

# **mitsubishi**

## **Industrial Sewing Machine INSTRUCTION MANUAL**

**Data Input System for Electronic Pattern Sewing  
Machine**

**Model PTN-A10**

**A180E228P01**

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**MITSUBISHI ELECTRIC CORPORATION**

Thank you for your purchase of Mitsubishi Data Input System for Electronic Pattern Sewing Machine. Before use of your Data Input System, please read this manual carefully and install, operate and maintain your system in accordance with the instructions written here.

PTN-A10 is a data input system used to create sewing data for Mitsubishi Industrial Electronic Sewing Machines and has the following features:

- Maximum 8000 stitches can be stored in the data of each stitching pattern.
- Stitch length can be set within the range from 0.1 mm to 12.7 mm with the resolution of 0.1 mm.
- For stitch pattern data storage, floppy disks and PROM can be used.
- Maximum 150 stitching patterns and a total 360000 stitches can be stored in a floppy disk.  
Maximum 16 stitching patterns and a total 8000 stitches can be stored in a PROM.
- Smooth curve data can be created automatically by specifying the stitch length and plural points on the curve.
- Data of circle or arc can be made automatically and in a specified sequence by specifying the stitch length and 3 points on a circle or an arc.
- Zigzag data between 2 points can be made automatically by specifying the width and pitch of zigzag, and 2 points.
- Function selecting menu, operation procedures and various messages are displayed on the screen.
- Pattern data can be enlarged, reduced, turned around and modified.
- If the system is connected with an electronic sewing machine, pattern data can be modified and added.
- Pattern data on a floppy disk can be read, written or deleted. The same applies to the data on a PROM.
- If the system is connected with an electronic sewing machine, pattern data can be communicated between them.

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# 1. Introduction

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## 1. Introduction

### 1.1 Contents of the Instruction Manual

This manual covers the information about the pattern data input system 'PTN-A10' for Mitsubishi Industrial Electronic Sewing Machines PLK Series and PLK-A Series.

#### (1) Composition of the manual

##### 1) Introduction

Overall composition, basic specifications, cautions for operation etc. are explained. Please read this section carefully before starting operation.

##### 2) Before starting operation

Preparatory steps before operating the input system such as the explanation on the screen display, the key input method and how to start the system are described.

##### 3) Basic operating method

Basic operating method covering from the power on, the program start and the basic operation are described.

##### 4) Reference

Four basic functions of the system and their detail are explained.

##### 5) Message list

Explanation on the messages displayed on LCD is given here.

##### 6) Appendixes

Structural drawings, schematic drawings of power supply, etc. are quoted.



# 1. Introduction

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## 1.2 Check for Unpacking and of Products

Before unpacking the products, check following cautions and the detail of products.

**(1) Unpacking method**

Take out carefully a carton box from the package.

**(2) Check of products**

Please check if following items are included in the set of products.

### Composition of PTN-A10

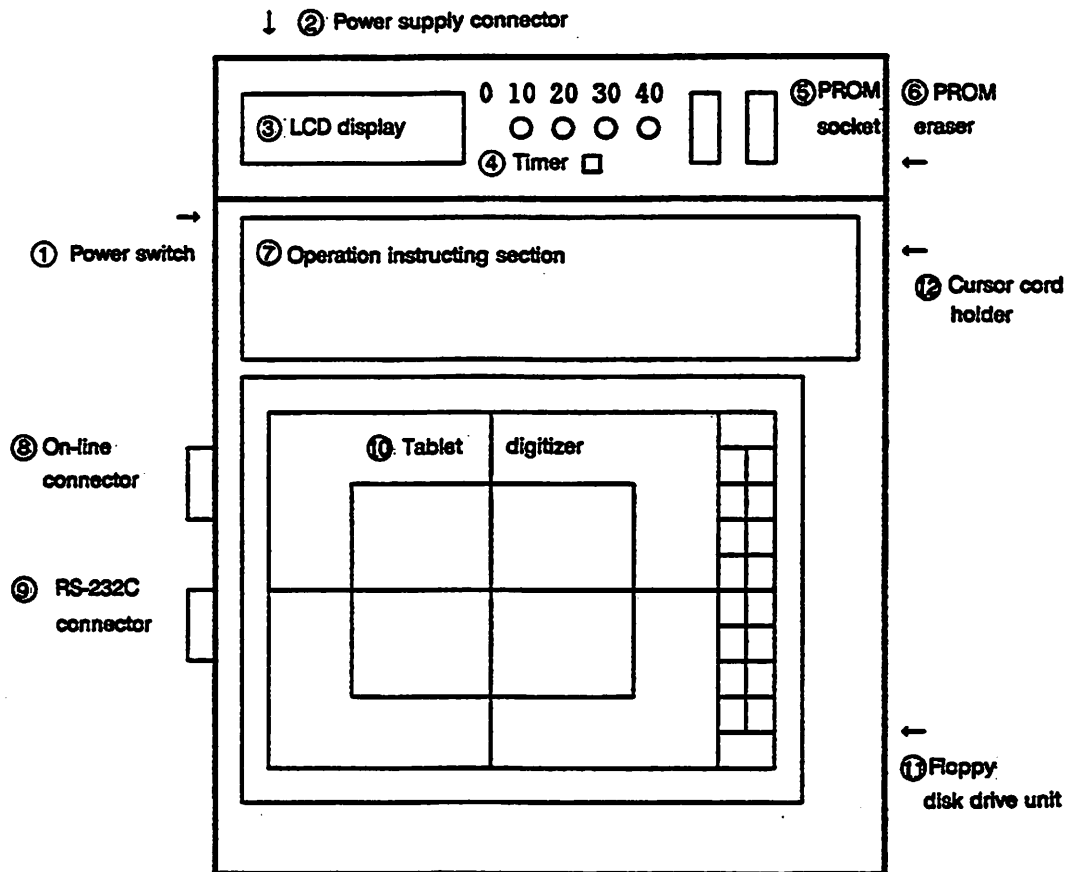
No.	Name of item	Name of type	Quantity
1-1	Main unit (in English)	—	1 unit
1-2	4 button cursor	—	1 pc.
2-1	Unused disk	3.5" 2HD	1 pc.
2-2	PTN-A10 Instruction Manual	A180E228P01	1 copy
2-3	Main unit cover		1 pc.
2-4	Power supply cord		1 pc.
2-5	Interface unit		1 unit
2-6	Connection cable		1 pc.
2-7	3A fuse		1 pc.
2-8	OL-LINE cable		1 pc.
2-9	Toothed washer		2 pcs.
2-10	Cursor cord holder		1 pc.

