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Jef Raskin Information

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Apple Manuals Apple][Pascal Macintosh SwyftCard Canon Cat

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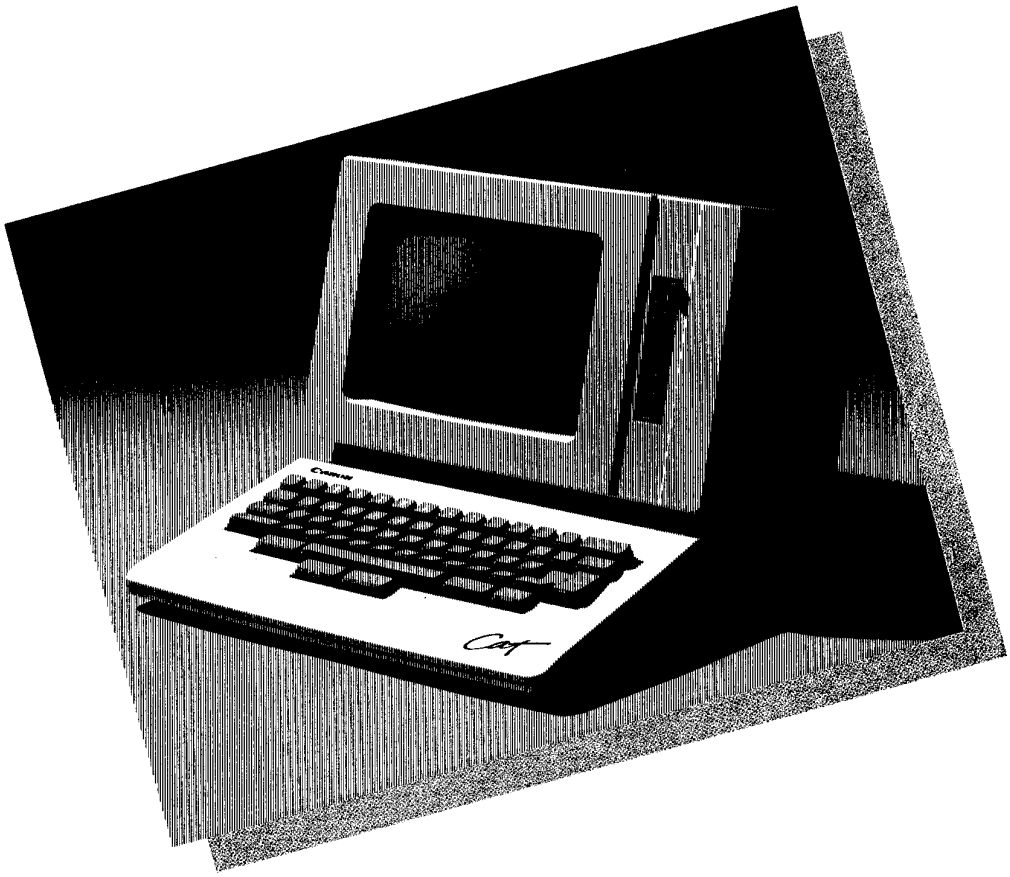
Canon Cat

The Advanced WORK Processor

REFERENCE GUIDE



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The Canon Cat Reference Guide

Note: You do not have to read this manual in order to use the Cat. Use the How-to Guide, *especially the blue-edged tutorial pages, to get acquainted with your Cat. Consult this manual for more information about a particular feature or command you are interested in.*

Manual by
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Canon Cat

Cat by Jef Raskin, Dr. James Winter, Terry Holmes, Minoru Taoyama, Jonathan Sand, John Bumgarner, Paul Baker, Jim Straus, Dave Bolton, Charlie Springer, Scott Kim, Ralph Voorhees, Richard Krause, Kouji Fukunaga, Kazuhiro Nakamura, Naohisa Suzuki, Shigeru Ishida, Susumu Takase

Be sure to read and follow the recommendations in *Setting Up and Starting Up* in the *How-to Guide* regarding safety and environmental limitations in using the Cat. Also read and follow the recommendations for safeguarding your information in *Appendix C*, page 125 of this manual.

This manual written on Canon Cats.
Manual design and production: Suzanne West and Cate Lush

Table of Contents

Introduction

The *Reference Guide* is not an instruction manual, and you don't have to read it in order to use the Cat. You'll learn the Cat faster if you just plunge in and try it. After setting up your equipment according to the instructions in the first part of the *How-to Guide*, there are two ways you might go:

If you've already had word processing experience, you might want to approach it through the *Quick Reference Card.* Just try out the features.

If you want step-by-step instruction, do the tutorial in the *How-to Guide*. The hour or two you spend on the tutorial will pay big dividends, since the habits you form early on will influence the way you use the Cat for a long time to come.

The rest of the *How-to Guide* answers practical questions such as "How do I print a document?" The *Reference Guide* is like an encyclopedia. It describes every feature of the Cat in detail. When you want to know exactly how a specific function works and everything that it can do, look here.

Four Things About the Cat You Must Know

To understand the *Reference Guide*, you must be familiar with typing and erasing, leaping, highlighting, and commands. If you are not familiar with these, read about them in the *How-to Guide*. Above all, try them out. It's essential to understand these functions in order to use the Cat.

The *Quick Reference Card*, *How-to Guide*, *Tutorial,* and *Reference Guide* are all constructed alike, with parallel sections on typing, leaping, highlighting, and commands. You will find the same commands discussed in the same order here and in the *How-to Guide*.

What's in the *Reference Guide*?

The same things you'll find in the *How-to Guide*, but in greater detail.

Basic Functions

The Cursor and the Highlight

The *cursor* is the blinking object on the screen. It usually appears to the right of a solid, unblinking rectangle called the *highlight*.

The cursor and the highlight keep track of your place on the screen. Like a pencil and eraser, each has a specialized purpose which never changes.

What They Do

The cursor shows where the next character you type will appear. The highlight shows what will be erased if you press [ERASE].

This is always true, so we call it *the Fundamental Cursor Rule*.

Changes in the Cursor's Appearance

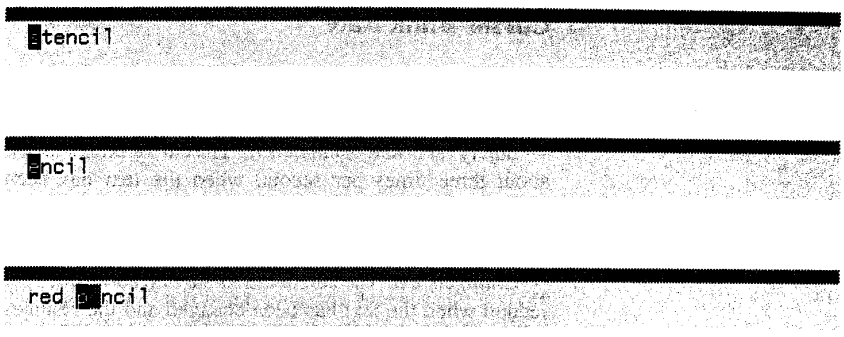
The cursor has three distinct appearances: *narrow*, *wide*, and *extended*. In addition it may blink slowly or quickly.

Narrow Cursor

The cursor is *narrow* when the cursor and the highlight both rest on the same character, and both are blinking. The cursor becomes narrow whenever you move it by leaping, creeping, or scrolling.

When the cursor is narrow, the Fundamental Cursor Rule still applies: You can either type or erase at this location. If you type, the character at the cursor will be pushed ahead of the new characters. If you erase, the cursor will remove the characters to its right. The character you are on will disappear first. (See *Erasing Text*, page 23, for more information.)

Making a correction: In (1) you have just moved the cursor to the "s" in "stencil" by leaping or creeping, so the cursor is narrow on "s". In (2) you press [ERASE] *twice and "st" disappears (if you pressed* [ERASE] *again "e" would disappear). In (3) you make the correction by typing "red p"; "encil" moves ahead. The cursor is now wide because you have been typing.*



Wide Cursor

Typing or inserting text by using a command always makes the cursor wide. The cursor is *wide* when the highlight is on one character, and the blinking cursor is one character position forward from it. If the cursor is wide and you press [ERASE], the cursor and highlight move backward together, erasing each highlighted character as they go. This closely resembles backspacing on a typewriter.

Extended Cursor

The cursor is *extended* when two or more characters are highlighted. *Extended cursor* and *extended highlight* mean the same thing. Pressing both LEAP keys after a leap causes the highlight to extend, covering all characters between the beginning and the end of the leap.

Extending the highlight allows you to show the Cat some text you want to affect. For example, pressing [ERASE] erases all the text in the extended highlight. Commands generally affect only the text in the extended highlight.

The highlight is now extended. *The next step is to press* [ERASE] *to make the highlighted text vanish.*

When the Cursor and Highlight Separate

To move text from place to place, you highlight it, then leap to the new location. During the leap, the cursor temporarily separates from the highlighted text. The highlighted text leaps to the new position of the cursor as soon as you release the LEAP key. See *Moving Text*, page 22, for more information.

Cursor Blink Rate

In addition to the cursor shape, the cursor blink rate also indicates the state of the text:

— *Safely recorded* or *clean text*. The cursor blinks faster, about three times per second when the text has been recorded on a disk or just played back from a disk (see *Using the Disk Drive*, page 25, for more information).

— *Changed text*. The cursor blinks slower, about once per second when the text has been changed and the changes have not yet been recorded. In this state the text is called *dirty*.

Moving the cursor, extending the highlight, printing text, or using [EXPLAIN] do not make the text dirty.

Typing

Typing on the Cat is like typing on a typewriter. You can begin typing as soon as you see the blinking cursor. What you type is always inserted; text is never destroyed by typing, as it can be in some word processors. Space is made for the new text by pushing the old text forward. Line endings and page endings adjust automatically.

Word Wrap

Word wrap automatically ends the line for you when you come to the right margin while typing. A *word* is a sequence of printing characters plus one or two following spaces. If a word runs into the right margin, word wrap moves the whole word to the indent of the following line. If there is text ahead of the cursor, line and page endings adjust automatically.

When you erase characters, the text unwraps. Unwrapping is the exact reverse of wrapping. Line and page endings adjust automatically.

Character Set

For each type of Cat keyboard there is a particular set of characters which can be both typed and printed. Some characters — automatic page breaks, for example — are not real characters in the same sense as a character you have typed, though they are displayed on the screen.

International Keyboard Set

Your keyboard has been set up to correspond to the conventions of the country where you bought your Cat. Internally, every Cat has all the keyboard layouts used in other countries. See *Screen 2: Machine Setup*, page 97, for information on activating these keyboard layouts. *Appendix A*, page 114, has complete charts for all Cat keyboards.

Permanent Space

Permanent space is the uppercase character on [TAB]. A permanent space is typed between two words that should always appear on the same line, such as "Canon Inc." Word wrap treats words linked by permanent spaces as a single word. A permanent space looks the same as an ordinary space on the screen or when printed.

If you leap to a permanent space (leap to [SHIFT]-[TAB]), the cursor will find only permanent spaces. A leap to an ordinary space finds either a permanent or a regular space.

Return Character

Pressing [RETURN] puts a return character in the text, forcing the next character in sequence to appear at the indent of the next line. A return character also marks the end of a paragraph. This is important for the paragraph commands described in *Customizing the Appearance of Paragraphs*, page 40.

A return does not appear in the printout. Its whole purpose is to cause the printer to start a new line. A return is visible on the screen only when highlighted, appearing as a small hook-shaped arrow.

Tab Character

Pressing [TAB] inserts a tab character into the text. A *tab character* is a space holder of variable width. It extends from the position the cursor held when you pressed [TAB] forward to the nearest tab stop. Inserting text to the left of the tab character shortens it.

A tab character is visible only when highlighted, when it appears as a dark ribbon containing a right-pointing arrow. A tab character is not visible in the printout except as blank space between characters.

A tab character may be compressed to the width of one character space (one mark on the ruler). If insertions to the left of a tab character force it beyond the tab stop that anchors its right side, it moves to the next tab stop (since it is flexible, its length may change when this happens). The rest of the text forward from the tab character is pushed ahead and words wrap as required.

Accented Characters

Accent characters can only be applied to alphabetic characters and spaces. Punctuation cannot be accented.

Certain print wheels provide characters with accents already in place. The Cat uses such characters if possible; otherwise it prints the accent character, then prints the character to be accented at the same location by overstriking.

When you type an accent, it appears as a bare accent character on the screen (*bare* means "all by itself"). The next character you type will appear at the same location, under the accent character, providing you do not type another accent. If you type two accents in a row, the text will contain two bare accent characters. The second accent will appear over the third character you type, providing the third character is not an accent.

If the cursor is narrow and positioned on a bare accent character, and you type a character other than an accent, the accent and character will combine to form an accented character. This is slightly unusual for the cursor, which usually pushes the character under the narrow cursor forward when you type.

If you type an accent character and move the cursor away from it, the bare accent character remains alone in the text.

Adding Text in Boldface or Underlined Areas

When you type in the middle of an underlined or boldfaced part of the text, the characters you type take on the style of the surrounding characters. For example, if you type in the middle of a boldface word, what you type will also be bold. The cursor must have bold or underlined characters on both sides of it for newly typed characters to take on the bold or underline appearance. If bold or underlined text is only on one side of the cursor, the newly typed text will be plain.

A dotted underline appears under characters resulting from calculations. If you type in the middle of text with a dotted underline, the newly typed text will also be underlined. This ensures that any change you make in the middle of a mathematical expression will automatically be included in further calculations.

Typing in the middle of capitalized text is not automatically capitalized, unless you have pressed [LOCK].

The LOCK Key

Pressing [LOCK] makes the Cat behave as if [SHIFT] were being held down. A light in the [LOCK] keycap comes on when the keyboard is locked. Note that when [LOCK] is engaged, you can type only the uppercase symbols on the numeral keys.

[LOCK] is turned off by pressing and releasing either [SHIFT]. When [LOCK] is released the light in the keycap goes off.

[LOCK] and its keycap light temporarily switch off during leaping. Since leaping is sensitive to capital letters in patterns, [LOCK] would make leaping appear to be out of order if it were left on during the leap. When you release the LEAP key, [LOCK] is turned on again.

The Cat also ignores [LOCK] while you press [USE FRONT]. This is because certain commands behave differently when [SHIFT] is pressed, and using [LOCK] is like holding down [SHIFT].

Page Numbering

The Cat numbers and ends pages automatically while you are typing. Page numbering and page endings are updated when text is erased or inserted. You can also force a page to end with [PAGE]. The uppercase character on [PAGE] — called a *document character* — is used to begin and end documents. [DOCUMENT] begins a new page and restarts page numbering on succeeding pages. You can adjust page numbering and page length using [SETUP].

Only page numbers that print are displayed on the screen. For example, if the Cat is set so that "1" does not print at the bottom of page 1, then that page break will be unnumbered on the screen. Page 2 is normally the first page number to print, but this can be adjusted with [SETUP]. Page numbers are positioned slightly above the page break, showing that they refer to the text above.

Automatic Page Breaks

The Cat automatically marks the text where enough lines accumulate to fill a paper page (top and bottom margins taken into account). Automatic page breaks are displayed as a single horizontal dotted line the full width of the screen. The *automatic page break* is a marker, not a true character; you cannot type it or erase it. You can, however, leap to it by holding a LEAP key and pressing [PAGE]. The cursor lands on the first character of the page following the automatic page break, rather than on the break itself. An automatic page break can only be used in a single-character leap pattern.

Page Characters

Typing a page character by pressing [PAGE] causes the page you are typing to end, and a new page to begin. Page numbers are automatically kept in order. Page characters are ordinary characters like letters, numerals, and punctuation. They can be typed and erased, and can be part of a multi-character leap pattern.

A page character is shown by a full-width horizontal line on the screen. The page number appears slightly above the line, showing that it refers to the text above.

Marking the Beginning of a Document

DOCUMENT

Documents begin and end with a document character, the uppercase character on [PAGE]. A document character is simply a page break that forces page numbering to begin over again (for information on how to change the first page number of a document see *Screen 1: Document Setup*, page 96). A document character is displayed as a shaded horizontal line somewhat thicker than a page character.

The number in the document character appears slightly above the line, showing that it refers to the text above.

If you leap to a document character, the cursor will find only a document character. If you leap to a page character, the cursor finds both page and document characters.

The Cat has no concept of a *document* as a special category of text. Aside from the ability to restart page numbering, document characters are like any other characters in the text, and can be typed, erased, copied, or moved like all other characters.

You can begin new documents anywhere in the text simply by typing a document character. If you erase a document character, the text forward from it becomes part of the document above, and page numbering adjusts automatically.

[SETUP] allows you to set aside the first page of a document for a document title. The title may include information and commentary on the document that follows. See *Titling Your Documents*, page 11, for more information on how to create title pages.

Titling Your Documents

TITLES

[TITLES] allows you to quickly see what documents you have on a disk by assembling all their titles in one place. Maintaining the titles listing requires some effort, since you must type a title page for each document. Only documents with titles will be shown when you use [TITLES]. You can also find out what documents you have on a disk by leaping to a document character, then using [LEAP AGAIN] to leap from document to document.

To activate [TITLES], use [SETUP] to change the first page number of a document to zero. This is easy since it is the first option on the first screen you get when you use [SETUP]. Once the first page of the document is set to zero, the text between the document character that begins the document and the first page character following it becomes a document title.

When you use [TITLES], all the document titles appear in place of the ordinary text, with unnumbered page characters as dividers. [TITLES] will not show documents that don't have zero-numbered first pages, or those without text on page zero.

When the document titles fill more than a screen of text, you can scroll title by title forward or backward by pressing the appropriate LEAP key. When you release [USE FRONT], your text returns with the cursor where it was before you used [TITLES].

Except for the ability of [TITLES] to gather document titles together and display them, document titles are ordinary text. If you erase the document character preceding the text of the title, the document title becomes part of the last page of the previous document, and it is no longer treated as a title by [TITLES]. The larger document that results from erasing a document character will not automatically have its first page converted to a title.

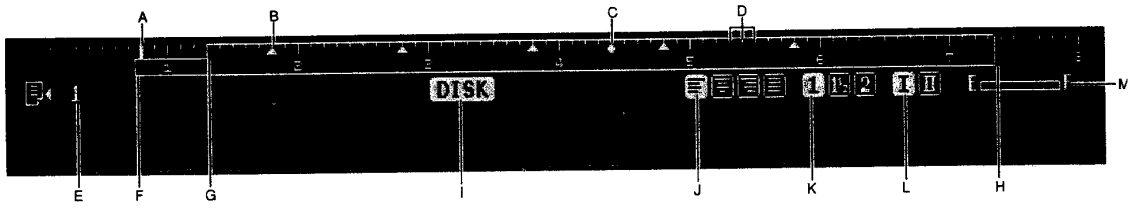
UNDO and the TITLES Command

[UNDO] has no effect on [TITLES].

The Ruler

A ruler calibrated in character positions appears at the bottom of the screen except when [SETUP] or [EXPLAIN] are in use. You can use it to align and measure your text.

The ruler also carries a number of other indicators:



A. The blinking line
This line (shown in blue above) tells you the cursor's horizontal location on a line.

B. Regular tab stop
Stops cursor at the same character position on every line if [TAB] is pressed.

C. Decimal tab stop
Used in typing columns of numbers.

D. Character positions
The ruler is calibrated in numbers of characters, not inches. The numbers 1-8 stand for character positions 10 through 80. Any character counts as one space on the ruler. [SETUP] allows you to print at 10, 12, or 15 characters per inch. Whatever the setting, the ruler does not change. At ten characters per inch with one-inch right and left margins, you will be able to fit 65 characters on a line; at 12 or 15 characters per inch, you will be able to fit 80 characters on a line.

E. Line number of cursor
The sign indicates that the cursor is on line 1. This means the tenth line of type. The top margin is not included in the line count.

F. Left margin
The line indicates the character position of the left margin.

G. Indent
The line indicates the character position of the indent.

H. Right margin
The line indicates the character position of the right margin.

I. DISK sign
Some commands, such as [DISK], take time to complete. A sign here lets you know that the Cat is doing something.

J. Paragraph style signs
The four signs represent four paragraph styles: Left Flush, Centered, Right Flush, and Justified. The lighted sign indicates the style of the paragraph the cursor is in.

K. Line spacing signs
Single, 1-1/2, or double-spaced text. Spacing shown applies to the paragraph the cursor is in.

L. Keyboard I/II signs
[KB II] selects the right-hand set of symbols on four-symbol keys.

M. Memory gauge
Shows the amount of text you've typed. *E* means *empty*— you haven't typed any text and there is lots of room. As you add text the white bar lengthens to shows how much space has been used. The numbers on the ruler are for character positions 1 to 80. The numbers 1 to 8 signify character positions 10, 20, 30, 40, 50, 60, 70, 80.

The ruler shows the features of the paragraph containing the blinking cursor. For example, if the cursor is in a paragraph with a five-character indent and double-spaced lines, these values will be shown in the ruler.

Leaping

The Cat's cursor — the blinking object on your screen — is capable of moving anywhere in the text almost instantly. The term *leap* describes this new and astonishingly fast mode of travel.

<- LEAP LEAP ->

The LEAP Keys

There are two directions you can leap: forward and backward. Two rose-colored LEAP keys — [LEAP->] and [<-LEAP] — control leaping.

Forward and Backward

When you consider the normal reading order of the text (left to right and down), *forward* means toward characters that come later in the text. *Backward* means toward characters that come earlier in the text.

How Leaping Works

While holding a LEAP key, type what you want the cursor to find. Whatever you type is called a *pattern.*

While you type the pattern, the cursor immediately moves in the direction indicated by the LEAP key, landing on the first character of the first occurrence of the pattern in the text. This character is called the *target character.*

[<-LEAP] behaves the same as [LEAP->] except that the cursor moves in the opposite direction through the text.

The search is circular. A leap in one direction will circle the entire text in search of the pattern. The top or bottom of the text is no barrier. By taking the long way around, the cursor may arrive at a backward position after a forward leap and vice versa. The cursor can find what you leap to even when you leap in the *wrong* direction.

The moment the pattern cannot be found, the cursor returns to the starting place. This is called *cursor rebound.* After cursor rebound you should let go of the LEAP key and start the leap over again.

There are two leap modes: *local leap* and *global leap*. In local leap the cursor will not leap outside of the documents you select with [LOCAL LEAP]. In global leap the cursor can leap to any character anywhere in the text. The Cat automatically comes on in global leap. It will only be in local leap if you use [LOCAL LEAP]. A **LOCAL** sign in the ruler lets you know when local leap is on.

After a successful leap the cursor is narrow and positioned on the target character.

Upper and Lowercase Characters in Leaping

Characters in a pattern may include lowercase, uppercase, and accented characters. Patterns and text match as follows:

— Lowercase characters in the leap pattern match both upper and lowercase characters in the text. For example, if you leap to *me*, the cursor will find *me*, *Me*, *mE*, or *ME*.

— Uppercase characters match only uppercase characters. The pattern *ABC* matches only *ABC* in the text, not *Abc* or *abc*.

— Plain characters match both plain and accented characters. The pattern *a* will match *a*, *A*, and *á*.

Special Leap Features

Scrolling

By holding [SHIFT] and, while holding it, pressing a LEAP key, you can make the text scroll one line at a time in the direction indicated by the LEAP key. After one use of [SHIFT]-[LEAP], you can use [LEAP AGAIN] to make scrolling autorepeat.

The cursor stays on the same character in the text, while the text moves up or down the screen. When the cursor hits the top or the bottom line of the screen, it moves to the margin and remains there while the text continues to scroll by underneath it line-by-line. When the cursor reaches the beginning or the end of the entire text (or either end of the local leap region) scrolling stops. If you attempt to scroll further in the same direction, nothing happens.

If you start scrolling when the highlight is extended, the highlight collapses when the cursor moves to the leftmost column after hitting the top or bottom line of the screen.

[UNDO] returns the cursor and the screen to the way they were before you began scrolling.

Leaping to automatic page breaks

If you leap to a page character, the cursor will also leap to automatic page breaks. The cursor lands on the first character following the automatic page break. If the pattern contains more than one character, automatic page breaks will not be found. For example, if you leap to [PAGE][a] the cursor will find the first page character followed by an "a" or an "A", but it will not find an automatic page break followed by an "a".

Leaping to the beginning or the end of the text

Leaping to a pattern of several consecutive page characters causes the cursor to leap to the first or last document character in the entire text. The leap occurs the instant the pattern exceeds the number of consecutive page characters that can be found anywhere in the text. For example, if there are no more than two consecutive page or document characters anywhere in the text, the cursor will leap to the beginning or the end of the text the moment you press [PAGE] the third time while holding a LEAP key.

Use [<-LEAP] to leap to the beginning of the text; use [LEAP->] to leap to the end. In local leap mode the cursor will land at the first or last document character in the local leap region.

Accent characters in leaping

A leap pattern may contain a *bare accent character* (an accent character that stands alone), or characters modified by accents. As you type a pattern containing an accent, type the accent first, then the character which it accents. The two join together in the leap pattern. Thus typing "~" and "n" in succession while leaping causes you to leap to an *ñ*. The instant you type the accent the cursor leaps to the first example of the accent in the text, whether it is a bare accent or it modifies a character. When you type the next character in the pattern, the cursor moves to the first accented example of this character, unless it already stands on such a character. A bare accent can occur only at the end of a pattern or in a single-character pattern. A bare accent matches a bare accent or an accented character in the text.

Leaping and LEARN

Leaping is not circular during the learning or re-enacting phases of [LEARN]. If the cursor encounters either the first or last document characters in the text during a leap, it will rebound to its starting point; learning or re-enacting will stop. If local leap is on, the LEARN command stops and the cursor rebounds when it encounters either end of the local leap region.

UNDO and Leap

[UNDO] returns the cursor and the screen to the way they were before the leap began.

Cursor Rebound When the Pattern is Not Found

The Cat does not treat a failed leap as an error. The cursor simply returns to its starting point the instant there is no match between the leap pattern and the text. After the cursor rebounds you can let go and start the leap over, or you can erase some or all of the pattern (see *Erasing and Correcting the Leap Pattern* below).

Because the most common error in leaping is repeatedly pressing the same key to leap from example to example of the same thing, the Cat beeps when the leap pattern consists of three or more identical characters that cannot be found in the text.

