INSTRUCTION MANUAL

ABODERGH

Thank you for purchasing this printer. We hope you will read and familiarize yourself with this manual for efficient printer use and long service life. This printer offers the following four features.

1) 24-dot thermal matrix printing for clear, easy-to-read characters.
2) Editing function enables use as a simple word processor.
3) Serial input/output port enables data transmission and reception.
4) Calculator function enables use as a calculator with printer.

NOTE

"This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacture's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference 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 computer with respect to the receiver
— — move the computer away from the receiver
— — plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

CONTENTS

Chapter 1 Operating procedures

1. Parts identification 2
2. Operation ..... 3~5
3. MODE settings 6
4. Display 7
5. Corrections in the display 8
6. Special functions 9

Chapter 2 How to print efficiently

1. Function key guide .....10~11
2. Capital and lower case letters 12
3. Convenient print modes 13
4. Layout editing ..... 14~18

Chapter 3 Storing text in the memory

1. Function key guide 19
2. Outline 20
3. New, appended, or revised text ..... 20~21
4. Memory editing functions ..... 22~23
5. Printing text ..... 24~25
6. Memory remainder display 25
7. Memory full indicator 25
8. Examples of use .....26~27

Chapter 4 Calculator function

1. Function key guide 28
2. How to use the calculator .....29~30
3. Calculations ..... 30~31

Chapter 5 How to use the terminal connection

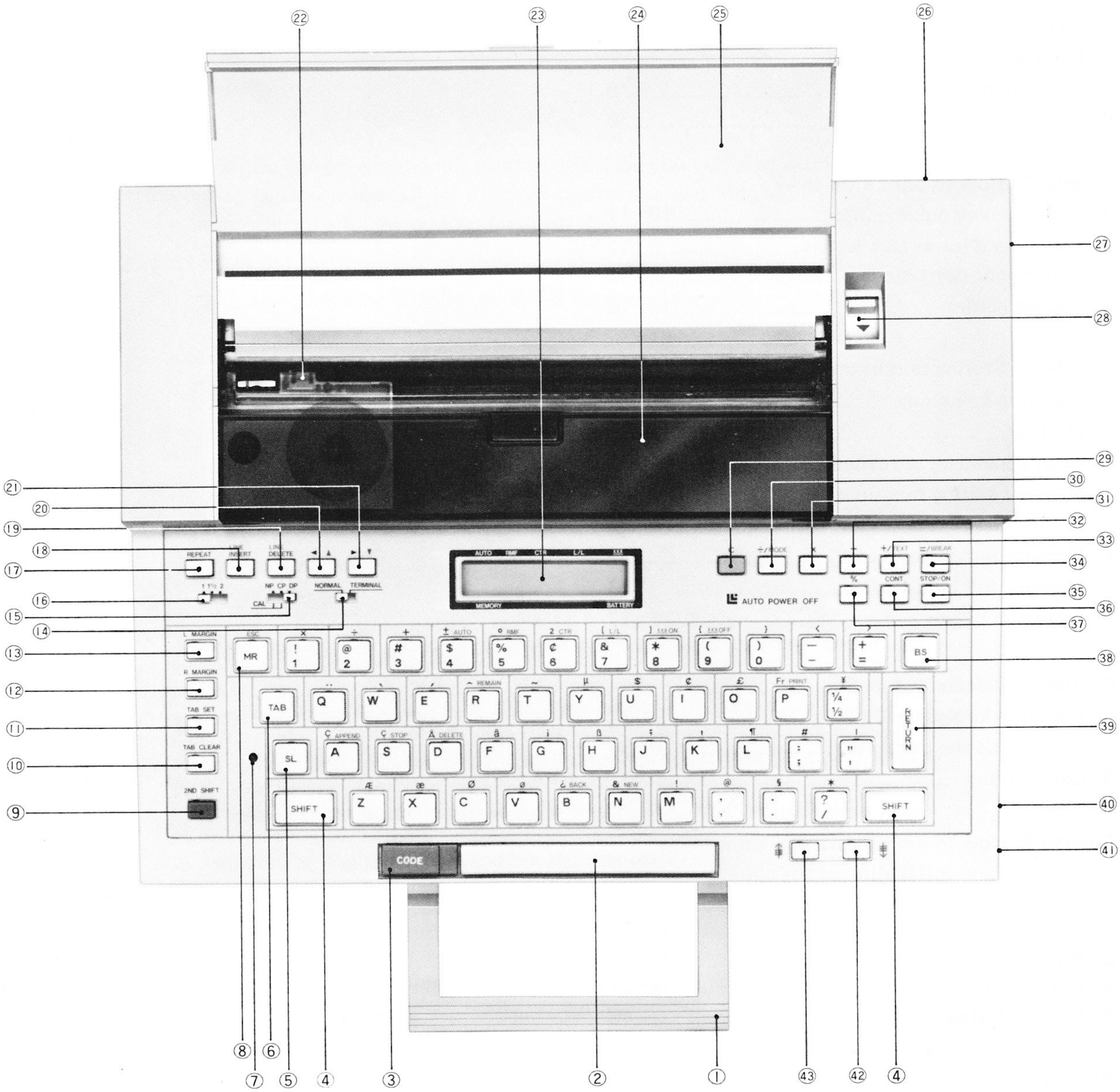
1. Removal and installation of the connector cover 32
2. Operation ..... 33~35
3. RS-232C type interface ..... 36~37
4. Data input ..... 38~44
5. Internal buffer 45

APPENDIX

Cassette ribbon replacement 46
Caring for your printer 47
SPECIFICATIONS 47
INDEX 48

Chapter 1 Operating procedures

1. Parts identification

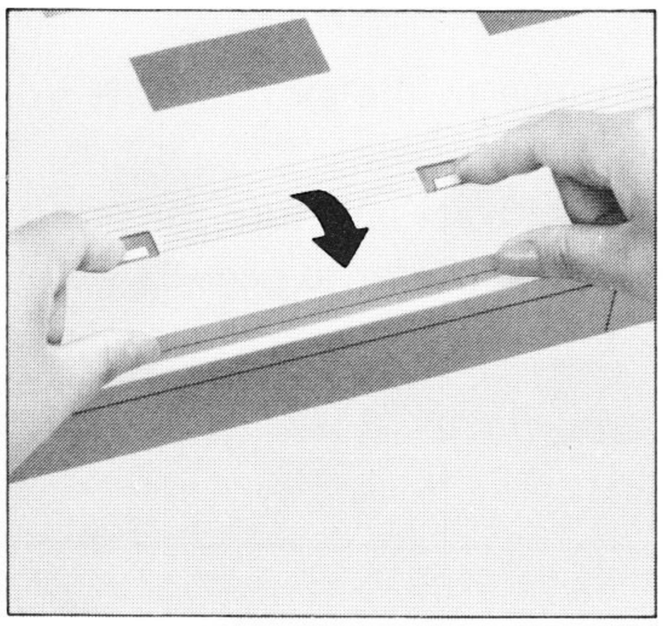


1 Carrying handle
2 Space bar
3 Code key
4 Shift key
5 Shift lock key
6 Tabulator key
7 Shift lamp
8 Margin release key
9 Second shift key
10 Tab clear key
11 Tab set key
12 Right margin set key
13 Left margin set key
14 Mode selector (normal, terminal)
15 Print/Cal mode selector
16 Line space selector
17 Repeat key
18 Insert key
19 Delete key
20 Cursor left key (up key)
21 Cursor right key (down key)
22 Cassette ribbon
23 Display
24 Cassette cover
25 Paper holder
26 AC power adaptor jack (DC 6V)
27 Power switch
28 Paper release lever
29 Clear key
30 Division key/Mode key
31 Multiplication key
32 Subtraction key
33 Addition key/Text key
34 Equal key/Break key
35 Stop key
36 Continue key
37 Percentage key
38 Backspace key
39 Return key
40 Interface connecter
41 Display adjuster
42 Index key
43 Reverse index key

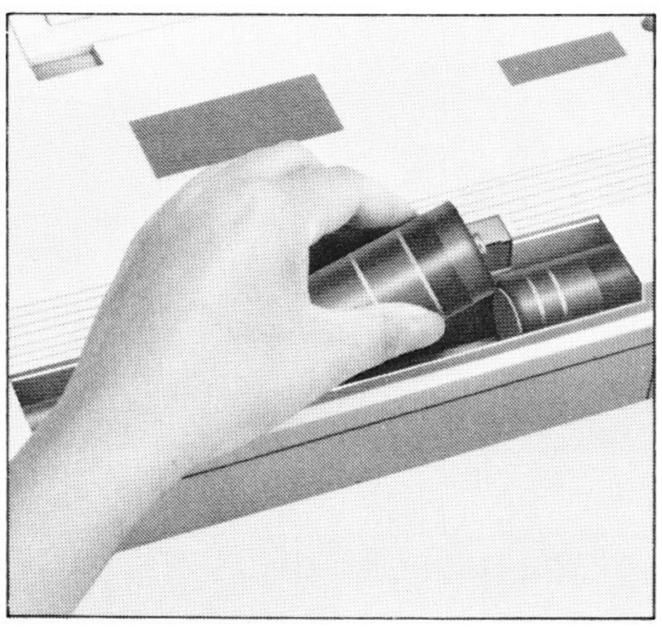
2. Operation

2–1 Power sources

BATTERY INSTALLATION



(1) Press the two tabs and remove the battery compartment cover.

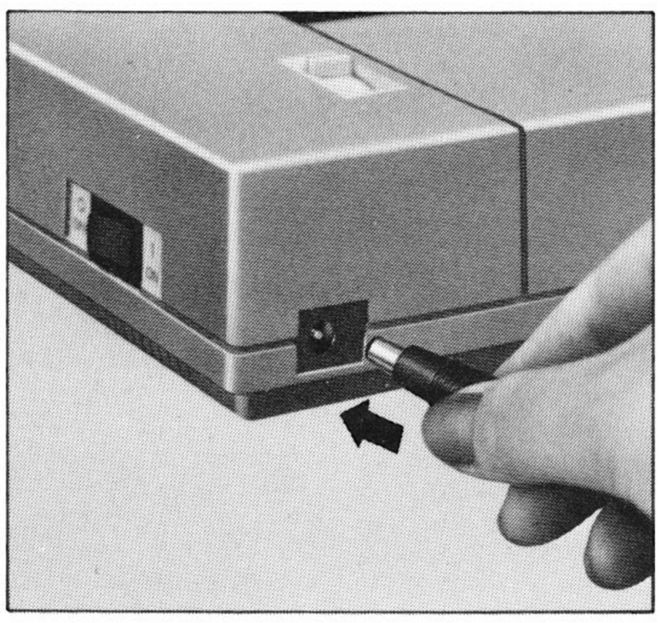


(2) Insert four size-D dry cell batteries [IEC designation R20 (Manganese) or LR20 (Alkaline Manganese).]
Make sure the batteries are inserted with the "+" and "–" ends aligned as indicated in the battery compartment.
(3) Replace the battery compartment cover.

NOTE 1: When the batteries become weak, the **"BATTERY"** indication will light up. When this happens replace all four batteries with new ones.

NOTE 2: Turn off the power switch when the unit is not being used. If the unit is not to be used for an extended length of time, if memory back up is not necessary, or if the AC adaptor is to be used for an extended length of time, remove the batteries to avoid the chance of fluid leakage. [Be aware that even commercially available batteries which are guaranteed may sometimes leak.]

AC POWER ADAPTOR



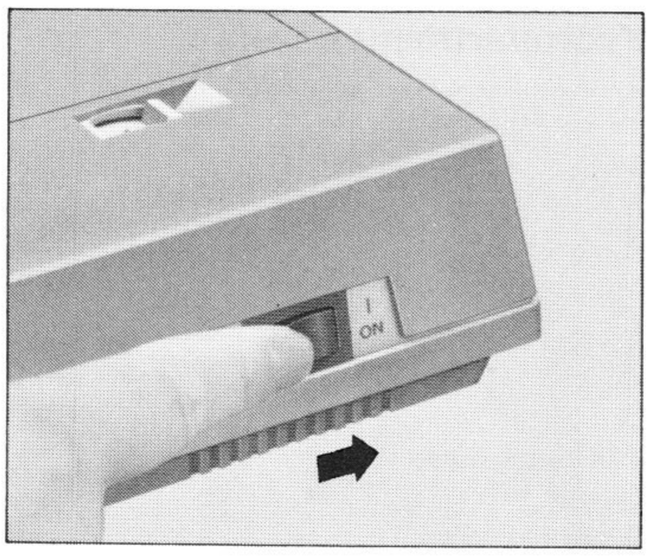
Connect the AC adaptor to the DC6V jack on this printer, and then plug the adaptor cord into a wall outlet.

NOTE 1: Be sure to use the AC adaptor designed for the printer.

NOTE 2: The batteries will be automatically disconnected from the power supply circuit when the AC adaptor is connected.

NOTE 3: If the printer is not used for extended periods of time, disconnect the AC adaptor from both the wall outlet and this unit's jack.

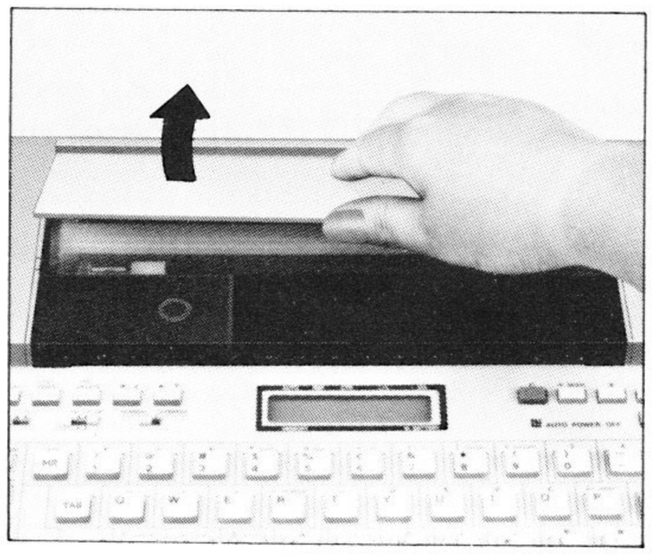
2–2 Print preparations



1. Power switch ON

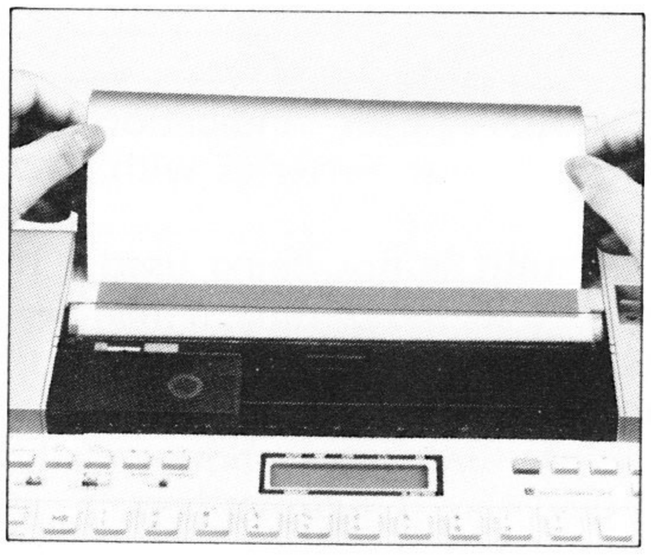
Turn the power switch **ON**. The carrier will move to the extreme left side and then automatically move to the left margin setting.

NOTE: The automatic power-off function will activate and turn the printer off if the printer is not used for 10 minutes. (Refer to page 9)



2. Paper insertion

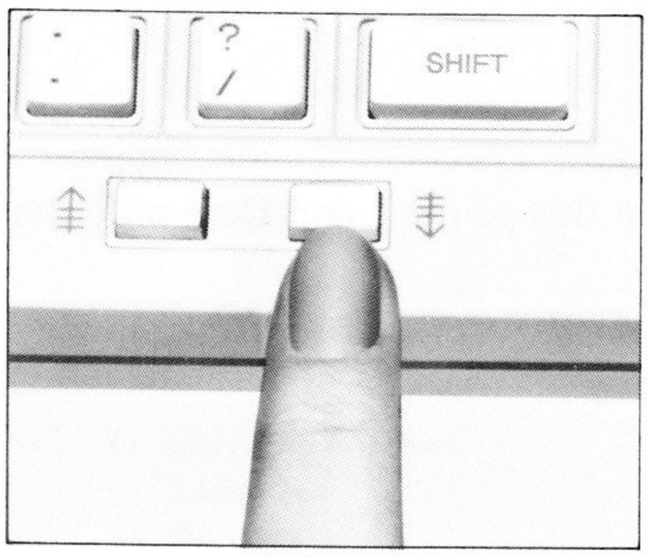
(1) Open the paper holder.



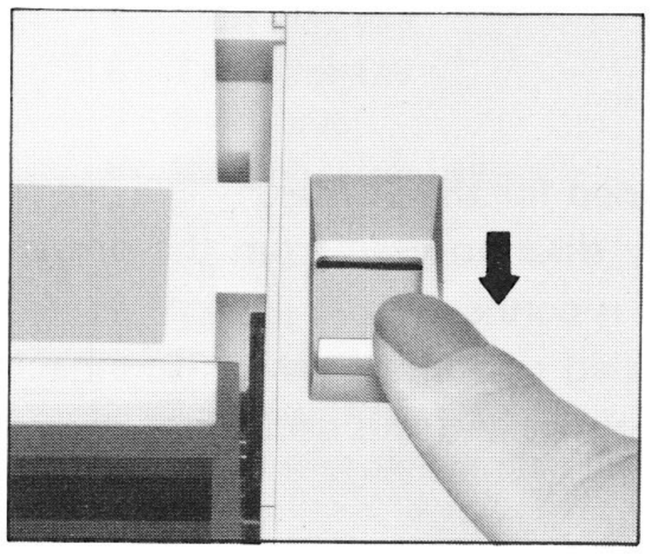
(2) Insert a sheet of paper in the gap in front of the paper holder.

NOTE 1: Paper selection:
Most types of SMOOTH FINISH PAPER are acceptable for use with this printer. But it is preferable to use our recommended plain paper enabling to get best print quality. Rough paper such as expensive rag-content paper is not recommended. If you use thermal paper, you can print without using the cassette ribbon.

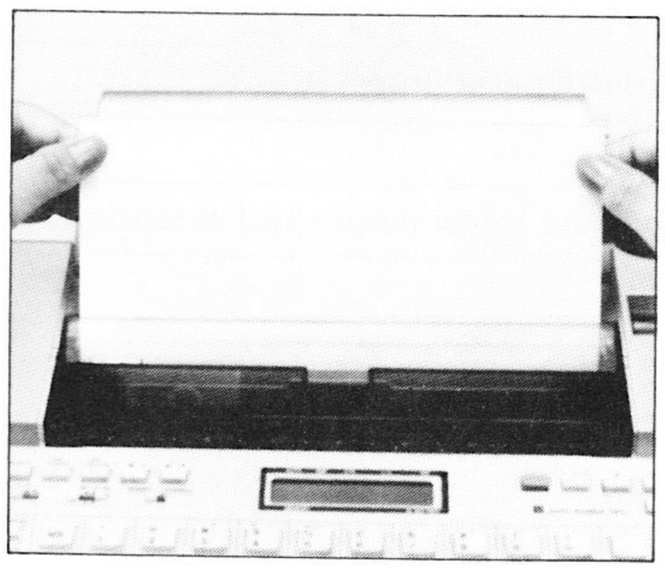
NOTE 2: The printer cannot make carbon copies. Do not insert two or more sheets of paper.



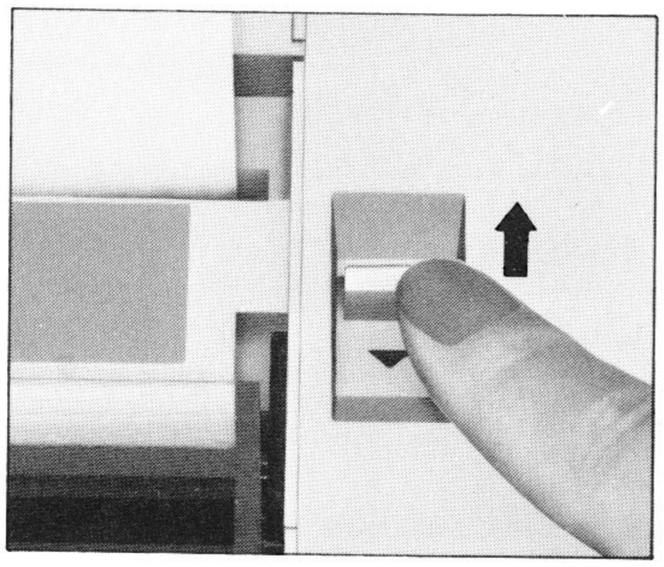
(3) Press the index key (⇟) until the paper is fed through.



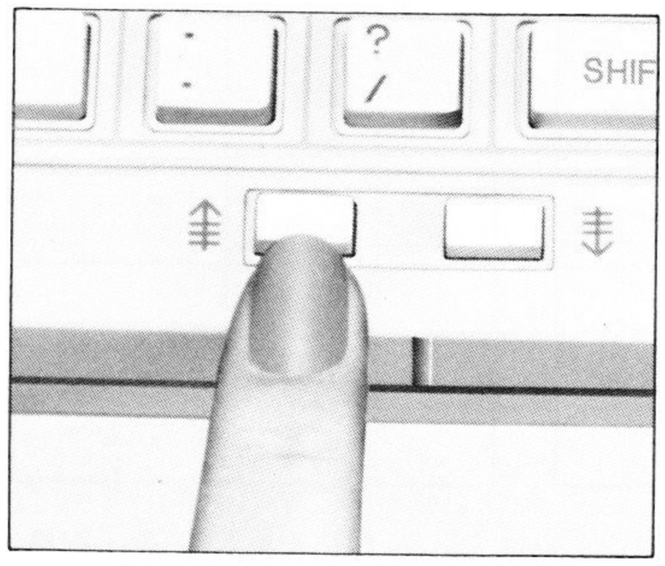
(4) Pull the paper release lever forward.



(5) Straighten and position the paper as required.

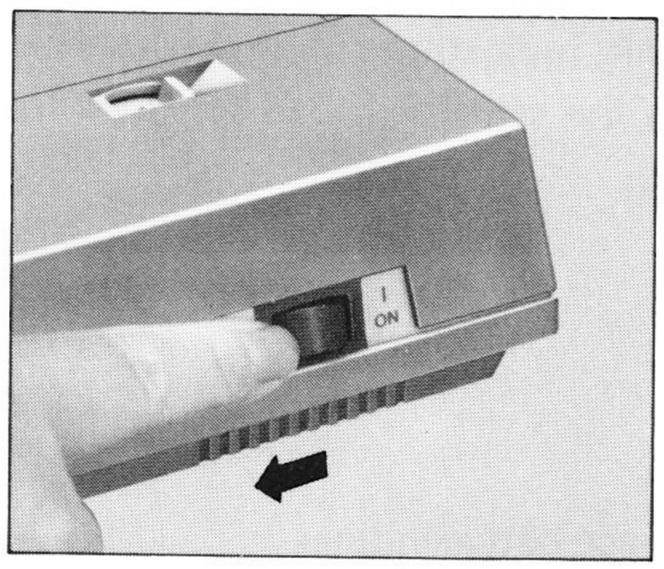


(6) Return the paper release lever.