# 1. Introduction

## 1.3 Basic Performance of Component Devices

### (1) System composition

PTN-A10 consists of following components.



- ① **Power switch**  
Power ON/OFF switch of the input system. Be sure to take a pause of more than 5 sec. between ON and OFF.
- ② **Power supply connector**  
Couple the power supply cable here.
- ③ **LCD display**  
Device to display the function selection menu, operation procedures and various messages.
- ④ **Timer**  
Used to set the time to erase the data on the PROM.

# 1. Introduction

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- ⑤ **PROM socket**  
Device to write in and read from the PROM which saves the pattern data.
- ⑥ **PROM eraser**  
Used to erase the data saved in the PROM.
- ⑦ **Operation instructing section**  
Brief explanation on the operating method, code No., etc. is displayed.
- ⑧ **On-line connector**  
On-line cable is connected here.
- ⑨ **RS-232C connector**  
RS-232C interface cable is connected here.
- ⑩ **Tablet digitizer**  
Patterns and menus are keyed in here.
- ⑪ **Floppy disk drive unit**  
Unit to write in or read from the floppy disk which saves the pattern data.
- ⑫ **Cursor cord holder**  
It retains the cursor cord holder.

# 1. Introduction

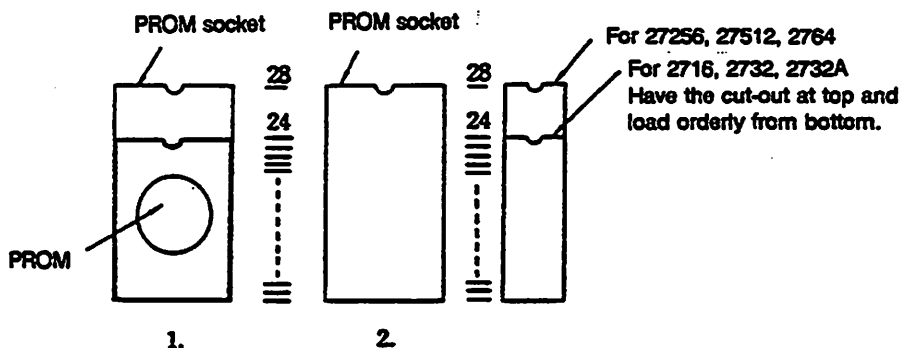
## (2) Specifications of control unit

Item	Specification	
Control method	Full-electronic control by the micro-computer	
Stitch pattern area	260 × 200 mm	
Stitch pattern data storage	3.5 inch floppy disk PROM	2HD 27512, etc.
Number of patterns stored	3.5 inch floppy disk PROM	150 patterns 16 patterns
Number of stitches stored	3.5 inch floppy disk PROM	360000 stitches 8000 stitches
Number of stitches /pattern	8000 stitches	
Stitch length	0.1 to 12.7 mm (resolution 0.1 mm)	
Sewing speed	4 speeds of high(H), medium high (M1), medium low (M2), Low (L)	
Enlargement/reduction	10 to 200%, 1% step	
Data input modes	<ol style="list-style-type: none"> <li>1. POINT</li> <li>2. P-P</li> <li>3. Zigzag</li> <li>4. Circle</li> <li>5. Arc</li> <li>6. Free curve</li> <li>7. Symmetry</li> <li>8. Function codes</li> </ol>	Stitch by stitch data entry Two points are specified. Width and pitch are specified. 3 points are specified. 3 points are specified. Specify points on a curve. X axis, Y axis, origin Thread trimming, reversing, 2nd origin, etc.
Display unit	40 characters LCD display	
Temperature, humidity ranges	10 to 35°C, 45 to 85% (dewing not permissible)	
Power supply	AC100/110/120/200/220/230/240V, 50/60 Hz	
Outside dimensions (w) × (d) × (h)	Control unit 460 × 480 × 130	

# 1. Introduction

## (3) PROM socket

- 1) Set the PROM as shown below.



Raise the socket lever to insert the PROM and turn down the lever later to fix the PROM.