Erasing and Correcting the Leap Pattern

If you press [ERASE] during a leap, it erases the last character you typed in the leap pattern. The cursor backtracks, behaving as if it had leaped only as far as indicated by the shortened pattern. When you erase all characters from a pattern, the cursor returns to its starting place.

You can type a corrected or entirely new pattern after erasing part or all of a pattern.

Pattern Memory

The last pattern used in a leap remains in the Cat's memory until you leap to something new. This means you can let go of a LEAP key, then later use [LEAP AGAIN] to leap to the next example of what you just leaped to. [LEAP AGAIN] is described below.

The LEAP AGAIN Command

LEAP AGAIN

[LEAP AGAIN] causes the cursor to leap again — in the direction indicated by the LEAP key — to the nearest occurrence of the last pattern used in a leap. You use the command repeatedly to find all instances of a pattern in the text. The cursor circles the entire text, crossing the boundary between the top and bottom of the text, and finally returns to the exact spot it started from. Like leaping, [LEAP AGAIN] can go forward or backward. To leap again, hold a LEAP key and press [USE FRONT], or hold [USE FRONT] and press a LEAP key. The first method is most convenient and most often used.

If you press and hold [USE FRONT] and the LEAP key together, [LEAP AGAIN] autorepeats, causing the cursor to skitter rapidly through the text.

UNDO and LEAP AGAIN

[UNDO] returns the cursor and the screen to the way they were before the leap began.

Creeping

Creeping moves the cursor character-by-character in the direction indicated by the LEAP key. It is similar to conventional left-right cursor control. To creep, press and release either LEAP key; the cursor moves when you release the key. You can tap the LEAP key repeatedly to make the cursor crawl smoothly character-by-character in one direction, but it is much better to leap than creep. Creeping is for short moves only.

If the cursor is wide, the first creep makes it narrow. The next creep moves the cursor one character in the direction indicated by the LEAP key. Creeping can also be used to adjust the area covered by the extended highlight (see *Adjusting the Highlight by Creeping*, page 21, for more information). Creeping does not autorepeat.

UNDO and Creeping

[UNDO] returns the cursor to where it was before you began creeping.

Highlighting Text

There is always at least one highlighted character. After typing, it is the character you just typed, usually just to the left of the blinking cursor. After leaping, it is the character on which the cursor is positioned (the first or *target* character you leaped to).

If you press both LEAP keys after a leap, the highlight extends to cover all the text from the location of the highlight at the beginning of the leap to the present cursor position.

Creeping can be used to adjust the size of the extended highlight as described below.

Highlighting Recently Typed Text

If you start typing after a leap, a creep, or even when the highlight is extended (causing the extended highlight to unhighlight), everything you type can be highlighted by pressing both LEAP keys.

A practical example illustrates how this can be useful. Suppose you receive a phone call in the middle of typing a report:

— Press both LEAP keys. This extends the highlight, and when you begin typing it will mark the beginning of a new highlighted area.

— Begin typing your notes. The instant you begin to type, the extended highlight becomes normal-sized and your typing appears.

— Press both LEAP keys when you finish typing. The highlight will extend to cover the notes you have just typed.

— Use [PRINT] to print your notes. As soon as the highlight collapses to normal, press both LEAP keys to rehighlight your notes, and press [ERASE] to erase them.

You now have a printed copy of your notes, and your text looks the same as it did before you began typing the notes.

UNDO and Highlighting

[UNDO] leaves the text and cursor as they were before you extended the highlight.

Automatic Highlighting

Some commands — [COPY], [SEND], [BOLD], [CAPS], and [UNDERLINE] — allow you to skip the step of pressing both LEAP keys in order to extend the highlight. Simply using the command after a leap (or after typing as described above in *Highlighting Recently Typed Text, page 20)* causes the highlight to extend and the command to be carried out.

Unhighlighting

If the highlight is extended and you press and release [LEAP->], the highlight collapses to the size of one character, resting on the last character of the formerly highlighted text. This is called *unhighlighting forward*, since the highlight collapses to its forward end.

The cursor does not change position when you unhighlight forward. It remains one character to the right of the highlight. Thus the cursor is left *wide* after unhighlighting forward (see *Wide Cursor*, page 3).

If the highlight is extended and you press and release [<-LEAP], the highlight collapses to the size of one character, resting on the first character of the formerly highlighted text. At the same time, the cursor leaps backward and lands on the same character. This is called *unhighlighting backward*. Unhighlighting backward changes the cursor from wide to narrow (see *Narrow Cursor*, page 2).

UNDO and Unhighlighting

Using [UNDO] restores the highlight to the way it was before you unhighlighted. In other words, it rehighlights the text.

Rehighlighting

After unhighlighting, you can rehighlight, or bring back the extended highlight, by pressing both LEAP keys again. The Cat remembers the area you highlighted until you begin typing or leap after unhighlighting.

Adjusting the Highlight by Creeping

If you creep a certain distance, the area covered by the extended highlight will be made larger or smaller by the distance you creep when you press both LEAP keys to rehighlight. This is most useful when you want the highlight to include a hard-to-reach character. Leap to an easy-to-reach character nearby, creep over to the hard-to-reach character, and press both LEAP keys.

You can also highlight, unhighlight, creep, and rehighlight to adjust either end of the extended highlight.

Moving Text

If the highlight is extended and you leap somewhere outside the extended highlight, the highlighted text moves to the new location of the cursor as soon as you release the LEAP key. The text remains highlighted in case you want to move it again. To complete the move, unhighlight the text.

Only the cursor moves during the leap. The highlighted text stays where it is until you release the LEAP key.

If you press the opposite LEAP key during the leap, the Cat ignores it.

A leap inside the extended highlight itself does not result in text movement. The instant you release the LEAP key, the highlight collapses with the highlight and cursor positioned on the target character. The cursor will be narrow. If you rehighlight, the new highlight will extend from the target character to the forward end of the previous highlight.

UNDO and Moving

Using [UNDO] moves the highlighted text and the cursor back to their former locations. Repeatedly pressing [UNDO] moves the text back and forth between the two locations.

Erasing Text

There are three ways to erase text:

—backward erase: character-by-character when the cursor is wide

— forward erase: character-by-character when the cursor is narrow

— a lot of text all at once: pressing [ERASE] when the highlight is extended.

Backward Erase

Backward erase resembles backspacing on a typewriter, except the text is erased as the cursor moves backward.

If the cursor is wide and you press [ERASE], the character in the highlight disappears and the cursor and highlight move one character backward. The text to the right of the cursor moves backward to fill the space vacated by the erased character. Holding down [ERASE] engages autorepeat. The cursor moves rapidly to the left, erasing as it goes. The text forward from the cursor unwraps as needed.

Forward Erase

Forward erase is automatically available after leaping or creeping. In forward erase, the cursor stands still while the characters to its right move toward it and are erased as they enter the highlight.

If the cursor is narrow when you press [ERASE], the character in the highlight disappears, and the text to the right of the cursor moves to the left to fill in the space. The cursor itself does not move or change. Holding down [ERASE] engages autorepeat, causing the text forward from the cursor to march steadily to the left as it is consumed by the stationary narrow cursor. Words forward from the cursor unwrap as necessary. The text on the backward side of the cursor does not change.

You can change from forward erase to backward erase by typing any character. This changes the cursor to wide, and forward erase changes to backward erase. You can type any character, since it will be erased when you press [ERASE].

Erase Turnaround

Forward erase or backward erase change direction when the cursor reaches either end of the text. This is called *erase turnaround.*

Backward erase switches to forward erase when you erase the last character separating the cursor from the initial document character, or, if local leap is on, the last character separating the cursor from the beginning of the local leap region.

Forward erase switches to backward erase when you erase the last character separating the cursor from the final document character, or, if local leap is on, the last character separating the cursor from the end of the local leap region.

Erasing Highlighted Text

If you press [ERASE] when the highlight is extended, all the text contained in the extended highlight vanishes. The cursor is left wide, with the normal-sized highlight resting on the first character that preceded the extended highlight.

UNDO and Erasing

[UNDO] restores all erased characters to the screen. If the highlight was extended before erasing, it will be extended after you undo the erase. The screen will look exactly as it did before you pressed [ERASE].

You cannot undo the erasure once you've pressed a key other than [UNDO] after erasing.

Using the Disk Drive

The Cat has two storage places for your text: *memory* and *disk*. *Memory* is the area inside the Cat where the text is stored while you are working on it. The on-screen text is a portion of the text stored in memory. The memory is kept alive by the electric current coming from the wall. If the power were cut, the text in the memory would be lost, so you need to record the text more or less permanently on a disk with the help of the disk drive.

DISK

One command, [DISK], handles all operations involving disk and memory. When you use [DISK], the Cat does one of three things:

— *Plays back* the disk in the drive. This means copying the information from the disk into the memory, and putting a portion of it up on the screen where you can see it and work on it.

— *Records* the text in memory. This means transferring the information in memory to the disk for safe storage.

— *Beeps*. This means the Cat makes a warning sound and does nothing, because recording or playing back might lose information.

A **DISK** sign appears on the ruler while the Cat is recording or playing back.

The Happy Cursor

After recording or playing back your text, the Cat's cursor blinks at a faster rate. This is called the *happy cursor*. A happy cursor means that the text on the screen is safe: there is no difference between the text recorded on the disk and the text held in the Cat's memory.

If you type or erase something, the cursor begins to blink at a slower rate. The slower cursor indicates that you have made changes to the text and those changes have not been recorded on disk.

Clean Text, Dirty Text

When the cursor is happy, we say the text in memory is *clean*. Clean means unchanged. When the cursor blinks slowly, the text is called *dirty*, which means the text has been changed but not recorded on disk.

How the Cat Knows What to Do

By comparing the text in memory to the disk in the drive, the Cat figures out whether to record, play back, or beep. It looks at whether the text is clean or dirty, and whether the text came from the disk in the drive or some other disk. Charts presented later in this chapter on page 32 illustrate exactly what decisions the Cat makes under any and all circumstances.

Peeking at a Disk That Doesn't Match

When the text in memory does not belong to the disk in the drive, recording or playing back might lose valuable information. If the Cat were to record the text in memory, it would wipe out the text on the disk. This would be fine if the text in the memory were a more up-to-date version of the text on the disk, but it's not; the text and the disk don't match. Similarly, if the Cat played back the disk in the drive, it would lose the text in memory. But that would cause you to lose whatever changes you had made to the text since it was last recorded.

When the memory and the disk do not match, the Cat cannot record or play back safely, so it gives you a warning beep and does neither. However, it does provide a helpful *peek* at the text stored on the disk in the drive for as long as you hold down [USE FRONT]. The text that appears on your screen while you hold down [USE FRONT] is the text that would be there if the Cat did play back the disk in the drive. When you release [USE FRONT], the screen returns to normal.

The [EXPLAIN] message that accompanies the warning beep tells you how to record or play back without losing information. There may be a pause between the time you give [DISK] and the beep.

Write-Protected Disks

The Cat automatically checks to see if a disk is write-protected before recording. If the disk is write-protected, the Cat beeps and does nothing. [EXPLAIN] tells you that the disk is write-protected.

Disks From Other Systems

If the disk in the drive is not a Cat disk but does have information recorded on it, the Cat beeps and does not record or play back. [EXPLAIN] tells you the disk is *unrecognized*, "or not a Cat disk."

WARNING!

The Cat will not recognize a disk created on a Macintosh computer. If you use a Macintosh disk in the drive, the Cat will treat it as blank and record your text on it, wiping out all Macintosh files and information. Disks from other systems may also be treated like Macintosh disks.*

Playback Errors

Defects in the disk or the disk drive may make it hard for the Cat to play back the text accurately. When errors of this type occur, the Cat plays back the text replacing all characters it cannot read with question marks (?). If the Cat has difficulty understanding other information, such as margins, indents, and so forth, it replaces this information with the initial values for these features.

If the Cat encounters difficulty in playing back a disk, it beeps and makes every effort to play back the text as well as it can. After the text is in memory, the Cat will not let you re-record the text on the disk. Using [DISK] results in a beep, and nothing else happens. The [EXPLAIN] screen will say that your text is at risk. This prevents your disk drive — which may be the source of the problem — from recording bad information on the good disk, making things worse. In other words, if the disk is OK and the drive is bad, the Cat will not damage the text on the disk.

Automatic Timer for the DISK Command

A DISK command timer begins to run whenever the Cat isn't doing anything. After five minutes the timer runs out, and, if the text is dirty, the Cat automatically attempts to record it. Any activity at all restarts the timer, whether it's typing, erasing, printing, or receiving text from an outside source. The timer can be adjusted in [SETUP]. Use the **Time before screen goes dark** line on the **Machine Setup** screen.

If the Cat successfully records the text, it shuts off its screen to prevent screen burn. *Screen burn* is like sunburn — if you leave one image on the screen too long it is burned into the screen.

If the Cat is unable to record the text — a write-protected disk, for example, would prevent recording — the screen remains on to indicate that the text is still dirty. The timer starts over at this point. Every time the timer runs out, the Cat makes another effort to record the text.

If the text is clean or empty when the timer runs out, the Cat simply turns the screen off without activating the DISK command.

* *Macintosh is a trademark licensed to Apple Computer, Inc.*

After the screen goes dark, a small **Canon Cat** sign remains on-screen, moving from place to place so that you can tell the power is still on, and the Cat is only napping. Movement makes the sign easier to see and prevents screen burn.

Copy Up

Copy up allows you to move text from one disk to another. The procedure for copying up text from Disk A to Disk B is as follows:

— Record the text on Disk A. Now the text is clean (the cursor is happy).

— Highlight the text you want to move to the other disk.

— Take out Disk A and insert Disk B in the disk drive.

— Use [DISK] to play back Disk B.

When you use [DISK] to play back Disk B, a copy of the highlighted text from Disk A is automatically inserted into the new text from Disk B. The text is inserted at the cursor, that is, where the cursor was when the text on Disk B was last recorded. This allows you to prearrange where the new text will appear by recording Disk B with the cursor on the spot you want to insert the copy up text. The copy up text remains highlighted so you can easily move it to a new location.

Use [DISK] again to record the combined text on Disk B.

Note that there is no special "copy up" command. Copying up is just a natural part of using [DISK].

If you highlight the entire text, [DISK] will copy up the entire text, even if it is dirty. This means you can type a new text with no disk in the drive, then copy it all up to a disk that already has text on it.

If there is not enough room in the new text to hold the copied-up text, you get a beep. The text remains on-screen and the disk in the drive does not play back. [EXPLAIN] tells you that there is not enough room to copy up and advises you to

— try copying up less, or

— erase some text from Disk B, the receiving disk.

Unless you're in the habit of copying up very large blocks of text or keeping your disks very full you will seldom have a problem with room.

It is possible to copy up calculations as a part of the copied-up text. However, there will be a conflict between variable names in the new text if two different expressions have the same name (see *Variables*, page 77, for more information). The Cat will inform you of the name conflict the next time you use [CALC].

If you don't care to keep the underlying calculations in the copied-up text, do the following: Copy up the text. Use [COPY] to copy the highlighted text. Unhighlight. Highlight and erase the original of the text you just copied. This wipes out the copied up calculations.

Backups

SHIFT DISK

A *backup disk* is an exact copy of another disk. It is a good idea to keep at least one backup copy of every important disk as insurance against accidental loss or damage.

As far as the Cat is concerned, backup disks are indistinguishable from one another. This means you can record the same text on as many different disks as you like, as long as the disks are backups.

Only a blank disk can be used to create a backup. Proceed as follows:

— The text may be either clean or dirty. To synchronize the texts it is preferable to have a clean text (happy cursor). The cursor should not have been moved since the text was last recorded.

— Place the blank disk in the drive.

— Use [SHIFT]-[DISK]: Hold [USE FRONT] and [SHIFT], and while holding both keys, press and release [DISK]. The Cat records your text on the blank disk. The backup disk and the other disk are now indistinguishable as far as the Cat is concerned.

You can make as many backup disks as you desire by repeated use of [SHIFT]-[DISK].

If you attempt to make a backup recording on a disk that is not blank, the Cat will beep, and, as described in *Peeking at a Disk That Doesn't Match*, page 26, allow you to see the text stored on the disk in the drive. If the disk in the drive is not a Cat disk, the Cat usually beeps. See *Disks From Other Systems*, pages 26-27, for more information.

Using Backup Disks

After using [SHIFT]-[DISK] to create a backup disk, use [DISK] as usual to keep it up to date. This means recording your text, putting the backup disk in the drive, then using [DISK] again to record on the backup. Since the backup and original are identical, the order the disks are recorded in doesn't matter.

You can make as many backup disks as desired. The only restriction is in the number of times you can play back and record on one disk without making recordings on the other disks. If you make 31 playbacks and recordings on a single disk without recording on the backup disks, the connection between this disk and its backups will be broken. No information will be lost as a result.

If you try to record an older version of the text on top of a newer version, the Cat will beep and do nothing. [EXPLAIN] will tell you that your text is at risk.

Breaking the Connection Between Backups

Do the following to break the connection between two backup disks:

— Play back the first disk, then record it again using [DISK]. Remove the disk from the drive.

— Erase the entire text (or play back a non-backup disk).

— Play back the backup disk, then record it again using [DISK].

[DISK] will now treat the disks as unrelated and not allow you to record the text of one on the other.

Erasing Disks

The command for erasing a disk is [USE FRONT]-[SHIFT]-[DISK], then press [ERASE]. After erasing a disk you can record on it with [DISK], or make it a backup with [SHIFT]-[DISK].

— You have just used [DISK], and discovered that the disk in the drive is not blank. You are still holding [USE FRONT], and peeking at the text. [USE FRONT] is the only key you are holding.

— While holding [USE FRONT], press and hold [SHIFT].

— While holding both [USE FRONT] and [SHIFT], press and release [ERASE]. This erases the disk in the drive.

WARNING!

Once the disk is erased, the information it held is gone for good. Erasing leaves the disk totally blank, just as it was when new. To preserve your text, use [DISK] *or* [SHIFT]-[DISK] *to record it before turning the Cat off.*

UNDO and DISK

[UNDO] has no effect on [DISK].

DISK and the Battery-Powered Memory

The Cat has a battery-powered memory that preserves important information when the power is turned off or cut off by a power failure. This includes the words in your personal spelling dictionary, and setup information concerning documents, printers, and modems. See *Checking and Correcting Your Spelling*, page 53, and *Changing Document Formats*, page 94 for more information. The battery lasts many years under normal circumstances.

Whenever you record your text, you record the content of the battery-powered memory as well. This keeps this important information in two places in case something should happen to the battery-powered memory.

The Cat stores certain information in the battery-powered memory that can be used to determine whether or not the battery-powered memory is up-to-date (for the technically-oriented, the stored information is called a *checksum*). Though a dead battery is a rare occurrence, it can cause a loss of memory. A low battery sign appears on the ruler when the battery power dips too low. Playing back a disk has no effect on the battery-powered memory unless there are indications that memory contents have been damaged (invalid checksum). Should this happen, the information recorded on disk is transferred into the battery-powered memory. [SETUP] can also be used to force the transfer of information recorded on disk to the battery-powered memory (see *Storage of SETUP Information*, pages 95-96, for more information).

DISK Command Charts of Behavior

The following charts describe the exact behavior of [DISK] under all circumstances. For each disk state shown in the left column and each text state in the top row, the corresponding entry in the chart shows what the Cat will do in this situation. For example, if the disk is *different* (not the one that matches the on-screen text) and the text is *dirty*, [DISK] will beep, and the [EXPLAIN] screen will tell you that the disk and text are different. The terms used in these charts are defined below.

DISK **DISK Command**

	Text is clean	Text is dirty	Text is empty
Same disk	Record	Record	Play back
Backup disk	Record	Record	Play back
Different disk	Play back	Beep *different*	Play back
Blank disk	Record *fresh id*	Record *fresh id*	Beep *empty*
Non-Cat disk	Beep *non-Cat*	Beep *non-Cat*	Beep *non-Cat*

SHIFT DISK **Backup DISK Command**

	Text is clean	Text is dirty	Text is empty
Blank disk	Backup	Backup	Beep *empty*
Non-blank disk	Peek *erase option*	Peek *erase option*	Beep *empty*

Definitions

Backup (v) Record the text without assigning it a new identification number; this creates two exactly identical disks as far as the Cat is concerned.

Blank Nothing recorded on the disk.

Clean The text is safely recorded on a disk; the cursor is happy.

Different The text on the screen did not originate from the disk in the drive; the screen-text and disk-text are unrelated.

different The [EXPLAIN] message tells you the Cat cannot record or play back because the text on the screen is unrelated to the disk in the drive: they are different.

Dirty The text has been changed but not recorded. The cursor is blinking at its slower rate.

Empty There is no text in the Cat's memory.

empty The [EXPLAIN] message tells you the Cat cannot do what you ask because the text is empty.

erase option You have the option of erasing the disk in the disk drive by holding [SHIFT] and [USE FRONT] key and pressing [ERASE].

fresh id The Cat keeps track of disks by giving them an *id* (identification) number. *Fresh id* means that the Cat clears the present id and creates a new set for the disk. Suppose, for example, you play back a text, insert a blank disk in the drive, and give [DISK]. The Cat records the text on the blank disk and gives it a fresh id. You now have two disks with exactly the same texts but with different identification numbers. The Cat will treat them as different disks, not backup disks for the same text.

Non-blank There is information on the disk, but it didn't come from a Cat (it might have come from a Canon VP-1000, for example).

non-Cat The [EXPLAIN] message tells you the Cat cannot do what you ask because the disk in the drive came from a different (non-Cat) system.

Peek The Cat displays the text that would appear on your screen if the Cat were to play back the disk in drive; the text remains on-screen as long as you hold down [USE FRONT]. The text in memory is unchanged, and will reappear when you release [USE FRONT].

Play back Transfer all the information stored on the disk into the Cat's memory, and display some of that information on the screen.

Record Record all the information in the Cat's memory on the disk in the drive.

Printing Your Document

PRINT

If you extend the highlight and use [PRINT], the highlighted text is sent to the print buffer, and from there to the printer. The *print buffer* is a memory area inside the Cat that holds a copy of the highlighted text and feeds it to the printer at whatever rate the printer can accept it. Transfer to the buffer takes place very quickly, freeing your keyboard for normal typing, leaping, and commands while the printer is busy printing.

While the transfer to the buffer is taking place, a **PRINT** sign appears on the ruler. The highlight collapses page-by-page as soon as the Cat transfers the text to the buffer. The blinking cursor disappears while the transfer takes place.

If the buffer is not large enough to hold all the highlighted text, the Cat pauses and waits for the printer to accept more text. This frees more space in the buffer, permitting more text to be transferred. The Cat's print buffer can hold close to four pages of text (16,384 characters).

To send the highlighted text to the alternate printer hold [USE FRONT] and [SHIFT], then press [PRINT].

Stopping and Restarting PRINT

If the highlight is extended and the **PRINT** sign is on in the ruler, press [SHIFT] to collapse the highlight and stop any more text from being sent to the printer (the printer may continue to run until its own buffer empties). If you use [UNDO] after stopping in this manner, printing will be restarted from where you left off. If you use a typing key to stop printing, a character will be inserted in your text and you will not be able to restart with [UNDO].

If all the text you highlighted has gone to the buffer, and the **PRINT** sign is off, but the printer is still running, you can stop printing by using [PRINT] without extending the highlight. You can restart printing from where you left off by pressing [UNDO]. You cannot restart printing after pressing any key other than [UNDO].

The text you send to the print buffer includes information that helps coordinate the Cat and the printer. Thus you can send several selections to the print buffer, some destined for the main printer, others for the alternate printer. However, only one of the printers can print at a time.

Relationship of On-Screen Text to Printout

The printed version of your text will look very similar to what appears on the screen of your Cat. Line endings will be the same. Vertical alignment of characters will be the same. Margins, indents, and tabs will be as shown on the ruler. (see *Customizing the Appearance of Paragraphs*, page 40, for more information on paragraph appearance, margins, paragraph style, tabs, and line spacing).

The exact horizontal position of any character can be calculated by dividing the character position of the character by the pitch. For example, if a character is positioned at 60 on the ruler, and the pitch, or characters per inch, is 10, it is 60/10 = 6 inches from the left margin. If the pitch is 12 it is 60/12 = 5 inches from the left margin.

The exact vertical position of a character can be calculated by dividing the line number of the character by 6. For example, if the character is on line 24, it is 24/6 = 4 inches from the top margin. There are 55 printing lines on an 11-inch piece of paper.

Italic characters and alternate fonts can be selected with [SETUP] (when using the VP3103II printer), but they cannot be represented on the screen.

First Page or Document Characters Not Printed

If the first character in the highlight is a page character or a document character, it will be ignored by the printer. This prevents the printer from unnecessarily printing a blank page, and makes it easier to highlight pages or documents for printing.

Empty Title Pages

If the title page (page zero) of a document contains no characters, it will be ignored by the printer when you highlight and print the document.

Single-Sheet Printing

To obtain single-sheet printing, or printing one page at a time with a pause between sheets, use the **Pause between sheets** option on the **Main Printer Setup** screen of [SETUP]. If you now highlight more than one page and give [PRINT], the first highlighted page will print, and the highlight will disappear from that page, though it remains extended over the remaining text. Another press of [PRINT] prints the next page, and so on until you've printed all the pages you originally highlighted.

If you decide not to print all the pages you've highlighted, simply unhighlight and start using the Cat again.

There is no **Pause between sheets** option in the **Main Printer Setup** screen for the VP3103II printer.

Stopping Printing

If you are printing something, and the **PRINT** sign is on in the ruler, pressing [SHIFT] will collapse the highlight and stop any more text from being sent to the printer. If you use [UNDO] after stopping, printing will be restarted from where you left off.

If the **PRINT** sign is off and the printer is still running, you can stop printing by using [PRINT] without extending the highlight. You can restart printing from where you left off by pressing [UNDO]. You cannot restart printing after pressing any other key.

UNDO and the PRINT Command

If printing has been stopped, [UNDO] starts it again.

Printer Initialization

Printer initialization means setting the Cat so that it can communicate with the particular printer you are using. See *Main Printer Setup*, page 99, for more information.

Using the UNDO Key

UNDO

[UNDO] undoes or cancels the previous operation. Its use is described throughout the *Reference Guide* in relation to particular features of the Cat. For information about [UNDO] and a command, refer to the part of the manual describing that command, or to the index. Generally speaking, [UNDO] can undo erasing, leaping, moving text, highlighting, and most commands.