3. Paper feed

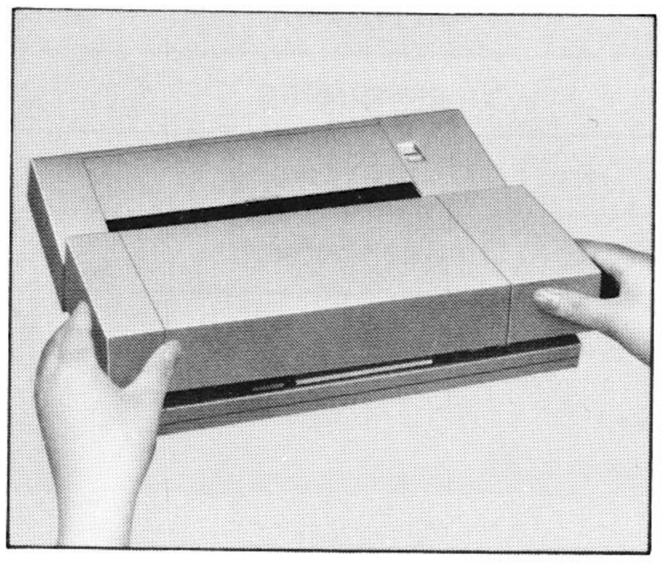
To reverse the paper, press the reverse index key (⇞).



4. When printing is over

Turn the power switch **OFF**. If the AC adaptor is used, unplug it from both the wall outlet and adaptor jack on the printer.

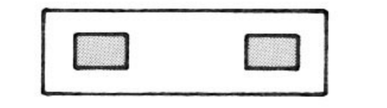
NOTE: Be sure to keep batteries in the battery compartment if the margins, tabs and memory contents are to be retained in the memory. The AC adaptor must be disconnected from the adaptor jack to use the memory back-up function.



Replace the printer cover.

3. MODE settings

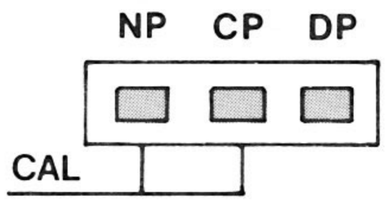
3—1 MODE selector



Selects the printer mode to be used.

Mode selector	Printer Operation
NORMAL	Used for normal printing.
TERMINAL	Used as a terminal for data transmission and reception.

3—2 PRINT/CAL mode selector

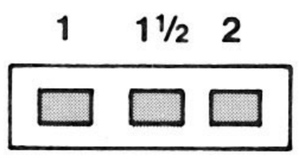


Selects the printing mode and calculator function.

Mode	Features	Application	Print	Corrections	Calculator function
NP	NO PRINT Characters appear in the display but are not printed.		NO	YES	YES
CP	CORRECTION PRINT Enables corrections of text in the display. Characters are printed in the order they were input as they exceed the 15 character display capacity. To print everything in the display, press the clear key (C), return key (RETURN), or tabulator key (TAB).	Characters will also be printed during corrections if the 15 character display capacity is exceeded. Enables calculations to be printed.	YES	YES	YES
DP	DIRECT PRINT Prints each character as it is input.	Useful for setting margins and tabs.	YES	NO	NO

NOTE: If the PRINT/CAL mode selector is changed from **NP-CP-DP** (or **NP-CP**) while text is being input, the characters that exceed the right margin stored in the memory may blink, indicating an overflow. The procedure to follow if this happens is the same as for an overflow in the calculator mode (Refer to page 29).

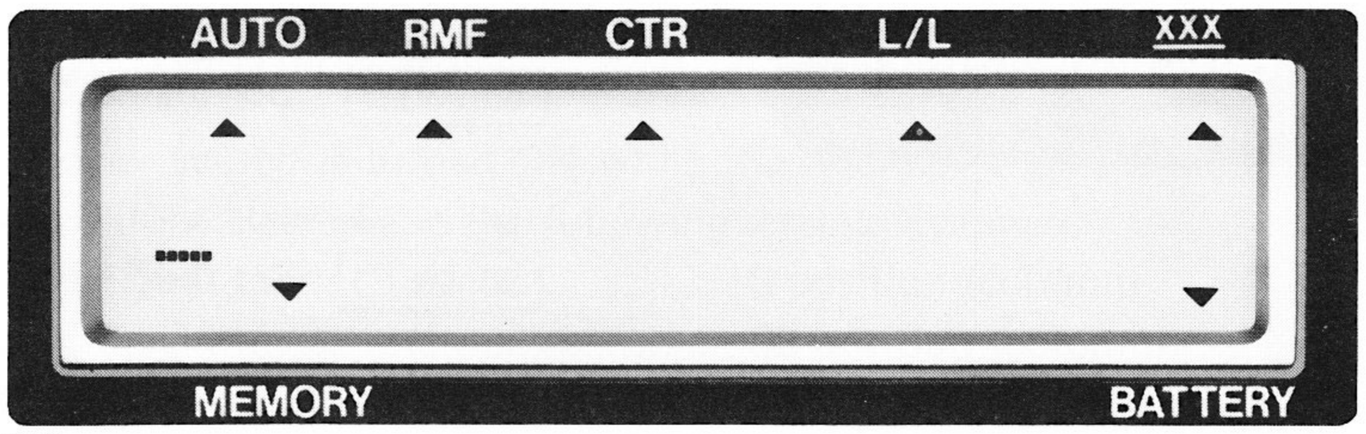
3—3 Line space selector



Use the line space selector to set the desired space between lines.

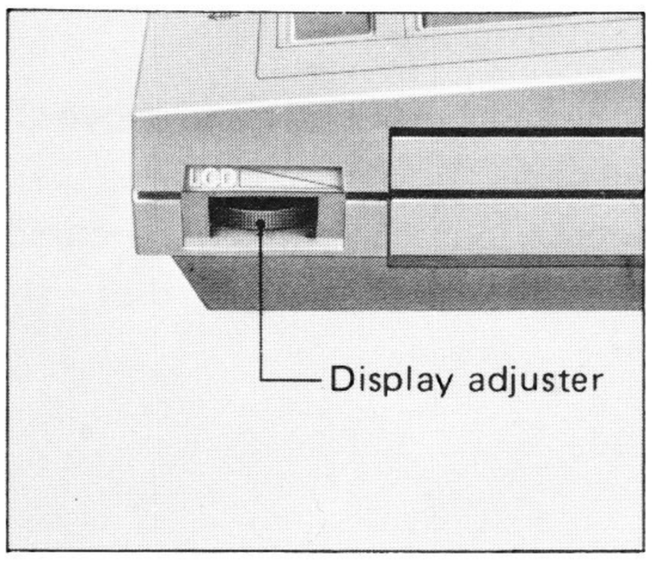
Line space selector	Feed amount
1	Single spacing
1½	1 1/2 line spacing
2	Double spacing

4. Display



4—1 Display

A maximum 15 characters appear in the display at any mode position (**NP**, **CP**, **DP**). The cursor can also be scrolled up and down to correct or revise text stored in the memory.



4—2 Display adjuster

Use the display adjuster to adjust the density of characters in the display. Turn the display adjuster clockwise for strong, dark characters; turn counter-clockwise for light characters.

4—3 Mode indicators

There are five mode indicators (▲) on the top and two (▼) on the bottom of the display. The current printer mode and battery condition will be identified by the appropriate indicator illuminating.

Name (▼▲)	Contents when illuminated
AUTO	Automatic return (AUTO) mode
RMF	Right margin flush
CTR	Centering
L/L	Line-by-line mode
XXX	Automatic underline mode
MEMORY	In the memory, or correction mode
BATTERY	Replace the batteries if this guidance indication appears.

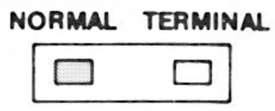
4—4 Function display

The following function codes will appear in the display but will not be printed. (During the **NP** and **CP** modes and during memory corrections.)

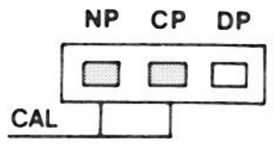
Code	Name	Code	Name
	Underline on		Backspace, code backspace
	Underline off		Right margin flush, tab, centering
	Superscript		Return
	Subscript		Stop code

( ), ( ) and ( ) codes cannot be corrected, deleted or inserted once they are stored in the memory. (If these operations are attempted, the alarm will beep to indicate an error.)

5. Corrections in the display



Set the mode selector to **NORMAL**.



Set the PRINT/CAL mode selector to **NP** or **CP**.

5—1 Character corrections

ORANGE ORANJE

(1) Press the cursor left key (◄) and move the cursor to the character to be corrected.

NOTE: The cursor will continue moving to the left if the cursor left key (◄) is pressed and held down.

(2) Key in the correct character.

(3) After the correction is made, press the cursor right key (►) and move the cursor as far right as it will go.

NOTE: The cursor will continue moving to the right as long as the cursor right key (►) is pressed. When the cursor can go no further, the alarm will beep.

ORANGE ORANEGE

5—2 Character deletions

1. Using the delete key (delete to right)

(1) Press the cursor left key (◄) and move the cursor to the character to be deleted.

(2) The character above the cursor will be deleted when the delete key (LINE DELETE) is pressed.

(3) After the deletion is made, press the cursor right key (►) and move the cursor to the right end of the display contents.

NOTE: Hold the delete key (LINE DELETE) depressed to continue deleting characters to the right.

ORANGE ORANEGE

2. Using the backspace key (delete to left)

Press the backspace key (BS) and the character to the left of the cursor will be deleted.

NOTE: Hold the backspace key (BS) depressed to continue deleting characters to the left of the cursor.

ORANGE ORNGE

5—3 Character insertions

(1) Press the cursor left key (◄) and move the cursor to the space where the character is to be inserted.

(2) Press the insert key (LINE INSERT). The cursor position will not change but will flash in its present position as the display enters the insert mode.

(3) If the insert key is pressed, the cursor will stop flashing and the insert mode will be cancelled.

(4) Key in the desired character. The character will be inserted to the left of the character above the cursor.

(5) After the insertion is made, press the cursor right key (►) and move the cursor to the right end of the displayed contents.

NOTE: Characters can be inserted until the right margin is reached when the display is in the insert mode.

NOTE: If there are already 15 characters in the display, characters cannot be inserted at the left end. (However, insertion is possible when in the line-by-line mode.)

The above operations can be performed by lines when in the line-by-line mode.

6. Special functions

6—1 Reset function

If the power switch is turned **ON** while the clear key (C) is depressed, the memory will be cleared and the following settings assumed.

Left margin ..... 0 position (column)
Right margin ..... 80 position (column)
Tabs ..... cleared
Text (in memory) ..... erased
Terminal communication ..... setting becomes invalid

This product contains presicion electronic parts, and its operation may be adversely affected by electrical noise or other interference. If this happens, use this RESET function to clear settings and re-enable the printer.

6—2 Alarm

(1) An alarm will beep six spaces before the right margin is reached and at the right margin.
(2) An alarm will also beep when an invalid operation is performed. If this happens, perform the operation again.

6—3 Memory back-up function

If the batteries are left in the battery compartment, or if the AC adaptor is left connected to the printer and plugged into the wall outlet, the memory back-up function will retain the text, tab stop positions, margins, and terminal communication method in the memory even after the power switch is turned off. This function will also work for about one hour with the batteries removed, such as when replacing the batteries.

6—4 Automatic power-off function

If a key input is not made for approx. 10 minutes, the automatic power-off function will activate automatically turning off the printer to prevent unnecessary battery drainage.
Press the stop key (STOP/ON) to turn the power back on; the settings made before the power was turned off will be retained and valid. (The carrier will not move.) If the power switch is turned **OFF** and then **ON** again when the printer is in the auto power-off mode, the printer will assume the same condition and settings as when the stop key (STOP/ON) is pressed to turn the power **ON** again.

6—5 Paper empty detector

If the paper supply is depleted when the printer is used to print out text in the memory or when used as an output terminal, # PAPER EMPTY will be displayed, an alarm will sound, and the printer will temporarily stop.
If the continue key (CONT) is pressed, the text will be printed out one line at a time. To continue print out, insert a new paper and press continue key (CONT).

Chapter 2 How to print efficiently

1. Function key guide

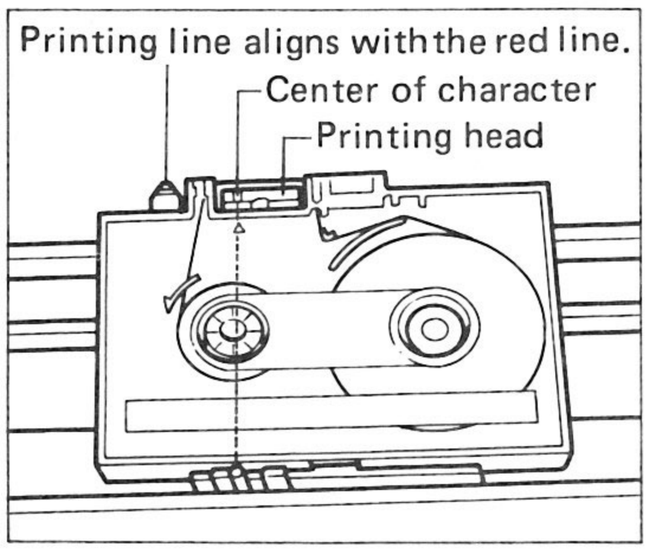
Key	Key name	Function	Reference page
◄	Cursor left	Moves the cursor one character space to the left.	P. 8
►	Cursor right	Moves the cursor one character space to the right.	P. 8
LINE INSERT	Insert mode set/cancel	Used to insert a character in front (to the left) of the character above the cursor. Press the key again to cancel the insert mode.	P. 8
LINE DELETE	Delete	Deletes the one character above the cursor.	P. 8
	Index	Feeds the paper forward.	P. 4
	Reverse index	Feeds the paper in reverse.	P. 5
SHIFT	Shift	Used in conjunction with another key to print capitals or secondary symbols on the key top. Also used to cancel the shift lock.	P. 12
○ SL	Shift lock	Used to lock the shift for continuous printing of capitals or symbols.	P. 12
2ND SHIFT	Second shift	Used to print special characters, accents, and signs indicated on the secondary keyboard above the keys.	P. 12
REPEAT	Repeat	Press this key after pressing any of the character or function keys (except for calculator keys) to repeat the function or character of the previously pressed key.	P. 12
RETURN	Return	Advances the paper one line and returns the carrier to the left margin. (When in the **CP** mode all characters in the display are printed before the carrier returns.)	
	Space bar	Moves the carrier one space to the right. The carrier will move continuously if the space bar is held down.	
BS	Backspace	Moves the carrier one space to the left (in **DP**). Erases one character to the left of the cursor in the display. Will continue to erase to the left if continuously pressed (in **CP, NP**).	
CODE + BS	Code backspace	Moves the carrier one space to the left (in **CP, DP**). The carrier will move continuously if the key is held depressed.	
L MARGIN	Left margin	Sets the left margin.	P. 15
R MARGIN	Right margin	Sets the right margin.	P. 15

Key	Key name	Function	Reference page
ESC MR	Margin release	Temporarily cancels the margin setting for printing beyond the margin.	P. 15
TAB SET	Tab set	Sets tab stops.	P. 16
TAB CLEAR	Tab clear	Clears a tab stop.	P. 16
TAB	Tabulator	Moves the carrier to the first tab stop to the right. (All characters in the display will be printed before the carrier moves to the tab stop when in the **CP** mode.)	P. 16
CODE + RMF 5	Right margin flush	Prints with the line flush with the right margin.	P. 15
CODE + CTR 6	Centering	Prints with the line centered between the margins.	P. 17
CODE + xxx ON 8	Auto underline on	Automatically underlines characters.	P. 17
CODE + xxx OFF 9	Auto underline off	Cancels the automatic underline mode.	P. 17
CODE + ⇞	Superscript	Reverse indexes the paper 1/2 line. (The line shift is indicated on the display when in the **CP** mode).	P. 18
CODE + ⇟	Subscript	Advances the paper 1/2 line. (The line shift is indicated on the display when in the **CP** mode).	P. 18
CODE + AUTO 4	AUTO mode set/cancel	Press the key for automatic carrier return; press a second time to cancel the auto return mode.	P. 13
CODE + L/L 7	L/L mode set/cancel	Enables printing and corrections of one line at a time. Press the key a second time to cancel this mode.	P. 13
CODE + space	Permanent space	Used to prevent automatic carrier return within the "hot zone" (final 6 characters before the right margin) when in the auto return mode.	P. 13
CODE + -	Permanent hyphen		

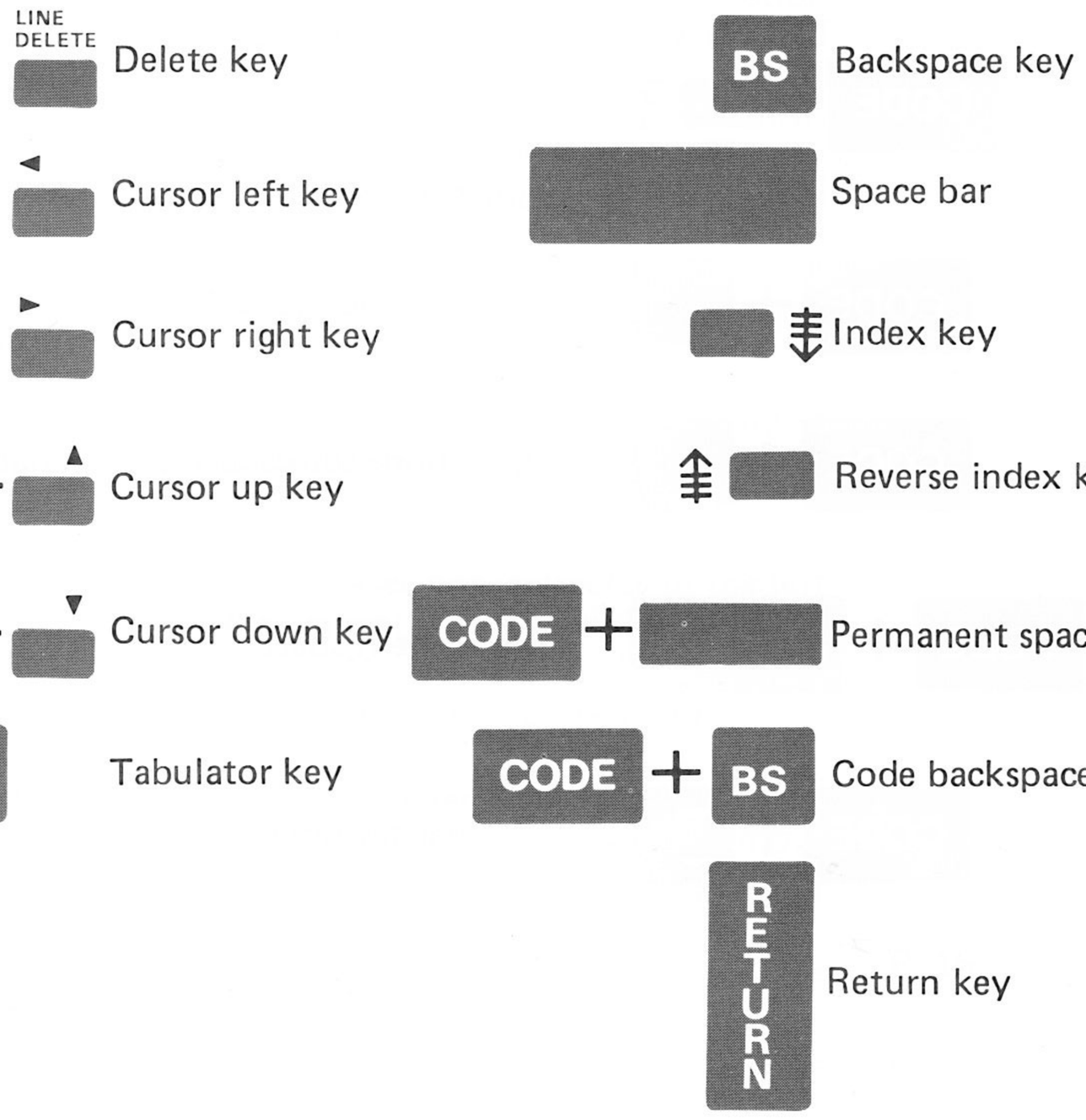
2. Capital and lower case letters

Type of character	How to print
Capitals and symbols on key tops	Depress the shift key (SHIFT) and key in character. NOTE: For continuous using of these characters, press the shift lock key (○ SL) to lock the shift. The red shift lamp on the left of the shift lock key (○ SL) will illuminate. To cancel the shift lock, simply press either the right or left shift key.
Lower case letters	Simply depress the characters.
Special characters, accents, signs (characters on the secondary key-board)	Depress the second shift key (2ND SHIFT) and input the key for the symbol or character or the secondary keyboard. Accents can be used with the characters below. Note that the accent must be depressed before the character is. Accent — Works only with ¨ ` ´ ^ — AEIOU aeiou ~ — AON aon

The final three characters (or the last character when the cassette ribbon is not used) cannot be seen at the printing head.



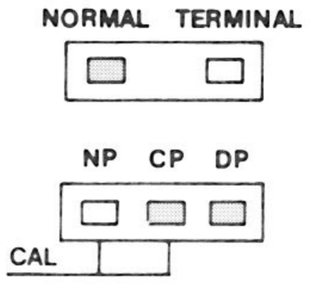
- Repeat key
  The character or function (except for calculator functions) of the last key pressed will be repeated when this key is depressed.
- Self-repeating keys
  The function of the following keys will be repeated when the key is depressed without using the repeat key.



3. Convenient print modes

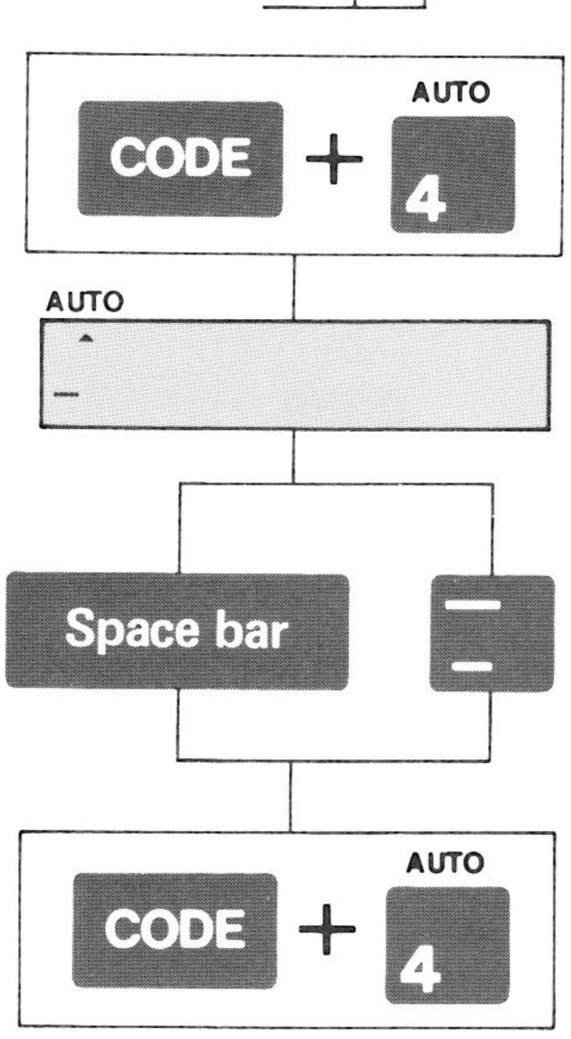
3—1 AUTO mode

The paper advances and carrier automatically returns to the left margin in this mode.