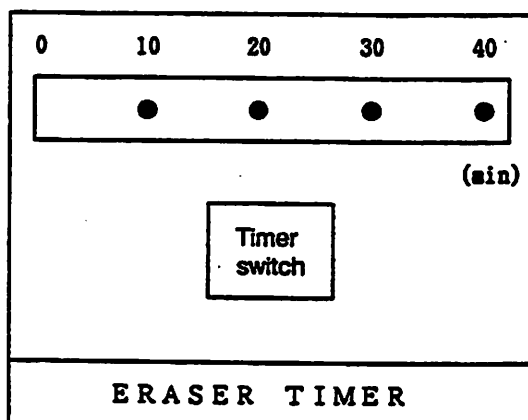
- 2) Make sure to unify the type of PROMs.
- 3) Be sure to take out the PROM before the power is turned ON or OFF.
- 4) Never remove the PROM while the data are read from or written in the PROM.
- 5) Make sure to use PROM of correct type and to set it properly.  
Otherwise the PROM may be destroyed.

## (4) PROM eraser

It erases all data in the PROM. Erasing is conducted as follows.

- 1) Pull a knob on the PROM eraser. A small drawer will come out.
- 2) Remove completely the ultraviolet protection tape, etc., which is adhered on the window of PROM to erase the data. Put the tape in the drawer and close the drawer.
- 3) Press the timer switch and set the timer at 30 min.

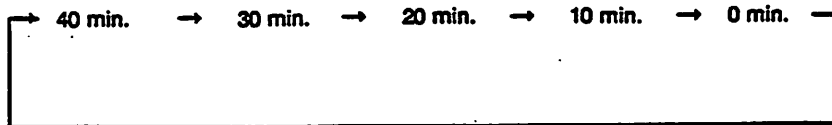
### Enlarged view of timer section



# 1. Introduction

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Erasing time will change one after another as shown below with each push on the timer switch. Erasing time can be set any time so far as the power is supplied to the input system. Erasing takes place at the set erasing time.



- 4) When the erasing did not end within 30 min., clean the erasing window of PROM, extend the erasing time and erase again.
- 5) When the erasing is over, adhere the ultraviolet protection tape, etc. to the window of PROM.

## (5) Tablet digitizer

Tablet digitizer consists of the tablet and cursor (mouse).

### 1) Tablet

Menu section is provided at right end. Pattern data can be input at any other area.

### 2) Menu section

Menu section has 36 menu keys.

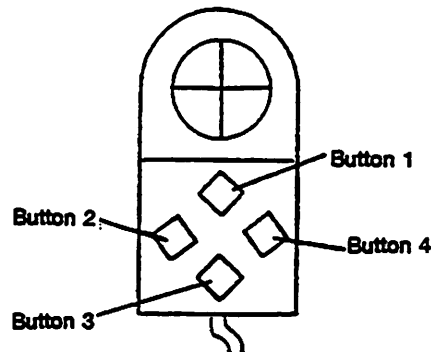
<b>CANCEL</b>	
<b>1-STITCH CLEAR</b>	<b>LINE CLEAR</b>
<b>CIRCLE</b>	<b>X-INV</b>
<b>ARC</b>	<b>Y-INV</b>
<b>ZIGZAG</b>	<b>XY-INV</b>
<b>FEED</b>	
<b>TRIM</b>	<b>STOP</b>
<b>ORIG POINT</b>	<b>REVERSE</b>
<b>RETURN</b>	<b>END</b>
<b>LAST</b>	<b>FUNC CODE</b>
<b>+</b>	<b>-</b>

<b>PATTERN LIST</b>	<b>RECORD LIST</b>
←	
<b>0</b>	<b>5</b>
<b>1</b>	<b>6</b>
<b>2</b>	<b>7</b>
<b>3</b>	<b>8</b>
<b>4</b>	<b>9</b>
<b>BACK SPACE</b>	<b>.</b>
<b>RESET</b>	

# 1. Introduction

## 3) Digitizer cursor

The cursor has four buttons (1, 2, 3 and 4) which are used to read the coordinate on the tablet digitizer with following functions.



**Button 1:** Pressed to read coordinate values at desired point on the tablet, and menu key.

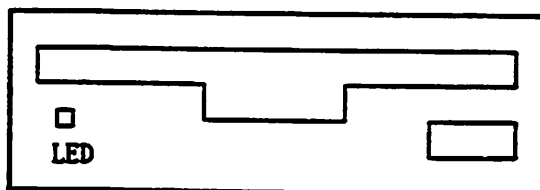
**Button 2:** Pressed to set stitching rate. Stitching speed (rate) changes in the following sequence: H - M1 - M2 - L - H

**Button 3:** Pressed to specify input method. Input method changes in the following sequence: POINT - P-P - POINT

**Button 4:** Not used.

## (6) Floppy disk drive unit

### Right front side of control unit (detail view)



Drive

Eject button

- 1) Floppy disk for the pattern data is inserted in the drive.
- 2) To insert a floppy disk, hold it horizontally with the labeled face up, put into the slot and press carefully until crick occurs.  
To remove a floppy disk, press the eject button (floppy disk pops out when the eject button is pressed).
- 3) Any new disks must be formatted (initialized) before use. Regarding the method of format, refer to '4.4 Function Selecting Mode, (3) Operation of floppy/PROM' of this manual.
- 4) It is strictly prohibited to take out the floppy disk or to turn off the power while the floppy disk drive unit is reading or writing (LED of floppy disk drive unit is lit). Memory data may be destroyed.
- 5) Applicable floppy disk  
High density micro floppy disk (abbreviated as 3.5", 2HD type) is used.