[UNDO] itself can be undone. Pressing [UNDO] twice in a row causes [UNDO] to undo itself and leaves the text as it was before you pressed [UNDO]. Continuing to press [UNDO] causes the text to alternate between its "done" and "undone" states.

You can only undo the previous operation. You cannot backtrack through history, undoing many operations one after the other. If you press [UNDO] at the end of [LEARN], only the last operation performed by [LEARN] will be undone.

If you press any key other than [UNDO] or [EXPLAIN] after performing an operation, you cannot undo the operation.

[UNDO] has no effect on [DISK], or on typing.

Using the EXPLAIN Key

EXPLAIN

[EXPLAIN] is used to find out why the Cat beeped, and to get information about commands through the Cat's built-in manual. If you use [EXPLAIN] immediately after the Cat beeps, the text on the screen temporarily goes away, and an explanation of the problem and its solution appear. The [EXPLAIN] message remains on-screen for as long as you hold [USE FRONT]. As soon as you release [USE FRONT], your text comes back to the screen unchanged.

If you use [EXPLAIN] when no beep has occurred, you get a general guide to the Cat.

To use the Cat's built-in manual, continue to hold [USE FRONT] after pressing [EXPLAIN], and while holding it, press any command key. A description of that command appears and remains for as long as you hold [USE FRONT]. You can press other command keys before you let go of [USE FRONT] to get [EXPLAIN] messages for other commands.

Advanced Functions

Customizing the Appearance of Paragraphs

Paragraph appearance commands include

Command	Key
[LEFT MARGIN]	[± §]
[RIGHT MARGIN]	[=]
[INDENT]	[-]
[SET/CLEAR TAB]	[TAB]
[PARAGRAPH STYLE]	[t]
[LINE SPACE]	[u]

These commands affect the appearance of the paragraph in which the highlight is located. If the highlight is extended, all paragraphs that are partly or completely highlighted will be affected. When you release [USE FRONT], the highlight unhighlights (returns to normal size) and is positioned on the last highlighted character.

A *paragraph* is the text between two break characters, a break character being a return, page character, or document character. An automatic page break is not a break character.

The boundaries of a paragraph include the final break character. This is important because information about the paragraph margins, indent and style is stored in that break character. If the break character is erased, so is the information, and the appearance of the paragraph may change.

Using Multiple Commands

You can use as many of the paragraph appearance commands as you like while holding down [USE FRONT]. Thus you can adjust the left margin, indent, right margin, paragraph style, line spacing, and tab stops on a single press of [USE FRONT].

UNDO and the Paragraph Appearance Commands

[UNDO] returns the text to the state it was in before [USE FRONT] was pressed, regardless of how many changes you've made in the paragraph appearance.

Resetting Initial Values

Initial values are the normal, unadjusted settings you get when you first turn on the Cat. To reset the left margin, right margin, indent, paragraph style, or tabs to their initial values, highlight the text you wish to affect, then hold [SHIFT] down while you use the command. For example, to reset the left margin to its initial value of character position "8", hold [USE FRONT] and [SHIFT], and, while you hold both keys, press and release [LEFT MARGIN].

Interaction Between Paragraph Appearance and Erasing

Erasing the return (break character) at the end of a paragraph can affect all features of paragraph appearance. Though margins, indent, line spacing, and style of a paragraph seem to be spread throughout the paragraph, all of this information is actually contained in the break character (return, page, or document character) at the end of the paragraph. If you erase the break at the end of a paragraph, the information about the paragraph's format disappears. The information from the following paragraph then applies to the new, larger paragraph that results. If you move a paragraph without moving the break character at its end, it will take on the appearance of the paragraph in which you insert it.

If you want to maintain the paragraph appearance, include the break character at the end of any paragraph you move.

1. Setting Margins and Indents

LEFT MARGIN

If you hold down [USE FRONT], then press and release [LEFT MARGIN], a vertical line called the *set line* appears at the current left margin location. The set line helps you set margins, indents, and tabs. Where it crosses the ruler is where your margin or indent will be when you release [USE FRONT].

Move the set line to the right or left by pressing the right or left LEAP key. Each press on a LEAP key causes the line to move one character position. If you hold a LEAP key down for more than half a second, autorepeat takes over and the set line moves faster. When you release [USE FRONT], the margin of the highlighted text moves to match the position of the set line.

The margin and indent commands, as well as [SET/CLEAR TAB], affect all highlighted paragraphs. If you only want to adjust one paragraph, the highlight need not be extended. Simply locate the highlight anywhere in the paragraph you want to affect, then use the command.

The last paragraph in a highlighted group of paragraphs can serve as the model for the highlighted paragraphs above it. If you extend the highlight, hold [USE FRONT], and press [LEFT MARGIN], all paragraphs that contain a part of the highlight change to match the left margin and indent of the last paragraph in the highlight when you release [USE FRONT].

The left and right margin may be no closer than two characters apart. The initial value for the left margin is column 8, which creates a one-inch left margin on the paper when printing at 10-pitch.

RIGHT MARGIN

[RIGHT MARGIN] behaves the same as [LEFT MARGIN]. The right margin cannot be moved to the left of the left margin or to the left of the indent.

The initial setting for the right margin is column 73, which creates a one-inch right margin when printing at 10-pitch.

The INDENT Command

INDENT

Indent refers to the left margin of the first line of the paragraph. [INDENT] and [LEFT MARGIN] are alike, except that [INDENT] affects only the first line.

Hanging indents are paragraphs whose indent is set to the left of the left margin. When you adjust the left margin, the indent maintains its position relative to the left margin.

The indent can get no closer to the right margin than two characters. The initial indent setting is the same as that of the left margin: character position 8.

Interaction of LEFT MARGIN and INDENT

When you use [LEFT MARGIN], the indent moves in unison with the left margin so that they are always the same number of characters apart.

If the indent is to the left of the left margin, as in a hanging indent or a bulleted paragraph, and you move the left margin leftward, the first line of the paragraph will bump into the left edge of the screen before the body of the paragraph does. If you continue to move the left margin leftward, the distance between the margin and the indent shrinks until they coincide at the left edge of the screen.

The same thing can occur with a normal indent when you move the left margin far enough to the right. When the indent gets within two characters of the right margin it stops. As the left margin continues to move to the right, the distance between the left margin and the indent begins to shrink. Eventually the left margin and the indent will coincide two characters to the left of the right margin.

Neither the left margin nor the indent can get closer than two characters from the right margin. Similarly the right margin cannot be moved closer than two characters to the right of the indent or the left margin.

2. Setting Tabs

SET/CLEAR TAB

[SET/CLEAR TAB] allows you to set new tab stops on the ruler or clear (remove) old ones. When you hold [USE FRONT] and press [SET/CLEAR TAB], the set line appears at the present cursor position.

Pressing a LEAP key moves the set line a character position at a time in the direction indicated by the LEAP key. Holding the LEAP key down engages autorepeat.

Pressing [SPACE BAR] moves the set line from tab stop to tab stop, left to right. When the set line reaches the last tab stop on the right, it starts over at the leftmost tab stop. Holding [SPACE BAR] engages autorepeat.

Setting and Clearing

When the set line is in the desired position, you can press [SET/CLEAR TAB] to get a new tab stop or clear an old one. To *clear* a tab means to eliminate it from the ruler.

There are two types of tab stops: normal (for left-justified columns of words) and decimal (for right-justified columns of words or numbers aligned along their decimal points). The type of tab stop you get when you press [SET/CLEAR TAB] depends on whether there is already a tab stop at the location of the set line:

SET/CLEAR TAB

Pressing [SET/CLEAR/TAB]

With tab stop: Clear, Normal, Decimal, Clear...

Without tab stop: Normal, Decimal, Clear, Normal...

Thus if there is a tab stop, pressing [SET/CLEAR TAB] clears it. If there is no tab stop, pressing [SET/CLEAR TAB] creates a normal tab. The cycle of "normal, decimal, clear" repeats as you continue to press [SET/CLEAR TAB].

Normal tab stops appear as small triangles on the ruler; decimal tab stops are shown as round marks.

A maximum of 79 tab stops may be set at character positions 2 to 80.

Clearing All Tabs

If you use [SET/CLEAR TAB], and then, while holding [USE FRONT], press [ERASE], all tab stops are erased from the highlighted text and from the paragraph the cursor is in if the highlight is not extended.

Resetting Initial Tabs

You can restore tab settings to their initial values with [SHIFT]-[TAB]: hold [USE FRONT] and [SHIFT], then press and release [SET/CLEAR TAB]. This restores initial tabs to the highlighted text. The initial tab stops for the United States keyboard are at character positions 13, 18, 28, 38, 48, and 58.

UNDO and the SET/CLEAR TAB Command

After you release [USE FRONT], [UNDO] will restore the tab stops to the condition they were in when you first held down [USE FRONT], no matter how many tab stops you have changed.

Normal Tab Stop

Normal tab stops keep columns of text aligned along their first characters. When you press [TAB] during typing, the cursor moves forward to the next tab stop and stops. If it's a normal tab stop, typing proceeds forward from there as usual.

The space between the last character you typed and the first character at the tab stop is occupied by a *tab character*, a single character that takes the place of many space characters. Tab characters are flexible. As you insert text to the left of a tab, it compresses. A tab can compress to one character position, but no more. Further typing to the left of a tab character already compressed to one character position will cause it to move to the next tab stop. Its length may change as a result. Tab characters are invisible unless highlighted. When highlighted, they appear as a right-pointing arrow, gray on a black background (providing your screen mode is black-on-white)

The Cat keeps a tab stop at the right margin as a kind of backstop to prevent the cursor from running to the next line with one tab character. This means that when the cursor is beyond the last tab stop you've set, there is still an invisible tab stop at the right margin. A real tab stop can also be set at the right margin.

Decimal Tab Stop

Decimal tabs are used to align columns along their last characters or decimal points. The cursor stops at a decimal tab as it would at a normal tab, but further typing causes characters to emerge to the left of the cursor while the cursor itself stands still at the decimal tab stop. Normal forward-moving typing resumes when you type a return, a tab, a decimal point (a period in the United States, but varies by country). Normal forward typing also resumes when the tab character compresses to a single character position.

Using One Paragraph As the Model for Those Above It

If you extend the highlight and then use [SET/CLEAR TAB], all paragraphs touched by the highlight take on the tab setting of the last highlighted paragraph. Further tab setting or clearing applies to all highlighted paragraphs.

If the tab settings of all highlighted paragraphs already match, tab setting or clearing immediately applies to all of them.

PARAGRAPH STYLE and Tabs

Tabs are designed to work in the Left Flush paragraph style. If you use a style other than Left Flush, it will affect the appearance of tabbed text as follows:

Centered or Right Flush text with tabs still appears in centered or right flush style, but, in order to preserve the proper spacing between printing characters, tabbed text moves to the center or to the right margin. The ruler is not affected by this operation, so the tab stop indicators on the ruler no longer line up with the tabbed text on the display.

Justified text with tabs appears justified, but, in order to spread the line evenly and bring the rightmost printing character up to the right margin, half-spaces will be inserted next to space characters in the text between the rightmost tab stop and the right margin. Columns remain vertically aligned this way.

A line is justified only if it does not end with a return, page, or document character. Lines ending with these characters and containing tabs are treated like Left Flush text.

3. Setting Line Spacing

SPACING

[LINE SPACE] allows you to select single-spacing, one-and-a-half-spacing, and double-spacing for your text. The ruler indicates the line spacing at the current location of the cursor by highlighting one of the three line spacing signs under the **6** on the ruler.

Repeatedly pressing [LINE SPACE] while holding [USE FRONT] causes you to go through the three settings one after another. If the highlight is extended, all paragraphs containing highlighted characters will be affected. If the highlight is not extended only the paragraph containing it is affected.

[LINE SPACE] affects a paragraph from its first line to the line following the return. For example, a double-spaced paragraph always has a blank line after the return that ends the paragraph.

If the highlight is on a return that forms a blank line when you use[LINE SPACE], further typing at that return will have the line spacing you selected. This is how you select line spacing fortext that has yet to be typed.

Using One Paragraph As the Model for Those Above It

If the highlight is extended when you use [LINE SPACE], all paragraphs containing highlighted characters change to match the line spacing of the last highlighted paragraph. If you give [LINE SPACE] again, all paragraphs containing highlighted characters change to the next spacing on the list.

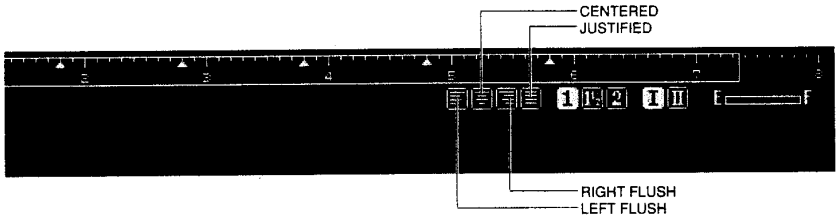
If all paragraphs containing highlighted characters already have the same line spacing, the line spacing immediately changes to the next spacing on the list.

UNDO and the LINE SPACE Command

[UNDO] restores the line spacing to what it was before you used the command.

4. Styling the Paragraphs

[PARAGRAPH STYLE] changes the handling of paragraph margins. There are four paragraph styles and four corresponding signs below the ruler between the **5** and the **6**:



The highlighted style sign tells you the style of the paragraph the cursor is in. If you hold [USE FRONT] and repeatedly press [PARAGRAPH STYLE], the highlighted text will switch from style to style in the following order:

¶ STYLE

Left Flush

This style looks as if it was typed on a typewriter, with a straight left margin and a ragged right margin. When you begin the next paragraph (by typing a return), the style remains Left Flush.

Centered

This style is most often used for titles. The left and right margins are ragged, and every line is centered with respect to the left and right margins of the paragraph containing centered text. Half spaces may be used to center the text (you cannot type or leap to half spaces). When you type in a centered paragraph, the entire paragraph is centered every time a character is added or erased. When you begin the next paragraph (by typing a return), the style remains Centered.

Right Flush

Right Flush is characterized by a ragged left margin and straight right margin. When you begin the next paragraph (by typing a return), the style remains Right Flush.

Justified

This style resembles a column of newspaper print, with straight margins left and right. In order to make the left and right margins even, the Cat inserts half-spaces next to space characters until the rightmost printing character meets the right margin. When you begin the next paragraph (by typing a return), the paragraph style remains Justified. Justified text changes to Left Flush when you use [PARAGRAPH STYLE].

Using One Paragraph As the Model for Those Above It

If the highlight is extended when you use [PARAGRAPH STYLE], all paragraphs containing any highlighted characters change to match the style of the paragraph containing the last highlighted character. If you use [PARAGRAPH STYLE] again, the paragraph style of all the paragraphs containing highlighted characters changes to the next style in the list.

If all the paragraphs in the extended highlight are already the same style, they all change to the next style on the list.

Effects of Paragraph Style on Cursor Behavior

Maintaining the paragraph styles has several side effects that result in unusual, though relatively minor deviations in cursor behavior.

Typing in Right Flush, Centered or Justified text may not place the next-typed character precisely at the blinking cursor. In Right Flush paragraphs the newly-typed character appears one position to the right of the cursor. In Centered paragraphs, it appears 1/2-space to the right. Centered lines must remain centered while you type. The forward movement of the cursor will be slower as the Cat recenters the line with each additional characater. In Justified paragraphs, the location of a typed character depends on the contents of the line.

The cursor may sometimes appear to the right of the right margin when Right Flush or Justified paragraph styles are used. Both Right Flush and Justified styles require the last printing character to be on the right margin. Since the word wrap rules require words to be broken after two spaces, the screen must be able to display up to three character positions past the right margin (two positions for the spaces and one position for the blinking cursor when the cursor is wide).

The Right Flush and Justified paragraph styles can cause spaces to appear to the right of the right margin. If a paragraph has more than two space characters before the end of the line, the Cat moves the rightmost printing character to the left one character for each extra space character.

The Cat makes best use of the width of the screen by compressing the last two spaces that may occur at the end of a Right Flush or Justified line into one column width on the screen. Thus, if the right margin is at column 80, one or two space characters may appear in columns 81 and 82. If the cursor is wide, the blinker may appear as far right as the 82nd column.

UNDO and the PARAGRAPH STYLE Command

[UNDO] restores the text to the way it was when you first held down [USE FRONT].

Customizing the Appearance of Words/Letters

Three commands — [UNDERLINE], [BOLD], and [CAPS] — affect the appearance of characters. As a group they are called *text appearance commands*. All of them work in very similar ways.

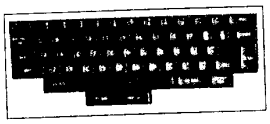
Multiple Text Appearance Commands

You can use more than one of these commands on one press of [USE FRONT]. For example, you can hold [USE FRONT], then press [CAPS], then [BOLD], to capitalize and boldface the highlighted text.

You can capitalize, underline, or bold characters in any combination. For example, if you use [BOLD], and part of the highlighted text is underlined, that part will become both bold and underlined.

1. Capitalizing Words/Letters

CAPS



This command turns all lowercase characters within the highlighted area to uppercase. If only capital letters are found in the highlighted text, all highlighted characters are made lowercase.

[CAPS] has automatic highlighting. If you give the command after leaping, the highlight extends automatically as if you had pressed both LEAP keys, and the command will be carried out.

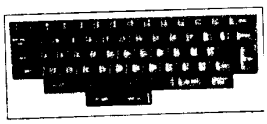
As described below, when [LEARN] is active, [CAPS] always capitalizes all characters in the highlight on first use.

UNDO and the CAPS Command

[UNDO] restores the text to the way it was before you gave [CAPS].

2. Underlining Words/Letters

UNDERLINE



[UNDERLINE] underlines any highlighted characters that are not already underlined. If all the characters in the highlighted area are already underlined, the underlining is removed.

[UNDERLINE] has automatic highlighting. If you give the command after leaping, the highlight extends automatically as if you had pressed both LEAP keys, and the command is carried out.

As described below, when [LEARN] is active, the first use of [UNDERLINE] always underlines all characters in the highlight.

UNDO and the UNDERLINE Command

[UNDO] restores the text to the way it was before you gave [UNDERLINE].

3. Making Boldface Words/Letters

BOLD

If any of the characters in the highlighted area are not already bold, this command will make them so. If all the characters in the highlighted area are already bold, they are made normal weight.

[BOLD] has automatic highlighting. If you give the command after leaping, the highlight extends automatically as if you had pressed both LEAP keys, and the command is carried out.

As described below, when [LEARN] is active, the first use of [BOLD] makes all characters in the highlight boldface; it never changes characters from bold to normal weight.

UNDO and the BOLD Command

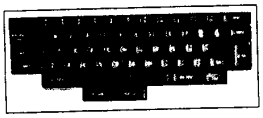
[UNDO] restores the text to the condition it was in before you gave [BOLD].

Text Appearance Commands and LEARN

[LEARN] enables the Cat to learn a set of keystrokes. Later, you can have the Cat re-enact them. [CAPS], [UNDERLINE] and [BOLD] behave slightly differently when used in [LEARN]. The first time the command is applied to highlighted text it always does exactly what its name implies. For example, when used with [LEARN], [CAPS] always changes characters from lower to uppercase, never the reverse. This ensures that these three commands behave in a predictable way, even though the text they are being applied to may vary widely.

Copying Text

COPY



[COPY] makes a copy of the highlighted text and inserts it at the cursor (immediately after the highlight). [COPY] features automatic highlighting. If you use the command after leaping, the highlight extends automatically as if you had pressed both LEAP keys, and the command is carried out.

When the Cat copies the text the highlight moves from the original text to the copy. The copy remains highlighted. This makes it easy for you to move the highlighted copy elsewhere by leaping.

If you hold down [COPY] while holding [USE FRONT], autorepeat takes over and you get multiple copies of the highlighted text. Since making copies is like typing text, it may cause you to run out of room.

When you copy text with calculations, only the surface text is copied. Any results contained in the copied text will not have pocketed expressions and will not change as a result of recalc. However, if you unpocket the calculations before copying, they will be active. See *Applying Non-CALC Commands to Text Containing Calculation Pockets*, pages 83-84, for more information.

UNDO and the COPY Command

[UNDO] returns the text to the way it was before the copy was made. If you have made multiple copies, only the last copy will be taken back.

Checking and Correcting Your Spelling

SPELL CHECK LEAP

[SPELL CHECK LEAP] helps you find misspellings and typing errors.* [SPELL CHECK LEAP] leaps to any word that cannot be found in Canon's 90,000-word spelling dictionary (derived from the *American Heritage Dictionary*) or your personal spelling dictionary. Such a word is *possibly misspelled.* If it is not really misspelled, you can add it to your personal spelling dictionary with [ADD SPELLING].

You can add words to your personal spelling dictionary one at a time or many at a time by highlighting text and using [ADD SPELLING]. Your personal spelling dictionary is maintained in a battery-powered memory and recorded on disk so it will not be lost in case of power failure.

The SPELL CHECK LEAP Command

To begin a spelling check, hold down the appropriate LEAP key (not [USE FRONT]) and press [SPELL CHECK LEAP]. The search proceeds from the beginning of the word on which the cursor sits in the direction indicated by the chosen LEAP key. The Cat will search the entire text unless local leap is on. The cursor stops on the first possibly misspelled word. If there are none, the cursor rebounds to its starting location. A **SPELL CHECK** sign appears on the ruler while [SPELL CHECK LEAP] is searching for a possibly misspelled word.

The Cat positions the narrow cursor on the first letter of the first possible misspelled word it finds. Pressing both LEAP keys will highlight the word, making it easy to erase the word and retype it. If you have consistently misspelled a word, use [LEARN] to correct it.

[SPELL CHECK LEAP] differs from an ordinary leap in that you cannot add anything to the pattern. If you attempt to add to the pattern by typing while the LEAP key is pressed, the Cat will beep.

**This spelling verification software contains unpublished materials owned by Houghton Mifflin Company, licensed for use solely in Canon Firmware. Reproduction or disassembly of embodied computer program or algorithms is prohibited. Based upon the* American Heritage Dictionary.

[SPELL CHECK LEAP] may take time to complete its search if your text is large. You can halt [SPELL CHECK LEAP] by pressing any key. The cursor will land on the word that was being checked at the time you pressed the key.

Once you've done one [SPELL CHECK LEAP], you can use [LEAP AGAIN] to do the next one. Thus you can do a spell check leap in the opposite direction by releasing the LEAP key, pressing the other LEAP key, and using [LEAP AGAIN].

The ADD SPELLING Command

ADD SPELLING

[ADD SPELLING] allows you to create a personal spelling dictionary. You can store common names in the dictionary, or fill it with specialized professional terms.

To add a word to the personal spelling dictionary, highlight it, then use [ADD SPELLING]. To erase a word from the dictionary, highlight the word and press [USE FRONT]-[SHIFT]-[ADD SPELLING]. The personal spelling dictionary can hold up to 450 words. If there is no room to add a new word the Cat throws out the least frequently used word to make room.

Your personal spelling dictionary is maintained by a battery-powered memory when the power is off.

When you record your text, your spelling dictionary is recorded too. When you play back the disk, the recorded dictionary does not affect the memory-backed dictionary in the Cat (it's assumed that the memory-backed dictionary is more up-to-date). If you wish, you can use [SETUP] to transfer the recorded dictionary from the disk to the battery-powered memory.

If your personal spelling dictionary is empty, as it is when you first get the Cat from the factory, the contents of a recorded spelling dictionary (if any) will automatically feed into the battery-powered memory when you play back the disk.

Adding or Deleting More Than One Word at a Time

If the extended highlight contains more than one word, all the words it contains will be added to the spelling dictionary at the same time when you use [ADD SPELLING]. The Cat ignores any duplicate words. The same applies for deleting words from the dictionary by using [USE FRONT]-[SHIFT]-[ADD SPELLING].

If you use a highly specialized vocabulary for different documents, you may want to keep a list of all the words you've added to the spelling dictionary. Then you can highlight the entire list, use [ADD SPELLING], and be sure that your personal spelling dictionary contains all those words before you begin working. To maintain the list:

— Add the word to the spelling dictionary.

— Use [COPY] to copy the word.

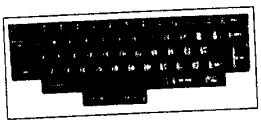
— Leap to the end of the list, and let go. The copied word will move to the end of the list.

UNDO and SPELL CHECK LEAP, ADD SPELLING

Using [UNDO] after a SPELL CHECK LEAP command returns the cursor to its previous position. [ADD SPELLING] can be undone, but if a word was thrown out as a result of adding the word, the word that was thrown out cannot be recovered. If you erase a word or words from the dictionary, [UNDO] will put them back.

Protecting Your Documents Against Changes

LOCK



[DOCUMENT LOCK] allows you to seal documents, preventing any change to the text within them. A *document* is the text between two document characters. To lock a single document, position the cursor inside the document and use [DOCUMENT LOCK]. To lock several documents, extend the highlight and use the command. All unlocked documents containing even a part of the highlight become locked when you use [DOCUMENT LOCK]. Locked documents have gray borders on the sides of the screen.

If you use the command in a locked document, the document is unlocked. To unlock several locked documents, extend the highlight so that it touches them all, and use the command.

Locked Document Rules

You Can	*You Can't*
Leap	Add new text
Scroll	Erase text
Creep	Move text around
Copy	Move text out of it
Move it as a whole	Change text or paragraph appearance
Print it	Sort it
	See the effect of recalculation
	Unpocket calculations

When you are recording keystrokes with [LEARN], the first use of [DOCUMENT LOCK] always locks the highlighted documents.

If you copy part of the text within a locked document, the copy appears at the first unlocked position after the document. The copied text is not locked, even if you copy the entire locked document.

If you receive text from a remote source while the cursor is in a locked document, the incoming text will be inserted at the first unlocked position after the document. If the text is locked all the way to its end there is no place to insert a copy of received text, and the Cat will beep.

If you try to move text into a locked document, the cursor rebounds to the starting point and you get a beep. [EXPLAIN] tells you that locked documents cannot be changed.

Pocketed expressions inside a locked document cannot be changed by [CALC]. Calculations that relate to a variable outside the locked document will not change if the value of that variable changes. When you unlock the document, the pocketed expressions return to their normal state. The next recalculation will update them.

If the extended highlight contains both locked and unlocked text, any commands that would change the text cause a beep and no change takes place, even in the unlocked text.

