70	46	F	102	66	f
7	07	BEL or ^G	39	27	'	71	47	G	103	67	g
8	08	BS or ^H	40	28	(	72	48	H	104	68	h
9	09	HT or ^I	41	29	)	73	49	I	105	69	i
10	0A	LF or ^J	42	2A	*	74	4A	J	106	6A	j
11	0B	VT or ^K	43	2B	+	75	4B	K	107	6B	k
12	0C	FF or ^L	44	2C	,	76	4C	L	108	6C	l
13	0D	CR or ^M	45	2D	-	77	4D	M	109	6D	m
14	0E	SO or ^N	46	2E	.	78	4E	N	110	6E	n
15	0F	SI or ^O	47	2F	/	79	4F	O	111	6F	o
16	10	DLE or ^P	48	30	0	80	50	P	112	70	p
17	11	DC1 or ^Q	49	31	1	81	51	Q	113	71	q
18	12	DC2 or ^R	50	32	2	82	52	R	114	72	r
19	13	DC3 or ^S	51	33	3	83	53	S	115	73	s
20	14	DC4 or ^T	52	34	4	84	54	T	116	74	t
21	15	NAK or ^U	53	35	5	85	55	U	117	75	u
22	16	SYN or ^V	54	36	6	86	56	V	118	76	v
23	17	ETB or ^W	55	37	7	87	57	W	119	77	w
24	18	CAN or ^X	56	38	8	88	58	X	120	78	x
25	19	EM or ^Y	57	39	9	89	59	Y	121	79	y
26	1A	SUB or ^Z	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC or ^[	59	3B	;	91	5B	[	123	7B	{
28	1C	FS or ^\	60	3C	<	92	5C	\	124	7C	|
29	1D	GS or ^]	61	3D	=	93	5D	]	125	7D	}
30	1E	RS or ^^	62	3E	>	94	5E	^	126	7E	~
31	1F	US or ^_	63	3F	?	95	5F	_	127	7F	DEL

Please note that, while the normal ASCII-printable characters are displayed on the screen, the operation of control codes not documented above is subject to change and may not be what your software expects.

RECONFIGURING SPECIFIC KEYS

THE NUMERIC KEYPAD

If you have little use for entering numerical data with the numeric keypad, you may want to reconfigure the keypad. This will enable you to activate with one keystroke functions which usually take up to four keystrokes. Here is the procedure:

1. Make a diagram of the keypad with the changes you want to make. This will help you in the reconfiguration, and, after the reconfiguration, will serve to remind you of the new functions you have given the keys.
2. At the AØ> prompt, type: CONFIG
Press RETURN.
3. From the menu, select Redefine the number pad by typing: N
4. Follow the instructions on the screen.

THE ARROW KEYS

The procedure for reconfiguring the arrow keys is the same, except in step 3 select Redefine the vector pad by typing: V

PROGRAM TO TURN OFF THE KEYBOARD BEEPER

This program is in the M-BASIC programming language. See your M-BASIC manual for details.

```
10 REM THIS PROGRAM TURNS OFF THE KEYBOARD BEEPER.  
20 DEFINT A-Z  
30 KEYBOARD=5  
40 QUIET=8  
50 OUT KEYBOARD, QUIET  
60 END
```

USING THE INTERNAL MODEM

The ROBIE is equipped with a 300-baud internal modem. The steps required to enter the modem program are:

1. Go to the user area which contains the file MITE.COM (find the location of MITE.COM by typing: d MITE.COM \$uvs).
2. Type: MITE
Press RETURN.

The MITE* program has preset parameters which allow the ROBIE to communicate with most computers. If there is a need to change the parameters, or if there is a question about the program in general, please consult the MITE manual which came with the ROBIE.

A MULTI-FORMAT PROGRAM

By using the MFDISK program, you can assign the diskette drive to a format alien to the ROBIE. The ROBIE can then read from 5-1/4" diskettes made for various other computers and create diskettes to be read by various other computers.