# 1. Introduction

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## 1.4 Cautions for Operation

### (1) Safety

Switch off the power before access to the inside of unit for inspection or repair. (There is a great danger of electric shock if you touch the charging section while the power is supplied.)

### (2) Environment

- 1) Do not operate the system under the environment of higher temperature (35°C or over) or lower temperature (10°C or under). Otherwise, the malfunction or failure occurs.
- 2) Do not expose the system to the direct sunlight or do not place it close to a heat source like a room heater.
- 3) Care should be taken to prevent the intrusion of water, liquid or electricity conducting metal particles into the control device or the tablet digitizer.
- 4) System cannot be operated in the atmosphere containing the explosive gas, dense dust or oil mist.
- 5) It is prohibited to apply any strong impact to the system or to operate it where there are intense vibrations.

### (3) Power supply voltage

- 1) Operate the system with the power supply which is within the range of  $\pm 10\%$  of the rating.
- 2) When there is an instantaneous power failure, the system is brought to the reset or the error state and stops to operate.  
In such occasion, turn off the power and back on again to resume the operation.

### (4) Noises

- 1) If a surge voltage (noise) is applied to the power supply line, the system control may be disturbed temporarily.
- 2) Same problem may be encountered if the system is operated near any device which raises large noises. Be sure to secure a sufficient distance from such device.  
(Example: High frequency welder, etc.)
- 3) Noises may be raised if a radio or TV is used around the system. Provide a separate power supply for them or use them at a remote place.



## 2. Before Starting the Operation

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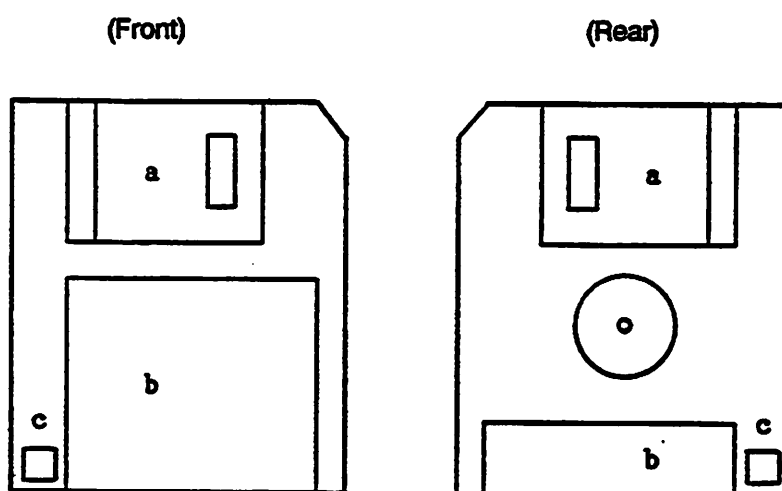
### 2. Before Starting the Operation

#### 2.1 Basic Knowledge

##### (1) Floppy disk

- 1) Floppy disk should be handled carefully because it is a precision component which utilizes the magnetism and its memory could be destroyed under the effect of a strong magnetism.

##### Name of each section



##### a. Sliding cover

Protector of magnetized surface. Name of manufacturer and type of floppy disk (MITSUBISHI MF2-HD) are printed on the front side.

##### b. Label

Columns to record user's name, contents of data, date, etc. are provided.

##### c. Write protect tab

Protection to prevent erasing the memory by mistake.

##### 2) Format of floppy disk

New floppy disk cannot be used as a data disk unless it is formatted (initialized). Following 2 types of floppy disk can be used with the system.

Regarding the method of format, refer to '4.4 Function Selecting Mode, (3) Operation of floppy/PROM'.

## 2. Before Starting the Operation

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### Type of floppy disk

3.5" high density recording type (2HD)

Memory : 1.44MB ; 1MB

Byte/sector : 512 bytes ; 1024 bytes

Sector/track: 9 sectors ; 8 sectors

### Caution

When a disk is formatted, all existing data are erased. Make sure not to format any disks containing important data.

### (2) PROM

PROMs which are used with the system are as listed below and the memory can be erased with ultraviolet rays.

	2716	2732	2732A
Mitsubishi	M5L2716K	M5L2732K	<del>                    </del>
Fujitsu	MB8516 MB8516H	MB8532-35 MB8532-45	MBM2732A-20 MBM2732A-25 MBM2732A-30 MBM2732A-35

27C256 : Fujitsu's MBM27C256A-20  
MBM27C256A-25

27C512 : Fujitsu's MBM27C512-20

## 2. Before Starting the Operation

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### 2.2 Operating Method

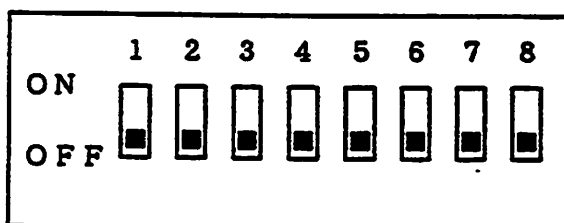
#### (1) Initial setting

Kinds of display characters and floppy disk can be selected by the setting of dip switches of the system. The dip switches are arranged as shown below and all switches are set to ON (Display in English, 1.44 MB) at shipping from the factory.

#### Setting of dip switch

Dip switch No.	ON/OFF
1	1MB/1.44MB
2	English/Japanese
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Fixed to OFF

#### Dip switch (Setting at shipping from factory)



Dip switches are provided at the front center section in the input system.