UNDO and the DOCUMENT LOCK Command

Pressing [UNDO] after using [DOCUMENT LOCK] switches the text to its previous state. Repeated use of [UNDO] causes the text to alternate between locked and unlocked.

Leaping Within a Specified Area

LOCAL LEAP

Leaping is normally *global*, meaning you can leap to any character anywhere in the text. [LOCAL LEAP] allows you to restrict the range of leaping to one or more documents. The restricted area is called the "local leap region." A local leap region may include any number of documents, but it always has a document character at its beginning and its end. [LOCAL LEAP] works like an ON-OFF switch. If [LOCAL LEAP] is on when you use the command, it turns off; if [LOCAL LEAP] is off, it turns on.

Boundaries of the Local Leap Region

The local leap region extends from the first document character before the highlight to the first document character after the highlight at the time you give [LOCAL LEAP].

To limit the cursor to one document, you simply place the cursor inside the document and use [LOCAL LEAP]. The local leap region will extend from one end of the document to the other, that is, from the document character at the beginning of the document to the document character at the end.

To limit the cursor to several documents, extend the highlight before giving [LOCAL LEAP]. Any document even partially touched by the highlight will become part of the local leap region. If you highlight the entire text, local leaping and global leaping are the same and [LOCAL LEAP] does nothing.

LOCAL LEAP and LEARN

If you are recording keystrokes with [LEARN], the first use of [LOCAL LEAP] always turns local leaping on in documents touched by the highlight.

If [LOCAL LEAP] is on, the highlight can extend no further than the beginning or end of the local leap region, even though it might have extended outside the local region if local leap were not on.

Other than restricting the range of leaping, [LOCAL LEAP] has no effect on the Cat's operation. You can type anything in the local region, including document characters, and the bounds of the local region will not change.

When [LOCAL LEAP] is on, the initial and final document characters in the local region cannot be erased. The cursor cannot be narrow on the initial document character in the local region or wide on the final document character in the region. This is exactly the way the cursor acts with the initial and final document characters when global leap is on.

UNDO and the LOCAL LEAP Command

[UNDO] returns the Cat to the state it was in before you used the command. Repeated use of [UNDO] switches you back and forth between local and global.

Changing the Keyboard Setting

KB I / II

[KEYBOARD I/II] switches the keyboard between the main character set and an alternate character set. Only keys with four characters on them are affected. [KEYBOARD I] selects the two characters on the left, and [KEYBOARD II] selects the two characters on the right. The **I** and **II** signs on the ruler let you know which keyboard is active. The command has no effect on existing text.

CAUTION!

You will not be able to leap to a Keyboard II character when Keyboard I is active, and vice versa. You might think that leaping is out of order as a result.

UNDO and KEYBOARD I/II

[UNDO] simply reverses the last use of the command.

Other Useful Features

Using the Cat Over the Telephone

Three commands control telecommunications on the Cat: [SEND], [PHONE], and [SEND CONTROL]. *Telecommunications* refers to sending and receiving text over phone lines or cables. Receiving is discussed on page 68.

[SEND] is used to send highlighted text over phone lines or cables.

[PHONE] dials phone numbers, answers incoming calls (from other Cats or computers), or hangs up the phone at the end of a telecommunications session. [PHONE] can also dial numbers for voice communication, but it is not used to answer or hang up the phone for voice communications. This is done in the usual manner, by lifting the telephone's receiver and putting it down in its cradle.

[SEND CONTROL] is used to send special characters sometimes required by computers or data services.

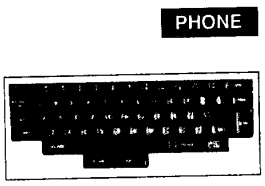
[SETUP] also exercises some control over telecommunications. It allows you to turn on the autoanswer feature, for example, which enables the Cat to answer the phone and receive messages automatically. [SETUP] is also used to control certain modem features that enable the Cat to communicate with data services or modem-equipped computers.

Telecommunications Hookups

Pages 15-16 of the *How-to Guide* discuss the proper procedures for hooking up your phone. Also see *Appendix D, FCC Regulations*, page 127 of this manual.

1. Dialing and Hanging Up

[PHONE] will dial any numbers contained in the extended highlight. This lets you use your Cat as an automatic telephone dialer. When the highlight is not extended, [PHONE] is used to answer or hang up on your Cat-to-Cat or Cat-to-computer phone calls.



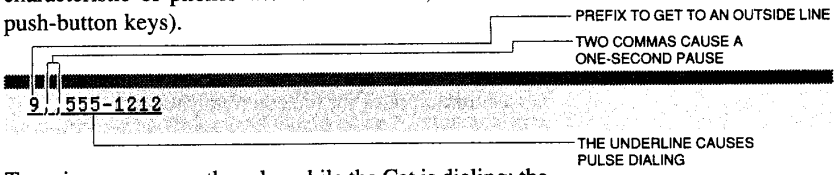
Note: [PHONE] *will not work if you select* **SEND command** *on the* **Serial Port Connection** *screen of the SETUP command. This connects the SEND command to the serial port, disconnects the internal modem and disables* [PHONE]. *Using* [PHONE] *when it is disabled results in a beep. You will get an error message if you use* [EXPLAIN], *but nothing else will happen. To restore the PHONE command to normal operation, use* [SETUP], *go to the* **Serial Port Connection** *screen, and select* **Alternate Printer**.

Dialing

If the highlight is extended and you use [PHONE], the Cat dials any digits it finds in the highlight and ignores the rest of the text. *Digits* refers to the numeral keys 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0.

The non-numeral symbols # and * are dialed as tones corresponding to the extended tone-dial keypad. A comma (,) causes a 1/2-second pause in dialing. Underlined digits are pulse-dialed rather than tone-dialed (*pulse dialing* is characteristic of phones with circular dials, rather than push-button keys).

To dial this number, highlight it and use [PHONE].



Two signs appear on the ruler while the Cat is dialing: the telecommunication sign (the outline of a telephone handset) and the word **DIAL**. Once the number is dialed, the Cat waits for a carrier signal. A *carrier signal* is a tone indicating that another modem-equipped machine has picked up the line. The amount of time the Cat waits for a carrier signal can be adjusted with [SETUP].

If the Cat hears a carrier signal, it automatically establishes a connection and gives you a confirm tone. A *confirm tone* is a low-pitched beep. The ruler displays **300** or **1200** (rate of transmission) next to the telecommunication sign. This indicates the baud rate, the speed at which signals are sent.

If the Cat doesn't hear a carrier signal before its timer runs out, it hangs up the line. When the Cat detects a carrier, it mutes your telephone receiver in order to avoid communication errors due to noise from your telephone. You can only hear the carrier signal for a second or two if you are listening in.

A spoken telephone conversation between people will not have a carrier, so the modem is not involved.

On-Hook and Off-Hook

These terms are useful in discussing [PHONE]. *On-hook* means that the line is not in use; *off-hook* means it is. *Hook* refers to a *hook switch*, which the handset rests on when the phone is hung up. The Cat does not have a literal phone receiver, of course. It only turns an internal switch on or off. The telecommunication sign appears on the ruler whenever the Cat's line is off-hook.

Answering

If the Cat is on-hook, and you use [PHONE] without extending the highlight, the Cat is taken off-hook. The Cat tries to make a connection by looking for a carrier signal and sending a carrier signal. The same thing happens when the Cat autoanswers.

While the Cat is looking for a carrier signal, a **WAIT** sign appears on the ruler. The cursor stops blinking until the connection is made or the carrier signal timer runs out. Pressing any key while the **WAIT** sign is on will cause the Cat to hang up.

The Cat tries to establish a connection at 1200 baud first, then tries at 300 baud if it is unsuccessful. These are the two most common rates for telecommunications.

The Cat sounds a confirm tone when it establishes a connection. The baud rate appears on the ruler next to the telecommunication sign. If you are having trouble with a poor telephone connection, use [SETUP] to specify 300 baud, and then try again.

Hanging Up

If the Cat's modem line is off-hook, [PHONE] puts it on-hook. This is how you end Cat-to-Cat or Cat-to-computer communications. The highlight should not be extended.

[PHONE] is also used to hang up after a phone call that lasts less time than the Cat's carrier signal search. After dialing a number with [PHONE], the Cat looks for a carrier signal for a time period specified by [SETUP]. If you hang up before this time runs out, then lift the handset, you will not hear a dial tone. Using [PHONE] frees the line and gives you a dial tone.

If you use [PHONE] when the Cat is off-hook and the highlight is extended, it will dial any numbers in the highlight, even though you may already have a connection. This enables you to dial long distance access codes. Once the Cat detects a carrier, you can't dial any more since dialing would interfere with modem communication.

Switching From Voice Communications to Telecommunications

You can switch from voice communications to text transmission during the same call. Use [PHONE] while you are on the line. The Cat will start searching for a carrier signal while sending out a carrier signal of its own. Your partner should use [PHONE] about the same time in order to establish a connection. If he has a computer, he needs to use the appropriate answer command for his equipment.

Switching From Telecommunications to Voice Communications

If you are sending text Cat-to-Cat or Cat-to-computer and wish to continue the call voice-to-voice, lift your telephone handset and use [PHONE]. This will cause the Cat to turn off the modem and open the phone line for voice communications.

When the Carrier Signal Is Lost

The carrier signal is used to transmit text between machines, so It is present the entire time the Cats are communicating. The carrier signal will be lost when your partner uses [PHONE] in order to switch to voice communications, or when a data service hangs up on you at the close of a session.

When the carrier signal is lost, the Cat beeps and tries to find it again. [EXPLAIN] will tell you that the carrier was lost. If the Cat cannot re-establish a connection after a few seconds, it hangs up the line. Note that the [SETUP] timer is not triggered under these circumstances. You have just a few seconds to pick up the phone if you want to talk to your partner.

2. Holding a Cat Conversation

SEND

[SEND] sends your highlighted text into the phone line via the Cat's internal modem. If you select **SEND command** on the **Serial Port Connection** screen of the SETUP command, [SEND] will send the text out the serial port. The serial port can be used to connect an external modem or cable. A *modem* is a device used to convert text into sound signals that can be transmitted over phone lines and decoded by a Cat or a computer at the other end.

[SEND] is an autoextending command: If the highlight is not extended at the time you use the command, it extends automatically as if you had pressed both LEAP keys, and then the command is carried out. The highlighted text will be the area covered in your last leap, or typed since you last pressed both LEAP keys.

You can also send characters directly without inserting them in the text or showing them on the screen. Hold [USE FRONT] and [SHIFT], press and release [SEND CONTROL], then release [SHIFT]. The characters you type while continuing to hold [USE FRONT] will be sent when you release [USE FRONT] but will not be displayed or entered in your text. This is useful for sending passwords and other sensitive information.

If you use [SEND] without first establishing a connection to another machine, the Cat will automatically use the PHONE command and attempt to establish a connection for you. It will keep trying until the automatic timer runs out, and then hang up. Pressing any key will also cause it to hang up.

[UNDO] has no effect on [SEND].

Communications Between Cats

When you send text Cat-to-Cat, everything is transmitted: words, paragraphs, pages, boldface and underlining, calculations and their underlying expressions, margins, indents, and other features of paragraph formatting.

When the connection is established and the Cat determines that it is talking to another Cat, [SEND] will automatically adjust for Cat-to-Cat communication. If you are communicating with another Cat via the serial port, use [SETUP] and go to the **Serial Port Connection** screen. Move down the list to the **Communications mode** line and select **Cat-to-Cat**.

Communications Between Cats and Other Devices

When sending text to devices other than the Cat, **Half-duplex** or **Full-duplex** must be selected on the **Communications mode** line of the **Internal Modem Setup** screen. If you are unsure which to use, full-duplex will work correctly most of the time.

Some systems require special characters at the end of each line, such as a return (CR), or a return and a line feed (CR/LF). A *return* moves the cursor to the left edge of the screen; a *line feed* moves the cursor down one line. [SETUP] allows you to select either of these, or **None** (no line-end character at all).

If you select CR or CR/LF as the line ending, and the Cat is communicating with non-Cat devices such as computers or data services, it sends only the surface text. Tab characters, margins, and indents are replaced with space characters. This is not done if the highlight does not include the first character on the line.

If you use [SETUP] to select a line ending of **None**, the SEND command sends only the surface text without formatting it. Return characters explicitly typed by you are sent and tabs are sent as tab characters. No information is sent about margins or indents, and nothing is sent at the end of each line. Selecting **None** as the line ending is useful for sending raw text to another computer where it will be reformatted.

Since there is no way to transmit half-spaces to non-Cats, the Cat alternately sends a space character or no character at all as it encounters half-space characters in the text. This is guaranteed to make Justified text appear justified to the receiver. An odd number of half-spaces can only occur on a centered line, so centered lines may appear shifted by a half-space when received.

Sending Control Characters

SEND CONTROL

[SEND CONTROL] enables you to send control characters from the Cat keyboard. *Control characters* are special characters required by some data services for communications. They are not required for communications between Cats.

After you using [SEND CONTROL], and for as long as you continue to hold down [USE FRONT], each letter key you press sends a control character. [c] sends a CONTROL-C character, [e] sends a CONTROL-E, and so forth. [SHIFT] and [SHIFT LOCK] are ignored while using [SEND CONTROL].

There are more control characters than there are letters in the alphabet, so there are several control characters without letter names. These are listed below:

Key	Control Character It Sends	
[TAB]	ESC	escape character
[SPACE BAR]		break
[ERASE]	DEL	delete
[2]	NUL	blank
[3]	FS	field separator
[4]	GS	group separator
[5]	RS	record separator
[6]	US	unit separator

[SEND CONTROL] does nothing unless you have established a telecommunications connection.

UNDO and SEND CONTROL

[UNDO] has no effect on [SEND CONTROL].

Control Characters Used by the Cat

The Cat recognizes a few incoming control characters:

CONTROL-E causes the Cat to send back a self-identifying message (**Canon Cat modem**). Used to find out whether you are communicating with a Cat or not.

CONTROL-G causes the Cat to beep. Used to wake up the person you are communicating with.

CONTROL-I sends a tab character to the Cat. May be of use to someone sending to you from a non-Cat terminal.

CONTROL-M sends a return character to the Cat. May be useful to someone sending to you from a non-Cat terminal.

CONTROL-L sends a page character to the Cat. May be useful to someone sending to you from a non-Cat terminal.

3. Receiving Text

When you receive text from another Cat, computer, or data service, the incoming text automatically appears in your text as if it were being typed there. It is always inserted, so it cannot harm other text. The incoming text normally appears at the cursor, but if you have typed some new text since your last leap, last use of [SEND], or since extending the highlight, the incoming text will appear above the newly typed text. This tends to keep answers and replies alternating in chronological order.

There is no difference between the text you receive and the text you type yourself. You can record it with [DISK], print it with [PRINT], or use any other command on it. All the things you can do with the text you create yourself can be done with text you receive. It is also possible that the incoming text will fill your text. If this happens the Cat will beep and [EXPLAIN] will tell you that you're out of room. You can erase some text to make room for more received text, or you can copy up some text to another disk and then erase it.

You can type and erase while text is coming in, but avoid leaping. If you leap while receiving text, say, to edit something you are typing, the incoming text will start to flow at the point where the cursor has landed. This can be confusing because the incoming text will mix with the text already on-screen.

Sending messages such as "OVER," "REPEAT," and "WAIT. . . " can smooth communications and help avoid confusion. But even then your partner may accidentally send out of turn. If incoming text appears in the middle of yours: Stop typing and let the text come in (don't leap), press both LEAP keys to highlight it, then leap backward to a return and let go of the LEAP key to move it away from your reply and maintain proper sequence.

If you do not type or leap while receiving a message, pressing both LEAP keys will highlight all the text you have received.

The Cat's send and receive lines are always connected to the same port. When the SEND command is connected to the modem, then text will only be received from the modem. When the SEND command is connected to the serial port, text will only be received from the serial port.

Automatic Answer

[SETUP] can be used to adjust the Cat to automatically answer the phone after a certain number of rings (1, 3, 5, or 7). A document character appears in your text when the Cat answers, and when you or the other party disconnects (this does not happen when you use [PHONE]).

If the cursor already immediately follows a document character, the Cat does not insert a new document character when connecting or disconnecting. This prevents document characters from piling up in your text when there is difficulty in establishing a connection.

What Happens When a Message Comes In

If your text has been safely recorded, the Cat will erase the entire text when it senses the incoming call. This makes room for the incoming message and does not threaten your text, since the erased text is safely recorded on disk.

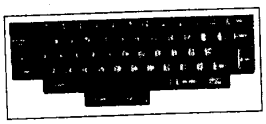
When the sender hangs up, the Cat highlights the text it has received, and — the next time [DISK] comes on automatically — attempts to copy up the received text. The combined texts will be recorded the next time [DISK] records automatically. If the received text is too large to be copied up, no recording will occur. The Cat will wait for you to insert a blank disk and record the received text. This makes it possible to receive a full text while you are away from your desk. If you leave an empty text and a blank disk in the drive, you can receive two full texts: the first will be recorded on disk, the second will remain on-screen.

UNDO and Receiving

[UNDO] has no effect on receiving.

Calculating With the Cat

CALC



[CALC] enables you to perform calculations anywhere in your text. The results become part of the text, and can be leaped to, erased, printed, moved, copied, or sent just like ordinary text. We call this feature *Calculation-in-Context.*

The results of calculations are marked with a dotted underline to distinguish them from ordinary typed text on the screen. The dotted underline does not print on paper. The mathematical expression that generated the result is hidden or *pocketed* beneath the result. Positioning the cursor on the underlined result and using [CALC] brings back or *unpockets* the underlying expression.

a. 2+2 b. 4.00 c. 4.00_2+

a. A mathematical expression. b. After you highlight the expression and use [CALC], *the underlined result* 4.00 *takes its place. The expression is* pocketed *beneath the result. c. Positioning the cursor on the result and using* [CALC] unpockets *the underlying expression as shown.*

You are not limited to doing arithmetic with [CALC]. By using named variables and *relative addressing* you can set up spreadsheets. These features are explained in detail below.

Magnitude and Precision

The Cat keeps numbers to 12 places to the left and 10 places to the right of the decimal point. It normally displays results to two decimal places, corresponding to the usual dollars-and-cents usage.

If you erase the digits to the right of the decimal point, up to or including the decimal point, that result will always be rounded and displayed with that precision. For example, if you highlight and [CALC] "1 + 2", the result "3.00" is displayed. If you edit the result to look like "3. " or "3", further calculations involving the result will produce a whole number with no decimal point.

Similarly, you can type more zeroes after a result and use [CALC] to extend the precision. Only zeroes make the precision extend. Other letters or digits have no effect.

The initial number of digits to the right of the decimal point can be changed with [SETUP] to any number between 0 and 10.

When the Cat calculates it maintains intermediate values (results of parts of a longer calculation) with 10 digits to the right of the decimal point. This minimizes rounding errors in chained calculations. Such errors may occur when an intermediate result is a very small number which is then multiplied by a large number.

For example, to calculate the daily interest on a note, you divide the interest rate by 365 days and multiply by the principal. The intermediate result — interest/365 — is a very small number. If the calculation wasn't carried out to a precision greater than four digits, the final answer could be less accurate due to the rounding off of the intermediate result.

Numbers Too Large to Calculate

If a calculation results in a number that is too large for the Cat to display within its limitation of 12 digits to the left of the decimal point, the screen displays **>???. ??**

If you use a number that exceeds the Cat's limits of 12 digits to the left or 10 digits to the right of the decimal point in a calculation, the Cat beeps and [EXPLAIN] describes the limits. Numbers that are too small become zero.

Number Punctuation

The decimal and number style line on the **Machine Setup** screen of [SETUP] can be used to select various types of number punctuation. If you select **1,000,000.00**, for example, your results will be displayed with commas every third digit to the left of the decimal point. Typing a comma any place in a result will *turn on* this notation. Further use of [CALC] will display that particular result with commas.

Other types of punctuation are offered by [SETUP]. In Europe, commas mean decimal points, and periods occur every third digit: 1.000.000,00. You may also select Swiss notation: 1'000'000.00.

You should be careful when changing number punctuation. For example, 1.000 might mean "1" when you wrote it, but could mean "1,000" after changing number punctuation with [SETUP]. Calculation results and relative address references use your most recently selected number punctuation. Changes in punctuation won't affect non-result numbers, but will affect results produced by *sum*, *average*, or relative address references.

Operators

Operators are the verbs of a mathematical statement. For example, the operator + means *add*, and the operator - means *subtract*. The Cat has 14 operators, shown below:

Operator	Meaning
+	add
-	subtract
*	multiply
/	divide
abs	absolute value
int	integer part
%	percent (multiply by .01)
sqrt	square root
<	less than
>	greater than
=	equal
~	logical NOT
&	logical AND
|	logical OR

Expressions and Operators

Operators combine with constants and variables to form mathematical statements called *expressions*.

Constants are fixed numeric values such as "1.38" and "-247". Do not use permanent spaces (the uppercase character on [TAB]) in expressions or variables.

In addition to the familiar operators for addition, subtraction, multipication, percent, and division, the Cat can find the absolute value, integer part, and square root. It also has logical operators used to control the evaluation of expressions. The table below summarizes how operators are used to create expressions.

+ *Add* the values to the left and right of the +

- *Subtract* the value to the right of the - sign from the value to its left

```
8-3  ⟶  5
```

***** *Multiply* the values

```
2*5  ⟶  10
```

/ *Divide* the value on the left of the / sign by the value on the right

```
10/2  ⟶  5
```

% *Percent.* Same as multiplying by .01

```
3%  ⟶  .03
```

abs *Absolute value. abs* takes the expression immediately following it and turns it into its absolute value. To be certain of the order of evaluation of an expression, enclose it in parentheses.

```
abs(2-7)  ⟶  5
```

int *Integer part. int* takes the expression immediately following it and throws away everything after the decimal point.

```
int(21.999) ⟶ 21
```

sqrt *Square root. sqrt* returns the square root of the expression immediately following it.

```
sqrt 4  ⟶  2
```

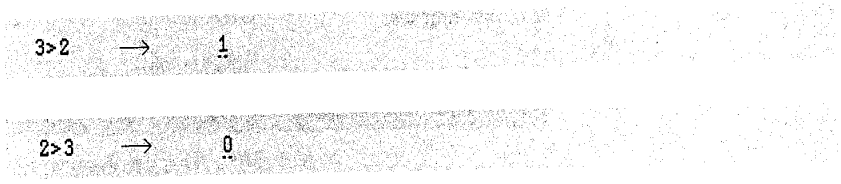
Logical Operators

The Cat has six logical operators that can be used to make decisions within expressions. When calculated, they return a result of **1** or **0**: 1 means the expression is true, 0 means it is false.

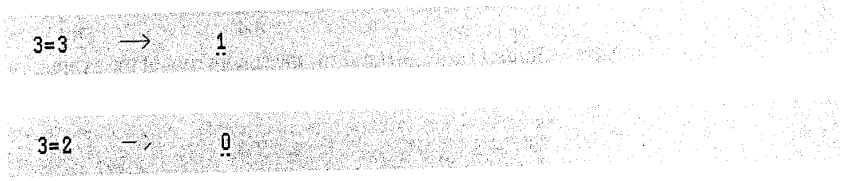
When an expression has more than one logical operator, parentheses will ensure that the expressions are evaluated in the correct order. The examples for AND and OR below show how you might use parentheses.

< *Less than.* Evaluates the expressions to the left and the right of the "<" and returns a 1 if the left-hand expression is less than the right-hand expression.

> *Greater than.* Evaluates the expressions to the left and the right of the ">" and returns a 1 if the left-hand expression is greater than the right-hand expression.



= *Equal.* Evaluates the expressions to the left and the right and returns a 1 if the left-hand expression is equal to the right-hand expression.



~ *Logical NOT.* Inverts the result of the logical operation which follows the ~, turning 1 to 0 and 0 to 1.

& *Logical AND.* Combines the results of two other logical operations involving >, <, or =. If both expressions are non-zero, AND returns 1, otherwise it returns a 0.

```
(2<3) & (4<5)  ⟶  1
```

| *Logical OR.* Combines the results of two other logical operations involving >, <, or =. If either expression is non-zero, then OR returns a 1.

```
(2<3) | (5<4)  ⟶  1
```

Note: The symbols "<", ">", and "~" are not available on the United States keyboard. To get them, use the ***Machine Setup*** *screen of* [SETUP] *to select the ASCII keyboard (see page 97 for more information on alternate keyboards). The key assignments are as follows:*

Symbol	ASCII Key	Keyboard I/II
>	[SHIFT]-[.]	I
<	[SHIFT]-[,]	I
~	[SHIFT]-[+/-]	I
|	[SHIFT]-[TAB]	I

To get the "|" symbol on the United States keyboard, select **Keyboard II** with [KB I/II], then type it with the 1/2 key.

Order of Computation

When the Cat computes an expression, it reads from left to right, performing the operations in order of precedence. In other words, it performs all the highest ranking operations first, then all the operations in the next lower rank of precedence, and so on until the entire expression is evaluated.

Parentheses can be used to ensure that certain operations are performed first. For example, (2 + 3) * (4 + 5) ensures that the Cat will first add 2 and 3, then add 4 and 5, then multiply the two sums. You can use up to ten pairs of parentheses within parentheses per expression you evaluate, though it's unlikely you'll ever need that many.

Precedence

Highest precedence (done first)

i. Expressions inside parentheses
ii. Adding minus signs where needed (unary minus)
iii. Percent
iv. Multiplication and division
v. Addition and subtraction
vi. Logical operations

Lowest precedence (done last)

Variables

A variable is a name to which you assign a numeric value. *Name* simply means a combination of letters, or letters and numbers. A variable name can be up to 31 characters long. If you use a name longer than 31 characters, the Cat will beep and [EXPLAIN] will tell you the name is too long.

The Cat already uses the following letter combinations as functions, so you cannot use them as variable names:

Letter Combination	Meaning
abs	absolute value
average	average of a column of numbers
avg	abbreviation of *average*
int	integer portion of a number
sqrt	square root
sum	sum of a column of numbers
sumdisplay	sum of a column after rounding to the precision shown
use	relative address to another number
usedisplay	relative address after rounding to the precision shown

Do not use a permanent space when typing a variable name. Permanent space is the uppercase character on [TAB].