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to **CP** or **DP**.



(1) Press (CODE + AUTO 4).

(2) The **AUTO** indicator will illuminate and the printer will enter the AUTO mode.

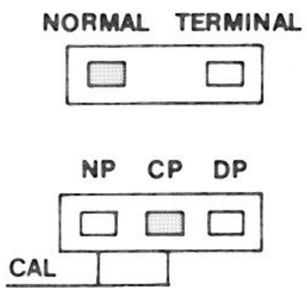
(3) If the space bar or hyphen key is pressed in the "hot zone" (final six spaces before the right margin), the paper will be automatically advanced one line and the carrier will return to the left margin.

NOTE: If this automatic carrier return is not necessary for a particular line when the space bar or hyphen is depressed in the "hot zone", use the permanent space (CODE +), or permanent hyphen (CODE + –).

(4) Press (CODE + AUTO 4) once more to cancel the AUTO mode. The **AUTO** indicator will also go out.

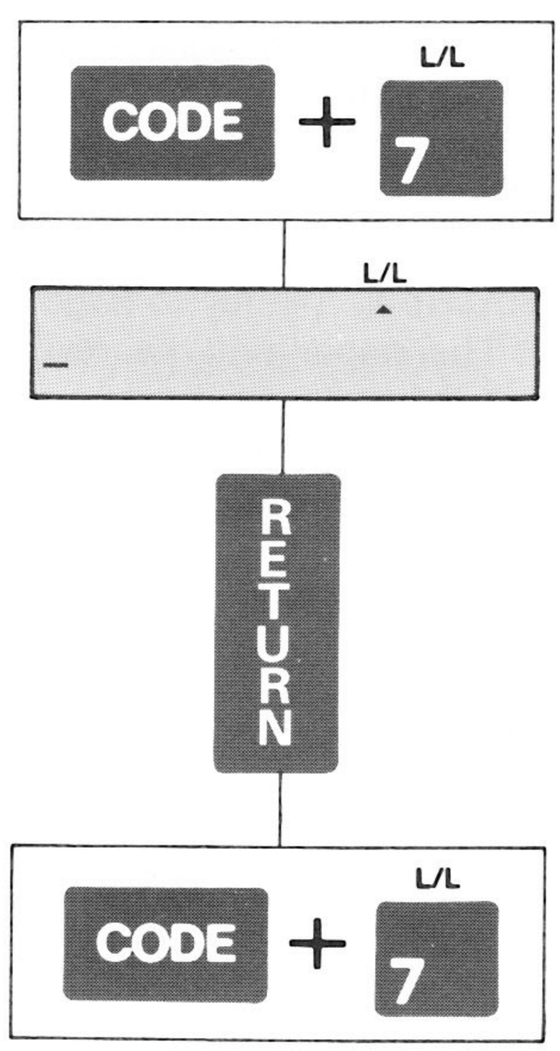
3—2 L/L (line-by-line) mode

Lines are printed in whole line units in this mode. Corrections can be made anywhere in the line.



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to **CP**.



(1) Press (CODE + L/L 7).

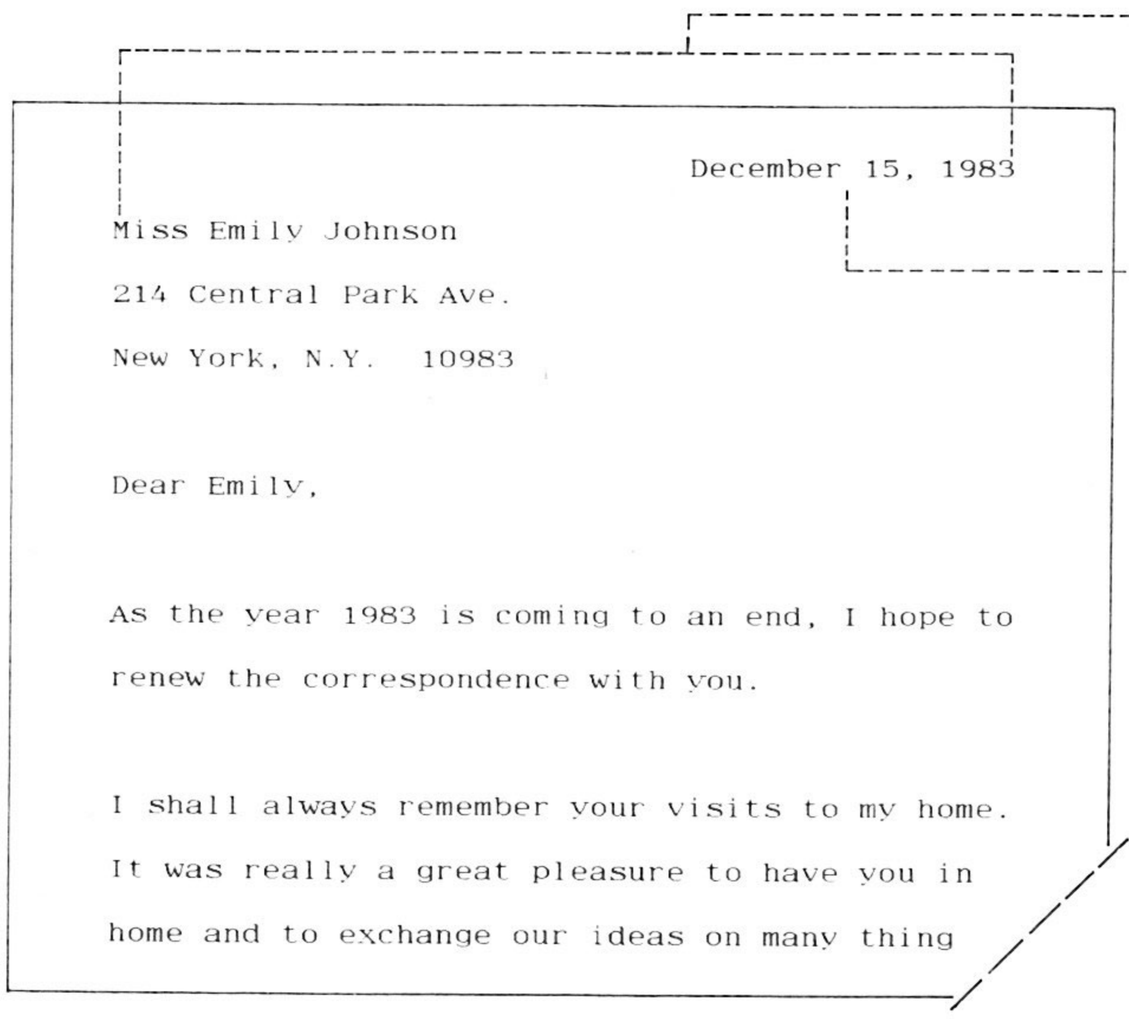
(2) The **L/L** indicator will illuminate and the printer will enter the L/L mode.

(3) The printer will print the whole line when the return key (RETURN) is pressed. Text revisions, such as character corrections, insertions, and deletions, can be made anywhere in the line after the characters are input and before they are printed. (Refer to Page 8.)

(4) Press (CODE + L/L 7) once again to cancel the L/L mode. The **L/L** indicator will also go out.

4. Layout editing

● Various layout examples



December 15, 1983

Miss Emily Johnson

214 Central Park Ave.

New York, N.Y. 10983

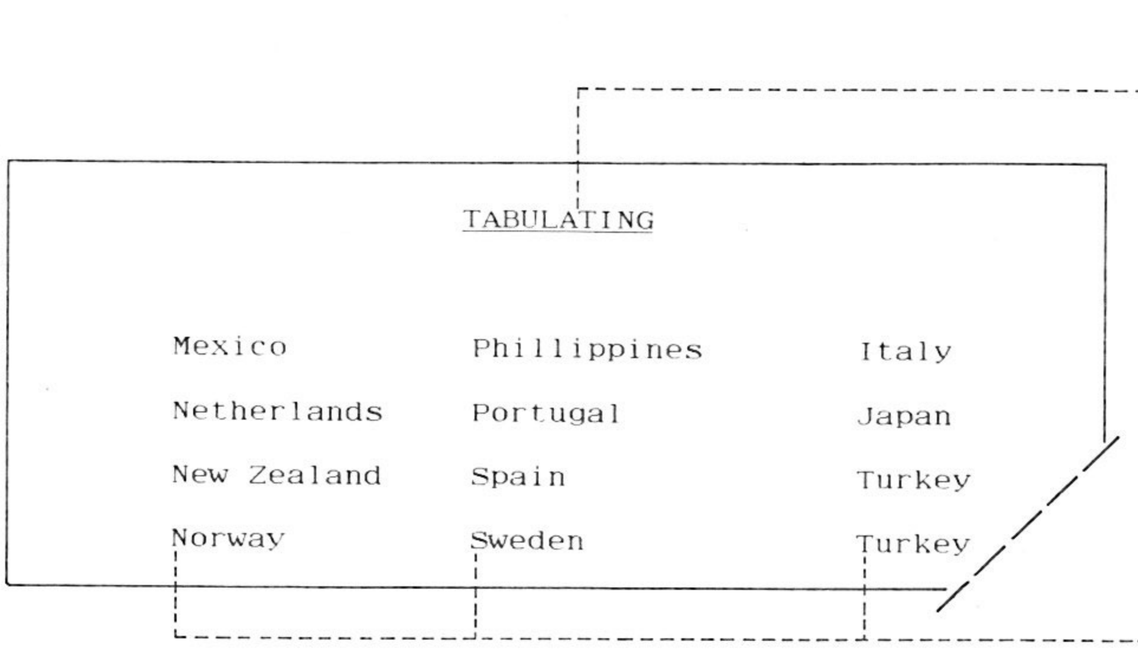
Dear Emily,

As the year 1983 is coming to an end, I hope to renew the correspondence with you.

I shall always remember your visits to my home. It was really a great pleasure to have you in home and to exchange our ideas on many thing

Right and left margin settings (Refer to page 15.)
Set the left margin with a space between the margin and paper edge.
Set the right margin with a space between the margin and paper edge.

Right margin flush (Refer to page 15.)
Text is automatically printed flush with the right margin.



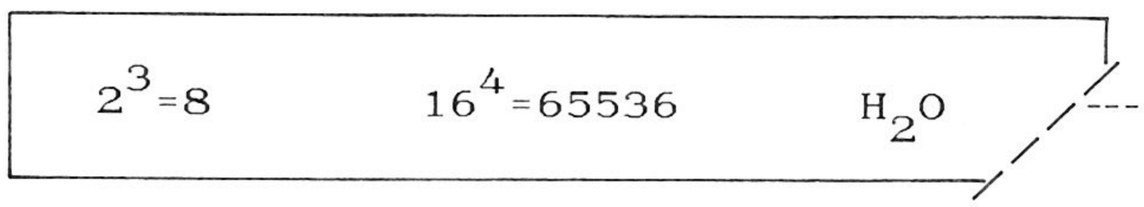
TABULATING

Mexico	Phillippines	Italy
Netherlands	Portugal	Japan
New Zealand	Spain	Turkey
Norway	Sweden	Turkey

Automatic centering (Refer to page 17.)
Prints text automatically centered between right and left margins.

Auto underline (Refer to page 17.)
Automatically underlines the characters.

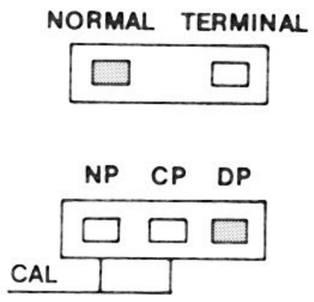
Tab stop setting (Refer to page 16.)
Used to align the first letters in each column.



$2^3=8$ $16^4=65536$ H_2O

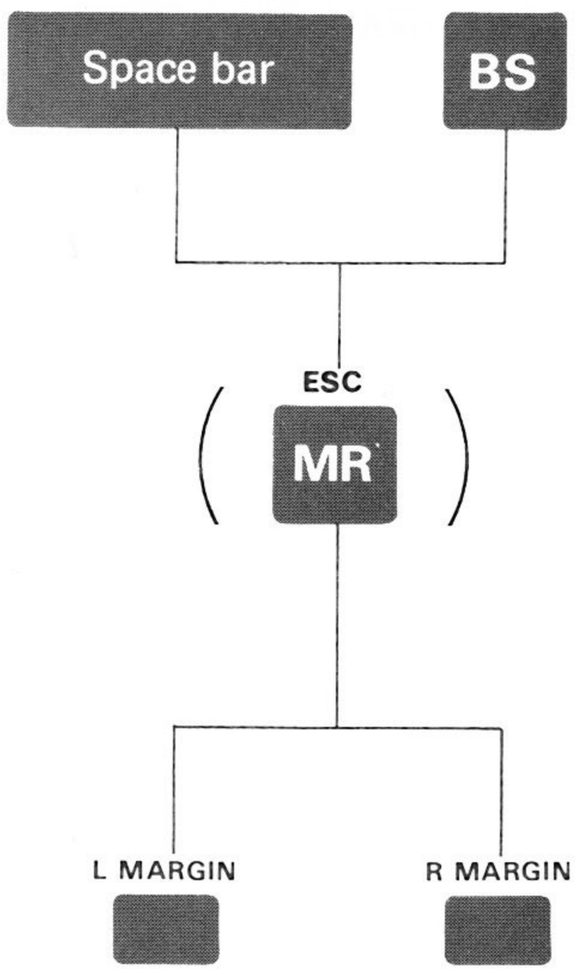
Superscripts and subscripts (Refer to page 18.)
Superscript ..... The paper will be reversed 1/2 line.
Subscript ..... The paper will be advanced 1/2 line.

4—1 Margin settings



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to **DP**.



(1) Press the space bar ( ) [or backspace key (BS)] to move the carrier to the position of the right (or left) margin to be set.

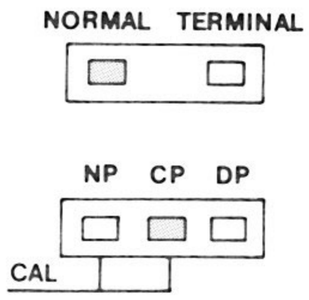
The carrier will stop at the previously set margins and the alarm will sound. To set new margins wider than the preset margins, press the margin release key (ESC MR) to release the margin, and then move the carrier.

NOTE: When a new right or left margin is set, the previous respective margin will be cancelled.

(2) Press the left margin key (L MARGIN) or right margin key (R MARGIN) to set the left or right margin.

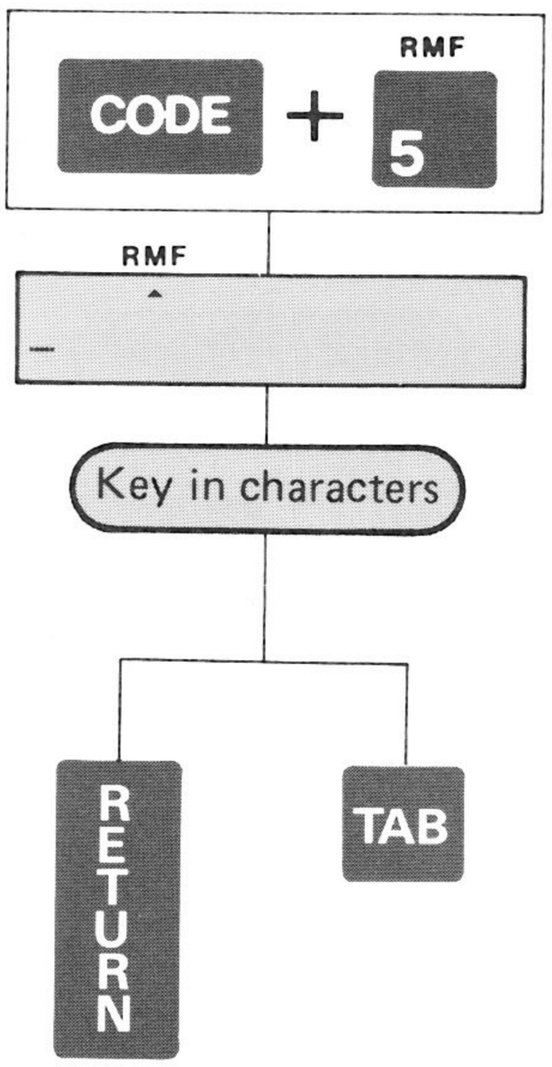
NOTE: Be sure to leave at least a seven-character space between the margins.

4—2 Right margin flush (RMF)



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to **CP**.



(1) Press (CODE + RMF 5) to enter the right margin flush mode.

NOTE: The right margin flush mode can be entered at the left margin or anywhere between the right and left margins. It cannot, however, be entered to the right of the right margin.

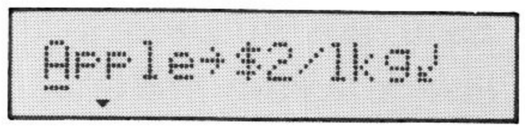
(2) The **RMF** indicator will illuminate.

(3) Key in characters.

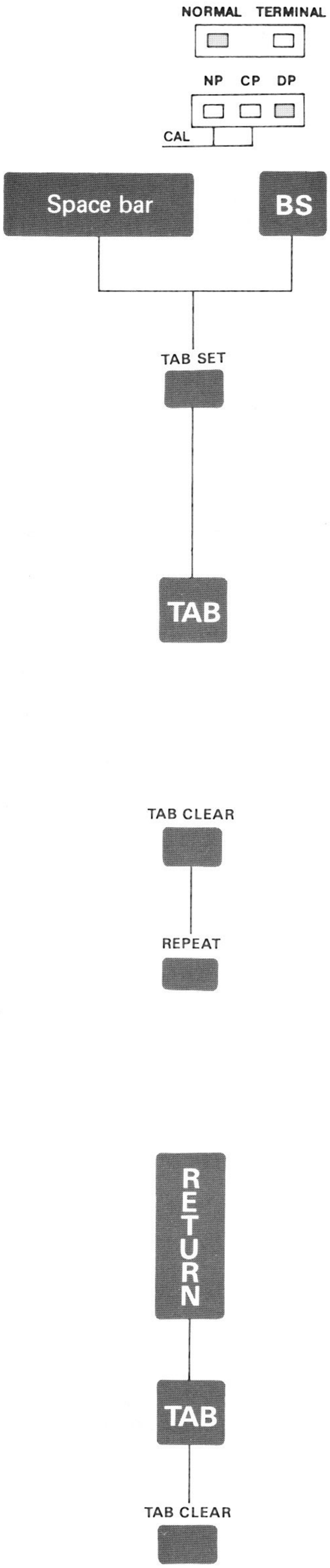
(4) The text will be printed with the final character in each line aligned with the right margin when either the return key (RETURN) or tabulator key (TAB) is pressed. The right margin flush mode will be simultaneously cancelled, and the **RMF** indicator will go out.

NOTE: If the right margin flush mode is entered during memory printing, a (÷) code will appear in the display.

Example:



4—3 Tabulation



Set the mode selector to **NORMAL.**

Set the PRINT/CAL mode selector to **DP.**

1. Tab setting

(1) Press the space bar ( ) or backspace key (BS) to move the carrier to the desired tab stop.

(2) Press the tab set key (TAB SET) to set the tab.

NOTE: Several tab stops can be set on a line. It is easier to set the tab stops in the **DP** mode, but they can also be set in the **CP** mode. If there are any characters or spaces in the display when setting tabs in the **CP** mode, the tab stops can only be set after the display is cleared of characters and spaces.

2. Moving to tab stops

Simply press the tabulator key (TAB) and the carrier will move to the next tab stop to the right of the carrier.

3. Clearing all tab stops

Press the tab clear key (TAB CLEAR) and then press the repeat key (REPEAT). All tabs will be cleared regardless of the carrier position.

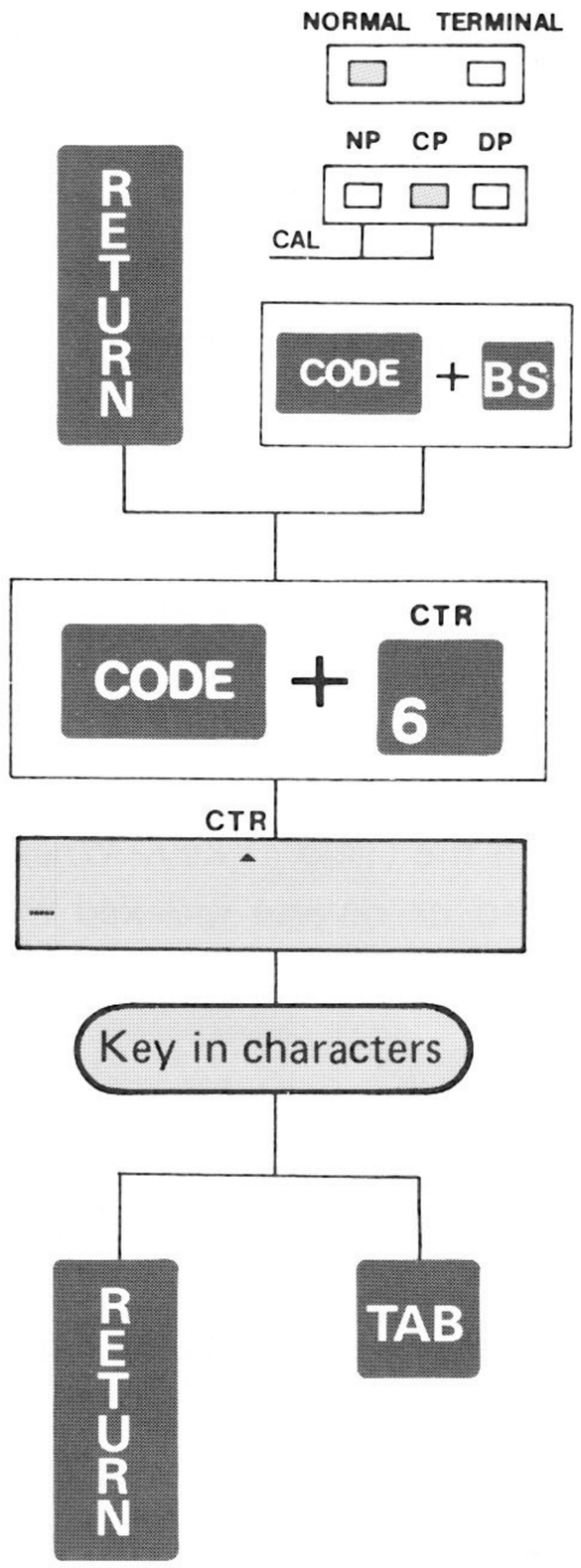
4. Tab clear

(1) Press the return key (RETURN) and return the carrier to the left margin.