## 2. Before Starting the Operation

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### (2) Turning on the power supply

Power supply to the system is applied with following steps.

① Power ON

Confirm that the power cord is connected properly, and turn on the power switch.

② Display on LCD screen

The system starts to operate and the following display is shown on the LCD screen.

1. PEN-IN	2. READ
3. WRITE	4. FUNCTION

③ End

### (3) How to key-in the menu

1) Selecting the functions

To select a function (letters are not flickering), operate key or ten keys.

2) Input of conditions

When entering the conditions (numbers are flickering), move the + mark, which is the focus for reading of the digitizer cursor, into the frame of desired number key of the tablet, press the button 1 and hit key.

a. New input

[Example]

Display	Input	
1 0  %	1	--- Input digit Cursor position
— —  %	5	
— 1  %	0	
1 5  %		
1 5  %		




b. Change of input (150% - 50%)

Display	Input
1 5  %	5
— —  %	0
— 5  %	
— 5  %	


## 2. Before Starting the Operation








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c. No change (50% - 50%)

Display	Input
— <u>5</u>  %	
— <u>5</u>  %	

d. Correction of input error

When  key is not yet pressed, the cursor on the screen can be returned by using the "BACKSPACE" key on the tablet digitizer.

Display	Input
— <u>1</u> <u>1</u>  %	BACKSPACE
— <u>1</u>  %	BACKSPACE
— —  %	0
— <u>1</u>  %	0
<u>1</u> <u>0</u>  %	
<u>1</u> <u>0</u>  %	




e. Check of input

While respective setting conditions are being input, the check of following contents is conducted.





(a) Check of kinds of character

Display	Input
<u>1</u> <u>0</u>  %	TRIM
<u>1</u> <u>0</u>  %	Cannot be input.

(b) Check of setting range (Example of input scale)

Display	Input
<u>8</u> <u>0</u>  %	
<u>8</u> <u>0</u>  %	Cannot be input. Retry the input.

(c) Check of input digit (Example of input scale)

Display	Input
<u>1</u> <u>0</u>  %	0
<u>1</u> <u>0</u>  %	Cannot be input.
— —  %	BACKSPACE
— —  %	Cannot be input.

## 2. Before Starting the Operation

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### 3) Input of letters

Letters are input to specify the name of pattern.

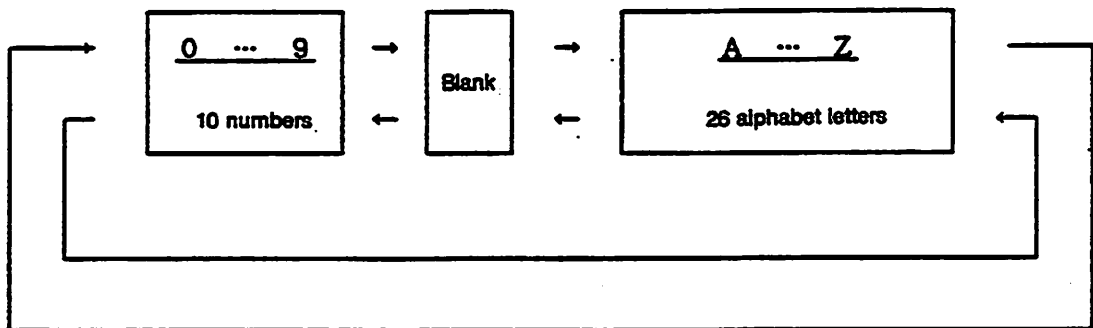
#### a. Change of letters

Letter at the cursor position is changed.

Move the + mark, the reading focus of the digitizer cursor, into the frame of "+-" or "-" key on the tablet and press the button 1 so that the letter at the cursor position changes.

If "+-" key is operated, the letter changes orderly as indicated with - mark.

If "-" key is operated, the letter changes orderly as indicated with - mark.



#### Example of change

Example of "+-" key operation

Display	Input
	+
	+

Example of "-" key operation

Display	Input
	-
	-

#### b. Input of characters

When a letter was changed to the desired one, press key so that the desired letter is saved in the memory. Then you can proceed to change the next letter.

If key is pressed without changing the leading letter or the blank is specified at the position of leading letter, the pattern name which is set at present, is recognized as the one to be input so that the pattern name is not changed.

## 2. Before Starting the Operation

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### Example of input (Changing from PATTERN to OP)

Display	Input
P A T T E R N	-
O A T T E R N	↩
O A T T E R N	+
O B T T E R N	+ (Input 14 times.)
O P T T E R N	↩
O P T T E R N	+ (Input 17 times.)
O P T T E R N	

If you find a typing error during input of letters, move the cursor to the letter with the "BACKSPACE" key. Please note that the letter indicated with the cursor is replaced with the blank space.

### Example of input

Display	Input
O P T T E R N	BACKSPACE
O T T E R N	BACKSPACE
T T E R N	

#### c. Input of pattern name

If ↩ key is hit again after the input of pattern name with 8 letters, the pattern name is saved in the memory.

When the name is less than 8 letters, the balance positions must be filled with the blank space to complete the name.

### Example of input (Changing from PATTERN to OP)

Display	Input
P A T T E R N	-
O A T T E R N	↩
O A T T E R N	+
O B T T E R N	+ (Input 14 times.)
O P T T E R N	↩
O P T T E R N	+ (Input 17 times.)
O P T T E R N	↩
O P _ _ _ _	

## 2. Before Starting the Operation

---

d. Input of pattern name starting with "P"

When a pattern name starts with "P", set any letter other than "P" at the initial input. Operate "2 and [↩]key" at the confirmation of execution and input again the pattern name.