To define a variable, type the name, type a colon, then type the expression that defines the variable. For example:

Avar:1+1

Typing, highlighting, and using [CALC] on the above expression would assign the value of 1+1 (or 2) to the variable *Avar* ("Avar" is short for "a variable"). Variable names are case-sensitive; "Avar" and "avar" would be two different variables.

Variable names must begin with a letter, but may contain letters and the digits 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0 in combination. Variables apply throughout the entire text, not just inside the document where you created them. Once you assign a value to a variable name, you can use the name in calculations.

For example, you can assign the value *5.00* to the word *price* by typing, highlighting, and using [CALC] on "price:5.00". You can then use *price* in calculations: "price * 10" gives the result "50.00". When you change the value of "price" to, say, "2.50", all expressions involving "price" everywhere throughout the text will also change: "50.00" automatically changes to "25.00".

A given variable name can be defined in only one place. Thus you cannot have *price:5.00* in one place and *price:7.50* in another. If you try to define the same variable in more than one place, you get a beep and [EXPLAIN] tells you that variables can only be defined once. This means that if you want to change the value of a variable, you must leap to the place where you defined it originally, unpocket the definition of the variable, and redefine it by editing the text on the right side of the colon. If you can't remember where you defined a variable, unpocket all calculations by highlighting the entire text and using [CALC]. When [CALC] finishes, leap to your variable name followed by a colon (see *Multiple Unpocketing*, page 83).

If you try to use a variable in an expression before defining the variable, the Cat won't be able to calculate it. The result displayed on your screen will be **????.??**. If you use [CALC] to define the variable at a later time, the ????.?? will change to the correct calculated value.

Column Operators

A column of numbers is a set of numbers lined up vertically. Columns look this way on your screen, but the Cat cannot literally see the screen, so it finds columns by counting tab characters in the lines of text. A *line* is the text between two break characters (a *break character* is a return, page, or document character).

The first column in a line is the text following the break that begins the line up to the first tab or break character. The second column is the text following the first tab up to the next tab or break. The third column is the text following the second tab, up to the next tab or break, and so on. If there is no text after the break character or between tabs, the column is *empty*.

The point is that while you are used to thinking of columns as vertically aligned text, they don't have to be vertically aligned for the Cat to use them. They just have to have the same number of tab characters between them.

Even more important, numbers that are vertically aligned may not be in the same column. One of the numbers might have two tab characters to its left, while the other has one. If so, the Cat won't "see" them as belonging to the same column. You must be careful to keep your tab characters uniform when working with columns.

Returns must also be uniform. For the Cat to work on the numbers in a column, the lines containing the numbers must be separated by no more than one return. You can easily add the numbers in a table, but not if there is a blank line between any of the lines of text.

If you want to count the number of tab characters in front of each entry in your columns, highlight the whole table and count the arrows that represent tab characters. All column entries (including sum, sumdisplay, avg, or average) must have the same number of tab characters preceding them.

You can perform operations on a column with the following column operators:

Operator	Meaning
sum	Add the values in the column above
avg	Average the values in the column above (you can also use the word "average" in stead of "avg")
sum display	Add the displayed values in the column above

Typing "sum" or "avg" at the bottom of a column, highlighting it, and using [CALC] calculates the sum or average respectively. The result appears in place of the highlighted expression. The operators may be used by themselves, or in an expression. If used in an expression, the sum or average is calculated and the result is used in evaluating the expression.

Sumdisplay is the same as *sum* except that it uses the displayed, rather than the underlying values. Remember that underlying values are carried to a precision of 10 digits to the right of the decimal point, while the displayed value is rounded to the number of digits you select on the **Decimal places in calculations** line of the **Machine Setup** screen of [SETUP] (see *Screen 2: Machine Setup,* pages 97-98, for more information).

The following example shows two numbers that produce different results, depending on whether you add them with *sum* or *sumdisplay*. The displayed values have been rounded as will happen if you erase the numbers to the right of the decimal point in the results and use [CALC] again.

Displayed value	Pocketed value
41	41.4
20	20.4

Using [CALC] on *sum* will yield 62 (41.4 + 20.4 = 61.8 rounded upward); Using [CALC] on *sumdisplay* will yield 61 because it adds the displayed values (41 + 20). The example was done with the **Decimal places in calculations** line set to **0** in the **Machine Setup** screen of [SETUP]; if the **Decimal places in calculations** line had been set to the initial value of **2**, using [CALC] on *sum* and *sumdisplay* would yield 62.00 and 61.00 respectively.

Remember *sum* calculates the answer to the full precision available to the Cat, so later calculations using this result will be more accurate, even if it doesn't look right on the screen.

Name Tags for Numbers in Columns

It is often useful to know what the numbers in your columns stand for: dollars, acres, miles, gallons, or bushels, for example. You can label numbers as you like — the column operators will ignore them. "Section Number 43," "$5.95," and "200 acres" will be treated as if they were "43," "5.95," and "200."

Any of the following characters can be used in labels: A to Z, a to z, space, %, $, #, +, @, [, /, >, {, }, ~, \, comma, or the special symbols for lira, degree, paragraph, section, cents, florin, pound, yen, or division.

If you precede a number in a column with !, &, *,],), ?, :, ;, ", ', or _, *sum* and *sumdisplay* will treat this number as a zero. This can be helpful. When reconciling your checkbook, put the amounts of all your checks in a column. Precede any outstanding checks with ?. The sum of all your checks should match your bank statement.

If you precede a number in a column with (, -, or <, then *sum*, *sumdisplay*, *average*, and *avg* will interpret it as a negative number. Thus -100, (100), and <100> will all be treated as negative 100.

When the label comes after a number in a column you can use any character except a digit or a period.

Relative Address

Relative addressing allows you to perform operations with numbers in tables, such as adding the fifth number in column 1 to the second number in column 3 and displaying the result in column 4.

An *address* is the position of a table entry. *Relative* means "relative to where you are typing the expression." A relative address is written *use(x y)*, *[x y]*, or *usedisplay(x y)*. The *x* and *y* stand for two number values which specify the column and row of the number you are using.

The *x* value refers to the horizontal distance in tab stops from the expression you are typing. A positive *x* value means *to the right*. A negative *x* value means *to the left*. Thus if *x* is "3," the number to be used is in the third column to the right.

The *y* value in a relative address refers to the vertical distance in lines from the expression you are typing. A positive *y* value means "down." A negative *y* value means "up." Thus if *y* is "2," the number to be used is in the second line down from the expression you are typing. If the number you want is on the same line, then *y = 0*. When *y = 0*, you can omit it, as shown in the third example below:

Operator	Example	Meaning
use(x y)	use(3 -2)	Use the entry in the 3rd column to the right of this expression, 2nd row up
[x y]	[0 1]	Use the entry in this column, one row down
usedisplay(x y)	usedisplay(-2)	Use the displayed value (not the underlying value, which is more precise) two columns to the left.

The *x* and *y* values must be numbers; they cannot be expressions. They must also be separated by one or more spaces. Do not use a permanent space to separate *x* and *y*.

The *[x y]* form for relative address is provided for keyboards that have square brackets (not all keyboards provide brackets).

The expression *usedisplay(x y)* is similar to *sumdisplay* in that it uses the displayed value rather than the more precise underlying value.

The location referred to by a relative address must contain an expression. If it doesn't, the result will read ????. Typing in an expression at the proper location will correct the problem.

Pockets

When you [CALC] an expression, the text of the expression disappears from the screen, and the Cat hides the expression in a *pocket*. The result of the calculation appears in place of the expression. You can erase the pocket only by erasing the entire result.

The result has a nonprinting dotted underline. The dotted underline remains attached to the individual digits, so if you move part of a result away from the pocket, the part you move remains underlined. The next time you use [CALC], the underline will disappear from the part you moved. The result at the point it was moved from will be restored. This is because you did not change the pocketed expression, so [CALC] produced the same result again.

How Calculation-in-Context Works

[CALC] evaluates calculations throughout the text. If the highlight is not extended, a single use of [CALC] re-evaluates all the expressions in the entire text. This re-evaluation is called *recalc*. While recalc is taking place, the cursor stops flashing and the **CALC** sign appears on the ruler.

If you have a large text with a lot of calculations, a recalc may take some time, but it can be interrupted by pressing any key. This causes a beep. [EXPLAIN] says that the calculation was interrupted and consequently your results may be incorrect. It also explains that you may complete the calculation by using [CALC] again without extending the highlight.

When you give [CALC], one or more of the following actions takes place, depending on whether the highlight is extended, where the highlight is located, and what is contained in the highlight:

Recalc

If the highlight is not extended and is on ordinary text or an unpocketed result (*unpocketed* means an expression has been taken out of its pocket and made visible on the screen), the Cat re-evaluates all the expressions in the entire text. All unpocketed expressions will automatically be pocketed (see *automatic pocketing* below).

Unpocketing

If the highlight is on a pocketed result and is not extended, the expression associated with that result is *unpocketed*, that is, brought out of its pocket and inserted into the text after the result. It will have a dotted underline. An underscore separates the result from the unpocketed expression. Pressing both LEAP keys will highlight the unpocketed expression so it can quickly be erased.

Pocketing

If the highlight is extended, and there are no results inside the highlight, the Cat attempts to calculate the text and pocket it. If the text cannot be calculated the Cat beeps, and the highlight collapses on the first part of the expression that the Cat could not understand.

Multiple pocketing

You can pocket more than one expression at a time, providing the expressions that you're pocketing are separated by a break character or a tab. Highlight all the expressions, then use [CALC]. [CALC] will process them one after another from the beginning to the end, pocketing them in sequence as it goes. The extended highlight must contain only expressions, break characters and tabs.

Multiple unpocketing

You can unpocket more than one expression at a time by extending the highlight and using [CALC]. The Cat will unpocket all pocketed results in the highlight, just as if you had unpocketed each one individually. The highlight collapses to a wide cursor at the end of the highlighted text. Multiple unpocketing has no effect on results that have already been unpocketed. If the highlight does not contain any pocketed expressions, the highlighted text is calculated and pocketed.

Automatic pocketing

During recalc, any unpocketed expressions are automatically pocketed again, as if you had pocketed each one individually. Before automatically pocketing an expression, the Cat compares it to the hidden text in the pocket. If there has been a change (if, for example, you have changed "price:5.00" to "price:2.50") the changed expression is recalculated and results change. If the visible and hidden text matches, nothing is changed.

Applying Non-CALC Commands to Text Containing Calculation Pockets

What happens will depend on the command and whether the expressions in the text are pocketed or not. Certain commands are discussed in detail below.

[PRINT]

The visible text is printed. The hidden contents of pockets are not printed. If you wish to print the hidden contents of pockets, just unpocket the expressions before printing. If you have multiple pockets in the text you are printing, use multiple unpocketing: Highlight the text, use [CALC] to unpocket the calculation, then rehighlight and use [PRINT]. The dotted underline is not printed.

Copy Up and [SEND]

All hidden expressions are passed along when you copy up or send text from Cat to Cat. If you transmit text from a Cat to a non-Cat machine, only the surface text is sent.

If the Cat notices an error in the text it receives or copies up, it unpockets the faulty expression, and removes the dotted underline. The cursor moves to the first offending character in the expression. For example, if the copied-up text and the existing text use the same variable name, recalc will notice the conflict and unpocket the variable in the copied up text. The Cat beeps and [EXPLAIN] says that the variable name is already in use.

[COPY]

When you copy results, only the surface text is copied, not the hidden pockets. However, if you copy an unpocketed expression, the copy will contain a new pocket. The expression in the new pocket will be the same as the old one, unless the expression was named. If the expression was named, the copy will include only the name: *Avar:1+1* will be *Avar* in the copy. This means that the value of the copied result will always match the value of the original, even if the value of the original changes, but variables will be defined only in the original, not in the copy.

[DOCUMENT LOCK]

When a document is locked, you cannot change the text in it. Thus a recalc will not affect the contents of a locked document. As soon as you unlock the document, the calculations in it will participate in the next recalc and their results may change. Results in a locked document can still affect other parts of the text. For example, if *Avar* is defined in a locked document, it can still be used in expressions in unlocked documents.

[ERASE]

To erase an expression, highlight all characters in the dotted underline and press [ERASE]. After a recalc any other expressions that used variables that were defined in the erased expression or that referenced it by relative addressing will produce the result **????**.

Erasing the first (leftmost) character of the result erases the pocket. The next recalc converts the result to plain text without a dotted underline.

What happens when you erase an *unpocketed* expression depends on which part you erase: If you erase all of the result to the left of the decimal point, the dotted underscore will disappear when you do a recalc, and the unpocketed expression will become ordinary text. If you erase some but not all of the result to the left of the decimal point, recalc will restore the result as it was before you erased anything.

If you erase part of the result to the right of the decimal point, even including the decimal point, the result will be displayed with that reduced precision after the next recalc.

If you erase any characters in the unpocketed expression between the first and second underscores, a subsequent recalc will produce a result reflecting your changes to the expression.

UNDO and Calculation

Calculation cannot be undone.

Putting Text in Alphabetical/ Numerical Order

[SORT] can put units of text called *records* in numeric or alphabetic order (0, 1, 2, 3, ..., A to Z), or in reverse order (Z to A, ..., 3, 2, 1, 0).

SORT

Highlight the items you want to sort, then use [SORT]. While the Cat works, a **SORT** sign appears on the ruler. When the highlight collapses, the items are in the new, sorted order. You can sort the lines in a table, addresses, paragraphs, or other segments of text, depending on how you define a record using [SETUP].

Records

Records are the text between *record separators*. Record separators may be one or more break characters. The **SORT record separator** option on the **Machine Setup** of [SETUP] screen can be used to define a record separator as 1, 2, or 3 break characters. This allows sorting of paragraphs and other larger structures, such as multi-line addresses. The initial record separator is 1 break.

If a record ends with more than the specified number of breaks, the extra breaks are retained during sorting. If one return defines a record, and a record ends with two returns, that record will still end with two returns after it has been sorted.

Fields

A *field* is a part of a record used as a key in sorting. After sorting, the selected field in each record will be in sorted order.

Suppose you have a pack of index cards with names, addresses, and zip codes. When you sort by zip code, you rearrange the cards so that the one with the smallest zip code is first, and the rest of the cards follow in order of increasing zip code. After this rearrangement by zip, the names and addresses on the cards will be in no particular order. [SORT] works the same way. A record is like an index card, and a field is like the name, address, or zip code on the card. Each field carries the rest of the text of the record with it when it is sorted, just like sorting the index cards by zip codes.

The Cat finds fields by counting *field separators*, which are tabs or break characters. If the record is made up of fields separated by tabs (whether or not the record is a line of tabbed columns), the first field is whatever appears at the beginning of the line, the second field is after the first tab, the third field is after the second tab, and so on. The Cat counts tabs and breaks, ignoring the position of the field on the screen. In other words fields do not have to be aligned in columns.

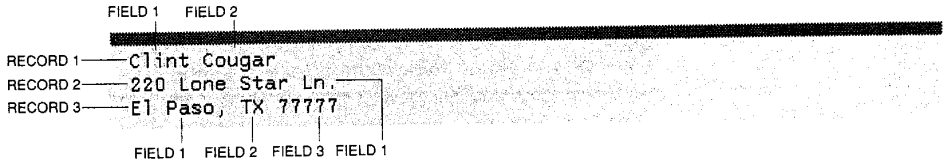
You can have an unlimited number of fields within records.Spaces do not separate fields. "Al Xanadu" will sort to a position closer to the top of the list than "Alan Baily" unless tabs are used to separate first and last names into two fields ("Al" comes before "Ala", as in "Alan").

Changing the Record Separator

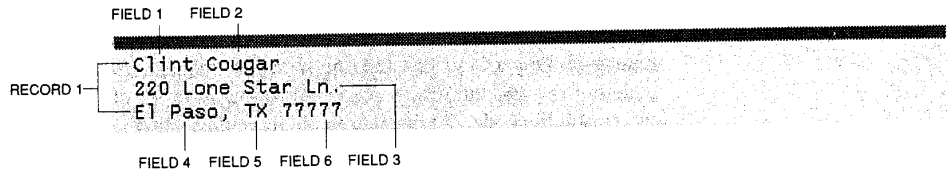
By changing the record separator you can sort chunks of text that end in one, two, or three returns. If you select two or more breaks as the record separator, returns may also help define a field. If the record separator is one return, any return ends the record. A single return cannot separate fields. However, if the record separator is two returns, the same return would separate fields.

In the examples below, tabs separate "Clint" and "Cougar". Tabs also separate "El Paso," "TX", and "77777". When the record separator is two breaks, the entire address is a single record. Any part of the address can be used as a reference in sorting.

An address when the record separator is one break:



The same address when the record separator is two breaks:



Setting Up a SORT

Choose which field you are sorting at the same time you choose the text to be sorted. The highlight should begin at the beginning of the first record to be sorted. It should end in the last record to be sorted, inside the field to be sorted. For example, if you have three columns, and you want to sort on the second column, end the highlight anywhere in column two on the last line of the table.

Alphabetic Sorting

[SORT] sorts by the rules people use to sort, not quirky computer rules. The following describes in detail how [SORT] orders records. However, you probably don't need to know this unless you are curious. Just go ahead and use [SORT], and it will probably do just what you want it to.

Alphabetic sorting follows normal alphabetic order within the alphabet, with no distinction between uppercase and lowercase.

Numeric Sorting Sequence

A numeric field is one that begins with a plus or minus sign or a digit. Any other field is alphabetic. As shown in the chart below, all numeric fields sort ahead of all alphabetic fields.

Before Sorting

```
2
second
1
first
3
third
```

After Sorting

```
1
2
3
first
second
third
```

Numeric fields are sorted according to their numeric value, not the number of digits they have. The Cat is smart enough to sort all numbers, including those with negative signs and decimal points, as shown in the example below:

Before Sorting

```
   0.0034
  -57
   57
   57.001
  -57.001
  340.01
  340.2
 +340
   65
  -0.004
```

After Sorting

```
 -57.001
 -57
  -0.004
   0.0034
  57
  57.001
  65
+340
 340.01
 340.2
```

Numbers and Letters in the Same Field

The Cat can also sort fields that contain mixtures of numbers and letters. These fields are sorted by dividing the field into smaller pieces called *subfields*. A subfield is a part of text containing all letters or all numbers. The Cat then sorts the alphabetic subfields alphabetically and the numeric subfields numerically from left to right, as shown in the examples below:

Before sorting

```
volume 1, part 2
volume 10, part 1
volume 3, part 3
volume 1, part 3
volume 3, part 1
volume 1, part 1
volume 10, part 3
volume 10, part 2
volume 3, part 2
```

After sorting

```
volume 1, part 1
volume 1, part 2
volume 1, part 3
volume 3, part 1
volume 3, part 2
volume 3, part 3
volume 10, part 1
volume 10, part 2
volume 10, part 3
```

The list below describes the steps the Cat uses in comparing two fields to determine which one is larger. *Larger* means "further towards the end" in a list of ascending order and *smaller* means "further towards the beginning" in a list of ascending order.

1. Break the fields into subfields if necessary, and compare the subfields from left to right.

2. Numeric subfields are smaller than alphabetic subfields.

3. If both subfields are alphabetic, and the longer one begins with exactly the same characters contained in the shorter one, the shorter one is smaller.

4. In numeric subfields, commas are ignored.

5. If the first subfield is numeric and begins with a minus sign (-), that subfield will sort smaller than zero. A minus sign that occurs before a numeric subfield other than the first subfield is interpreted as an alphabetic subfield. For example, "abc-123" is interpreted as two subfields, an alphabetic subfield of "abc-" and a numeric subfield "123" However, "12-34" is interpreted as three subfields, a numeric subfield "12", and alphabetic subfield "-", and a numeric subfield "34".

6. The part of a numeric subfield starting with the first character after the sign up to but not including the decimal point is compared as a whole number. If only one of the fields has numerals before the decimal point, that field sorts larger unless all the numerals are zeros, in which case the subfields are so far considered equal and the comparison proceeds.

7. The part of the subfield following the decimal point up to the end of the subfield or up to but not including the next decimal point is called the *fractional part*. There may be several fractional parts if, for example, the subfield being sorted is a section header of the form *1.01.2*.

Fractional parts are compared alphabetically from left to right. If the two parts are of different lengths and match up to the length of the shorter part, and any of the remaining digits in the longer part are not 0, then the longer part is considered larger. If the remaining digits are 0, the two parts are considered equal and the comparison continues.

If one subfield has more fractional parts than the other and if the two subfields match up to the length of the shorter subfield, the comparison proceeds as follows: If the remaining fractional parts in the longer subfield contain at least one nonzero numeral, that field is larger; otherwise the two subfields are equal.

8. If all corresponding parts of the subfield are equal in value but not in length, and all preceding and remaining subfields in the field are equal, the field with the longest numeric subfield is larger. If more than one pair of corresponding numeric subfields differ in length, the leftmost such pair encountered determines which field is larger.

Sorting From Large to Small

You can reverse the usual order of sorting by using [SHIFT]-[SORT]. Numbers will be sorted from large to small; alphabetical listings will be in reverse alphabetical order (Z to A). (To use [SHIFT]-[SORT], press and hold [USE FRONT] and [SHIFT], and, while holding both keys, press and release [SORT].)

UNDO and the SORT Command

A sort just completed can be unsorted. [UNDO] returns the records to their original unsorted order.

Teaching the Cat to Repeat Your Commands

[LEARN] eliminates repetitious tasks by allowing you to capture a set of keystrokes, re-enact them any time at the push of a button. You can also cause the learned set of keystrokes to repeat itself over and over automatically until it has carried out the change throughout your text.

Beginning and Ending the LEARN Command

Begin recording keystrokes by pressing [USE FRONT]-[LEARN]-[digit], where *digit* refers to one of the keys 1, 2, 3, 4, 5, 6, 7, 8, 9, or 0. You can devise and store up to ten LEARN commands. If you press a non-digit key after pressing [USE FRONT]-[LEARN], the command is canceled.

LEARN

A **LEARN** sign appears on the ruler as soon as you use [LEARN]. When you press the digit key, it, too, is added to the LEARN sign. The Cat is now "all ears," recording every keystroke you make.

When you finish performing the keystrokes you want the Cat to learn, press [USE FRONT]-[LEARN] to end keystroke recording.

Erasing an Old LEARN Command

As soon as you press [USE FRONT]-[LEARN]-[digit], the Cat erases the old LEARN command. Thus if you have a LEARN command assigned to [3] and you press [USE FRONT]-[LEARN]-[3], the command that used to be stored on [3] is gone. [UNDO] cannot restore an erased [LEARN].

Re-enacting

Once the sequence is recorded, it can be re-enacted by holding down [USE FRONT] and pressing the digit key to which you assigned the keystrokes.

Connecting LEARN Commands

LEARN commands may be linked so that they re-enact in sequence. For example, if you have already recorded a [LEARN] on the 2 key, and you use [LEARN]-[2] while recording a [LEARN] on the 1 key, [LEARN]-[2] will immediately re-enact. From then on, each time you use [LEARN]-[1], the Cat will re-enact [LEARN]-[1] and [LEARN]-[2] in sequence. This is because [LEARN]-[2] is the last thing recorded in the [LEARN]-[1] keystroke sequence.

Using one [LEARN] while recording another always causes the current recording to end.

Autorepeating Learns: Global Search and Replace

If you end the recording of a [LEARN] with the same key combination you would use to re-enact it, the command will re-enact over and over. This is called an *autorepeating LEARN command.* For example, if you are recording a [LEARN] on [1], and you press [USE FRONT]-[1], the recording ends and the command begins to play back from the beginning. When the command reaches the end of its re-enactment, it encounters [USE FRONT]-[1] again and so will start over. This has the effect of repeating the [LEARN] re-enactment over and over. An autorepeating [LEARN] allows you to replace one thing with another throughout your text. This is termed *global search and replace.*

Because leaping is not circular in [LEARN] re-enactments, a global search and replace must begin at the beginning of the text. You may want to limit the changes to one or more documents by using [LOCAL LEAP] before you begin the [LEARN] (see *Leaping Within a Specified Area*, pages 58-59). Be sure to turn off [LOCAL LEAP] afterward.

You can interrupt an autorepeating [LEARN] by pressing any key. [SHIFT] is best since it doesn't change the text.

Storing Text

[LEARN] is capable of storing text such as legal phrases, product names, or company names and addresses. When you use [LEARN], the stored text is inserted at the cursor position.

The first step is to highlight the text you want to store. Next, hold down [USE FRONT], and while holding it, press [LEARN], the digit key on which you wish to store the text, then [LEARN] again. The highlight automatically returns to normal at this point. Release [USE FRONT], and the text is stored.

This associates the contents of the highlight with the digit key. When you hold [USE FRONT] and press the digit key, the Cat will insert a copy of the stored text before the character the cursor is on.

Recording LEARN Commands on Disk

Whenever you use [DISK] to record the text, all [LEARN] commands are recorded along with it. When the text is played back from the disk, the [LEARN] commands are played back too.

Non-Circular Leaping in LEARN

During the re-enactment of a [LEARN], leaping is not circular. The leap proceeds to either end of the text, and, if the pattern is not found, the leap fails and the cursor rebounds. This prevents [LEARN] from going over the same text more than once. Any [LEARN] intended to affect the entire text should be started at the beginning or end of the text, whichever is appropriate.

If [LOCAL LEAP] is on, the cursor will leap only as far as the beginning or the end of the local leap region.

Stopping LEARN

[LEARN] stops what it is doing the moment a leap fails or an error (with accompanying beep) occurs. As described above, leaping is not circular during [LEARN] re-enactment, so a [LEARN] automatically stops what it is doing when it reaches the end of the text or the local leap region.

You can stop [LEARN] while it is re-enacting by pressing any key. [SHIFT] is best since it makes no text change.

UNDO and LEARN

Using [UNDO] will only cancel the very last operation performed by [LEARN]; it will not cancel everything [LEARN] did while it was re-enacting.

Changing Document Formats

[SETUP] allows you to tell the Cat how to format documents, how to manage communications using the Cat's internal modem, and what kind of printer or external modem you may have attached. Note that if you attach a Canon Cat180 printer, you will have almost no occasion to use [SETUP] for printer adjustments. You can simply plug in this printer and go. Other printers require adjustment with [SETUP].

SET UP

Setup Screens

When you use [SETUP], a table of setup options replaces your text on-screen, and remains until you release [USE FRONT]. The two columns of the table show the features you can adjust, and their current values. The boldface line marks "your place on the screen." There is no cursor.