(2) Press the tabulator key (TAB) and move the carrier to the desired tab stop.

(3) Press the tab clear key (TAB CLEAR) to cancel the tab stop.

4—4 Centering



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to **CP**.

(1) Press the return key (RETURN) or (CODE + BS) to return the carrier to the left margin.

(2) Press (CODE + CTR 6) to enter the centering mode.

(3) The **CTR** indicator will illuminate.

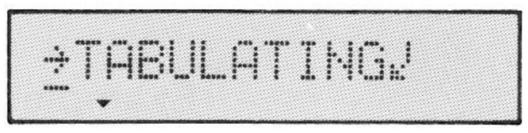
NOTE: The centering mode can only be set at the left margin.

(4) Key in characters.

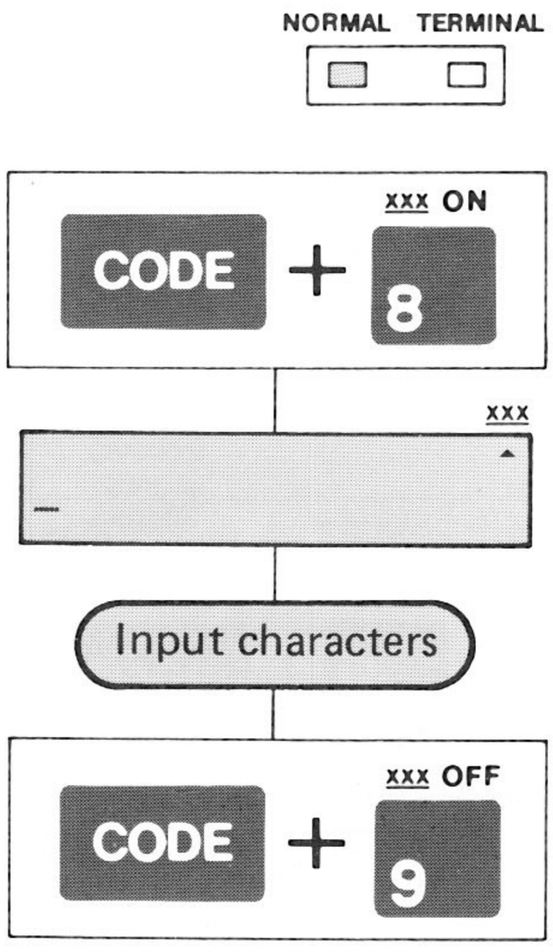
(5) Press the return key (RETURN) or the tabulator key (TAB) and the sentence will be printed centered between the right and left margins. The centering mode will be simultaneously cancelled. (The **CTR** indicator will also go out.)

NOTE: If text is centered during memory printing, a (÷) code will be displayed at the beginning of the line.

Ex.



4—5 Auto underline



Set the mode selector to **NORMAL**.

(1) Enter the auto underline mode by depressing (CODE + xxx ON 8).

(2) The "**XXX**" indicator will illuminate.

(3) Characters input in this mode will be automatically underlined.

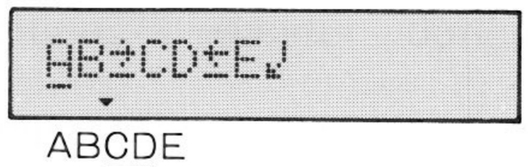
NOTE: In the **CP** mode, characters will be underlined in the order they are printed as they leave the 15 character display.

(4) Cancel the auto underline mode by depressing (CODE + xxx OFF 9). (The "**XXX**" indicator will also go out.)

NOTE 1: When correcting text in the memory, the auto underline indicator will go out, and only the underline on (±) and underline off (±) codes will be displayed.

Ex.

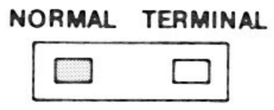
Display:



Printed: ABCDE

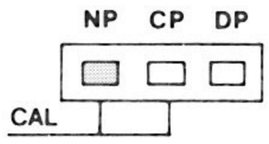
NOTE 2: If a position has been specified for auto underlining, the auto underline indicator will be displayed when storing new text and appending text.

4—6 Superscripts and subscripts



Set the mode selector to **NORMAL**.

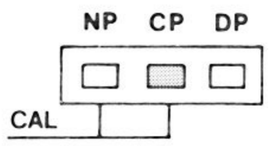
Set the PRINT/CAL mode selector.



IN THE NP MODE

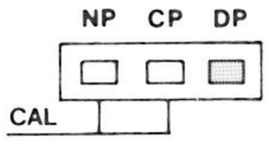
The operations shown in the example below will not be performed.

NOTE: The operations will be stored in the memory if input with the (CODE) key.



IN THE CP MODE

(⁺) or (⁻) will be shown in the display if the index key (⇞) or reverse index key (⇟) is pressed together with the (CODE) key. When the text is then printed, the paper will be advanced or reverse indexed at the position in the display. Use of this function enables printing of text as shown in the example below.



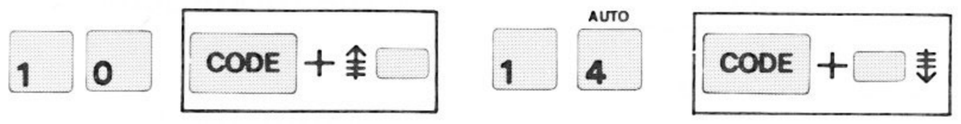
IN THE DP MODE

The paper will be immediately advanced or reverse indexed when the reverse index key (⇟) or index key (⇞) is pressed for printing of text as shown in the example below.

NOTE: The index positions will be stored in the memory if the index is keyed in with the (CODE) key.

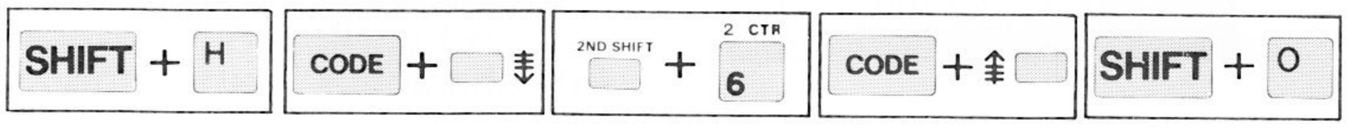
Example 10^{14}

Superscripts will always be automatically printed 1/2 line above the text line regardless of the line space setting.

Operating order 

Example H_2O

Subscripts will always be automatically printed 1/2 line below the text line regardless of the line space setting.

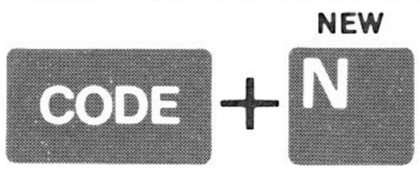
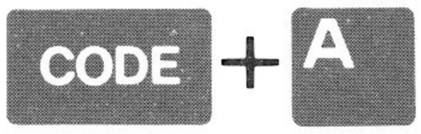
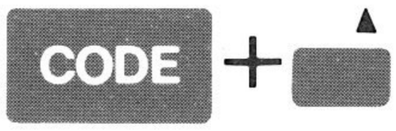
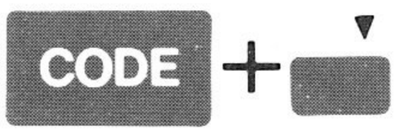
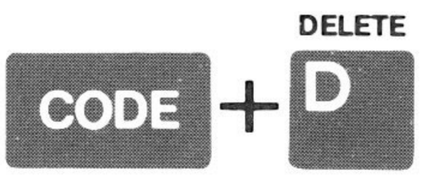
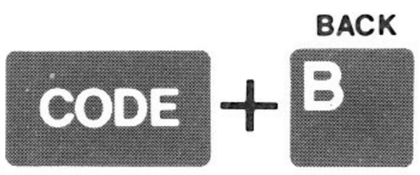
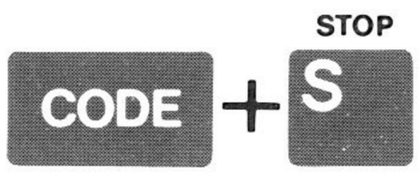
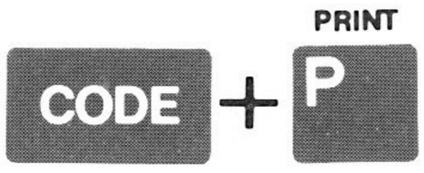
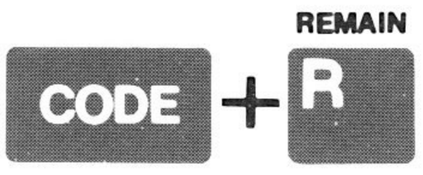
Operating order 

NOTE: If (2ND SHIFT + 6) is used, printing will be as shown below, without performing the above superscript operation.

$3^2=9$ $16^2=256$

Chapter 3 Storing text in the memory

1. Function key guide

Key	Key name	Function	Reference page
	NEW	Used to store new text in the memory after the text already in the memory is erased.	P. 20
	APPEND	Used to append new text to text already in the memory.	P. 21
	CURSOR UP.....	Used when correcting or revising text in the memory. With this key, the first 15 characters in the last line of text are displayed first, and as the key is held down, the cursor and display scroll up through the text.	P. 21
	CURSOR DOWN.....	Used when correcting or revising text in the memory. With this key, the first 15 characters in the first line of text are displayed first, and as the key is held down, the cursor and display scroll down through the text.	P. 21
	DELETE	Deletes all text below the displayed line. (Useful during text revisions.)	P. 22
	LINE DELETE	Deletes the line displayed. (Useful during text revisions.)	P. 22
	LAST LINE DELETE	Deletes the last line. (Useful when making new text and when appending text.)	P. 23
	LINE INSERT	Inserts text in single line units. Inserts before the line displayed. (Useful during text revisions.)	P. 23
	STOP	This key has two functions. (1) Stops memory input. (2) Temporarily stops text printing.	P. 25
	STOP CODE	Inserts stop code in the memory.	P. 25
	PRINT	Prints the text from the beginning.	P. 24
	PRINT CONTINUE.....	(1) Prints text from any desired position. (Useful during text revisions) (2) Temporarily stopped printing continues.	P. 25
	LINE PRINT	Prints text in units of one line at a time.	P. 25
	REMAIN	Displays remaining memory capacity.	P. 25

2. Outline

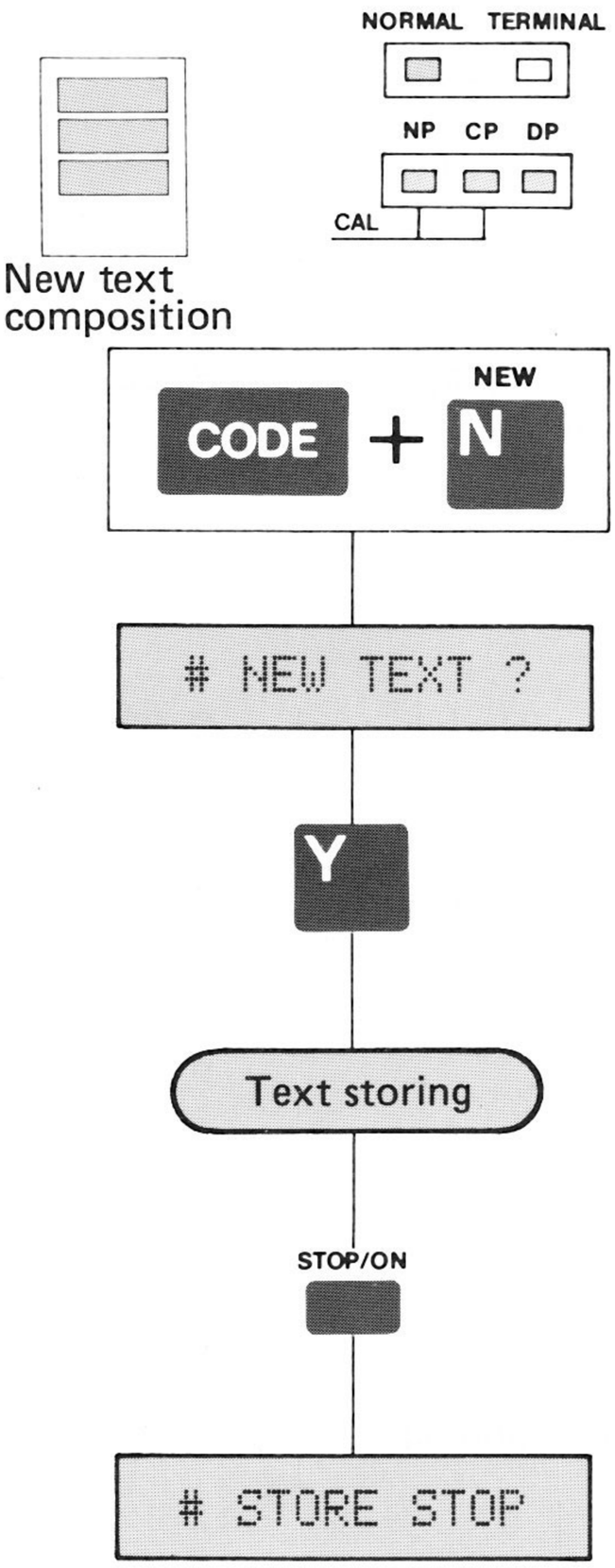
This printer has a maximum storage capacity of 3726 characters. The **MEMORY** indicator will be shown during memory input and during text revisions in the memory. All text, margins, and tabs in the memory will also be retained by the back-up function when the power is turned off if batteries are installed.

The cursor can be moved one line at a time by using (CODE + ▲) and (CODE + ▼). The cursor always moves to the beginning of the line when moved either up or down (cursor up, cursor down).

The cursor left (◄) and cursor right (►) keys can be used to move the cursor right or left within the displayed line for text revisions.

3. New, appended, or revised text

3—1 Storing new text in the memory



Set the mode selector to **NORMAL.**

Set the PRINT/CAL mode selector to the desired position.

(1) Press (CODE + N).

(2) Press (Y) when # NEW TEXT ? is displayed. All text in the memory will be deleted and the printer will enter the new text storing mode.
The **MEMORY** indicator will illuminate.

(3) Key in new text. It will be automatically stored in the memory.

NOTE: Margin and tab stop positions are stored and can be changed even when entering new text in the memory.

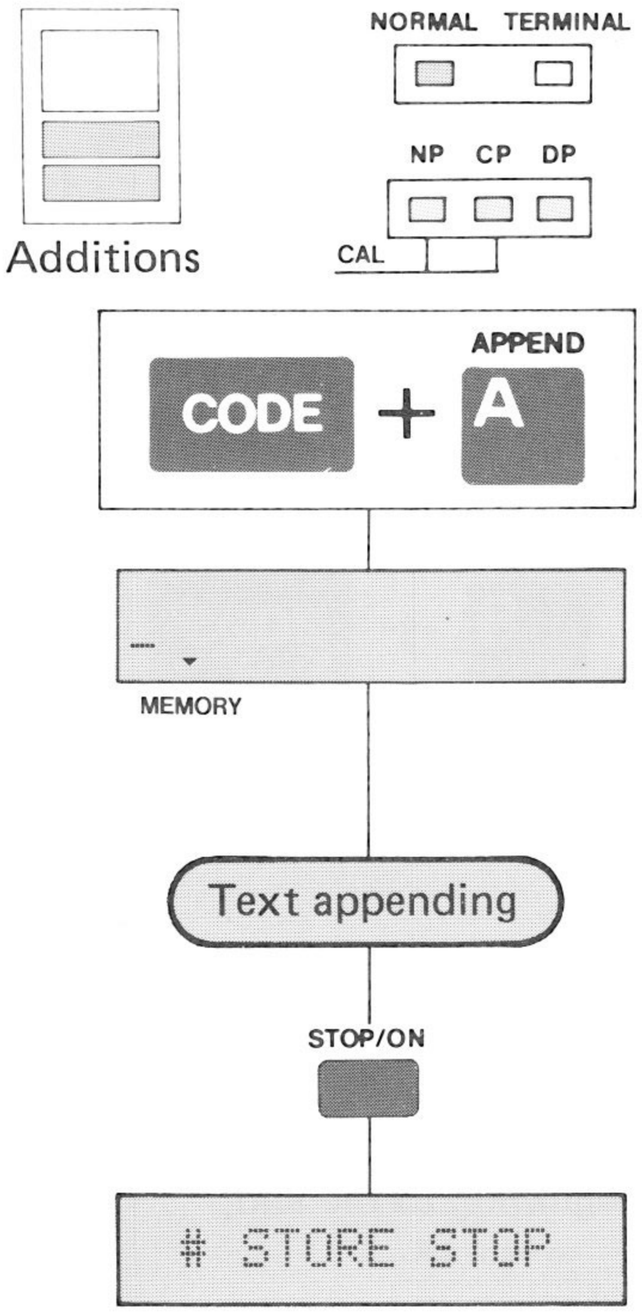
(4) Once the text to be stored in the memory is completed, press the stop key (STOP/ON) to end this mode.

(5) # STORE STOP will be displayed to indicate that memory input is complete.

NOTE: Be sure to press the **stop** key (STOP/ON) before turning the power switch **OFF**. Some of the last portion of text may not be stored if the power switch is turned **OFF** without pressing the stop key (STOP/ON).

3—2 Text append

Additions to the end of the text in the memory



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to the desired mode.

(1) Press (CODE + A (APPEND)).

(2) The **MEMORY** indicator will illuminate. The last 15 characters of the text in the memory will be displayed.

NOTE: Press (Y) if nothing is stored in the memory. This will open the memory for storage of new text.

(3) Compose the text to be appended.

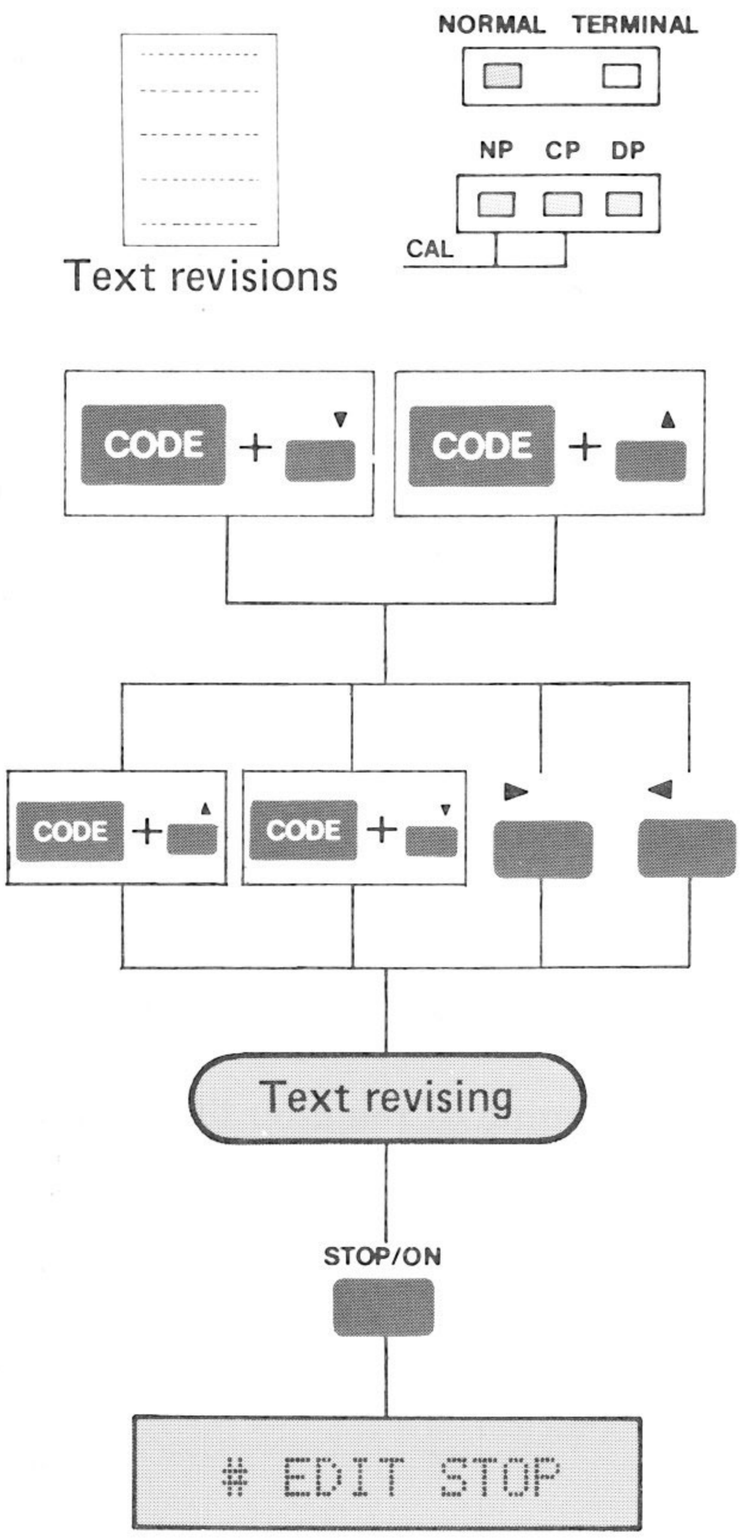
NOTE: Margin and tab stop positions can be changed when storing in the memory.

(4) Press the stop key (STOP/ON) when all additions have been finished.

(5) # STORE STOP will be displayed indicating that the memory is closed and text storage is finished.

3—3 Text revisions

Revising and correcting text stored in the memory



Set the mode selector to **NORMAL**.

In this mode text will be displayed and not printed no matter what position the PRINT/CAL mode selector is set to.

(1) Press (CODE + ▼). The first 15 characters of the first line of text will be displayed. The **MEMORY** indicator will simultaneously illuminate.

Press (CODE + ▲). The first 15 characters of the last line of text will be displayed. The **MEMORY** indicator will simultaneously illuminate.