**Example of input (Changing from PATTERN to P1)**

(a) Initial input

Display	Input
P A T T E R N	+
Q A T T E R N	[↩]
Q A T T E R N	-
Q T T E R N	[↩]
Q _ _ _ _ _	

(b) Confirmation of execution

FLOPPY	[↩]
WRITE?	1. y 2. n

Operate "2 and [↩]key" to change the conditions.

DESTINATION	[↩]
1. FLOPPY	2. PROM

Operate "1 and [↩]key".

(c) Second input

Display	Input
[↩] _ _ _ _ _	-
[↩] _ _ _ _ _	[↩]
P [↩] _ _ _ _ _	- (Input 9 times.)
P [↩] _ _ _ _ _	[↩]
P 1 [↩] _ _ _ _ _	[↩]
P 1 _ _ _ _ _	

4) Regarding the "CANCEL" and the "RESET" keys

If the reading focus of the digitizer cursor is moved to the "CANCEL" or the "RESET" key on the tablet digitizer and the button 1 is pressed, the present input operation can be aborted forcibly.



## 2. Before Starting the Operation

### b. Reset

If the 'RESET' key is pressed, the following confirming message is displayed on the LCD screen.

If you wish to end up the program, select '1. y'.

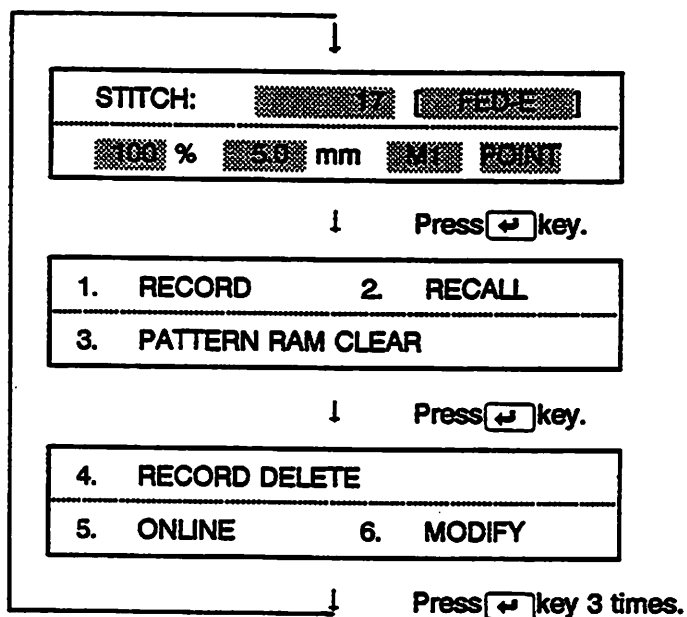
If you select '2. n', the display changes to the last screen before operating the 'RESET' key.

RESET?	
	1. y 2. n

### 5) Display of functions which can be selected

Functions which can be selected during the execution of respective functions can be confirmed by hitting  key.

**Example: at the input of pattern**



## 2. Before Starting the Operation

---

### (4) Turning off the power

Input system stops to operate as shown below.

○ During the input operation

◆ Do you end the program?

(YES)

◆ Did you write the pattern data?

Be sure to save the operated pattern data in the memory of floppy disk (PROM).

(YES)

◎ Press the "RESET" key.

Following confirmation message will be displayed. Press "1" key to end the program.

RESET?	■
1. y 2. n	

◎ Select "1. y".

When the following message is displayed, the power can be turned off.

1. PEN-IN	2. READ
3. WRITE	4. FUNCTION

◎ Power OFF

○ End

## 2. Before Starting the Operation

---

### (5) When any error occurred

- 1) If there is any mistake in the operation, the buzzer will sound. In such occasion, check where you errored and input with a proper manner.
- 2) When any error which disables the continued operation occurs, the following error message will be shown on the LCD. Press the "CANCEL" key to reset the error and resume the operation.

Please note that "C" in the message indicates the system is waiting for you to press the "CANCEL" key.

E100 : STITCH DATA	
EMPTY	C

## 3. Basic Input

### 3. Basic Input

#### 3.1 Input of Simple Stitch Pattern

##### (1) Input method

###### 1) How to operate the menu key

Move the + mark, the reading focus of the digitizer cursor, into the frame of digitizer's menu to be selected, and press the button 1.

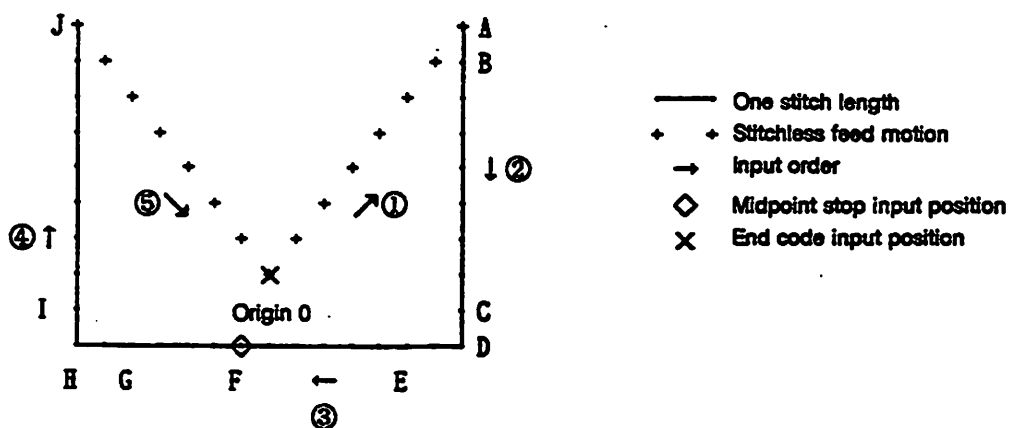
###### 2) Input of pattern coordinate of the tablet digitizer

Align the + mark center of reading focus of the digitizer cursor at the end stitch point of the pattern to be input on the tablet digitizer and press the button 1.