New tables of setup options appear each time you press and release [SETUP] while continuing to hold [USE FRONT]. The main titles of the screens are:

Screen Title	Page
1. Document Setup	96
2. Machine Setup	97
3. Main Printer Setup	99
4. Serial Port Connection	108
5. Internal Modem Setup	111
6. Initial Document Setup	96

Each of these six SETUP screens is explained and illustrated on the following pages.

Moving From Line to Line

By pressing [SPACE BAR] you can move downward from line to line in the SETUP table. When you get to the bottom, the boldface emphasis goes back to the top line and starts over. Holding down [SPACE BAR] engages autorepeat.

Selecting New Values

When you come to the line you want to adjust, press the LEAP keys to select new values for the boldfaced item in the right-hand column. [LEAP->] moves you forward through the options; [<-LEAP] moves you backward. Holding down the LEAP key causes autorepeat. If you overshoot, let go, then press the opposite LEAP key to go the other direction.

Getting Out of SETUP

When you release [USE FRONT] your text returns to the screen with the cursor position unchanged. All documents containing highlighted characters will now reflect the new setup information. Thus you can highlight and adjust several documents at once.

Certain screens affect all documents, regardless of what you have highlighted: Machine Setup, Main Printer Setup, Alternate Printer, Internal Modem Setup, and Initial Document Setup.

Storage of Setup Information

The Cat records new [SETUP] information in its battery-powered memory as soon as you release [USE FRONT]. Also, the contents of the battery-powered memory are recorded on disk each time you use [DISK]. The [SETUP] options you select for particular documents are recorded on disk and will be the same the next time you play back the disk. Overall information about machine and document setup, such as whether you prefer a black-on-white or white-on-black screen, are maintained in the Cat's battery-powered memory. They stay the same even when you turn the Cat off for moving or storage.

If you wish, you can use [SETUP] to override the battery-powered memory and transfer setup or personal spelling dictionary information from the disk to the Cat. This adjustment is made in the sixth line of the **Machine Setup** screen. Set **Load setup from disk** to **Yes**.

The battery-powered memory tallies checksums in order to determine whether or not the memory content is up-to-date. Checksums are values the Cat uses to see whether information has been changed or damaged. Though it is a rare occurrence, a dead battery could cause loss of memory. (A sign that looks like a battery appears on the ruler when the battery is dead.) Playback does not affect the battery-powered memory unless the checksums indicate that the memory has been damaged. In this case, the information recorded on disk is transferred into the battery-powered memory. If the battery-powered memory appears to have been damaged and no disk is in the drive, the initial [SETUP] information is used.

The **Machine Setup** screen of [SETUP] allows you to force the transfer of [SETUP] or personal spelling dictionary information from the disk to the battery-powered memory.

UNDO and the SETUP Command

You cannot undo [SETUP]. You can, however, restore the initial setup values (those that were in your Cat when it came from the factory) by pressing [USE FRONT]-[SHIFT]-[SETUP].

Screens 1 and 6: Document Setup and Initial Document Setup

Document Setup is the first screen that appears when you use [SETUP]. The sixth screen, **Initial Document Setup**, has exactly the same list of items, but it applies to all documents generally, rather than only those you highlight. For example, if you change the **First page number that prints** to **5** in **Document Setup**, only the documents that were highlighted when you made the change will be affected. However, if you made the same change on the **Initial Document Setup** screen, all documents in the current text or any other text would have 5 as their first printing page number, unless they were specifically set otherwise with [SETUP]. The rules you lay down on the **Initial Document Setup** screen for document format will be stored in the battery-powered memory, and will stay in effect even after you've turned the Cat off and on.

The meaning of each line is explained below. The right-hand column shows initial values. *Initial value* means values that the Cat automatically assigns to the feature when the machine is first turned on.

Document Setup Screen

```
Document Setup
   First page number                    1
   First page number that prints        2
   Page length                          Letter (11")
   Top margin                           1 inch
   Bottom margin                        1 inch
```

First page number This is the number of the first page in the document. It is normally 1, but if you have a large document that spreads out over several disks you might have reason to set it higher. Page numbers, both positive and negative, are virtually unlimited.

First page number that prints This is the first page number that will appear in the printout. If it is "2," for example, then page 1 will be unnumbered, and page numbers 2 and higher will be printed at the bottom center of the page. If you want unumbered pages, set this number higher than the number of pages in your document.

Page length Letter (11"), Legal (14"), A4 (297 mm), B5 (257 mm), Half-letter (5. 5"), Statement (8. 5"), A5 (215 mm), B6 (182 mm)

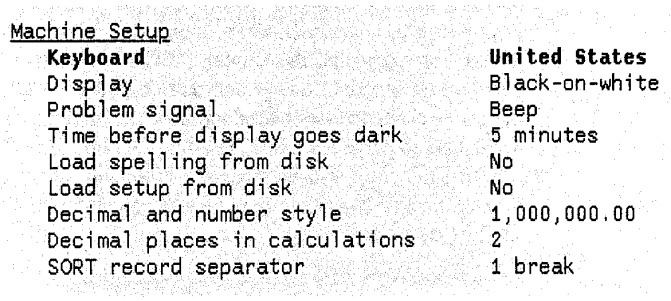
Top margin 1/2-inch, 3/4-inch, 1-inch, 1-1/4 inch, 1-1/2 inch, 1-3/4 inch, 2-inch

Bottom margin 1/2-inch, 3/4-inch, 1-inch, 1-1/4 inch, 1-1/2 inch, 1-3/4 inch, 2-inch

Screen 2: Machine Setup

This screen allows you to select different keyboards, change the screen to white-on-black, and adjust number punctuation and other features of the Cat's operation.

Machine Setup Screen



Keyboard You may select any of the 16 keyboards listed below. Though the Cat can display foreign characters on the screen, you may not be able to print the displayed characters unless you have the appropriate country-specific printer element. Charts for the following keyboards are provided in *Appendix A*, pages 114-119:

1. United States
2. Canada
3. United Kingdom
4. Norway
5. France
6. Denmark
7. Sweden
8. Japan
9. West Germany
10. Netherlands
11. Spain
12. Italy
13. Latin America
14. Switzerland
15. ASCII
16. Dvorak

The Dvorak keyboard has the same letters as the United States keyboard, but the layout of the keys is designed to allow faster touch-typing than is possible with the standard QWERTY keyboard.

Display This line allows you to select a white or a black background for your characters.

Problem signal How the Cat will tell you something is wrong. You may choose **Beep**, **Flash**, or **Beep** and **Flash**. When you select **Beep** the Cat makes a beeping sound when it encounters a problem or a situation where information might be lost. When you select **Flash** the ruler flashes briefly. **Beep and Flash** causes both to occur.

Time before display goes dark This means the length of time the Cat will wait before it automatically tries to record your text and darken the screen. The timer begins to run the moment you cease to use the keyboard. You may select 1, 3, 5, 15, 30, 60 minutes, or never.

Load spelling from disk Allows you to substitute the personal spelling dictionary recorded on disk for whatever is stored in the battery-powered memory. If you select this, the option reads, **Yes (once)**. "This means that the personal spelling dictionary recorded on disk will replace the one in the battery-powered memory the next time you use [DISK] to playback a disk, but only that one time. The [SETUP] selection will then revert to **No**, and later playbacks of that disk or other disks won't change the personal spelling dictionary.

Load setup from disk Allows you to substitute the setup information recorded on disk for whatever is stored in the battery-powered memory. This is a **Yes (once)** selection which works in the same manner as **Load spelling from disk**.

Decimal and number style The sample number indicates how your calculation results will be punctuated. You have these choices:

1,000,000.00
, as separator and . as decimal point

1.000.000,00
. as separator and , as decimal point

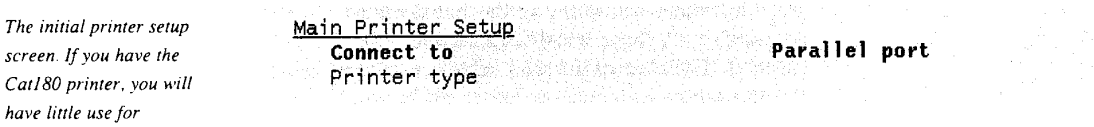
1'000'000.00
' as separator and . as decimal point

Decimal places in calculations Indicates the number of digits to the right of the decimal point that will be displayed in your calculation results. From 0 to 10 may be selected.

SORT record separator Selects the number of break characters (1, 2, or 3) that define a record. Generally speaking, use 1 break for sorting tables, 2 breaks for sorting addresses.

Screen 3: Main Printer Setup

The initial printer setup screen. If you have the Cat180 printer, you will have little use for [SETUP].



This screen allows you to select different types of printers. First use the LEAP keys to select the type of connection you have (parallel or serial port), then press [SPACE BAR] to advance to the **Printer type** line. When you get to this line, all the setup information for the selected printer appears. By pressing the LEAP keys you can select a printer. If you have a Cat180 connected to the Cat's parallel port and it is set up satisfactorily, you don't have to do anything more; just release [USE FRONT] to get out of [SETUP] and you are ready to print.

Pressing the LEAP key gets you to the setup lists on other printers. Find your printer in the table below and turn to the appropriate page number for more information.

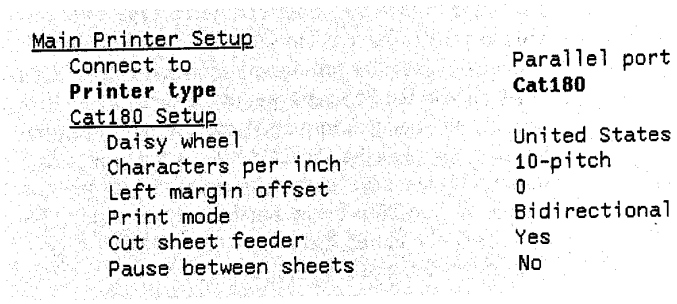
Your printer	Where discussed
Canon Cat180	3a, page 100
VP3103II connected to parallel port	3b, page 101
VP3103II connected to serial port	3c, page 102
AP300-II Series	3d, page 103
AP400-II Series	3d, page 103
New AP Series	3d, page 103
AP100 Series	3e, page 105
Bubble Jet Printer	3f, page 106
Common Printer	3g, page 107
No Printer	*See paragraph below*

The **No Printer** option allows you to tell the Cat that no printer has been connected. When this option is selected the Cat will beep whenever [PRINT] is used. An [EXPLAIN] message tells you that no printer is available. This prevents misusing [PRINT], thinking you are printing when you are not.

3a. Canon Cat180 Printer Setup

The illustration below shows the initial values for the Canon Cat180, those which appear when you first use [SETUP]. Each line of the setup table is explained below the illustration.

Cat180 Printer Setup Screen



Daisy wheel Allows you to select the appropriate daisy wheel for your keyboard. For example, if you have selected the Swedish keyboard in the **Machine Setup** screen, you will need a Swedish daisy wheel to print the characters you type.

Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want your printing centered on the paper, leave this selection alone. It is automatically determined by the **Characters per inch** selection. If you want to move your printing to the right, select the number of character positions you want offset by pressing the LEAP keys.

Print mode Most printers print bidirectionally, that is, forward and back as they cross the sheet of paper. If you are typing tables with border lines or between-column lines using "|" characters, bidirectional printing may cause a slight misalignment in the vertical columns. This can be reduced or eliminated by switching to the slower unidirectional printing.

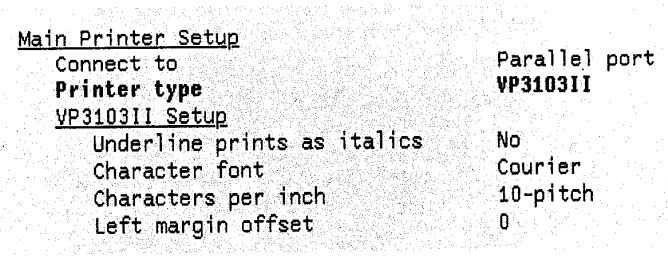
Cut sheet feeder If you have a cut sheet feeder, select **Yes**; if not, select **No**.

Pause between sheets If you want a pause between sheets (to insert new sheets by hand, for example) select **Yes**. If you have a cut sheet feeder select **No**, for no pause between sheets.

3b. VP3103II Printer Setup

The illustration below shows the initial values for the VP3103II, those that appear when you first use [SETUP]. These are correct for a VP3103II connected to the Cat's parallel port. If the selections are what you want, just release [USE FRONT] to get out of [SETUP] and you are ready to print. Each line of the setup table is explained below.

VP3103II Printer, Parallel Port Setup Screen



Underline prints as italics Select **Yes** if you want underlined characters on the screen to print as italics on paper.

Character font The Canon Laser Beam Printer VP3103II can print in Courier, Gothic, Pica, and Elite fonts. Select the one you want with the LEAP keys.

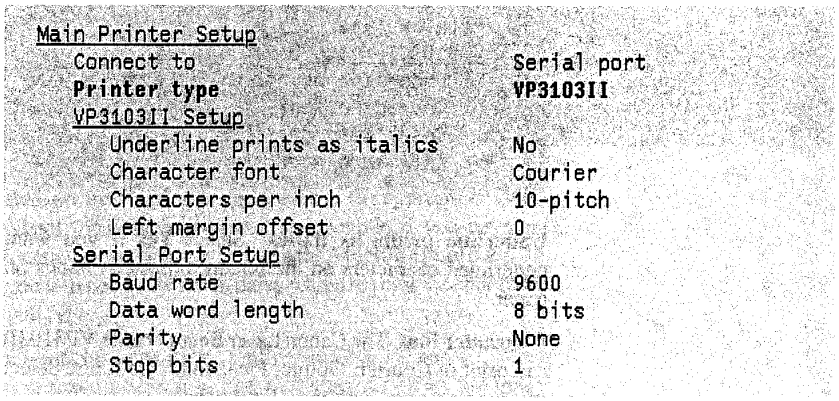
Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want your printing centered on the paper, leave this selection alone. It is automatically determined by the **Characters per inch** selection. If you want to move your printing to the right, select the number of character positions you want offset by pressing the LEAP keys.

3c. VP3103II Serial Port Setup

If your VP3103II is connected to the serial port, use the LEAP keys to select **Serial port** on the **Connected to** line. Then press [SPACE BAR] to move to the **Printer type** line and press the LEAP keys until you get to the VP3103II. The setup screen will look like the illustration below. The VP3103II's table of choices is the same whether you connect the printer to the parallel or serial port. See *3b. VP3103II Printer Setup*, page 101, for an explanation of each line.

VP3103II Printer, Serial Port Setup Screen



The **Serial Port Setup** choices are as follows:

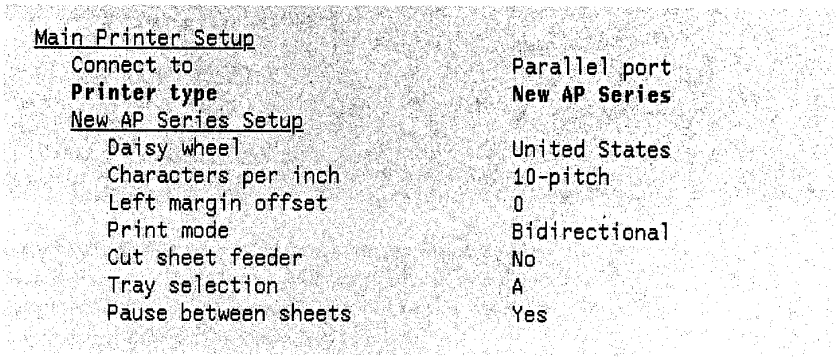
Baud rate The rate at which the Cat will send characters to the printer. Rates other than 9600 baud (110, 300, 600, 1200, 2400, 4800, 19200, and 38400) are available, but seldom used.

Data word length, Parity, Stop bits These numbers provide some details the Cat uses in talking to the VP3103II. They can almost always be left at the initial values shown in the illustration above. If you want to change them, use the ones recommended in your VP3103II manual, or talk to your Canon representative.

3d. AP300 Series, AP400 Series, and New AP Series Printer Setup

The illustration below shows the initial values for all of the printers above. These will be correct when your printer is connected to the Cat's parallel port. If the selections are what you want, don't do anything more; just release [USE FRONT] to get out of [SETUP] and you are ready to print.

If your printer is connected to the serial port, use the LEAP keys to select **Serial port** for the **Connected to** option. The **Serial Port Setup** choices are the same as those for the VP3103II. See *3c. VP3103II Serial Port Setup*, page 102.



Printer type New AP Series is shown, but you may also select AP300 Series or AP400 Series.

Daisy wheel Allows you to select the appropriate daisy wheel for your keyboard. For example, if you have selected the Swedish keyboard, you will need a Swedish daisy wheel to print the characters you type.

Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want printing centered on the paper leave this selection as it is, determined by the **Characters per inch** selection. To move your printing to the right, use the LEAP keys to select the number of character positions you want offset from the left margin.

Print mode Most printers print bidirectionally, that is, forward and back as they cross the sheet of paper. If you are typing tables with border lines or between-column lines using "|" characters, bidirectional printing may cause a slight misalignment in the vertical columns. This can be reduced or eliminated by switching to the slower unidirectional printing.

Cut sheet feeder If you have a cut sheet feeder, select **Yes**; if not, select **No**.

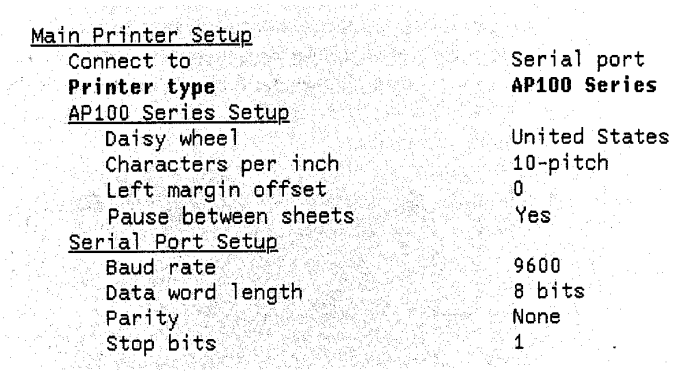
Tray selection Selects the A or B paper trays.

Pause between sheets If you want a pause between sheets (to insert new sheets by hand, for example) select **Yes**. If you have a cut sheet feeder select **No**, for no pause between sheets.

3e. AP100 Series Printer Setup

The illustration below shows the initial values for the AP100 printer, those which appear when you first use [SETUP]. These will be correct for your AP100 connected to the Cat's serial port. If the selections are what you want, don't do anything more; just release [USE FRONT] to get out of [SETUP] and you are ready to print.

AP100 Series Printer Setup Screen



Daisy wheel Allows you to select the appropriate daisy wheel for your keyboard. For example, if you have selected the Swedish keyboard, you will need a Swedish daisy wheel to print the characters you type.

Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want your printing centered on the paper, leave this selection alone. It is automatically determined by the **Characters per inch** selection. If you want to move your printing to the right, select the number of character positions you want offset by pressing the LEAP keys.

Pause between sheets If you want a pause between sheets (to insert new sheets by hand, for example) select **Yes**. For no pause select **No**.

Baud rate The rate at which the Cat will send characters to the printer. Rates other than 9600 baud (110, 300, 600, 1200, 2400, 4800, 19200, and 38400) are available, but seldom used.

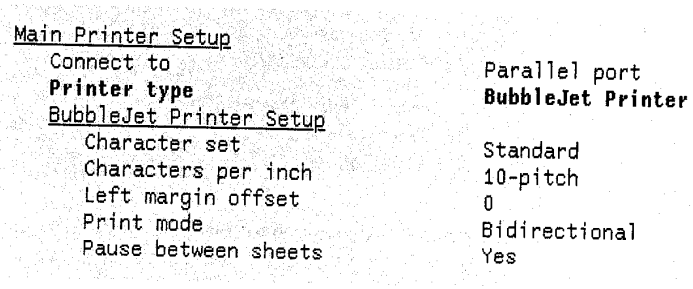
Data word length, Parity, Stop bits These numbers provide some details the Cat uses in talking to the printer. They can almost always be left at the initial values shown in the illustration above. If you want to change them, use the ones recommended in your printer manual, or talk to your Canon representative.

3f. Bubble Jet Printer Setup

The illustration below shows the initial values for the Bubble Jet printer, those which appear when you first use [SETUP]. These will be correct for your Bubble Jet printer connected to the Cat's parallel port. If the selections are what you want don't do anything more; just release [USE FRONT] to get out of [SETUP] and you are ready to print.

If your printer is connected to the serial port, use the LEAP keys to select Serial port for the **Connected to** option. The **Serial Port Setup** choices are the same as those for the VP3103II. See *3c. VP3103II Serial Port Setup,* page 102, for more information.

Bubble Jet Printer, Parallel Port Setup Screen



Character set Allows selection of the **Standard** or **Secondset** character set. There is no perceptible difference between these two character sets.

Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want your printing centered on the paper, leave this selection alone. It is automatically determined by the **Characters per inch** selection. If you want to move your printing to the right, select the number of character positions you want offset by pressing the LEAP keys.

Print mode Most printers print bidirectionally, that is, forward and back as they cross the sheet of paper. If you are typing tables with border lines or between-column lines using "I" characters, bidirectional printing may cause a slight misalignment in the vertical columns. This can be reduced or eliminated by switching to the slower unidirectional printing.

Pause between sheets If you want a pause between sheets (to insert new sheets by hand, for example) select **Yes**. If you have continuous fan-folded paper, select **No**, for no pause between sheets.

3g. Common Printer Setup

The illustration below shows the initial values for common printers of other makes than Canon. These will be correct if your printer is connected to the Cat parallel port. If the selections are what you want don't do anything more; just release [USE FRONT] to get out of [SETUP] and you are ready to print.

If your printer is connected to the serial port, use the LEAP keys to select **Serial port** for the **Connected to** option. The **Serial Port Setup** choices are the same as those for the VP3103II. See *3c. VP3103II Serial Port Setup*, page 102, for more information.

Common Printer, Parallel Port Setup Screen

```
Main Printer Setup
   Connect to                          Parallel port
   Printer type                        Common Printer
   Common Printer Setup
      Underline prints as italics      No
      Characters per inch              10-pitch
      Left margin offset               0
      Print mode                       Bidirectional
      Pause between sheets             No
```

Underline prints as italics Select **Yes** if you want underlined characters on the screen to print as italics on paper.

Characters per inch Settings are 10, 12, and 15. When you make a selection, the **Left margin offset** automatically adjusts so that printing will be centered between the left and right edges of the paper.

Left margin offset If you want your printing centered on the paper, leave this selection alone. It is automatically determined by the **Characters per inch** selection. If you want to move your printing to the right, select the number of character positions you want offset by pressing the LEAP keys.

Print mode Most printers print bidirectionally, that is, forward and back as they cross the sheet of paper. If you are typing tables with border lines or between-column lines using "I" characters, bidirectional printing may cause a slight misalignment in the vertical columns. This can be reduced or eliminated by switching to the slower unidirectional printing.

Pause between sheets If you want a pause between sheets (to insert new sheets by hand, for example) select **Yes**. If you have a cut sheet feeder select **No**, for no pause between sheets.

Screen 4: Serial Port Connection

If your main printer is connected to the Cat's parallel port, the Cat's serial port can be used for an alternate printer, an external modem, or a direct cable to a computer. If your main printer is connected to the Cat's serial port, the Cat's parallel port can be used for an alternate printer.

4a. Serial Port Connected to Alternate Printer

The initial value for the **Serial Port Connection** is **Alternate Printer**:

```
Serial Port Connection
   Connect to                        Alternate Printer
   Alternate Printer Setup
   Printer type                      VP3103II
   VP3103II Setup
      Underline prints as italics    No
      Character font                 Courier
      Characters per inch            10-pitch
      Left margin offset             0
   Serial Port Setup
      Baud rate                      9600
      Data word length               8 bits
      Parity                         None
      Stop bits                      1
```

If your alternate printer is a model other than the VP3103II, you can now select the appropriate printer model. There is no difference between setting up the alternate printer and setting up the main printer. For more information, find the relevant screen referring to your printer type in the *Main Printer* section, pages 99-107.

4b. Serial Port Connected to the SEND Command

By connecting the serial port to the SEND command, you can send and receive text through the Cat's serial port. This might be useful if you are using an external modem or communicating directly over a cable to a computer.

CAUTION:

By connecting the serial port to the SEND command, you disconnect the internal modem and disable [PHONE]. *When you connect the serial port to the alternate printer,* [PHONE] *will be restored. Also, if you connect an external modem to the Cat's serial port, you will need a null modem, a device or cable which interconnects the Cat and modem "talk" and "listen" signals correctly.*

The screen used to connect the Cat's serial port to the SEND command is illustrated below:

```
Serial Port Connection
   Connect to                    SEND Command
   SEND Command Setup
      Communications mode        Cat-to-Cat
      Answerback                 Yes
      Line terminator            CR
   Serial Port Setup
      Baud rate                  9600
      Data word length           8 bits
      Parity                     None
      Stop bits                  1
```

Connect to Select **SEND Command** if you want to connect an external modem or another computer to the serial port. Select **Alternate Printer** if you want to connect a serial printer to the serial port (see *Serial Port Connected to Alternate Printer*, page 108).

Communications mode Selects the way in which Cat signals are sent over the phone line. If you want to talk to another Cat, select **Cat-to-Cat**. If your Cat is called by another Cat, your Cat will automatically set itself up to communicate correctly. If you want to talk to a data service, select **Full-duplex** or **Half-duplex** depending on what the data service requires; your data service manual should tell you which is correct. If you're not sure, try **Half-duplex**. If each character appears doubled, switch to **Full-duplex**.

Answerback Select **Yes** and the Cat will send the phrase *Canon Cat modem* to the serial port when it receives a CONTROL-E character from the serial port. Select **No** and the Cat will ignore a CONTROL-E.

Line terminator This means the character sent at the end of every line the Cat transmits. You can select carriage return (**CR**), carriage return and line feed (**CR/LF**), or **None**. The proper choice depends on the computer the Cat is communicating with. For example, if the Cat is communicating with an Apple Macintosh, **None** should be selected. Most data services require **CR**.