(2) Move the cursor to the position of the character to be corrected.
(Cursor up, cursor down, cursor right, cursor left)

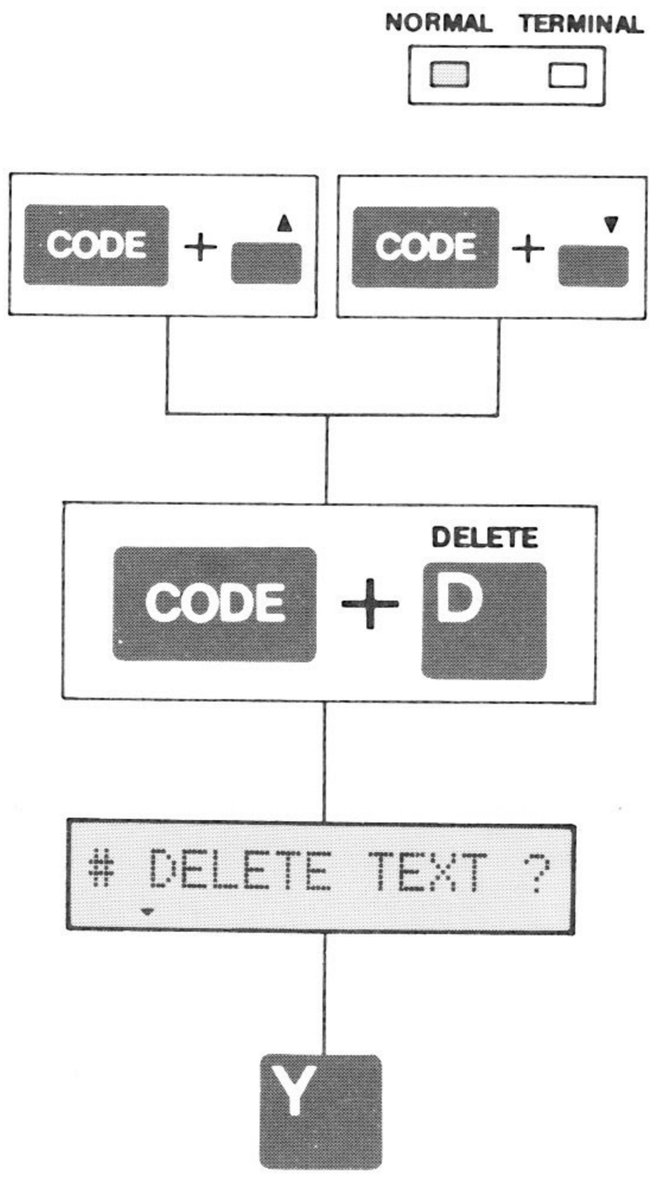
(3) Correct the text.
Enables letter-by-letter text revisions (Refer to page 8) and line-by-line text revisions (Refer to pages 22 and 23.)

(4) Press the stop key (STOP/ON) when corrections are completed.

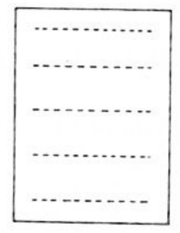
(5) # EDIT STOP will be displayed indicating that corrections in the memory are completed.

4. Memory editing functions

4—1 Delete function



1. Deletion of all text following the indicated position (only during text revisions)


Text revisions

Set the mode selector to **NORMAL**.

(1) Use the cursor up key (CODE + ▲) or cursor down key (CODE + ▼) to locate the first line of the text to be deleted.

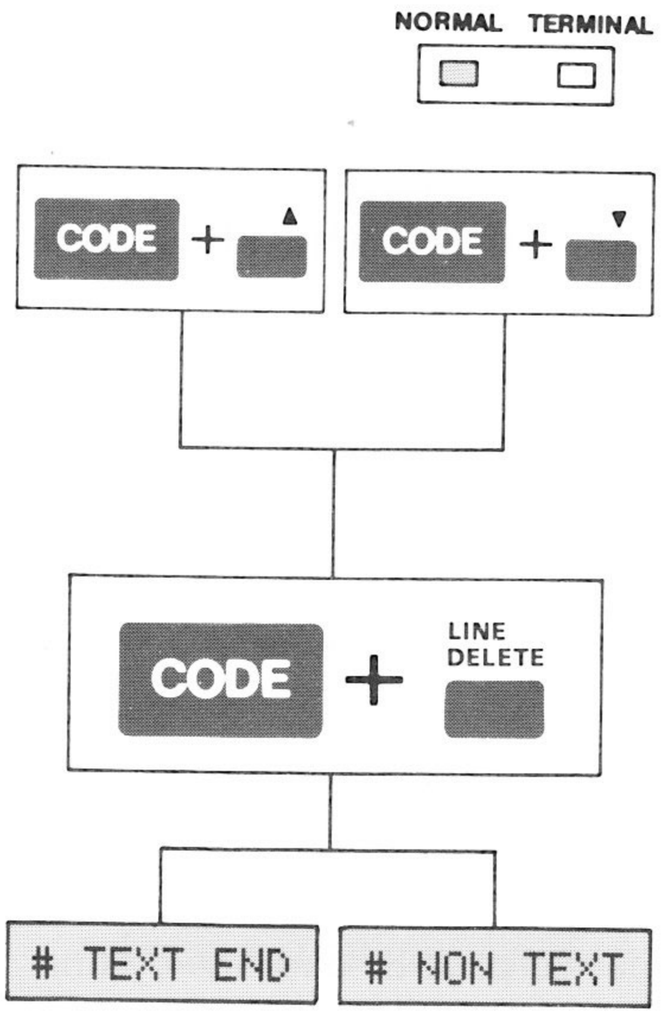
(2) Press (CODE + DELETE D).

NOTE: To delete the entire text, press (CODE + NEW N).

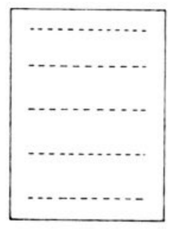
(3) Press (Y) after # DELETE TEXT ? is displayed. This will delete all text from the displayed line to the end. Text will not be deleted if any key other than (Y) is pressed.

TEXT END will be displayed until the next key is pressed.

NOTE: If the entire text is deleted from the beginning to the end, # NON TEXT will be displayed.



2. Line deletions (during storing of new, additional, or revised text)


Text revisions

Set the mode selector to **NORMAL**.

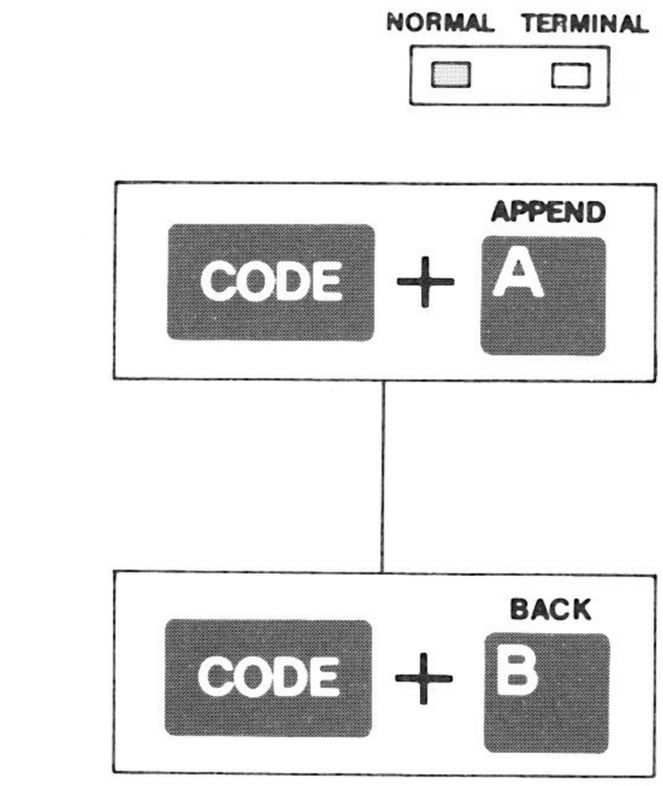
(1) Use the cursor up key (CODE + ▲) or cursor down key (CODE + ▼) to locate the line to be deleted.

(2) Press (CODE + LINE DELETE).

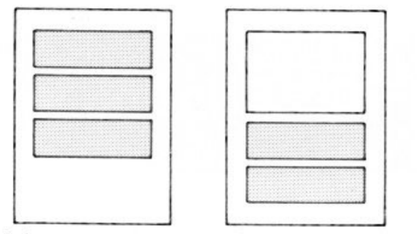
(3) The displayed line will be deleted and the beginning of the next line will be displayed.

NOTE 1: If all text from the cursor position to the end has been deleted, # TEXT END will be displayed.

NOTE 2: If all text from beginning to end has been deleted, # NON TEXT will be displayed.



3. Last line deletions (when making new text or additions)



Set the mode selector to **NORMAL**.

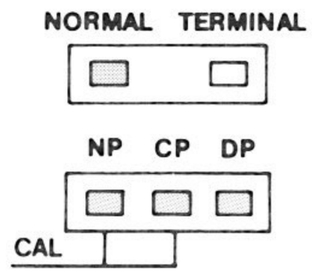
(1) Press (CODE + A) to enter the append mode.
(This can also be used when storing new text.)

(2) Press (CODE + B).

(3) The last line will be deleted, and the last 15 characters of the previous line will be displayed.

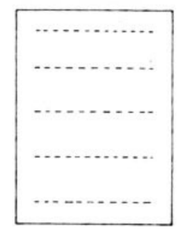
NOTE: Several lines can be deleted by repeating this function.

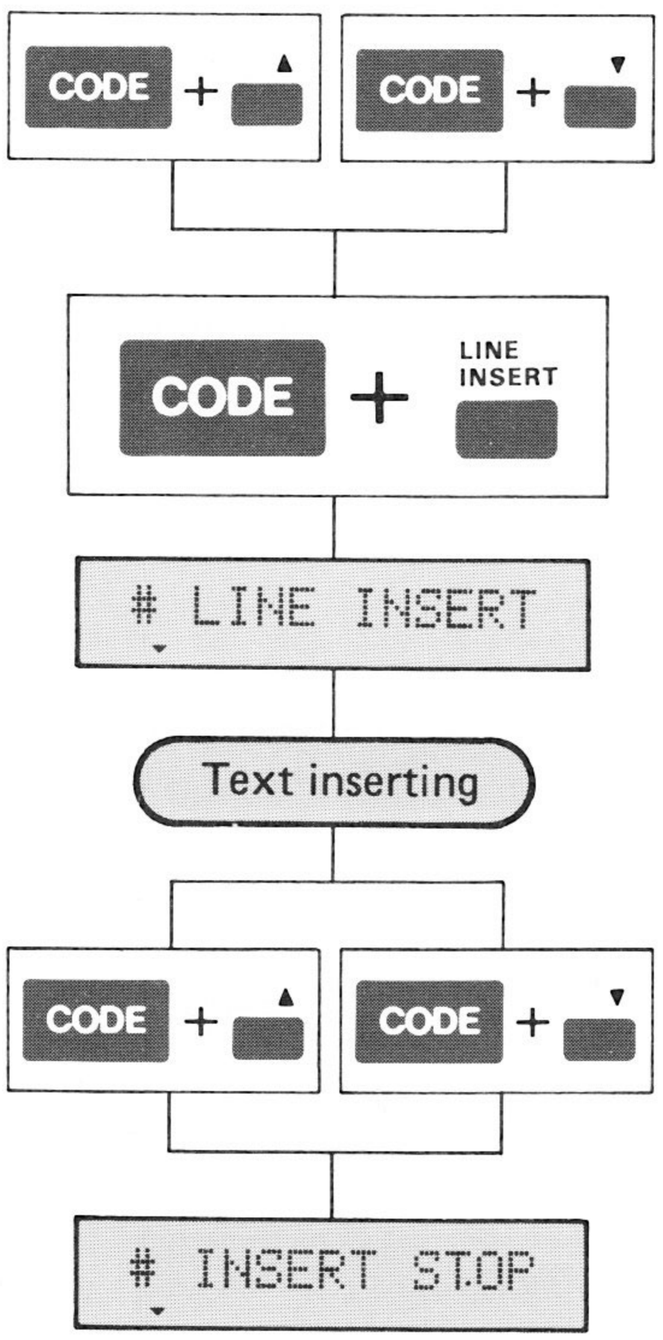
4—2 Insert function (Line insertions)



Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to the desired position.


Text revisions



(1) Use the cursor up key (CODE + ▲) or cursor down key (CODE + ▼) to move the cursor to the line where text is to be inserted. Note that the text will be inserted before the line where the cursor is located.

(2) Press (CODE + LINE INSERT) to enter the insert mode. `# LINE INSERT` will be displayed.

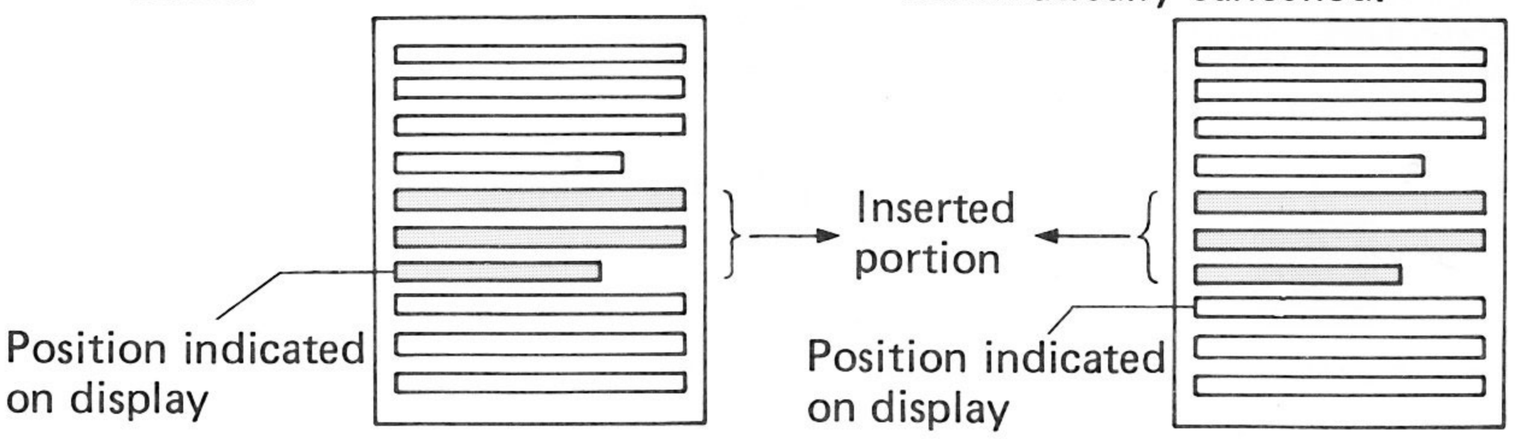
NOTE: Line insertion cannot be done if the remaining memory capacity is less than 100 characters.

(3) Input the new sentence.

NOTE: Several lines can be inserted if the return key (RETURN) is pressed at the end of each line.

(4) Press (CODE + ▲) and `# INSERT STOP` will be displayed. The beginning of the last inserted line will be displayed, and the insert mode will be simultaneously cancelled.

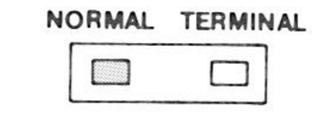
Press (CODE + ▼) and `# INSERT STOP` will be displayed. The beginning of the line following the inserted portion will be displayed and the insert mode will be automatically cancelled.



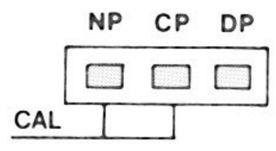
5. Printing text

5—1 Printing text

All text in the memory can be printed out from beginning to end.

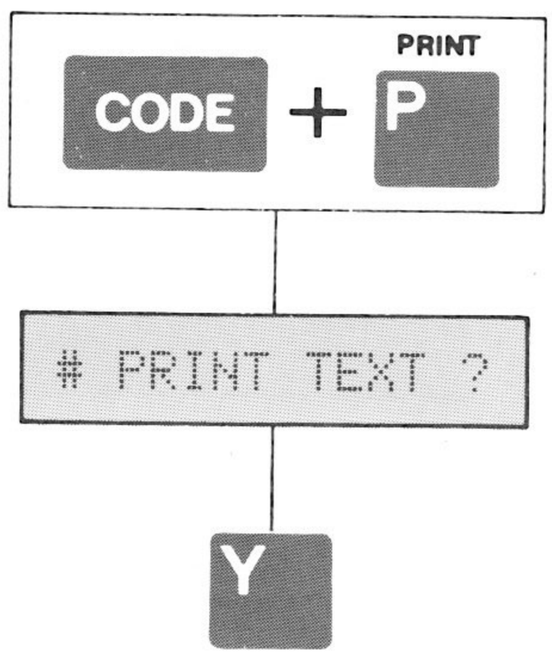


Set the mode selector to **NORMAL**.



Set the PRINT/CAL mode selector to the desired position.

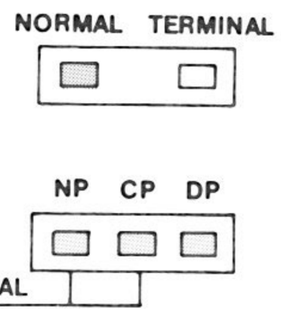
- ● NP □ Characters will be automatically displayed on the display.
- ● CP □ DP □ Text will be printed on paper.



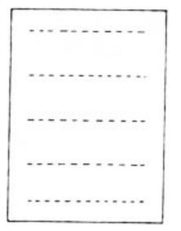
(1) Press (CODE + PRINT P).
NOTE: A beep will sound when there is nothing in the memory.

(2) Press (Y) when # PRINT TEXT ? is displayed.
The text will now be printed according to the PRINT/CAL mode selector position. The text will not be printed if any key other than (Y) is pressed.

5—2 Printing from a desired position



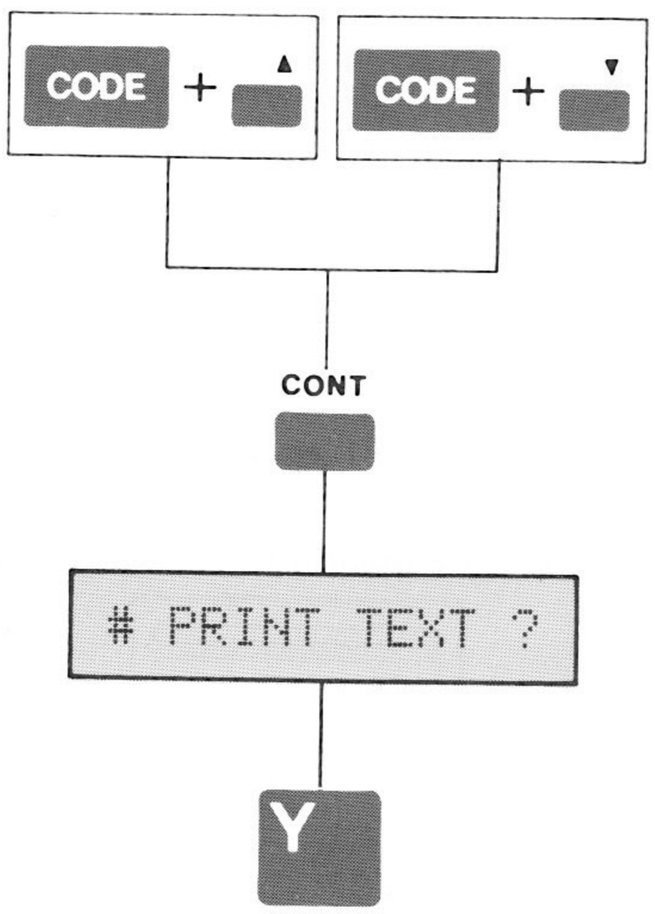
Set the mode selector to **NORMAL**.



Text revisions

Set the PRINT/CAL mode selector to the desired position.

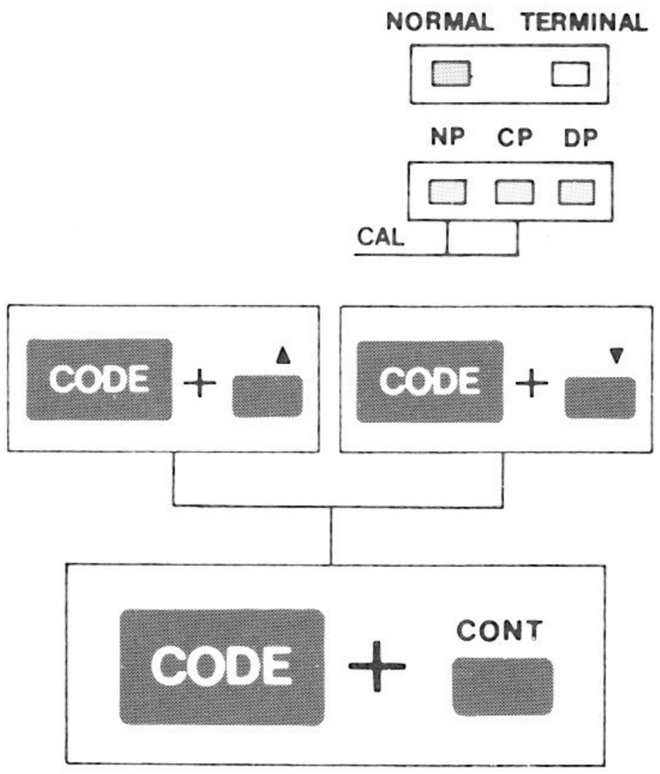
- ● NP □ Text will appear in the display.
- ● CP □ DP □ Text will be printed on paper.



(1) Use the cursor up key (CODE + ▲) and the cursor down key (CODE + ▼) to move the cursor to the line from which the text is to be printed.

(2) Press the continue key (CONT).

(3) Press (Y) after # PRINT TEXT ? is displayed.
The text will now be printed according to the position of the PRINT/CAL mode selector. The text will not be printed if any key other than (Y) is pressed.



5–3 One line printing

Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to the desired position.

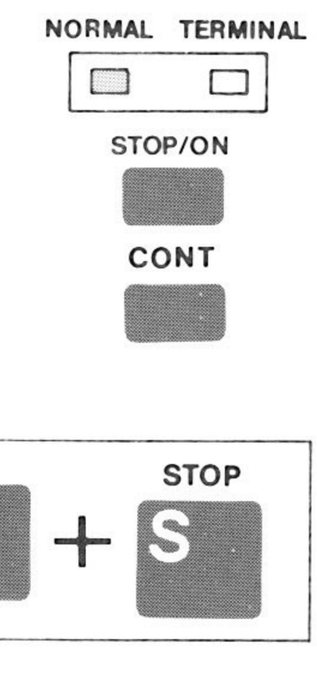
- NP Text will appear in the display.
- CP DP Text will be printed on paper.

(1) Move the cursor to the line that is to be printed by depressing the cursor up key (CODE + ▲) and the cursor down key (CODE + ▼).

(2) Press (CODE + CONT) to print the line indicated by the cursor.
Succeeding lines can also be printed one line at a time by simply continuing to press (CODE + CONT).

NOTE 1: If these keys are pressed when the printer stops after printing a specified line, printing will continue from the point where printing ended.

NOTE 2: If these keys are pressed without moving the cursor at the beginning of the operation, the first line of the text will be printed.



5–4 To stop and resume printing

Set the mode selector to **NORMAL**.

If the stop key (STOP/ON) is pressed in the middle of printing, the printer will stop printing at the end of that line.
Printing of text in the memory will continue when the continue key (CONT) is pressed.

USING THE STOP CODE S

(1) If a temporary pause in printing from the memory is needed, the stop code (S) must be input by using (CODE + STOP S) at the position of the desired stop when storing text.