##### (2) From the pattern input to the writing

Sequence of operation from the creation of pattern as shown below till it is written in the floppy disk is explained.

Pattern is drawn correctly on a thin paper and the paper is attached to the pattern data input section of the tablet digitizer. Pattern data can be created by entering respective points by the button 1.



##### Stitching conditions

Stitch length : 5.0 mm

Sewing speed : Straight running stitch ... High speed (BC, EG, IJ)

Comer stitch ..... Medium-high speed (AB, CD, DE, GH, HI)

Input scale : 100%

Stitching order : Origin - (Stitchless feed) - A - D - H - J - (Stitchless feed) - Origin

### 3. Basic Input

#### 1. Selection of pattern input mode

Pattern input mode is selected under the reset state (explained below).

1. PEN-IN	2. READ
3. WRITE	4. FUNCTION


#### Operation


1. Select '1. PEN-IN'.

#### 2. Setting the pattern input conditions


Input respective input conditions as instructed by the display cursor.


- ⊙ Erasing of pattern data (This is displayed when the pattern data are retained by the input system.)

PATTERN RAM CLEAR	
CLEAR? 	1. y 2. n


1 


- ⊙ Data type (This is displayed when the data type is not set.)

DATA TYPE 
1. PLK-A 2. PLK


1 


- ⊙ Input scale

INPUT SCALE
 100 %

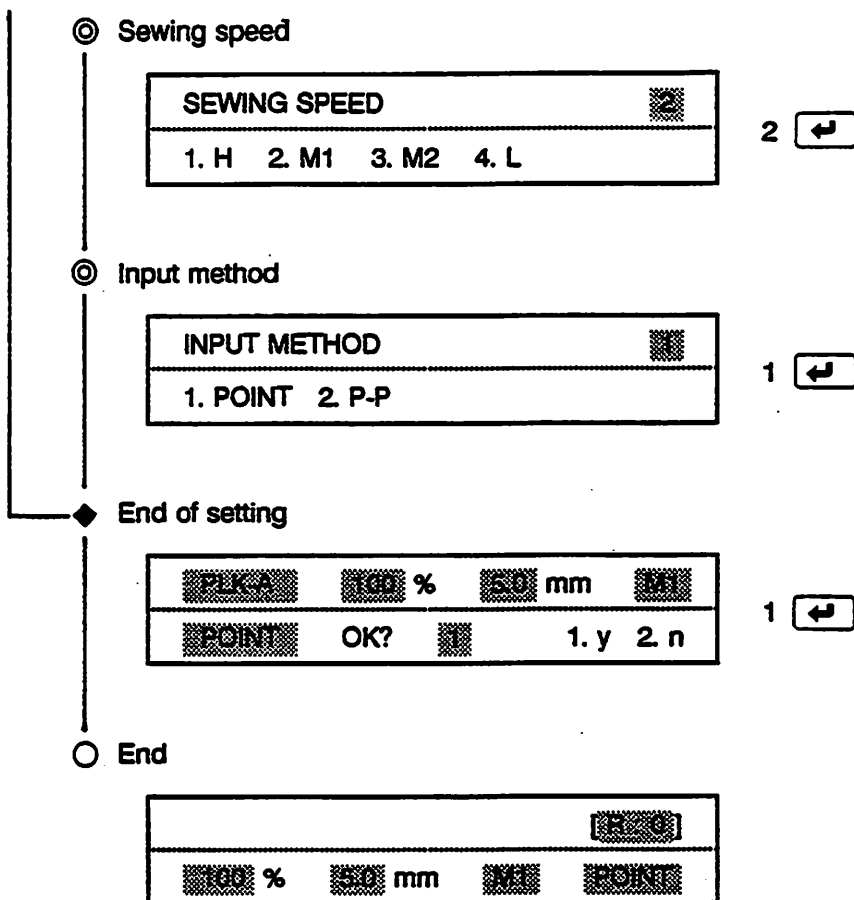
100 

- ⊙ Stitch length

STITCH LENGTH
 50 mm

5 

### 3. Basic Input



### 3. Definition of origin

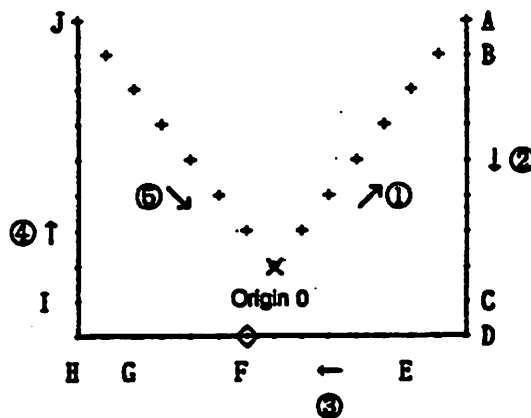
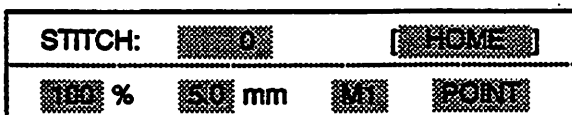
The origin data is entered.