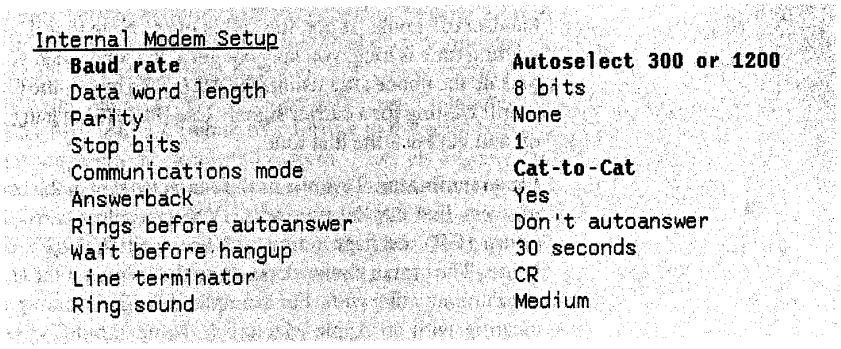
Baud rate This means the rate at which the Cat will send characters to the serial port. If you are using an external modem, select a rate that it can use. Baud rates of 300 and 1200 will almost always work; high-speed modems can use 2400, 4800, and even 9600 baud. Be sure to set your modem or computer communications switches or program to the same baud rate you select for the Cat.

Data word length, Parity, Stop bits: Each of these must be set to the correct value for the data service or computer communications program you are using. Consult your data service manual or computer communications program manual for the correct values.

Screen 5: Internal Modem Setup

This screen allows you to set up the Cat's internal modem for communicating with data services and modem-equipped computers. This screen will not appear if you have connected the serial port to the SEND Command. Selecting something other than **Alternate Printer** for the serial port connection disconnects the internal modem, disables [PHONE], and makes this screen irrelevant.

Internal Modem Setup screen



Baud rate The rate at which characters are transmitted over the modem. **Autoselect 300 or 1200** means that the Cat will use the same rate as the modem it's talking to. This is almost always the choice you should select, since it allows the Cat to send characters at the fastest possible rate. The other choice, **300**, forces the Cat to work at the lower rate of 300 baud. This may be useful if a noisy telephone connection produces errors at 1200 baud.

Data word length, Parity, Stop bits Each of these must be set to the correct value for the data service or modem you are communicating with. Consult your data service manual or ask your communications partner what values are recommended in the modem manual. The initial values shown in the illustration above will work in most cases.

Communications mode Selects the way in which Cat signals are sent over the phone line. If you want to talk to another Cat, select **Cat-to-Cat**. If your Cat is called by another Cat, your Cat will automatically set itself up to communicate correctly. If you want to talk to a data service, select **Full-duplex** or **Half-duplex** depending on what the data service requires; your data service manual should tell you which is correct. If you're not sure, try **Half-duplex**. If each character appears doubled, switch to **Full-duplex**.

If you select **Cat-to-Cat**, the Cat's internal modem is automatically set to the correct values. You need not (and should not) change any other values on the **Internal Modem Setup** screen.

Answerback If you select **Yes**, the Cat sends back the phrase *Canon Cat modem* whenever it receives a CONTROL-E character. If you select **No**, the Cat ignores a CONTROL-E.

Rings before autoanswer Allows you to select the number of times the phone will ring before the Cat answers it automatically — 1, 3, 5, or 7 rings. The initial value, **Don't autoanswer**, means the Cat doesn't do anything when the phone rings.

Wait before hangup This means the length of time the Cat will wait for a carrier signal after you dial a number with [PHONE]. You can select 2, 30, 60, or 180 seconds. When the timer runs out, the Cat hangs up its internal modem line. The phone will go on ringing if you have the handset off-hook. If not, the call is over. Note that if the waiting time is long, you may not get a dial tone when you pick up the phone after using [PHONE]. This means the Cat is still waiting for a carrier signal. Use [PHONE] to hang it up and get back the dial tone.

Line terminator This means the character sent at the end of every line the Cat transmits. You can select carriage return (**CR**), carriage return and line feed (**CR/LF**), or **None**. The proper choice depends on the computer the Cat is communicating with. For example, if the Cat is communicating with an Apple Macintosh, **None** should be selected. Most data services require **CR**.

Ring sound When your telephone is hooked up to your Cat, both the telephone and the Cat will ring when a call comes in. The Cat allows you to select a slow, medium, or fast ring sound. If you wish, you can disconnect the bell in your phone in favor of the more musical Cat.

Stopping an Operation Already in Progress

Some actions require time to complete. Sorting a large amount of text, for example, might take a few minutes. A recalc may take a long time too. You can interrupt most actions while they are in progress — re-enacting a [LEARN], printing (while transferring to the print buffer), sorting, spell checking, and so forth — by pressing any key on the keyboard. [SHIFT] is best since it is a nontyping key. Typing keys will add a character to the text if used to stop. For example, pressing the "m" key to stop will put an "m" in the text, and it will prevent restarting the stopped operation with [UNDO].

[DISK] cannot be stopped.

Stopping and Restarting PRINT

If you are printing something, and the **PRINT** sign is on in the ruler, press [SHIFT]. The highlight will collapse and no more text will be sent to the printer. If you use [UNDO] after stopping, printing will be restarted from where you left off. Pressing any typing key will also stop printing, but it will insert a character in the text and make it impossible for you to use [UNDO] to restart.

If the **PRINT** sign is off and the printer is still running, you can stop printing by using [PRINT] without extending the highlight. You can restart printing from where you left off by pressing [UNDO]. You cannot restart printing after pressing any other key.

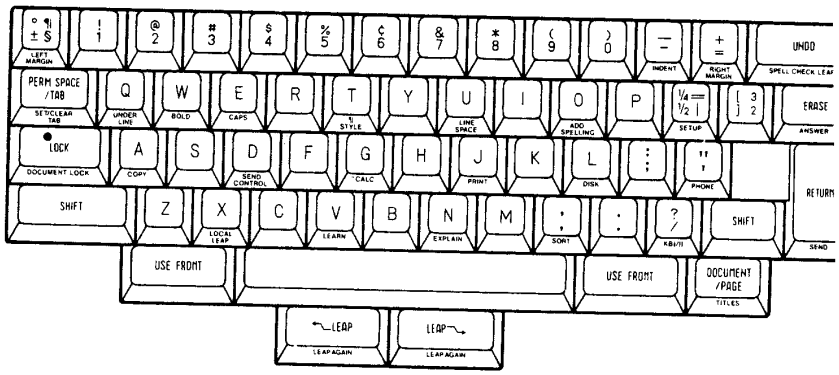
UNDO and Stopping

Where possible, [UNDO] will cause whatever you stopped to resume or restart.

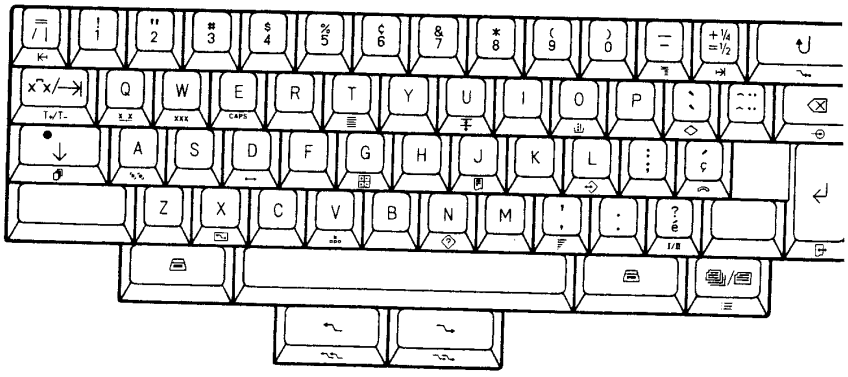
Appendix A: Keyboard Charts

The Cat has 16 different keyboard layouts. The SETUP command can be used to specify which keyboard layout is active, so that you can select the correct keyboard to type any character that can be typed on any version of the Cat.

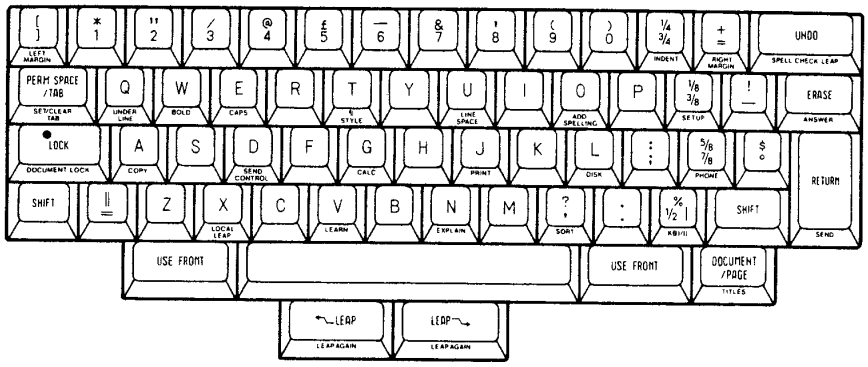
1. United States



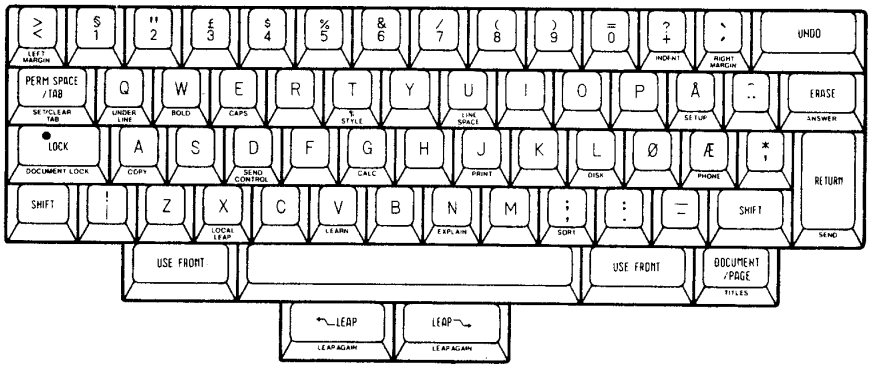
2. Canada



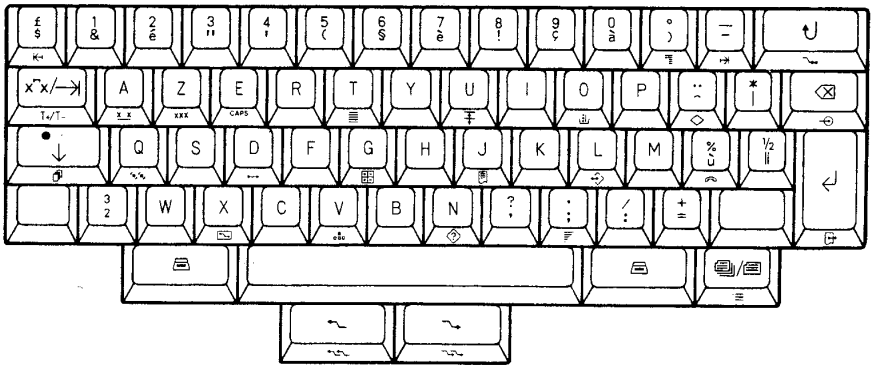
3. United Kingdom



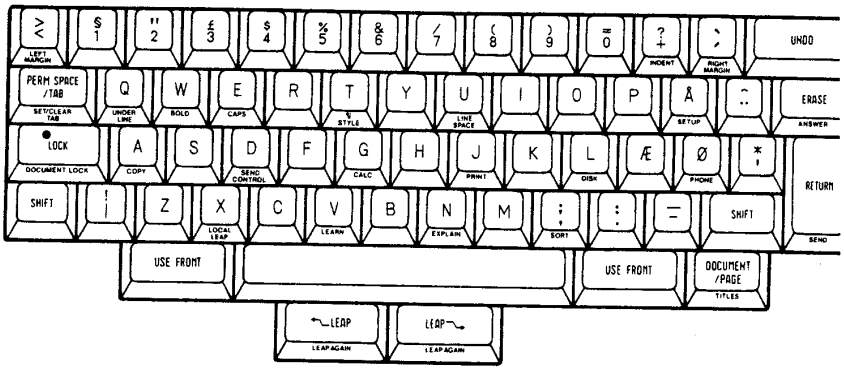
4. Norway



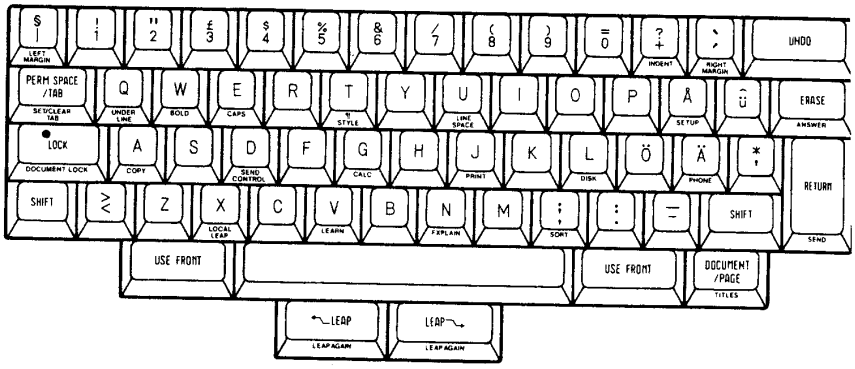
5. France



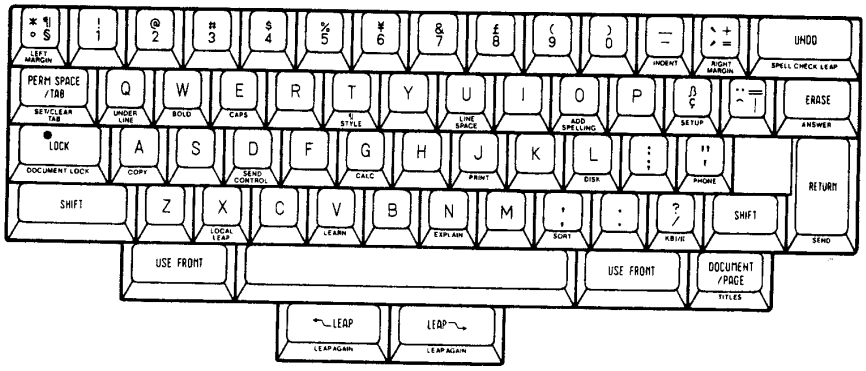
6. Denmark



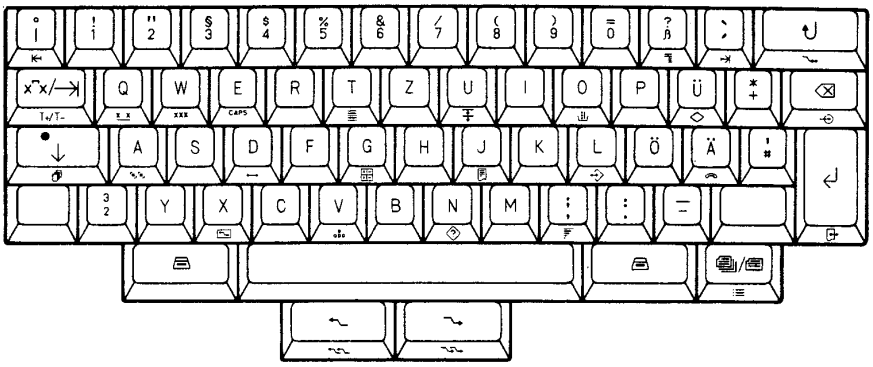
7. Sweden



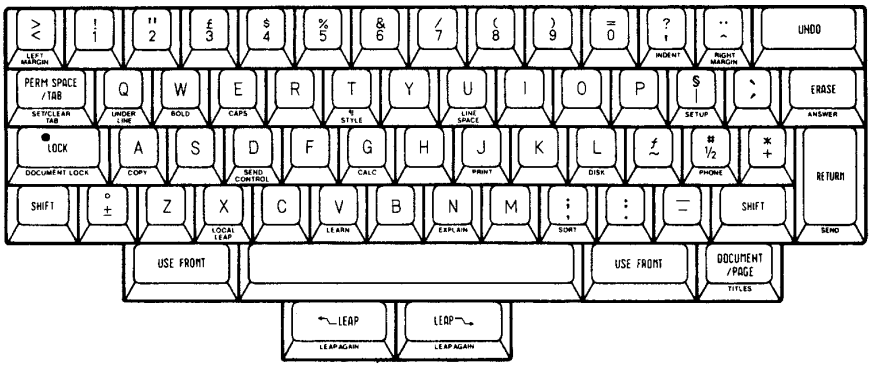
8. Japan



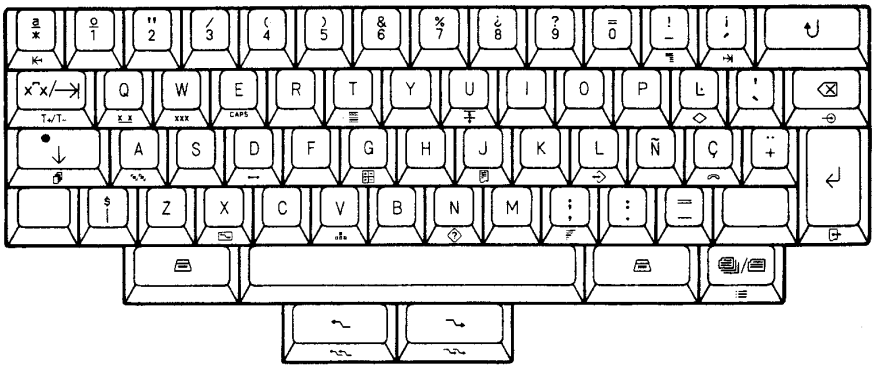
9. West Germany



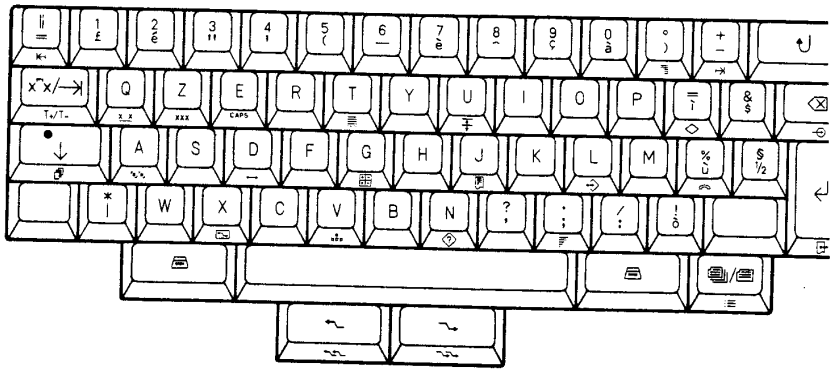
10. Netherlands



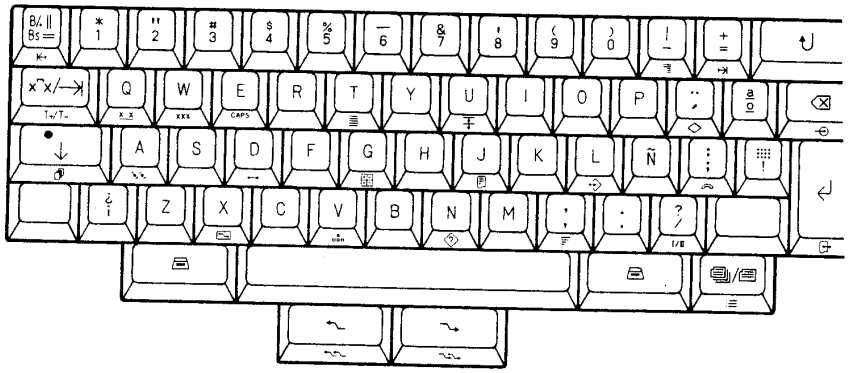
11. Spain



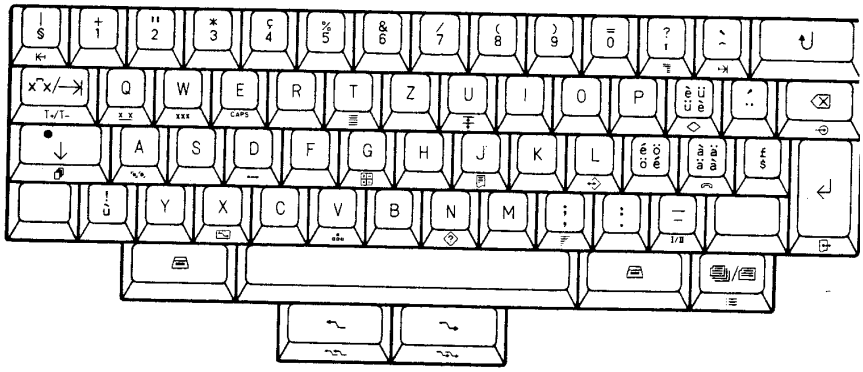
12. Italy



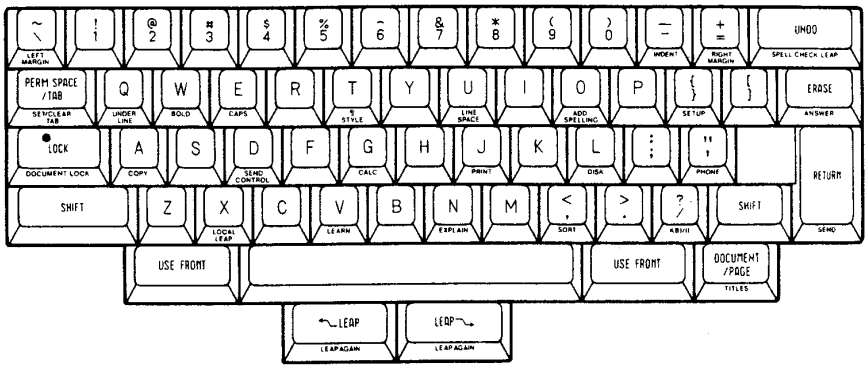
13. Latin Amreica



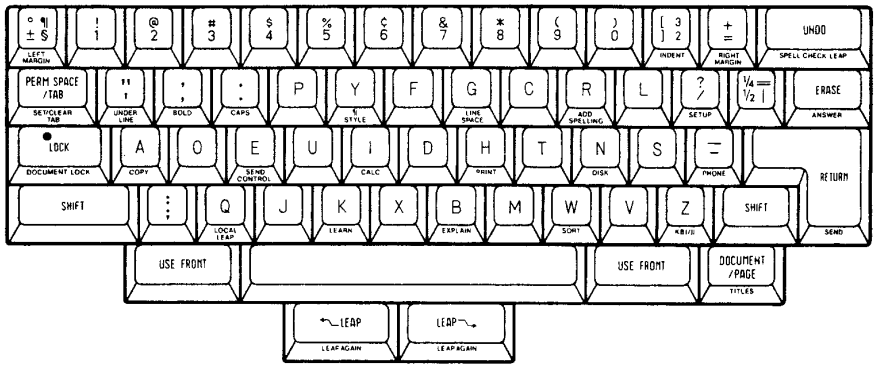
14. Switzerland



15. ASCII



16. Dvorak



Appendix B: Specifications

Command names appear in brackets to represent keys; [CAPS] means the CAPS command, for example.

1. System configuration

Standard Configuration	display screen + keyboard + micro-floppy
Memory	256K RAM, 256K ROM
Floppy Disk	3. 5" single-sided, double-density,double-track

2. Display

Screen Size and Type	9" Cathode Ray Tube
Color	Black-on-white or White-on-black
Format and Capacity	24 lines by 80 characters (344 by 672 dot)
Underline Display	Standard
Centering Display	Standard
Boldface Display	Standard
Cursor Position	[LEAP], creep, scroll up/down

3. Keyboard

Number of Keys	59 (United States) to 61
Entry System	N-key rollover
Keytop	Concave, step sculpture

4. General features

Line spacing	[LINE SPACE] 1, 1-1/2, 2

5. Functions

Cursor Movement

Leap forward	[LEAP->]
Leap backward	[<-LEAP]
Leap again	[LEAP AGAIN]
Local/Global leap	[LOCAL LEAP]
Leap-Erase	
Creep forward	[LEAP->]
Creep backward	[<-LEAP]
Screen scroll	[SHIFT]-[LEAP]

Typing and Erasing

Automatic page break	
Keyboard I and II	[KB I/II]
Shift lock	[LOCK]
Erase forward	
Erase backward	
Erase extended highlight *block erase*	

Disk Operations

Automatic record/ playback/backup	
Create backup	[SHIFT]-[DISK]
Erase disk	[SHIFT]-[DISK]-[ERASE]
Block copy *copy up*	
Transfer between versions	
Automatic spelling dictionary/setup restore	
Automatic error checking	
Periodic automatic text recording	

Editing

Automatic pagination	
Automatic reformatting	
Block move	
Block copy	[COPY]
Block erase	
Locked document	[DOCUMENT LOCK]
Indent	[INDENT]
Margins	[LEFT MARGIN], [RIGHT MARGIN]
Paragraph style	[PARAGRAPH STYLE]
Centered	
Justified	
Left Flush	
Right Flush	
Tabs	
Regular, decimal tab	[SET/CLEAR TAB]
Initial tab reset	[SHIFT]-[SET/CLEAR TAB]
Sorting	
Ascending	[SORT]
Descending	[SHIFT]-[SORT]
Alphabetic	
Numeric	

Spell Check

Check spelling	[SPELL CHECK LEAP]
Add word to dictionary	[ADD SPELLING]
Delete spelling	[SHIFT]-[ADD SPELLING]

Calculation [CALC]

Addition, subtraction, multiplication, division, percent, square root, absolute value, integer part, less than, greater than, equal, logical NOT, logical AND, logical OR, variables, column summation, average, sumdisplay, relative addressing

Modem Communication

Dial *tone or pulse*	
Hang up	
Send text	[SEND]
Send control character	[SEND CONTROL]
Receive	
Automatic speed select	
Autoanswer	
Unattended receive	

Other Functions

Text directory display	[TITLES]
Text titles	
Reverse previous operation	[UNDO]
Macro capability	[LEARN]
Error messages	[EXPLAIN]
Command messages	[EXPLAIN]
Page format setup	[SETUP]
Peripherals setup	[SETUP]
'Capitalization	[CAPS]
Boldface	[BOLD]
Underlining	[UNDERLINE]

6. Communications

Modem	built-in, 300/1200 baud
Serial interface	RS-232C
Parallel interface	Centronics
Auto dial	Standard
Tone, pulse dialing	

7. Printers

Canon Daisy Wheel Printer Canon Cat180

Canon Laser Beam Printer VP3103II

Canon AP Series Typewriters

Canon Bubble Jet Printer

. . . . *and future Canon products*

8. Power supply

AC120V, 60Hz, 0. 8A

9. Operating environment

Temperature: 50°F to 95°F (10°C to 35°C)
Humidity: 20% to 80%

11. Dimensions

Width x height x depth in millimeters: 342 x 264x 510
Same dimension in inches:13. 5 x 10. 4 x 20. 1

12. Weight

20. 3 lbs (9. 2 kg)

Appendix C: Information Safeguards

To guard against loss of information, carefully read the following warnings:

— You can recover erased material after erasing, but only if you use [UNDO] immediately. Think twice before you press [ERASE].