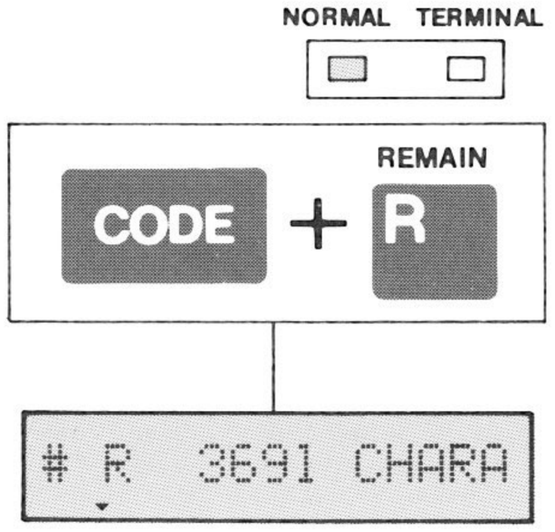
- **NP** and **CP** modes
  The stop code (S) will appear on the display.
- **DP** mode
  The stop code (S) will not be shown on the display, but will be entered in the memory.

(2) During printing, the line with the stop code (S) will be printed, the paper advanced, and the printer will then stop after carrier return. The stop code is not printed.

(3) After printing has stopped, any number of characters can now be printed.

(4) Press the continue key (CONT) to continue printing from the memory.

6. Memory remainder display



Set the mode selector to **NORMAL**.

(1) Press (CODE + R). The remaining memory capacity will be displayed as long as the keys are depressed.

(2) The memory remainder appears as shown at right. In this example the remainder is large enough for 3691 characters to be input.

(3) The display will return to its previous condition when the keys are released.

7. Memory full indicator



When the memory is full, the display will show **MEMORY FULL** as shown at left for 0.5 sec., and the alarm will beep.

8. Examples of use

8—1 Print out after inserting text into stored text

(a) Mr. and Mrs. Ray Gebbs
request the pleasure of the company
of (b)

(c) for cocktails
on Friday, the eleventh of November
at half past seven o'clock

The Grand Hotel R.S.V.P.
New York, New York 389-8752

For this example, the text shown at left is stored in the memory.
To insert text between paragraphs (a) and (c) at left, perform the following steps.

NOTE: A stop code (▯) is input at (b) by depressing (CODE + S (STOP)).

Mr. and Mrs. Ray Gebbs
request the pleasure of the company
of

(1) Set the PRINT/CAL mode selector to either **CP** or **DP**.
(2) Press (CODE + P (PRINT)) and (Y), and print paragraph (a).

Mr. and Mrs. Ray Gebbs
request the pleasure of the company
of

Mr. and Mrs. Reingrod

(3) When the printer stops, key in the appropriate text.

NOTE: Text inserted in at this point will not be stored in the memory.

Mr. and Mrs. Ray Gebbs
request the pleasure of the company
of

Mr. and Mrs. Reingrod

for cocktails
on Friday, the eleventh of November
at half past seven o'clock

The Grand Hotel R.S.V.P.
New York, New York 389-8752

(4) When the insertion is completed, press the continue key (CONT) to print section (c).

8—2 Printing the beginning and end of text in the memory without printing the text in the middle

A table such as that shown at left is in the memory.
Follow the steps below to print the text, skipping lines 4 and 5.

Year	Men employees		Women employees		Total
	Number	Percent	Number	Percent	
1975	32	40.1	48	60.0	80
1976	35	38.8	55	61.2	90
1977	40	38.1	65	61.9	105
1978	40	32.0	85	68.0	125
1979	45	31.2	99	68.8	144
1980	37	36.1	60	61.9	97

(1) Set the PRINT/CAL mode selector to either **CP** or **DP**.
(2) Press (CODE + PRINT P) and (Y) to start printing.
(3) Press the stop key (STOP/ON) when line 3 starts printing.

NOTE: After printing line 3, the first 15 characters of line 4 will be displayed.

Year	Men employees		Women employees		Total
	Number	Percent	Number	Percent	

● Display when the stop key is pressed

```
÷1975→32→40.1→4
```

(4) Press either (CODE + ▲) or (CODE + ▼) to display line 6.

Year	Men employees		Women employees		Total
	Number	Percent	Number	Percent	

● Display 6th line

```
÷1977→40→38.1→6
```

(5) Press the continue key (CONT) to continue printing from line 6.

Year	Men employees		Women employees		Total
	Number	Percent	Number	Percent	
1977	40	38.1	65	61.9	105
1978	40	32.0	85	68.0	125
1979	45	31.2	99	68.8	144
1980	37	36.1	60	61.9	97

Chapter 4 Calculator function

1. Function key guide

Key	Key name	Function
c	CLEAR	This key clears the result of any previously performed calculation. In the **CP** mode, figures in the display will be printed before the calculator is cleared.
=	EQUAL	Press this key to obtain the final result of the calculation.
×	MULTIPLY	Multiplication
÷	DIVIDE	Division
+	ADD	Addition
−	SUBTRACT	Subtraction
%	PERCENT	Use this key to calculate percentages.

2. How to use the calculator

Results of calculations will be expressed in a maximum of 10 digits. Note that the calculator can only be used in the **NORMAL** mode, and that it cannot be used when storing text.

2–1 How to use calculator keys

Set the mode selector to **NORMAL**.

Set the PRINT/CAL mode selector to either **NP** or **CP**.

The following keys are used for calculations:

Numerals 0 ~ 9..... out of normal 44 keys.
. (decimal point) ..... out of normal 44 keys.
÷ x − + = % ..... use only the arithmetical keys for the calculator.

2–2 To clear the calculator display



Press the clear key (C) to clear the display and the result of the previous calculation in order to make new calculations.

NP mode ..... Only the display is cleared.
CP mode ..... Characters in the display are automatically printed and the display and calculator are simultaneously cleared.

NOTE: If the wrong number is input, use the backspace key (BS), cursor keys (◄ ►), insert key (LINE INSERT), or delete key (LINE DELETE) to correct the number.

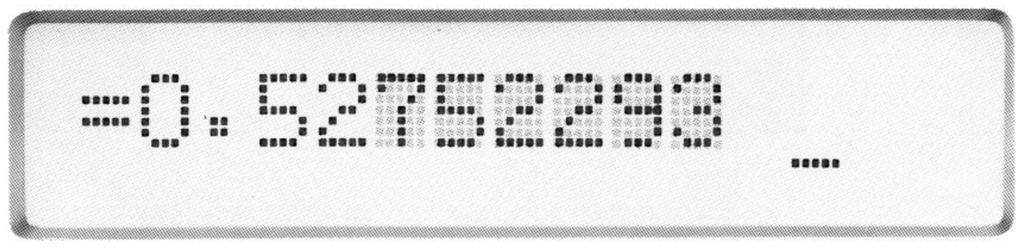
2–3 Error sign "E"



An error **"E"** will appear on the display in the following conditions.

- in calculations where the whole number consists of 11 or more digits
- when the answer exceeds 10 digits
- when numbers are divided by 0.

2–4 When the display flashes in the CP mode



If numbers in the calculation result start flashing, the flashing numbers exceed the right margin and will not be printed on the same line.

(1) If the flashing numbers are not necessary

Press the cursor left key (◄) to move the cursor to the furthest left flashing number, and then press the delete key (LINE DELETE) to delete all flashing numbers.

(2) To print the flashing numbers on the next line

Press the return key (RETURN). The flashing numbers can be printed on the next line.

(3) To print all numbers on the next line

Use the cursor keys (◄ ►) and the delete key (LINE DELETE) to erase the display and then press the return key (RETURN). Now press the equal key (=) and the answer will reappear on the display enabling printing on the next line.

(4) To print beyond the right margin

Press the margin release key (ESC MR). The display will stop flashing and the result will be printed beyond the margin when the return key (RETURN) is pressed.

2—5 Special calculations (%)

- Key input order NOTE: (**A**) and (**B**) indicate numbers.

(1) Percentage

A [×] **B** [%]

$A \times \frac{B}{100}$

(2) Premium

A [+] **B** [%]

$A \times (1 + \frac{B}{100})$

(3) Discount

A [−] **B** [%]

$A \times (1 - \frac{B}{100})$

(4) Ratio (percentage)

A [÷] **B** [%]

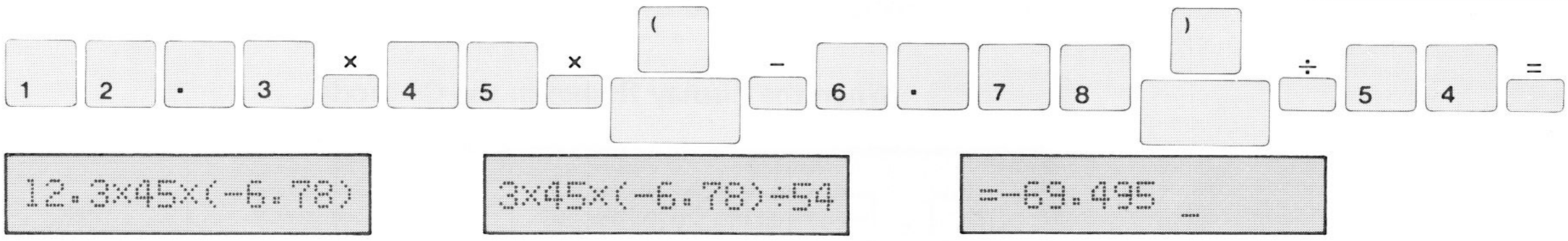
$\frac{A}{B} \times 100$

2—6 Notes on calculator function use

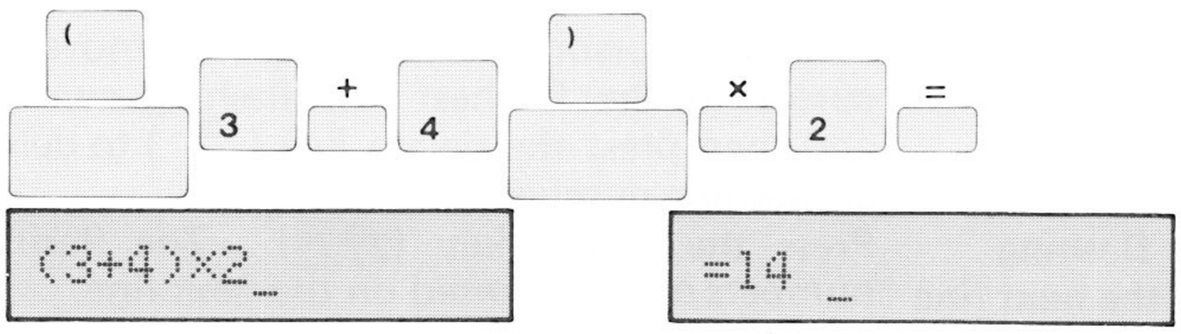
	Output (example)	Actual calculation
(1) If no operation keys are input before the equal key is input again, the result of the previous calculation will be displayed.	123×456＝56088　　ABCD ABC 123　　CDE ＝56088	
(2) If more than one operation key is input, the function of the first input operation will be performed.	123×÷－＋22＝2706	(＝123×22)
(3) If (A) + (operation) (=) is input, (A) + (operation) + (A) will be calculated.	123×＝15129 123＋456×＝335241	(＝123×123) (＝〔123＋456〕×〔123＋456〕)
(4) Tabs, spaces, characters and commas are not included in calculations.	No.20 ABC $ 50000×60PCS＝3000000	(＝50000×60)
If numbers are input with a tab, the number following the tab will have priority and will be used in the calculation.	123 456×789(TAB)567＝258552 123,456×789＝359784	(＝456×567) (＝456×789)

3. Calculations

1 Multiplication and division　　12.3×45×(−6.78)÷54＝−69.495



2 Mixed calculations　　2 × (3 + 4) = 14



NOTE 1: The printer always calculates in the order numbers and operations are input, regardless of parentheses and other letters or symbols. Accordingly, be sure to input mixed calculations from the operations in parentheses first: e.g. (3 + 4) x 2 = 14

NOTE 2: If the above example was input as 2 x (3 + 4), the result will be = 10

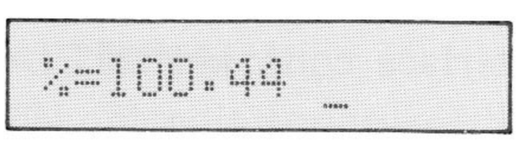
3 Percentage calculation

$124\times(1-\frac{19}{100})=100.44$



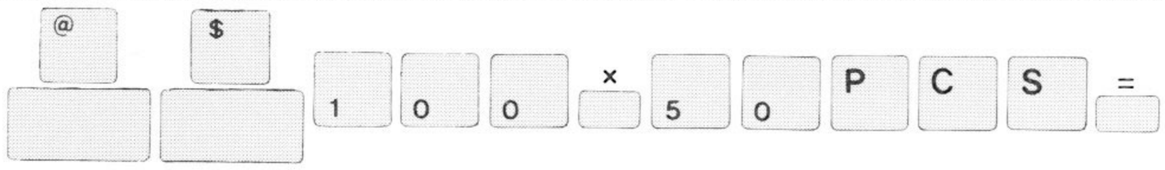


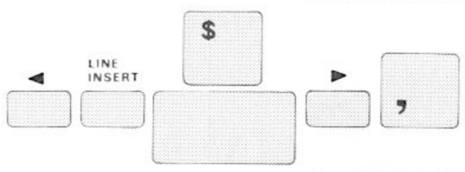




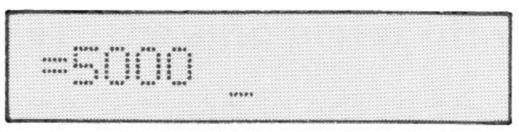
4 Inserting characters and symbols into the answer

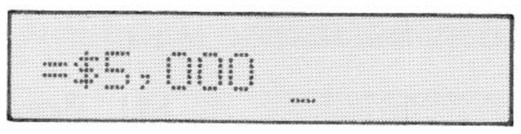
@ $100\times50_{PCS}=5000\rightarrow\$5,000$







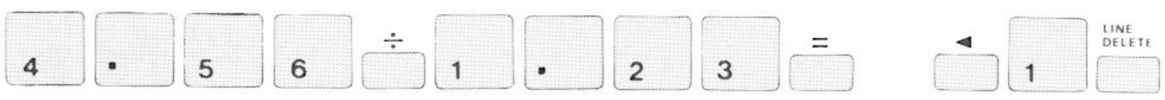




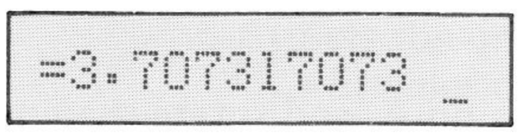
Insert the characters or symbols into the calculation before printing and the result will be printed as shown above.

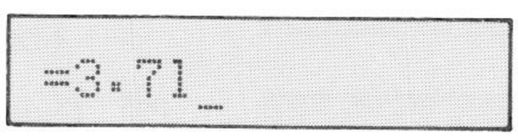
5 Rounding

$4.56\div1.23=3.707317073\rightarrow3.71$









Correct the result in the display before printing. Note that rounding is manually performed.

6 To print the answer only

$\text{PEANUTS}123+456_{PCS}\rightarrow\text{PEANUTS}579_{PCS}$

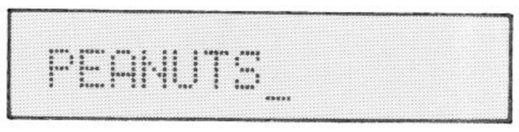
Change modes as shown below in order to print the result of a calculation without showing the calculation itself.

CP mode



Shift lock

Shift lock cancel



NP mode



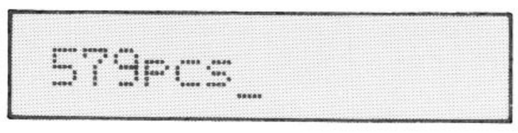






CP mode





This procedure is convenient for inserting calculation results into sentences or tables when the calculation itself need not be shown.

Chapter 5

How to use the terminal connection

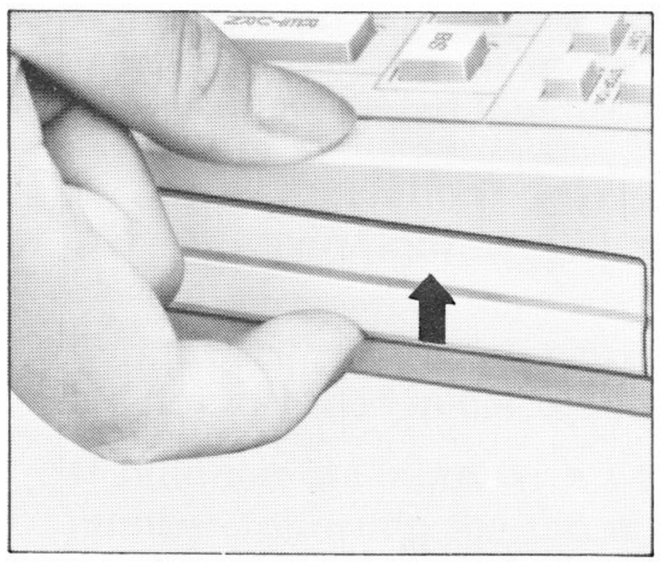
This printer is equipped with a built-in RS-232C standard interface for connection to other devices similarly equipped with an RS-232C interface (such as personal computers, accoustic couplers, etc.) for interactive data communication.

What is an RS-232C interface?

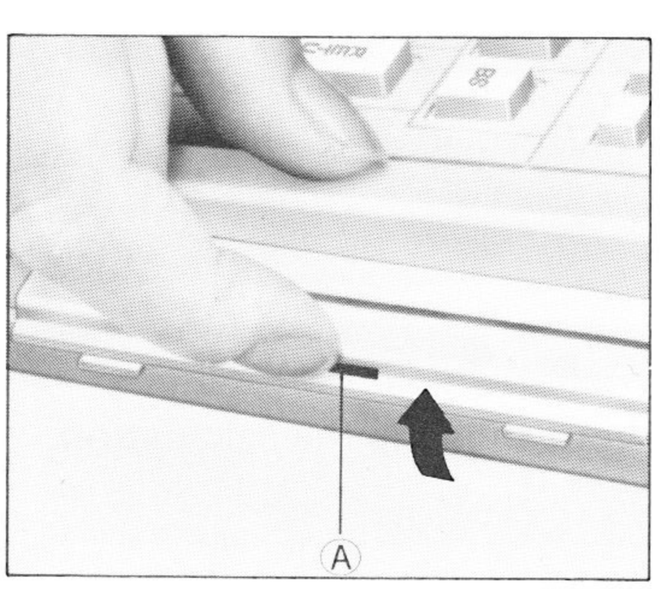
An RS-232C interface conforms to EIA (Electronic Industries Association) standards and is for connecting modems and data terminal devices. This interface also conforms to JIS (Japan Industrial Standards) standards.

Note that these standards are to maintain electrical precision. It is necessary that communication procedures and the use of signal lines agree for the connection conditions at both ends.

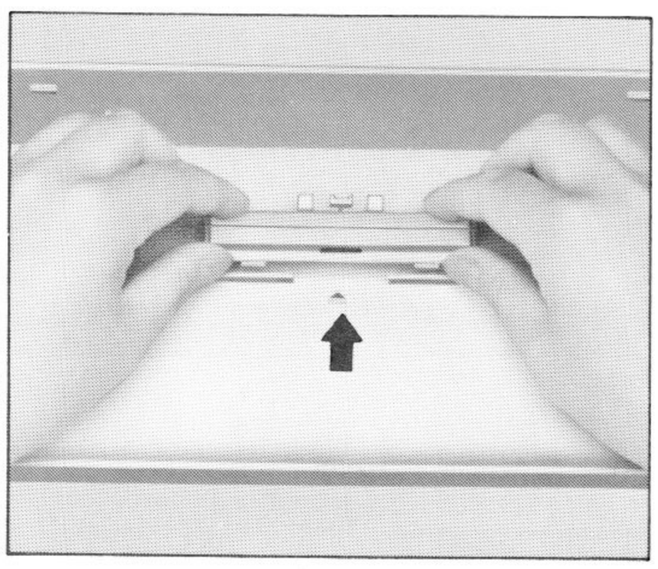
1. Removal and installation of the connector cover



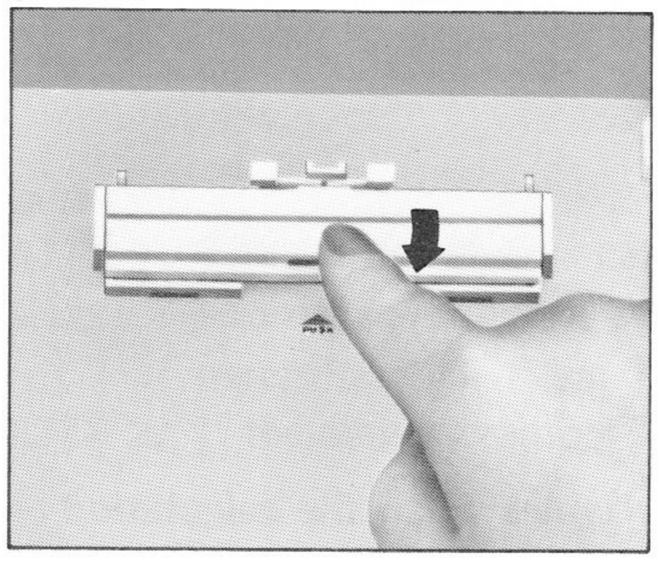
(1) Press the indent in the connector cover and raise the cover.



(2) Rest the tabs on A, and rotate the cover to remove.



(3) Insert into position in the lid.

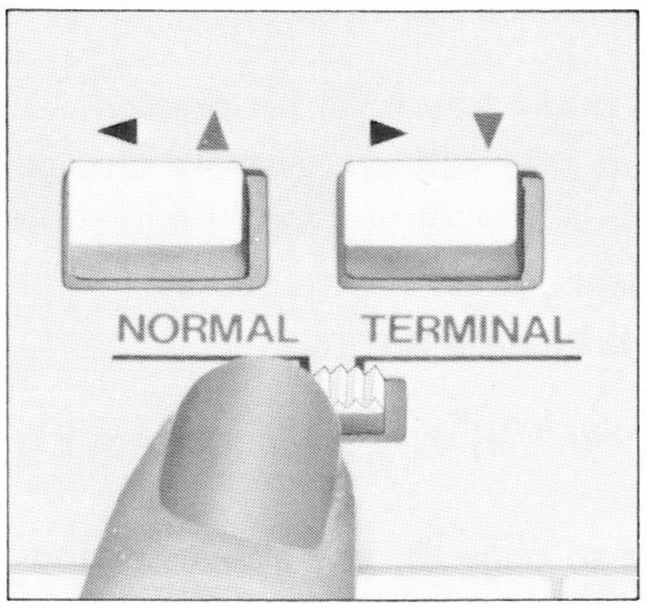


(4) Push down to mount.

*Reverse the steps for removal to install the cover.

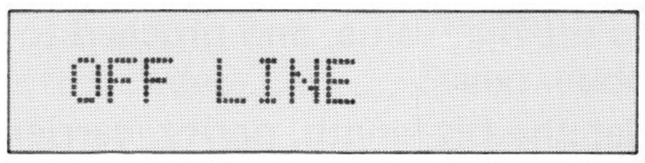
2. Operation

2–1 Setting the terminal mode



(1) The I/O interface can be used when the mode selector is set to **TERMINAL.**

(2) The display will indicate **OFF LINE** as shown below when the terminal mode is entered. Data communication is not possible when off line.