To use MFDISK:

At the A0> prompt, type: MFDISK

You will see a list of options for various diskettes. You will also have options of:

S)elect--Assigns an alien format to the diskette drive.

I)nquire--Attempts to determine what format the other diskette has

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

R)eturn--Exits the MFDISK program, with the alien format becoming effective upon exiting to CP/M.

PLEASE NOTE: Once MFDISK has been run, the new drive assignments remain active until you alter the assignments by using MFDISK or until you press the reset button. 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.

After running MFDISK, each time a warm boot occurs, the drive assignments will appear. A report of "No Disk Selected" indicates that the drive has not been assigned to an alien format.

TROUBLESHOOTING

If you have difficulties when operating your ROBIE, PLEASE check the following list of symptoms and remedies before calling your dealer. Of course, when programs don't do what you expect, read the manual for that program.

If the following quick checks don't fix the problem, contact your dealer for assistance with both the operation of your software and the service needed for your ROBIE.

SYMPTOM: Programs won't load or execute.

PROBABLE CAUSES AND REMEDIES:

1. No AC power. Be sure that the power cord is plugged in. Check the power switch and any switches controlling the wall outlet.
2. No video display. Adjust brightness control on rear panel.
3. Drive door not closed.
4. Diskette is in drive when it is not needed.
5. Diskette in drive isn't the diskette expected by the operating program.
6. Diskette isn't in the drive correctly (label side to the left and the write-protect notch down).
7. Diskette has been damaged. Use the backup to make another copy.
8. Incorrect response to a prompt or invalid menu selection; check for error message from program.
9. You're asking the program to do something it can't. When all else fails, read your manual.

SYMPTOM: Computer unexpectedly ignores keyboard entries.

PROBABLE CAUSES AND REMEDIES:

1. Disconnect and reconnect the coiled cord which attaches the keyboard to the computer.
2. Fluctuations in the AC power line. Use another outlet or an External Power Conditioner. Some battery backup units will filter out noise from heavy electrical machinery as well as cover for temporary "brownouts."
3. External peripheral devices or their connecting cables may be at fault. Try operation without peripheral or with different cable to isolate the problem.
4. Damaged or faulty diskette. Use the backup to make another copy.
5. Incorrect instruction sequence. Check the appropriate manual to insure that you are using the correct operations and sequence.

MAINTENANCE

Because of the generally high reliability of modern, solid-state components, with normal use your computer should need very little maintenance or service.

It is important to keep the computer and diskettes dust-free. The computer itself can be cleaned with a damp, lint-free cloth. A mild kitchen detergent can be used, if necessary.

Care for peripheral devices, such as printers, should be covered in the manual that came with the device.

Occasionally the filter on the back panel will need to be cleaned. DO NOT REMOVE THE SCREWS ON THE GRILL HOLDER. Simply grasp the center section with two fingers and pull until the grill pops out. Clean the filter by gently agitating it in water and mild soap or detergent. Let it dry, replace it, and replace the grill.

APPENDIX

SYSTEM STATUS MESSAGES

System Status 01 -- Write Error

System Status 02 -- Read Error

System Status messages occur any time the disk controller detects a read or write error. These errors are referred to as either hard or soft errors.

SOFT ERRORS

Soft error means a temporary error due to fluctuations on the power line, overheating, excess humidity, etc.

On a power up sequence, power supply transients may cause a System Status message to appear. Wait a couple of minutes to allow the power supply to stabilize; then press the reset button. The System Status message should disappear.

If a System Status message appears during normal operation, after warm-up, and pressing the reset button clears the message, you can assume that the error is temporary.

Soft errors should concern you only when they reoccur constantly. This indicates a hardware problem that interferes in the proper functioning of the disk controller.

HARD ERRORS

A hard error indicates that either physical damage has occurred to the disk media or a marginal sector has failed.