— If you turn off the Cat's power or a power failure occurs, everything not recorded on disk or printed on paper is lost forever. If this occurs during disk recording, everything not recorded on a separate backup disk or printed on paper is lost forever.

— Use [DISK] to update recorded text as often as possible while you work. This ensures preservation of text in case of power failure.

— Never remove a disk from the drive while the in-use light is on or while **DISK** is on the screen. The disk may be made unreadable.

— Do not open the disk's retractable cover or touch the magnetic disk under it. Do not touch or clean the disk with water or solvents such as alcohol, nail polish remover, or paint thinner. Keep disks clean and away from magnets and motors.

— Erasing a disk irrevocably wipes out the text on the disk. Be sure you don't mind losing the text before erasing a disk. To preserve your text, use [DISK] or [SHIFT]-[DISK] to record it before turning the Cat off.

— Playing back a disk without recording the text on-screen first loses the on-screen text forever. While the Cat makes this nearly impossible to do by accident, make sure you don't mind losing it if you force the Cat to do this.

— The Cat cannot tell that a disk created on certain non-Canon products has information on it. If you use such a disk in the drive, the Cat may treat it as blank and record your text on it, wiping out all the information.

— Making backups (duplicate disks) and paper printouts is strongly recommended for important texts.

— To guard against human error, it is advisable to carefully check any calculations and spreadsheets you create. Verify that results are accurate, reasonable, and have been fully updated to reflect changes you have made. Many professional accountants recommend that you create an audit trail when using advanced automated systems such as the Cat. On the Cat this is most easily done by unpocketing all calculations and making a printout (and a backup disk) that shows how your results were calculated.

Appendix D:
FCC Regulations

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, it may cause interference to radio and television reception. It has been typetested 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 the 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 to radio or television reception, 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 Canon Cat with respect to the receiver.

— Move the Canon Cat away from the receiver.

— Plug the Canon Cat into a different outlet so that the Canon Cat and the 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.

Use of shielded cable is required to comply with Class "B" limits in Subpart J of Part 15 of FCC Rules.

WARNING!

This equipment has been certified to comply with the limits for a class B computing device, pursuant to 15 of FCC rules. Only peripherals (computer input/output devices, terminals, printers etc.) certified to comply with the class B limits be atatched to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Glossary

abs

A CALC command operator that generates the absolute value of the number. Do not use *abs* as a variable name.

ADD SPELLING

A command used to add or delete words in your personal spelling dictionary.

ASCII

The standard code used by computers to communicate characters and symbols.

autoanswer

A feature that allows the Cat to automatically answer the phone after 1, 3, 5, or 7 rings. Select on the **Machine Setup** screen of [SETUP].

autoextend

See *automatic highlighting*.

autohighlight

See *automatic highlighting*.

automatic answer

See *autoanswer*.

automatic highlighting

Certain commands — UNDERLINE, BOLD, CAPS, COPY, SEND — allow you to skip the step of extending the highlight before using the command. If you use the command immediately after leaping or after typing new text, the highlight will automatically extend as if both LEAP keys had been pressed, and the command will be carried out. Creeping after leaping or typing will alter the boundary of the highlight.

automatic page break

Marks the point where the text crosses the physical boundaries of a paper page; represented by a horizontal dotted line the full width of the screen. An automatic page break is not a character, so you cannot erase it or move it.

autorepeat

The ability of a key to act as if you were tapping it rapidly and repeatedly. Holding a key down for more than half a second makes it autorepeat. Creeping does not autorepeat.

average

A CALC command operator that generates the average of the column of numbers above it. Do not use *average* as a variable name.

avg

Alternate name for *average*. Do not use *avg* as a variable name.

backup

n. An identical copy of a given text, indistinguishable from the original as far as the Cat is concerned. Created on a blank disk with the [SHIFT-DISK] command. Use [DISK] to update backup disks.
v. The act of making a backup.

backup disk

The disk on which you record a backup copy of a given text. Backup disks are interchangeable as far as the Cat is concerned.

backward

When the text is considered in normal reading order — left-to-right and down — *backward* means an earlier position in the text than the cursor or other point of reference.

backward erase

Erasing in a backward direction, to the left of the cursor. Resembles backspacing on a typewriter. The cursor must be wide to backward erase.

battery-powered memory

The storage area where the Cat saves information about the SETUP command and your personal spelling dictionary when the power is off.

baud rate

A measure of the speed of telecommunications. Divide by ten to get roughly the number of characters per second. Thus 300 baud is approximately 30 characters per second.

beep

A warning sound the Cat makes when it cannot do what you just asked it to do. Use [EXPLAIN] to find the problem and the solution.

blank disk

A disk with nothing on it. May be new or may have been erased using [SHIFT]-[DISK]-[ERASE].

blink rate

The rate at which the cursor blinks. When the text has just been recorded on the disk, or just played back from the disk, the blink rate is fast — three times per second. The blink rate slows noticeably when changes have been made but the text has not been recorded. A fast-blinking cursor is called a *happy cursor*.

blinker

A blinking vertical line on the ruler that shows the horizon tal location of the cursor.

blinking

Alternately appearing and disappearing.

block erase

Erasing two or more contiguous characters all at once by highlighting them and pressing [ERASE].

break, in communications

In order to communicate with some computers you must be able to put the modem into a special condition called *break*. To send a break press [USE FRONT]-[SEND CONTROL]-[SPACE BAR].

break character

A return, page, or document character. An automatic page break is not a break character.

bold

Darker, thicker type.

BOLD

An autohighlighting command that boldfaces the text covered in your last leap or typed since you last moved the cursor or used a command.

buffer

An internal memory area holding a copy of the highlighted text to be printed.

bulleted paragraph

A paragraph with a special character at the beginning of the first line, usually positioned to the left of the left margin.

bulletin board

See *computer bulletin board*.

byte

The amount of computer memory required to store one character.

CALC

A command that allows you to do calculations in the midst of text.

CAPS

An autohighlighting command that capitalizes the text covered in your last leap, or typed since you last moved the cursor or used a command. Also changes all-capital text to all-lowercase.

capital

An uppercase letter such as A, B, or C.

carrier signal

The whistling tone modems use to transmit information over the phone line. Rapid changes in the tone transmit characters.

Centered

Paragraph style in which lines are centered with respect to the left and right margins.

character

An odd or unusual person. Also a letter, number, or symbol generated by pressing the Cat's keys.

character set

A collection of characters. Each of the Cat's 16 keyboards has a particular set of characters for typing and printing. See *Appendix A: Keyboard Charts*, page 114.

checksum

A value which can be quickly tested to see if data that generated it has been changed or damaged.

circular leap

The capability to leap in one direction and circle the entire text in search of the leap pattern.

clean text

The on-screen text is safely recorded on disk. The cursor blinks at a faster rate when the text is clean (happy cursor).

column

Vertically aligned characters, words, or numbers. The character positions at which text may be vertically aligned.

command

An action initiated by the use of a command key. Most command names are printed in blue on the fronts of the keys. Command names are capitalized throughout your manuals.

communications mode

The manner in which the Cat is prepared to communicate over the phone. The Cat's communications mode is deter mined by the **Internal Modem** screen of [SETUP].

computer

A device that runs programs.

computer bulletin board

A computer system set up so that you can post messages to other people and see the messages they have left; an electronic kiosk.

confirm tone

A tone like a beep, but lower in pitch. Sounded when the Cat makes a telephone connection with another modem-equipped machine.

control characters

Special characters required by some data services. See *SEND CONTROL command.*

COPY

An autohighlighting command that duplicates the text you covered in your last leap or typed since the last time you moved the cursor or used a command.

copy up

Using [DISK] to move a copy of highlighted text from one disk to another.

creep

Moving the cursor a character at a time by tapping a LEAP key. Also used to adjust the boundary of a highlight. Does not autorepeat.

cursor

The blinking object on the screen showing where the next thing you type will appear. Sometimes used collectively to refer to the cursor and the highlight. *Patent Pending.*

cursor rebound

Behavior of the cursor when it cannot find a leap pattern. The cursor returns to the point it started from and stays there until you let go of the LEAP key and start a new leap.

data

Information.

data services

Large computers set up so that you can, usually for a fee, phone in and retrieve a wide variety of information, includ ing stock quotes, news, legal references, business directo ries, airplane schedules, and much more.

decimal tab

Type of tab stop used in typing columns of figures. If you type at a decimal tab, characters emerge to the left of the cursor while the cursor stands still. Normal forward-moving typing resumes when you type a tab, a return, or a decimal point (period in USA).

delete

To remove or erase.

digits

The numerals 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

dirty text

The on-screen text has been changed since it was last recorded on disk, and the changed version has not been recorded yet. A dirty text is indicated by the cursor's slow blink rate.

disk

What you record your text on. Inside the hard plastic covering is a delicate plastic plate coated with magnet izable particles (the same sort of stuff as recording tape). The Cat records text by making microscopic magnetic patterns on the surface of the disk.

DISK

A command that records text on disks (saves), plays back text from a disk (loads), transfers text between disks, makes backup disks, and protects text from accidental loss. Use [DISK] before you take a disk out of the drive, use [DISK] just after you put a disk in the drive and your text will be preserved. If you get a beep, use [EXPLAIN] to find out why. *Patent Pending*.

disk drive

The device that records and plays back information from a disk.

diskette

Another name for a disk.

display

The screen you stare at for hours on end. The Cat's display is a special sort of TV.

document

Anything that you consider an independent entity in your text. Usually requires page numbering to start over at "one." The Cat has no concept of *document* as a special category of text.

document character

Uppercase character on [PAGE]. Used to separate documents; restarts page numbering. Looks like a page character, but thicker.

DOCUMENT LOCK

A command that locks or unlocks highlighted documents, or the document the cursor is in if the highlight is not extended. You cannot change the text in a locked document.

double-space

To type or print on every other line.

drive

Disk drive.

editing

The process of changing your text.

empty text

There are no characters in the text other than the initial document characters that were there when you first turned on the Cat.

erase

To remove from the text, rub out, vaporize. You can undo the erasing by pressing [UNDO], but only if you use [UNDO] immediately after erasing.

ERASE

The key of destruction. When pressed, [ERASE] erases the character or characters in the highlight.

erase a disk

To make a disk blank. The command for erasing a disk is [USE FRONT]-[SHIFT]-[DISK]-[ERASE].

EXPLAIN

A command used after the Cat beeps to find the problem and the solution. Also used with command keys ([USE FRONT]-[EXPLAIN]-[COMMAND]) to find out how the command key works.

expression

A number or some combination of numbers, and operators or variables.

extended highlight

The highlight when it covers more than one character.

extended cursor

Same as extended highlight.

fanfold paper

A continuous strip of paper perforated at suitable intervals (every 11 inches, for example) and folded accordion-style so that it can be fed continuously into a printer.

field

The text between field separators; used for sorting text. After sorting, the text in the selected field will be in order. The Cat identifies fields by counting field separators.

field separator

Tabs, or if there are two or more breaks between records, tabs and single returns or breaks.

format

n. The design features (spatial layout, appearance) of text on the screen or printed on paper.
v. To arrange text on the page.

forward

When the text is considered in normal reading order — left-to-right and down — *forward* means a later position in the text than the cursor or other reference point.

forward erase

Erasing in a forward direction, to the right of the cursor. The cursor stands still while characters to its right march into the highlight, appearing to be vacuumed up. The cursor must be narrow to forward erase.

Fundamental Cursor Rule

How the cursor and highlight always behave. The cursor shows you where the next character you type will appear; the highlight shows you what will be erased if you press [ERASE].

global

Everywhere. Throughout the entire text.

global search and replace

To find every occurrence of something in the text, erase it, and replace it with something else.

global leap

The cursor can leap to any character anywhere in the text. Global leap is the initial state of the Cat. Opposed to local leap (see *LOCAL LEAP command*),

hanging indent

The first line of the paragraph extends to the left of the paragraph's left margin.

happy cursor

When the text on-screen and the text recorded on disk are the same, the cursor blinks at a faster rate, about 3 times per second. This is called the *happy cursor*.

highlight

n. The unblinking rectangular object that accompanies the cursor. Indicates which character or characters are highlighted. Anything in the highlight will be erased when [ERASE] is pressed.
v. To extend the highlight so as to mark a chunk of text. Some of the things you can do to a highlighted chunk of text include erasing, printing, calculating, moving, and sending.

highlighting

Extending the highlight part of the cursor, making the text white-on-black instead of the usual black-on-white. Used to mark a text you want to do something with.

INDENT

A command used to set the margin of the first lines of highlighted paragraphs, or, if the highlight is not extended, of the paragraph the cursor is in.

indent

Set in from the margin. In a *hanging indent*, the first line of the paragraph extends to the left of the left margin.

initial

The standard settings automatically given to features such as margins, indents, paragraph style, tab stops, when no adjustments have been made to the Cat. To reset the initial values, highlight the text, then, while holding [SHIFT], use the command. Initial values of certain features can be altered with [SETUP].

instance

An example of something.

int

A CALC command operator that generates the integer portion of the expression that follows it. Do not use *int* as a variable name.

Justified

A paragraph style where both margins are straight; re sembles a column of type in a newspaper.

key

One of the pushbuttons on the keyboard.

keyboard

A device with many pushbuttons, designed for tiring your fingers. You use it to control and communicate with your Cat.

KEYBOARD I/II or KB I/II

A command that switches you between the right and left sets of characters on keys with four characters.

label

A word, symbol, or abbreviation used to identify a number in a column. Examples might be *$5* or 200 *acres*.

land on

To occupy the same position as something else.

LEAP

The term that describes the Cat's nearly instantaneous cursor motion. The cursor quickly finds whatever you type while holding down a LEAP key, always landing on the first character you typed. If what you type cannot be found, the cursor remains where it is or rebounds to that spot and stays there (*patent pending*).

LEAP AGAIN

Pressing [USE FRONT]-[LEAP] causes the cursor to leap in the direction indicated by the LEAP key to the nearest instance of the last pattern you leaped to. Saves you from retyping the pattern each time you want to leap to it.

LEARN

Pressing [USE FRONT]-[LEARN]-[digit] causes the Cat to remember all the keystrokes you make following the use of the command. Using [LEARN] a second time turns off the memorizing of keystrokes. Memorized key strokes are as signed to the digit key and re-enacted by pressing [USE FRONT] and the digit key assigned to the [LEARN].

Left Flush

A paragraph style that features straight left margin, ragged right margin; looks like typewritten text.

LEFT MARGIN

A command used to set the left margin of the paragraph the highlight is in, or of several paragraphs if they are covered by an extended highlight.

LINE SPACE

A command used to select single, 1-1/2, and double-spaced text. Affects highlighted paragraphs, or paragraph the cursor is in if the highlight is not extended.

LOCAL LEAP

A command that restricts leaping to documents high lighted at the time you give the command, or to the document in which the cursor is located if the highlight is not extended. Turns off local leaping if local leaping is on.

local leap region

The documents to which the cursor is restricted when local leap is on.

LOCK

Causes the Cat to behave as if [SHIFT] were being held down. Press and release either [SHIFT] to turn [LOCK] off.

lowercase

Letters that are not capitals. Lowercase letters in a leap pattern match both uppercase and lowercase letters in the text.

margin

The space between the top or sides of a piece of paper (or the screen) and the borders of the printed material.

marker

A unique series of characters such as ** or *qq* used to mark a particular place in the text as a leap target.

memory

A part of the Cat that is capable of storing information.

mode

A particular set of Cat characteristics, generally selected using [SETUP].

modem

The built-in device that allows your Cat to talk to other Cats or computers over the telephone. Translates charac ters to coded tones that can be sent over phone lines.

move text

To transfer highlighted text from one place to another by leaping.

narrow cursor

The cursor is *narrow* when the blinking cursor and the solid highlight are both on the same character. It becomes narrow after a leap, creep, or scroll. A narrow cursor forward erases. Also see *wide* and *forward erase*.

non-blank

There is information recorded on the disk, but it didn't come from a Cat.

off-hook

Means the phone line is in-use. The *hook* is the hook switch on a telephone that keeps the phone hung up when the handset is in its cradle.

on-hook

The phone line is not in-use.

on line

Available by telephone call or from the computer immediately.

on-screen

Visible on the Cat's screen.

operators

The verbs of [CALC] statements. For example, the operator + means *add*; the operator - means *subtract*.. Other famil iar operators are * (multiplication), and / (division).

PAGE

The key that produces page and document characters.

page character

A page character forces the end of a page; it is the lowercase character on [PAGE]. You can type, erase, or leap to a page character, just as you would with a letter, numeral, or punctuation mark. A page character is displayed as a screen-width, gray horizontal line with the page number at the center (unless the page number is nonprinting). See *automatic page break* and *document character*.

page number

Appears in the middle of page characters, document char acters, or automatic page breaks. It will print at the bottom center of the paper page. Can be adjusted with [SETUP].

pagination

The arrangement of page characters and automatic page breaks in the text.

paragraph

The text between two break characters.

PARAGRAPH STYLE

A command that selects one of four margin styles for high lighted paragraphs: *Left Flush*, *Centered*, *Right Flush*, and *Justified*. Affects all highlighted paragraphs, or the paragraph the cursor is in if the highlight is not extended.

pattern

One or more characters you type while holding down a LEAP key; the target character or characters you want to leap to.

peek

A sample of the text stored on the disk in the drive, tempo rarily brought to the screen by [DISK] when the disk in the drive has text unrelated to what the Cat has on-screen.

permanent space

Looks like a space character on the screen, but holds the words to its left and right together as if they were one word, preventing them from being put on different lines by word wrap. Used between words that form a unit, such as *Canon Inc.* The uppercase character on [TAB].

PHONE

A command that dials phone numbers for voice or com puter communications, and answers or hangs up the phone for machine communications.

play back

v. To move the information stored on a disk into the Cat and display part of that information on the screen. No information is removed from the disk during playback. The disk drive scans the disk for information and reproduces it in the Cat's memory, where it remains while you work on it.

playback

n. The act of playing back.

pocket

A hidden expression used in a calculation. The result of the calculation is shown on the screen; the pocketed expres sion is underneath the result and can be retrieved with [CALC].

pocketing

If the highlight is extended and the highlighted text does not contain a result, [CALC] attempts to calculate the text and pocket it.

PRINT

A command that prints the highlighted text by sending it to the print buffer, and from there to your printer.

print buffer

A place inside the Cat where the text you are printing can be stored. This enables the Cat to unhighlight the text very quickly so that you can go back to working while the printer completes its task.

print out

v. The act of printing.

printout

n. The stuff you get from a printer.

precedence

The order in which [CALC] operators are used when an expression is calculated.

1st. things in parentheses
2nd. minus signs on numbers
3rd. percent
4th. abs, int, or sqrt
5th. multipication and division
6th. addition and subtraction
7th. logical operations

programmer

A person who either no longer needs other humans for solace and companionship, or who doesn't realize this until the others have all gone to sleep.

prompt

One or more characters sent by a data service to tell you that it is ready to receive your transmission.

pulse dialing

The dialing method used by rotary-dial phones. Pulse dialing makes audible clicks on the telephone line that occur when a switch inside the phone is turned off and on. The telephone company computer counts the number of pulses and translates this into a number for dialing. Most phones are now on the pushbutton or tone-dial system that uses tones to communicate numbers.

ragged

Having an irregular margin or outline.

rebound

What the cursor does when nothing in the text matches the leap pattern. The cursor returns to its starting point and stays there until you release the LEAP key and begin another leap.

recalc

A re-evaluation of all the CALC expressions in the entire text so that the new values take into account any changes you have made.

receiving text

What happens when someone sends text to you from another Cat, a computer, or data service: The incoming text automatically appears on your screen line by line. You can type while receiving text.

record

v. To store the on-screen text on a disk in the drive.
n. An item to be sorted; specifically, the text between a set number of break characters, as determined by the SETUP command. According to how many break characters de fine a record, a record might be a line in a table, a multi-line address, a paragraph, even a page.

record separator

The number of consecutive break characters used to define a record. Selected with [SETUP]; may be 1, 2, or 3.

re-enact

To automatically repeat a stored sequence of keystrokes using [LEARN].

RETURN

One of the characters you can type. A return moves the cursor to the indent of the next line. The next character you type will display and print on the next line at the indent of that line.

Right Flush

A paragraph style characterized by a ragged left margin and a straight right margin. Selected with [PARAGRAPH STYLE].

RIGHT MARGIN

A command used to set or release the right margin of high lighted paragraphs, or, if the highlight is not extended, the paragraph the cursor is in.

ruler

A scale along the bottom of the screen used to keep track of the position of the cursor, paragraph format, and the state of the Cat.

scrolling

Moving all the text on the screen up or down. When this is done repeatedly and rapidly, the whole screenful of text appears to be moving up or down as if on a winding or unwinding scroll of paper.

selected text

The text between the beginning and end points of a leap, whether highlighted or not.

SEND

A command that sends your highlighted text through the built-in modem or the serial port and into the outgoing phone line or cable.

SEND CONTROL

A command that allows you to send control characters to machines that require them.

SET/CLEAR TAB

A command that enables you to create or erase tab stops on the ruler. Affects all highlighted text, or, if the highlight is not extended, only the paragraph the cursor is in.

serial port

The connector on the back of the Cat used to hook up a serial printer or an external modem.

set line

A solid vertical line that appears when you use the LEFT MARGIN, RIGHT MARGIN, INDENT, or SET/CLEAR TAB command. Where it crosses the ruler indicates the character position of the setting.

SETUP

A command used to tell the Cat what kind of printer or modem you have attached, and how to format documents.

signs

Words or pictures on the ruler that show the line number the cursor is on, the paragraph style, line spacing, Keyboard I or II, the amount of space left, and the command being used, if any.

SORT

A command that arranges highlighted items in numeric or alphabetic order (0 to 9, A to Z), or in reverse order (Z to A, 9 to 0). Also see *fields* and *records*.

SPELL CHECK LEAP

A special feature of leaping that enables you to leap to a possible misspelled word. To use it, hold a LEAP key, and, while you hold it, press and release [SPELL CHECK LEAP].

sqrt

A CALC command operator that generates the square root of the expression that follows it; do not use *sqrt* as a variable name.

stopping

Halting an action in-progress, usually by pressing any key. [DISK] cannot be stopped.

subfields

A part of a sorting field that contains all numbers or all letters.

sum

A CALC command operator that generates the sum of the column of numbers above it; do not use *sum* as a variable name.

sumdisplay

A CALC command operator that generates the sum of a column after rounding the numbers in the column to the precision shown on the screen; do not use *sumdisplay* as a variable name.

surface text

The text that appears on your screen. See *underlying structure*.

symbol

A raucous musical instrument of the percussion family.

tap

To rapidly press and release a key.

TAB

A key for inserting a bunch of space all at once. Pressing the TAB key inserts a tab character, moving the cursor forward to the next tab stop on the ruler.

tab character

A space-filling character. Visible only when highlighted, when it appears as a dark ribbon containing a right-pointing arrow. Fills in the space between the last printing character and the next tab stop.

tab stop

A fixed point on the ruler at which the cursor will stop if the TAB key is pressed.

target

The goal of a leap.

target character

The first character in a pattern; the character you want the cursor to land on.

text

All the characters that you can see on your screen or that can be reached by a leap, and any underlying structure. Sometimes used to mean the text taken as a whole, all the information in the Cat at one time.

timer

Used by the Cat to periodically and automatically record your text on disk.

TITLES

A command that allows you to see the title pages of docu ments on a disk.

title page

Text between document character and the first page character forward from it when the first page number has been set to zero ("0") using [SETUP].

tutorial

A self-teaching instructional text.

UNDERLINE

An autohighlighting command that underlines or removes the underlining from all characters in the text covered in your last leap, or typed since you last moved the cursor or used a command.

underlying structure

Hidden information in the text, such as information about calculations ("pockets") and paragraph formatting. Sent along with the surface text during Cat-to-Cat telecommunications.

UNDO

Cancels the previous operation. Can itself be undone.

unhighlighting

Collapsing the extended highlight back to the normal size of one character.

unhighlighting backward

Unhighlighting to the first character in the highlight. The cursor moves backward, landing on the same character, resulting in a narrow cursor. Done by pressing and releasing [<-LEAP].

unhighlighting forward

Unhighlighting to the last character in the highlight. The cursor is wide after unhighlighting forward. Done by pressing and releasing [LEAP->].

unpocket

To cause a CALC expression to appear in the text after the result which it produced.

uppercase

Capital letters.

use

A CALC command operator used to refer to another number in a table; do not use *use* as a variable name.

usedisplay

A CALC command operator used to refer to another number in a table after rounding the number to the precision shown on the screen; do not use *sumdisplay* as a variable name.

variable

A name assigned to an expression with [CALC]. A *name* can be any combination of letters or letters and num bers, but must begin with a letter. The following names are reserved for the Cat and cannot be used as variable names: *abs*, *average*, *avg*, *int*, *sqrt*, *sum*, *sumdisplay*, *use*, *usedisplay*.

wide cursor

The cursor is *wide* when the highlight contains only one character and the cursor is on the character to the right of it. See also *narrow* and *backward erase*.

word wrap

The process of automatically breaking text into lines without your having to type a return. Word wrap keeps words whole; it never breaks a word in two.

word processing

Creating and editing text electronically; usually in cludes the means for storing and printing text so created. All word processors make rearranging text far easier than on an old fashioned typewriter.

work processor

A device for speedily cutting your way through writing tasks that used to take a lot of time. A Cat.

write-protect

To put a physical safeguard on a disk to prevent the information on the disk from being altered.

write-protect tab

The movable plastic slide in the corner of a Cat disk. The disk is write-protected when you can see through the little window behind the tab. The disk is unprotected and can record data when the window is closed.

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