(3) The PRINT/CAL mode selector may be set to any position **(NP, CP, DP).**

(4) The auto power off function will not work in the terminal mode.

2–2 Function key guide

(The following keys can be used in the terminal mode)

STOP/ON	Sets the off line mode. • Communication mode setting and buffer clear are performed in the off line mode. Data input/output is not performed. • Data input/output will temporarily stop if the printer is turned off line during data input/output.
CONT	Sets the on line mode. • Enables data input/output. • When the printer is turned off line during data input/output and the printer is temporarily stopped, data remaining in the print buffer will be printed when the continue key (CONT) is pressed and the printer comes back on line.
MODE	Determines the communication mode setting. (Valid when **off** line)
C	Clears the print buffer (Valid when **off** line) • Text stored in the memory will not be cleared.
TEXT	Transmits text stored in the memory. (Valid when **on** line)
BREAK	Transmits a break signal. (Valid when **on** line) • If text is being relayed when this key is pressed, text transmission will be stopped.
CODE	Used in conjunction with other keys to transmit 01H – 1FH, 7FH function codes. (Valid when **on** line)
	Advances or reverse indexes paper. (Normally valid)

2 – 3 Communication mode setting

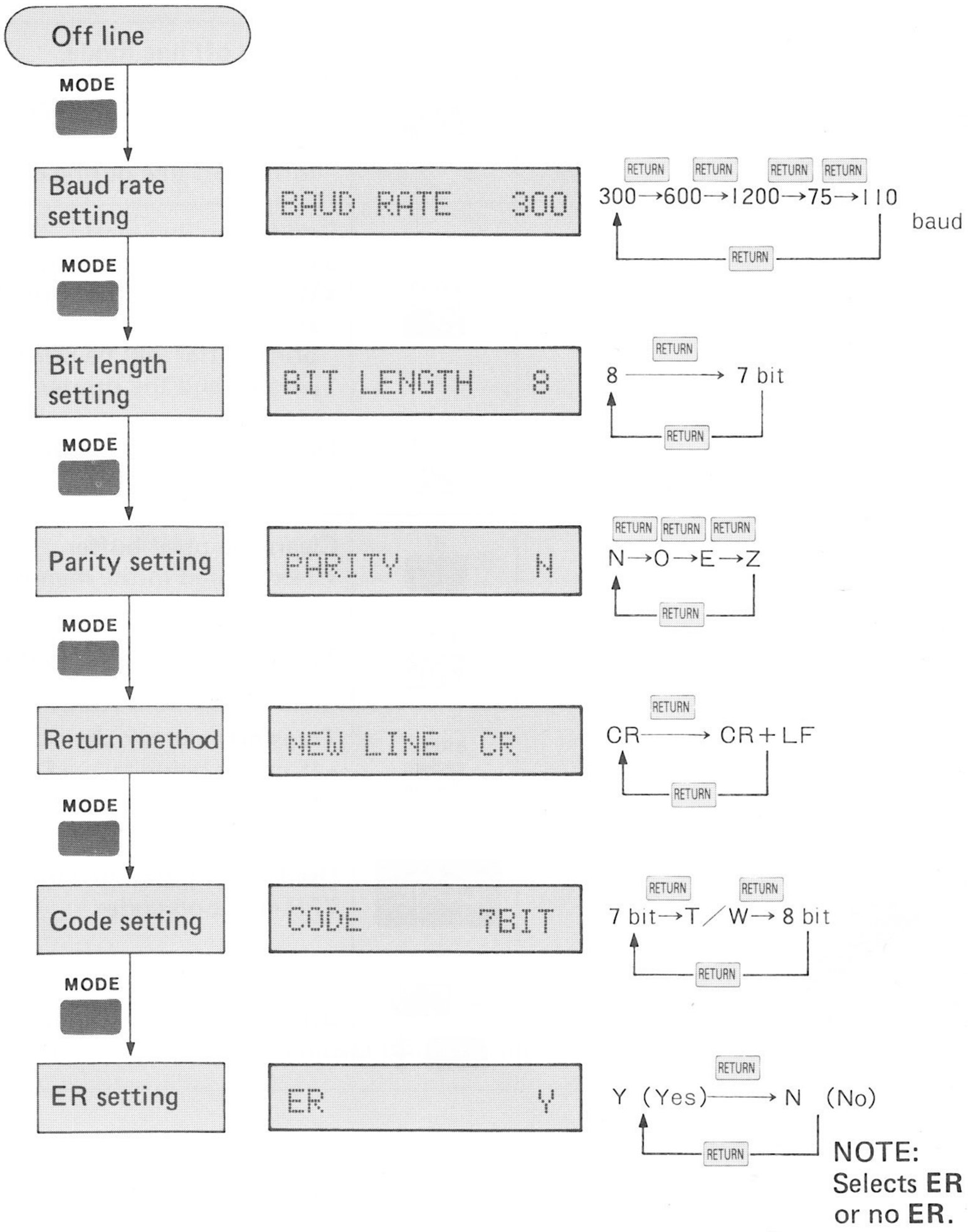
Press the mode key (MODE) when off line to set the data transmission speed (Baud rate), bit length, and other communication mode settings.

(1) The Baud rate can be set the first time the mode key (MODE) is pressed. The first setting is 300 (Baud). The Baud rate will successively change form 600→1200→75→110→ . . . each time the return key (RETURN) is pressed. When the desired Baud rate appears, press the mode key (MODE) to set that value, and proceed to the next bit length setting.

(2) Set the bit length, parity, carrier return (new line) method, code, and **ER** (external ready) settings.

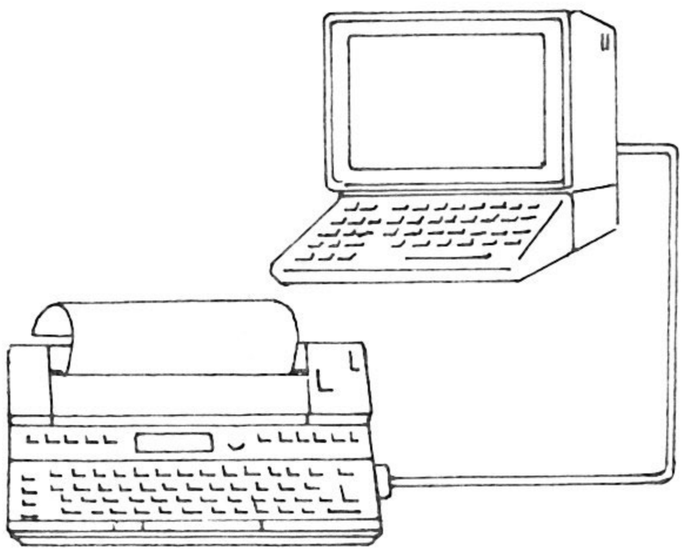
NOTE 1: If the memory is backed up (Refer to page 9), the above settings will be retained for use at a later time. Only those settings which differ from stored data need to be changed.

NOTE 2: When Bit length is set at "8", parity is automatically set at "N".



NOTE: Refer to the RS-232C interface section for each of the above items.

2 – 4 On line communication

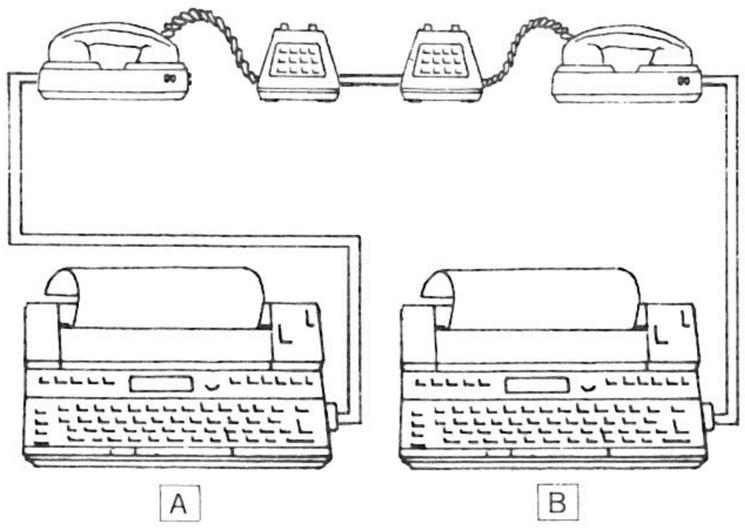


Communication is enabled by pressing the continue key (CONT) to specify the on line mode. Some representative uses are shown below.

(1) Use as a printer for a computer

This printer can be used to receive and print data transmitted from a connected computer.

- Character data ..... Character data received by the printer is displayed on the printer display and printed on paper.
- Control codes ..... Seven codes, such as **BEL**, **BS**, and **CR**, can be accepted during data reception. Other codes are ignored. (Refer to page 39, control codes.)



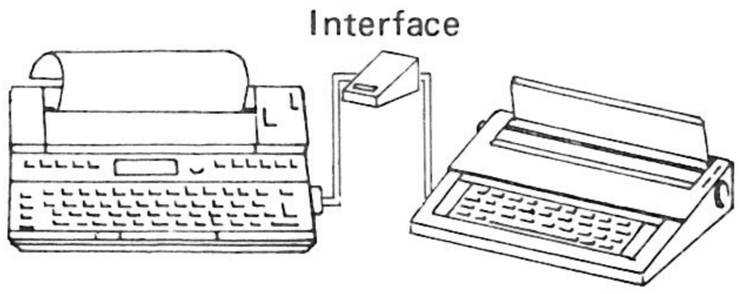
(2) Use for data communications when connected to a data terminal

This printer can be used for data communications by connecting two printers, or a printer with computer terminal, via the RS-232C cable and connector, or via telephone lines through a modem.

- All data input with valid input keys is transmitted to the connected device. When this happens, data is neither printed nor displayed on the input-side printer.
- 01H – 1FH, 7FH codes can be transmitted by using the (CODE) key together with another key, e.g. (CODE + APPEND A). (Refer to page 44, control codes.)
- When the text key (TEXT) is pressed, the text stored in the memory of this printer is transmitted and printed and displayed on the connected device.

Examples

- If "How are you?" is input on printer [A], "How are you?" is displayed and printed out on printer [B]. Reciprocal data transmission and reception is possible with this set up.
- If (CODE + M) is input on printer [A], the **ODH (CR)** code is transmitted to printer [B], and the **CR** operation is performed by [B].



(3) Transmission and printing of data from this printer to another printer

Data can be sent from this unit to another printer and printed in a different type style.

- Characters input on this printer or stored in its memory are transmitted to the connected printer. (Operates the same as section (2) above.)

3. RS-232C type interface

3 – 1 Basic specifications

Baud rate (transmission speed)	75, 110, 300, 600, 1200 (Baud)
Synchronous system	Asynchronous
Communication control process	Full duplex, no procedure
Bit length	7 bit + parity, or 8 bit no parity
Parity	N ..... NONE parity (parity is normally 1) O ..... ODD parity E ..... EVEN parity Z ..... ZERO parity (parity is normally 0)
Data style	10 bits/character SPACE (0) MARK (1) ST b_1 b_2 b_3 b_4 b_5 b_6 b_7 b_8 SP Start of character is the first shift (Start Bit) from MARK to SPACE. If without Line data, it is MARK mode. ST ..... start bit $b_1 - b_7$ ..... data bit (LSB is b_1.) b_8 ..... parity bit (MSB during 8 bit data) SP ..... stop bit
New line (carrier return)	**CR** + **LF** ..... carrier return according to **LF** code **CR** ..... automatic carrier return according to **CR** code
Code	7 bit ..... 7-bit data code (see page 38–43) Applicable with 7-bit codes used in personal computers. T/W ..... Typewriter code (see page 38–43) 8 bit ..... 8-bit data code (see page 43) (8-bit expansion code)
Shake hand protocol	Enables selection of X_{ON} **(DC1)**, X_{OFF} **(DC3)** signals, or **ER** signal line.

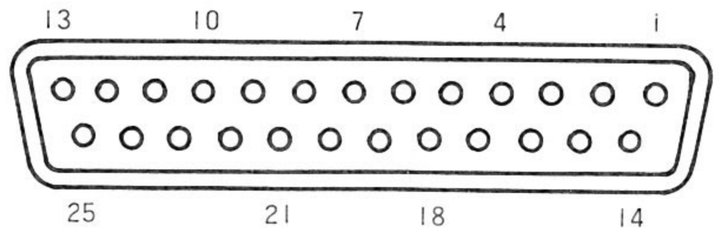
3 – 2 Signal level

Data line (SD, RD) logic	Other control line logic	Receiving end voltage
SPACE (0)	ON	+ 3 V and greater
MARK (1)	OFF	– 3 V and less

3—3 Connector and pin arrangement

Terminal number	Signal name	Code	EP↔connected device	Function summary	Note
2	Send Data	SD	→	Data line sent from this printer to connected terminal	
3	Receive Data	RD	←	Data line sent from connected terminal to this printer	
4	Request to Send	RS	→	Controls transmission carrier ON: carrier output OFF: carrier stop	Normally ON in the terminal mode
5	Clear to Send	CS	←	Controls data transmission ON: data transmission possible OFF: data transmission not possible	
6	Data set Ready	DR	←	Indicates condition of connected device ON: transmission/reception possible at connected device OFF: transmission/reception not possible at connected device	ON when cable is not connected
7	Signal Ground	SG	↔	Provides basic ground potential	
8	Carrier Detect	CD	←	Detects carrier ON: receiving access signal OFF: not receiving access signal	ON when cable is not connected
20	External Ready	ER	→	Indicates condition of this printer ON: printer preparation completed OFF: printer preparation not completed	Enables on/off setting selection. ON unless otherwise specified.

ON : + V
OFF : − V



(RS-232C) connector

NOTE: Hand shaking

(1) Reception

- Reception is possible when **DR** and **CD** are **ON**; reception data is ignored at other times.
- If **ER** is set, **ER** line is **ON** when data can be received, but becomes **OFF** when busy (print buffer remainder is low and data cannot be received).

(2) Transmission

- Data is transmitted when **DR** and **CS** are **ON**.

4 — 1 Code table

Code settings for the communication mode setting are determined according to the following tables showing the three different types of codes.

CODE 7BIT	(1) 7-bit data codes (personal computer code of each country)
CODE T/W	(2) Typewriter codes (7-bit)
CODE 8BIT	(3) 8-bit data codes (US ASCII and expansion code)

7-bit data codes and typewriter codes

U.S.A. English Keyboard

7-bit data codes

b_7→		0	0	0	0	1	1	1	1
b_6→		0	0	1	1	0	0	1	1
b_5→		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	{
1 1 0 0	C			,	<	L	\	l	|
1 1 0 1	D	CR		−	=	M	]	m	}
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7→		0	0	0	0	1	1	1	1
b_6→		0	0	1	1	0	0	1	1
b_5→		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			¢	0	@	P	°	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	¼
1 1 0 0	C			.	<	L	±	l	½
1 1 0 1	D	CR		−	=	M	]	m	¶
1 1 1 0	E			.	>	N	²	n	§
1 1 1 1	F			/	?	O	_	o	

20H (¢) of above corresponds to ESC + Y signal.

German Keyboard

7-bit data codes

b_7→		0	0	0	0	1	1	1	1
b_6→		0	0	1	1	0	0	1	1
b_5→		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	§	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	Ä	k	ä
1 1 0 0	C			,	<	L	Ö	l	ö
1 1 0 1	D	CR		−	=	M	Ü	m	ü
1 1 1 0	E			.	>	N	^	n	ß
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7→		0	0	0	0	1	1	1	1
b_6→		0	0	1	1	0	0	1	1
b_5→		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			//	0	§	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	Ä	k	ä
1 1 0 0	C			.	²	L	Ö	l	ö
1 1 0 1	D	CR		−	=	M	Ü	m	ü
1 1 1 0	E			.		N	°	n	ß
1 1 1 1	F			/	?	O	_	o	

20H (μ) of above corresponds to ESC + Y signal.

U.K. English Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	£	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	{
1 1 0 0	C			,	<	L	\	l	|
1 1 0 1	D	CR		-	=	M	]	m	}
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			¢	0	@	P		p
0 0 0 1	1		Xon	°	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	£	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	¼
1 1 0 0	C			,		L	±	l	½
1 1 0 1	D	CR		-	=	M	]	m	
1 1 1 0	E			.	÷	N		n	²
1 1 1 1	F			/	?	O	_	o	

20H (¢) of above corresponds to ESC + Y signal.

French Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	à	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	°	k	é
1 1 0 0	C			,	<	L	ç	l	ù
1 1 0 1	D	CR		-	=	M	§	m	è
1 1 1 0	E			.	>	N	^	n	¨
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			¼	0	à	P	±	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	Fr	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	°	k	é
1 1 0 0	C			,	²	L	ç	l	ù
1 1 0 1	D	CR		-	=	M	§	m	è
1 1 1 0	E			.		N	^	n	¨
1 1 1 1	F			/	?	O	_	o	½

20H (¼) of above corresponds to ESC + Y signal.
7FH (½) of above corresponds to ESC + Z signal.

Canadian bilingual Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	{
1 1 0 0	C			,	<	L	\	l	|
1 1 0 1	D	CR		-	=	M	]	m	}
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0				0	§	P	`	p
0 0 0 1	1		Xon	é	i	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	¼
1 1 0 0	C			,	<	L	±	l	½
1 1 0 1	D	CR		-	=	M	]	m	°
1 1 1 0	E			.	>	N	^	n	ç
1 1 1 1	F			/	?	O	_	o	²

7FH (²) of above corresponds to ESC + Z signal.

Portuguese Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	[	k	{
1 1 0 0	C			,	<	L	\	l	|
1 1 0 1	D	CR		—	=	M	]	m	}
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0				0	§	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	£	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		`	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	¨	k	
1 1 0 0	C			.	º	L	²	l	|
1 1 0 1	D	CR		—	=	M	Ç	m	ç
1 1 1 0	E			.	ª	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Danish Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	#	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	Æ	k	æ
1 1 0 0	C			,	<	L	Ø	l	ø
1 1 0 1	D	CR		—	=	M	Å	m	å
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			½	0	§	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	£	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	Æ	k	æ
1 1 0 0	C			.	<	L	Ø	l	ø
1 1 0 1	D	CR		—	=	M	Å	m	å
1 1 1 0	E			.	>	N	^	n	¨
1 1 1 1	F			/	?	O	_	o	

20H (½) of above corresponds to ESC + Y signal.

S. Spanish Keyboard

7-bit data codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			(SP)	0	@	P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	Pt	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		*	:	J	Z	j	z
1 0 1 1	B			+	;	K	İ	k	¨
1 1 0 0	C			,	<	L	Ñ	l	ñ
1 1 0 1	D	CR		—	=	M	¿	m	}
1 1 1 0	E			.	>	N	^	n	~
1 1 1 1	F			/	?	O	_	o	

Typewriter codes

b_7 →		0	0	0	0	1	1	1	1
b_6 →		0	0	1	1	0	0	1	1
b_5 →		0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$		0	1	2	3	4	5	6	7
0 0 0 0	0			²	0		P	`	p
0 0 0 1	1		Xon	!	1	A	Q	a	q
0 0 1 0	2			"	2	B	R	b	r
0 0 1 1	3		Xoff	Pt	3	C	S	c	s
0 1 0 0	4			$	4	D	T	d	t
0 1 0 1	5			%	5	E	U	e	u
0 1 1 0	6			&	6	F	V	f	v
0 1 1 1	7	BEL		'	7	G	W	g	w
1 0 0 0	8	BS		(	8	H	X	h	x
1 0 0 1	9	HT		)	9	I	Y	i	y
1 0 1 0	A	LF		×	:	J	Z	j	z
1 0 1 1	B			+	;	K	½	k	º
1 1 0 0	C			,	º	L	Ñ	l	ñ
1 1 0 1	D	CR		—	=	M	¿	m	ç
1 1 1 0	E			.	ª	N	^	n	¨
1 1 1 1	F			/	?	O	_	o	

20H (²) of above corresponds to ESC + Y signal.

Norwegian Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	@	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Æ	k	æ
1 1 0 0	C		,	<	L	Ø	l	ø
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	^	n	~
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		½	0	§	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	£	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Æ	k	æ
1 1 0 0	C		,	<	L	Ø	l	ø
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	^	n	¨
1 1 1 1	F		/	?	O	_	o	

20H (½) of above corresponds to ESC + Y signal.

Italian Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	@	P	ù	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	°	k	à
1 1 0 0	C		,	<	L	\	l	ò
1 1 0 1	D	CR	-	=	M	é	m	è
1 1 1 0	E		.	>	N	^	n	ì
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		²	0	§	P	ù	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	£	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	°	k	à
1 1 0 0	C		,	[	L	ç	l	ò
1 1 0 1	D	CR	-	=	M	é	m	è
1 1 1 0	E		.	]	N	^	n	ì
1 1 1 1	F		/	?	O	_	o	

20H (²) of above corresponds to ESC + Y signal.

Dutch Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	@	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	[	k	{
1 1 0 0	C		,	<	L	\	l	|
1 1 0 1	D	CR	-	=	M	]	m	}
1 1 1 0	E		.	>	N	^	n	~
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0			0		P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	£	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	°	k	¼
1 1 0 0	C		,	²	L	±	l	ij
1 1 0 1	D	CR	-	=	M	f	m	½
1 1 1 0	E		.		N	^	n	¨
1 1 1 1	F		/	?	O	_	o	

Swedish Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	É	P	é	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		¤	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Ä	k	ä
1 1 0 0	C		,	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	Ü	n	ü
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		½	0	§	P		p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Ä	k	ä
1 1 0 0	C		,	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	^	n	ü
1 1 1 1	F		/	?	O	_	o	`

20H (½) of above corresponds to ESC + Y signal.
7FH (`) of above corresponds to ESC + Z signal.

Finnish Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	É	P	é	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		¤	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Ä	k	ä
1 1 0 0	C		,	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	Ü	n	ü
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		½	0	§	P		p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Ä	k	ä
1 1 0 0	C		,	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E		.	>	N	^	n	ü
1 1 1 1	F		/	?	O	_	o	`

20H (½) of above corresponds to ESC + Y signal.
7FH (`) of above corresponds to ESC + Z signal.

Swiss-French Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	à	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	°	k	é
1 1 0 0	C		,	<	L	ç	l	ù
1 1 0 1	D	CR	-	=	M	§	m	è
1 1 1 0	E		.	>	N	^	n	¨
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		°	0	§	P	`	p
0 0 0 1	1	Xon	¨	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	£	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	[	k	ä
1 1 0 0	C		,	é	L	è	l	ö
1 1 0 1	D	CR	-	=	M	]	m	ü
1 1 1 0	E		.	ç	N	^	n	à
1 1 1 1	F		/	?	O	_	o	

20H (°) of above corresponds to ESC + Y signal.