GLOSSARY

ADDRESS	a number used by the computer to keep track of different memory locations
ARRAY	a set of elements arranged in a pattern
ASCII	acronym for American Standard Code for Information Interchange; a 7-bit code for representing character data such as letters, punctuation, etc.
BACK UP	to copy information or programs as a protective measure
BAUD RATE	the speed of serial communications; bits per second
BDOS	acronym for Basic Disk Operating System: the section of CP/M that keeps track of disk files
BIOS	acronym for Basic Input/Output System: the section of CP/M that handles the hardware of the ROBIE
BIT	a binary digit, the smallest piece of information a computer can handle (see BYTE)
BOOT	loading CP/M into the computer's memory from drive A, COLD BOOT occurs when the machine is first turned on; WARM BOOT occurs when you press the CTRL and C keys simultaneously (see CP/M manual for details)
BUFFER	an area of memory set aside for storing and manipulating data associated with I/O devices, such as disks and keyboards
BUG	a problem or undesirable side-effect of a computer program, almost always unexpected and unwelcome (see DEBUG)
BYTE	8 bits; the size of a memory location in the ROBIE; a computer "word" (Note: A kilobyte or kbyte is one thousand bytes.)
CCP	acronym for Console Command Processor: the section of CP/M that makes sense of what you type on the keyboard
CHIP	an integrated circuit. See CPU.

CONSOLE the device used for communication between the computer and you. Normally, this is the keyboard and the video display.

CP/M acronym for Control Program for Microcomputers. The most popular disk operating system for 8080 and Z-80 microcomputers, CP/M keeps track of the files and programs on the hard disk and the diskettes and facilitates their use.

CPU acronym for Central Processing Unit: the microprocessor chip

CRT acronym for Cathode Ray Tube: the "TV" tube used as the video display

DEBUG to remove mistakes from a computer program (see BUG)

DIRECTORY the list of files in a user area or on a disk

DISKETTE magnetic media which is enclosed in a sturdy casing

FILE characters or data that is stored in a user area or on a disk. A file can contain a program or information to be used by other programs.

FILENAME the name of a file, which you see when you list the directory or use when you access a file

FORMAT the organization of data on a disk. A double-sided, double-density format on a diskette consists of 80 tracks per disk, with each track divided into 10 sectors.

HARD DISK magnetic media in the form of a durable disk permanently fixed within the computer

HARDWARE the physical parts of the computer and its peripheral equipment, as opposed to SOFTWARE.

HIGH-LEVEL a computer programming language that is similar to English or LANGUAGE mathematics. S-BASIC and PASCAL are examples.

INPUT data put into the computer. By extension, the process or means of putting data into the computer.

LOAD to take information from a storage medium, such as a disk or tape, and put it into the computer's memory.

MACHINE a binary language that a computer can understand, as opposed to LANGUAGE either assembly language (see the ASM section of your CP/M manual) or high-level languages like S-BASIC.

MODEM acronym for MODulation/DEMODulation: a device that connects a computer terminal to another computer terminal via a communications link, such as the telephone system.

OUTPUT information displayed on the screen or printed on a printer. By extension, the process or means of getting information out of a computer.

PERIPHERAL any device connected to and used with your computer (e.g., a printer or modem).

PIXEL an element or location on the screen for the purpose of forming characters or graphic displays

PROGRAM a set of instructions for a computer; the SOFTWARE.

PROMPT a unique character or characters which tells the user that the program requires some instruction or information.

RAM acronym for Random Access Memory: the memory that the computer uses for temporary storage of information and programs.

ROM acronym for Read Only Memory: the memory that is used for unchanging information and programs.

SECTOR a group of bytes on a disk

SOFTWARE programs

TRACK a ring of information on a disk

USER AREA areas on a hard disk or diskette which are set up to hold files

UTILITY a program used to assist in the operation of the computer

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