Swiss-German Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	§	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	Ä	k	ä
1 1 0 0	C		,	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Ü	m	ü
1 1 1 0	E		.	>	N	^	n	ß
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		°	0	§	P	`	p
0 0 0 1	1	Xon	¨	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	£	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	[	k	ä
1 1 0 0	C		,	é	L	è	l	ö
1 1 0 1	D	CR	-	=	M	]	m	ü
1 1 1 0	E		.	ç	N	^	n	à
1 1 1 1	F		/	?	O	_	o	

20H (°) of above corresponds to ESC + Y signal.

Spanish (for South America) Keyboard

7-bit data codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		(SP)	0	@	P	`	p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	Pt	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	¡	k	¨
1 1 0 0	C		,	<	L	Ñ	l	ñ
1 1 0 1	D	CR	-	=	M	¿	m	¦
1 1 1 0	E		.	>	N	^	n	~
1 1 1 1	F		/	?	O	_	o	

Typewriter codes

b_7 →	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1
$b_4b_3b_2b_1$	0	1	2	3	4	5	6	7
0 0 0 0	0		[	0	±	P		p
0 0 0 1	1	Xon	!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	Xoff	#	3	C	S	c	s
0 1 0 0	4		$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7	BEL	'	7	G	W	g	w
1 0 0 0	8	BS	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B		+	;	K	¡	k	°
1 1 0 0	C		,	º	L	Ñ	l	ñ
1 1 0 1	D	CR	-	=	M	¿	m	
1 1 1 0	E		.	ª	N	²	n	¨
1 1 1 1	F		/	?	O	_	o	]

20H ([ ) of above corresponds to ESC + Y signal.
7FH ( ]) of above corresponds to ESC + Z signal.

8-bit data codes (commonly available regardless of keyboard)

8-bit data codes

b_8 →	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
b_7 →	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
b_6 →	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
b_5 →	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
b_4 b_3 b_2 b_1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0 0 0	0		(SP)	0	@	P	`	p	Ç	É	á					
0 0 0 1	1	Xon	!	1	A	Q	a	q	ü	ae	í				β	±
0 0 1 0	2		"	2	B	R	b	r	é	AE	ó					
0 0 1 1	3	Xoff	#	3	C	S	c	s	â	ô	ú					
0 1 0 0	4		$	4	D	T	d	t	ä	ö	ñ					
0 1 0 1	5		%	5	E	U	e	u	à	ò	Ñ					
0 1 1 0	6		&	6	F	V	f	v	å	û	a				μ	÷
0 1 1 1	7	BEL	'	7	G	W	g	w	ç	ù	o					
1 0 0 0	8	BS	(	8	H	X	h	x	ê	§	¿					o
1 0 0 1	9	HT	)	9	I	Y	i	y	ë	Ö	⌐					
1 0 1 0	A	LF	*	:	J	Z	j	z	è	Ü	¬					
1 0 1 1	B		+	;	K	[	k	{	ï	¢	½					
1 1 0 0	C		,	<	L	\	l	|	î	£	¼				
1 1 0 1	D	CR	-	=	M	]	m	}	ì	¥	i				φ	²
1 1 1 0	E		.	>	N	^	n	~	Ä	Pt	≪					
1 1 1 1	F		/	?	O	_	o		Å	f	≫					

Undefined bits within E0H ~ FFH will be defined as (SP).
When you want to print out only US ASCII codes, set "CODE" 8-bit data codes and "BIT LENGTH" to 7-bit.

4 – 2 Control codes

Code	Name (Meaning)	Key operation CODE+	Valid during data reception
0 0 H	NUL (Blank)	—	
0 1 H	SOH (Start of Heading)	A	
0 2 H	STX (Start of Text)	B	
0 3 H	ETX (End of Text)	C	
0 4 H	EOT (End of Transmission)	D	
0 5 H	ENQ (Enquiry)	E	
0 6 H	ACK (Acknowledge Positive)	F	
0 7 H	BEL (Bell)	G	○
0 8 H	BS (Backspace)	H	○
0 9 H	HT (Horizontal Tabulation)	I	○
0 A H	LF (Line Feed)	J	○
0 B H	VT (Vertical Tabulation)	K	
0 C H	FF ((Form Feed)	L	
0 D H	CR (Carrier Return)	M	○
0 E H	SO (Shift Out)	N	
0 F H	SI (Shift In)	O	
1 0 H	DLE (Data Link Escape)	P	
1 1 H	DC 1 (Device Control 1)	Q	○
1 2 H	DC 2 (Device Control 2)	R	
1 3 H	DC 3 (Device Control 3)	S	○
1 4 H	DC 4 (Device Control 4–Stop)	T	
1 5 H	NAK (Negative Acknowledge)	U	
1 6 H	SYN (Synchronous Idle)	V	
1 7 H	ETB (End of Transmission Block)	W	
1 8 H	CAN (Cancel)	X	
1 9 H	EM (End of Medium)	Y	
1 A H	SUB (Substitute Character)	Z	
1 B H	ESC (Escape)	←|→	
1 C H	FS (File Separator)	LEFT MGN	
1 D H	GS (Group Separator)	RIGHT MGN	
1 E H	RS (Record Separator)	TAB+	
1 F H	US (Unit Separator)	TAB–	
7 F H	DEL (Delete / Rubout)	DELETE	

NOTE 1:

- Control codes other than those which are valid during reception as shown in the table at left are ignored even if transmitted.
- **BS, HT, CR** are also transmitted according to the function keys on this printer.

NOTE 2:

Hand shaking ..... XON、XOFF signal

Control codes **DC1** and **DC3** handle XON , XOFF respectively, and can be used to indicate the condition of the other device.

- When the remaining buffer capacity is low, and data reception is not possible, the XOFF signal is output indicating that transmissions to the connected device should be stopped. When data reception becomes possible again, XON is output.

- If the XOFF signal is received from the connected device, it is assumed that reception by the connected device is not possible, and transmission to it is stopped. When the XON signal is received from the connected device, it is assumed that reception by that device is again possible.

NOTE 3: Special functions during selection of T/W code

When the code setting is T/W (typewriter code), the following special functions can be used.

During text transmission, special CODE operations stored in the text will be converted to the following data signals; during reception, the operations corresponding to these signals will be executed.

ESC + D superscript
ESC + U subscript
ESC + E auto underline ON
ESC + R auto underline OFF

5. Internal buffer

5 – 1 Print buffer

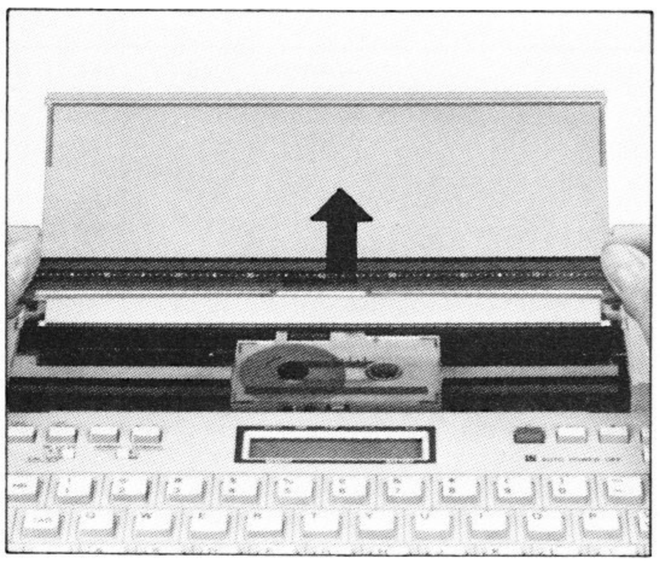
(1) Capacity ..... 160 bytes
(2) X_{ON} signal ..... Output when the buffer contains less than 40 bytes of data
(3) X_{OFF} signal ..... Output when the buffer contains more than 120 bytes of data
(4) Automatic insertion of **CR** + **LF** ... When character data is input following character data at the print 80 position, **CR** + **LF** is automatically inserted.

5 – 2 LCD buffer

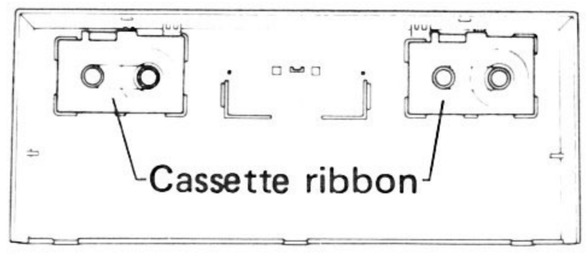
(1) Capacity ..... 15 bytes
(2) Input ..... Character data input always performs a shift input. In **BS**, one character is deleted. The display is cleared with the **CR** code.

APPENDIX

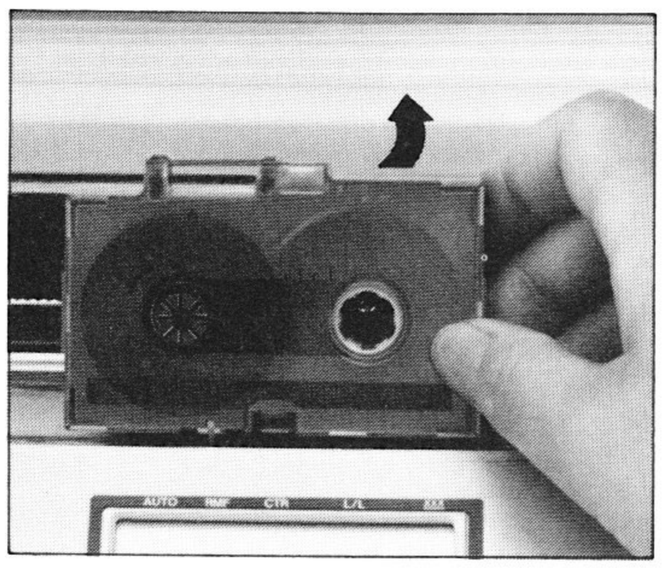
Cassette ribbon replacement



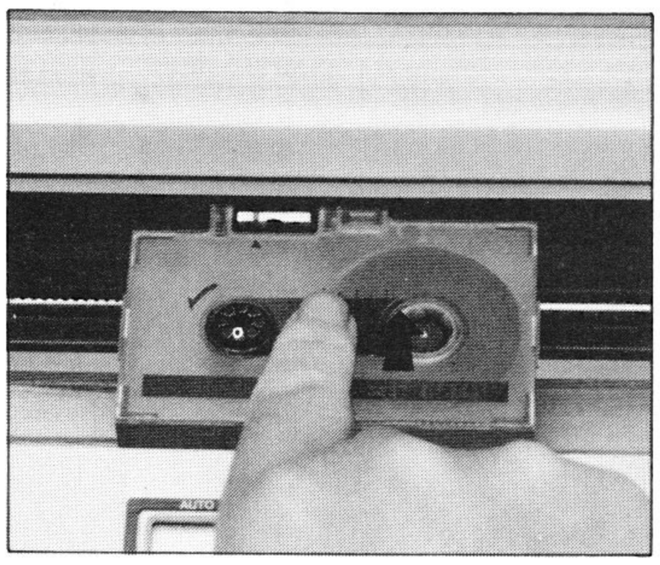
(1) After moving the carrier to the center, press slightly with your thumbs on the tab positions of the transparent cassette cover and lift to open.



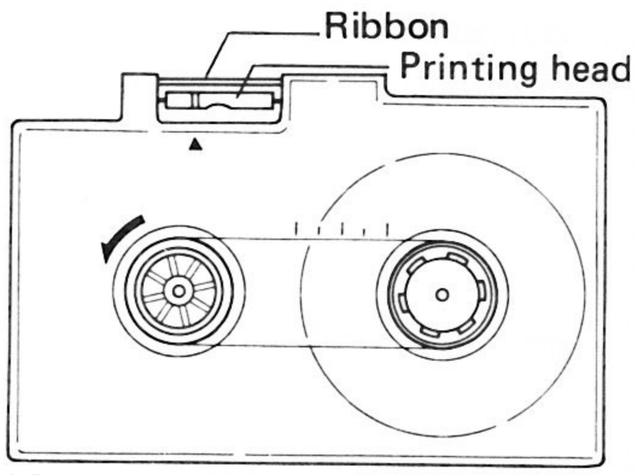
NOTE: Spare cassette ribbons can be stored inside the cover.



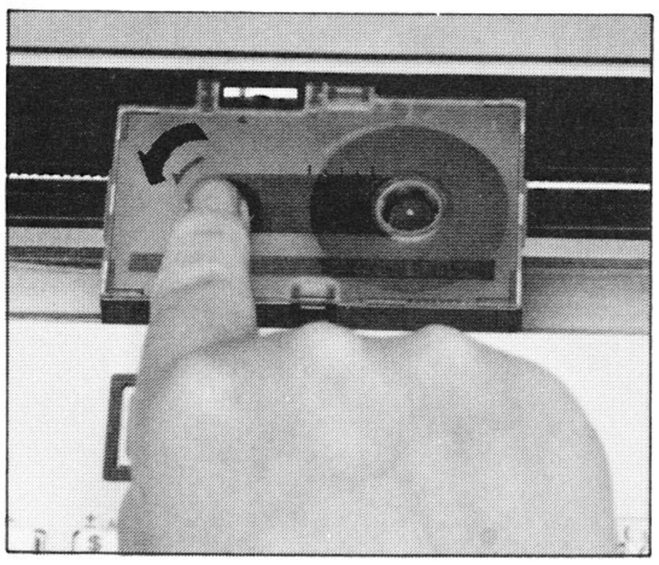
(2) Remove the cassette ribbon.



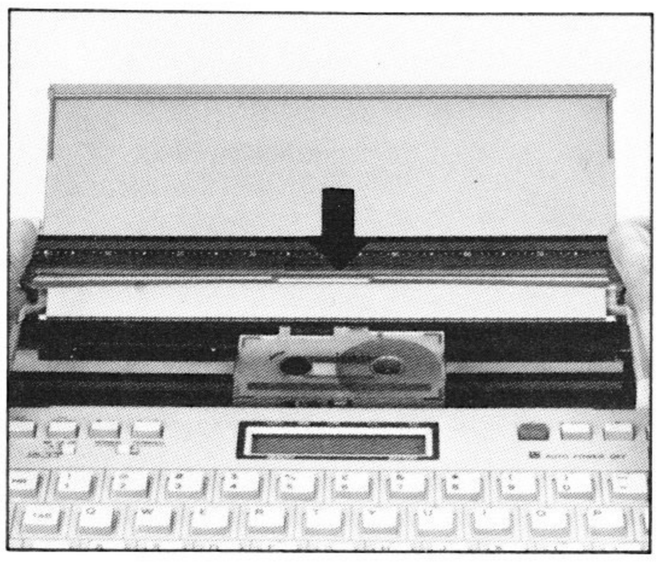
(3) Place a new cassette ribbon on the carrier, and press down on the center of the cassette.



NOTE: Make sure the printing head is behind the ribbon.



(4) Turn the cassette knob counterclockwise (in the direction of the arrow on the cassette) to take the slack out of the ribbon.



(5) Close the cassette cover.

Precautions! Please carefully note the following for longer printer service life.

1) Do not clean the printer, cover, or keys with alcohol, thinner, or other organic solvents as they may damage the printer. Periodically wipe the printer with a dry cloth.

2) Do not drop paper clips or other metal objects in the printer as they may cause seriously damage to the printer.

3) Do not use the printer in areas exposed to high heat or humidity, in areas with excessive dust, in direct sunlight, or rain.

4) Be sure to always replace the cover when the pirnter is not in use.

5) If the printer is not used for extended periods of time, if the memory back-up function is not used, or if the AC adaptor is used for extended periods, remove the batteries to prevent possible damage to the printer from battery leakage or corrosion.

6) If the printer is not used for extended periods of time, disconnect the AC adaptor from both the wall outlet and this unit's jack.

SPECIFICATIONS

No. of keys	44
Printing speed	16 characters/sec.
Paper width	8.7'' maximum
Printing width	8.1'' maximum
No. of characters/line	80
Printing method	24 x 18 thermal-dot matrix
Ribbon	Cassette
Display	15-digit LCD (7 x 5-dot matrix)
Calculator function	4 basic arithmetic functions, and percentage calculation
Interface	Conforms to RS-232C
Paper	Smooth plain, or thermal
Power source	4 size-D dry cell batteries, or AC current with AC adaptor
Dimensions	13.2'' (W) x 10.5'' (D) x 2.2'' (H)
Weight	5.5 lbs. (incl. batteries)

Specifications are subject to change without notice.

INDEX

A

Alarm 9
AUTO mode 11,13
Auto underline 11, 14, 17
Automatic power-off function 4, 9

B

Back space 10
Break key 33

C

Calculator key 29
Capital and lower case letters 12
Cassette ribbon 12, 46
Centering 11, 14, 17
Character corrections 8
Character deletions 8
Character insertions 8
Clear key 28, 29, 33
Code backspace 10
Code table 38
Communication mode setting 34
Connector and pin arrangement 37
Connector cover 32
Continue key 33, 35
Control codes 44
Cursor up 19, 21
Cursor down 19, 21
Cursor left 8, 10, 20
Cursor right 8, 10, 20

D

Deletion of all text following the indicated position 19, 22
Display adjuster 7

E

Equal key 28
Error sign "E" 29

F

Function display 7
Function key guide (How to print efficiently) ..... 10~11
Function key guide (Storing text in the memory) 19
Function key guide (Calculator function) 28
Function key guide (In the terminal mode) 33

H

Hot zone 11, 13

I

Index key 4, 10
Internal buffer 45

L

L/L (line-by-line) mode 11, 13
Last line deletion 19, 23
Line delete 19, 22
Line insert 19, 23
Line space selector 6

M

Margin 10, 11, 14, 15
Memory back up function 9
Memory full indicator 25
Memory remainder display 25
Mode indicators 7
Mode key 33, 34
MODE selector 6

O

On-line communication 35
One line printing 25
Overflow (if the characters displayed blink) 6, 29

P

Paper insertion and paper feed ..... 4~5
Percentage calculation 30
Permanent hyphen 11, 13
Permanent space 11, 13
Power sources 3
Power switch ..... 4~5
PRINT/CAL mode selector 6
Printing from a desired position 24
Printing head 12, 46
Printing text 24

R

Repeat 10, 12
Reset function 9
Return 10
Reverse index 5, 10
Right margin flush 11, 14, 15
RS-232C type interface 36

S

Second shift 10, 12
Setting the terminal mode 33
Shift lock 10, 12
Shift 10, 12
Single line deletion 19, 22
Single line insertion 19, 23
Space bar 10
Stop key 19, 25, 27
Stop and resume printing 25
Stop code 19, 25, 33
Storing new text in the memory 20
Subscript 11, 14, 18
Superscript 11, 14, 18

T

Tabulation 11, 14, 16
Text appending 21
Text key 33, 35
Text revisions 21

ACCESSORY ORDER FORM

Dear Customer:

Please use this order form when ordering accessories for your printer.
Please enclose check or money order. All prices include spipping and handling charges.

MODEL		PRICE	QTY	TOTAL
CA50-2	INTERFACE CABLE (TEXAS INSTRUMENTS T199/4A)	$49.95		
CA50-5	INTERFACE CABLE (COMMODORE 64/ VIC 20)	49.95		
CA50-8	INTERFACE CABLE (ATARI 400/800)	49.95		
CA50-9	INTERFACE CABLE (NEC PC-8201/PC-8801 / SHARP PC-1500 / SORD M223 MARK III)	49.95		
6200	PLAIN PARER (500 SHEETS)	7.95		
6400	BLACK THERMAL PAPER (200 SHEETS)	9.95		
6030	CASSETTE RIBBON (3 PACK)	12.95		
6600	ROLL PAPER HOLDER	12.95		
6700	ROLL PLAIN PAPER (100 FEET)	5.95		
6800	ROLL BLACK THERMAL PAPER (100 FEET)	9.95		

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APPLICABLE SALES TAX _____

TOTAL _____

Above pricing subject to change without notice. For any further information on these accessory items, call toll free 800-526-3537, except in the state of New Jersey call 800-592-6064.

STUSWAYZ

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Sears

THERMAL PAPER

D>03

MY>5471

CONTENTS : 200 Sheets

Color Black

Size A4

For Sears Personal Electronic Printer model 268. 5390
and Brother Personal Electronic Printer model EP-20/22.



Instructions for use

1) Remove the cassette ribbon from the machine, and be sure that the print head is returned to its forward position.
2) Print as you normally would.

Important

* Thermal paper can be used on one side only. Therefore, please be sure to print only on the side of the paper in this package that faces this card.

Precautions concerning handling of thermal paper

Although this paper appears to be ordinary typing paper, it is a special paper on which the color develops through a thermal/chemical reaction. The following precautions must be taken in handling this paper.

1. Storage

a) Since this paper is very sensitive to heat, dampness and light, it should be stored in a dry, cool place.
b) Particularly, it should not be placed near a stove, a tightly closed space, or an area exposed to sunlight. (For example, an automobile trunk or a window ledge).
c) After the package is opened, it should be used as soon as possible, and the package should be resealed tightly.

2. Handling and Use

a) If you touch the paper, your finger-prints may be imprinted on the paper, and the printing itself may be weakened or faded.
b) Rubbing the paper with a hard object may damage the paper.
c) If such things as oil come in contact with the paper, the paper may color, or the printed copy may begin to fade.
d) Do not expose the paper to direct sunlight, as this tends to turn the paper yellow.

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Sold by SEARS, ROEBUCK AND CO., Chicago, IL 60684

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MDSE	35840644	229.84
MDSE	70040324	7.87
SUBTOTAL		237.71
6.0% SALES TAX		14.26
AMT 909380		251.97
CHANGE		.00

TL 5/15/85 1 CASH 251.97

* ALL RETURNS MUST BE *
* ACCOMPANIED BY SALES RECEIPT *
* ORIGINAL CARTON AND PACKING. *

Brother EP-44 Thermal

1234567890-= !@#$%¢&*()_+

qwertyuiop½ QWERTYUIOP¼

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LIMITED WARRANTY

Your new Brother Personal Electronic Printer is warranted to be the finest precision construction and is manufactured under the rigid control in the world's most modern factory. The parts, with the exception of ribbons and batteries, are warranted for one year from date of purchase. This Warranty does not cover damage from misuse, neglect or accident. The Warranty extends to the original owner only.

The sum of $5.00 should be remitted by check or money order to cover postage and handling when merchandise is returned under warranty for service. A copy of proof of purchase in the form of a sales slip or proof of delivery must accompany the merchandise.

RETURN TO : BROTHER INTERNATIONAL CORPORATION
8 CORPORATE PLACE
P. O. BOX 159
PISCATAWAY, N. J. 08854

brother INTERNATIONAL CORPORATION
8 CORPORATE PLACE PISCATAWAY, NEW JERSEY 08854



brother PRINTER

IMPORTANT

It is important that you fill out and mail the other section of this card. Receipt of this card establishes the date you received your new printer.

It insures you complete protection under the warranty as printed.

This warranty must be returned within ten (10) days of the date of delivery to you.

Record in space provided below the Model No. and Serial No. of this appliance.

MODEL (From name plate on front of printer) EP-44
SERIAL NO. (From identification plate on back of printer) D4113O926
DATE OF DELIVERY 5-15-85

RETAIN THIS FOR YOUR COMPLETE PROTECTION

597520-0-84 ©
(59-3)
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