#### Operation

1. Focus the cross mark of digitizer cursor on the origin "0" of pattern and press the button

1.

→ Abbreviated from here on as "To input".



### 3. Basic Input

4. Stitchless feed motion input  
Stitchless feed data is entered.

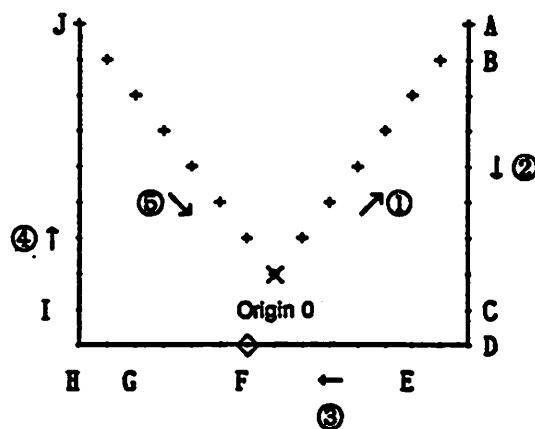
#### Operation

1. Operate the 'FEED' key of the menu section.

STITCH:	0	[FEED]
100 %	50 mm	FEED

2. Input the point 'A' of the pattern.

STITCH:	17	[FEED]
100 %	50 mm	M1 POINT



### 3. Basic Input

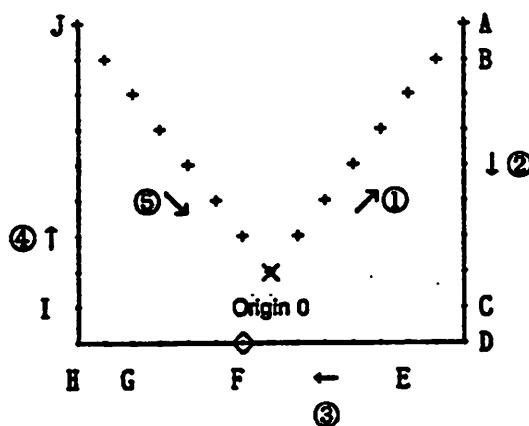
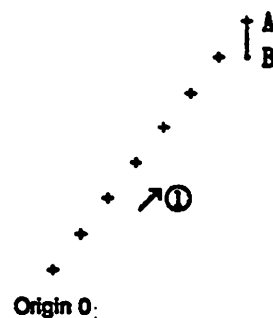
#### 5. Point input

One-stitch data is entered.

#### Operation

1. Input the point 'B' of the pattern.

STITCH:	19	SEN
100 %	50 mm	M1 POINT





### 3. Basic Input

#### 6. Change of sewing speed

Sewing speed is changed from medium high speed (M1) to high speed (H).

##### Operation

1. Press the button of digitizer cursor 2 or 3 times.

Each press on the button 2 change the speed step by step, Medium high -> Medium low -> Low -> High -> Medium high — .

STITCH:	19	[SPEED]
100 %	50 mm	M2 POINT

STITCH:	19	[SPEED]
100 %	50 mm	L POINT

STITCH:	19	[SPEED]
100 %	50 mm	H POINT

#### 7. Input method change

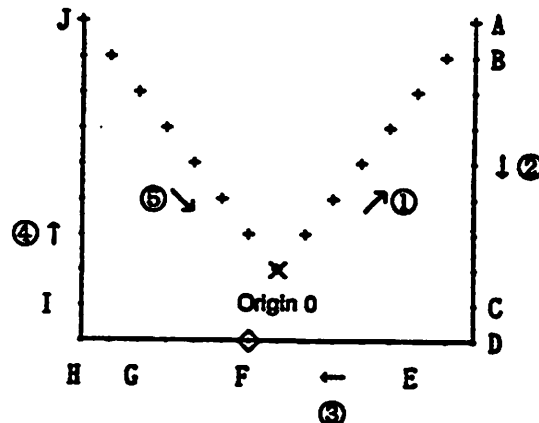
Input mode is changed from point (POINT) to straight line (P-P).

##### Operation

1. Press the button 3 of digitizer cursor.

With each press on the button 3, it changes from Point -> Straight line -> Point -> Straight line -> — .

STITCH:	19	[METH]
100 %	50 mm	H P/P



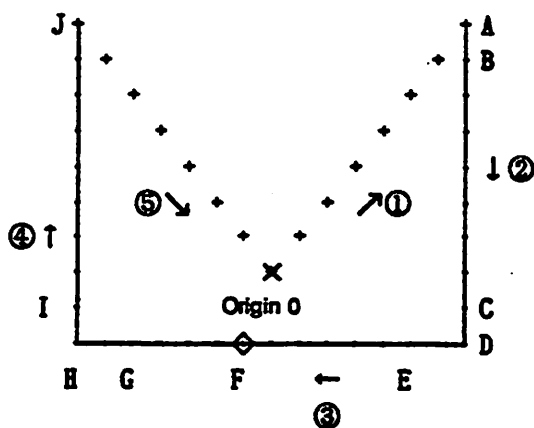
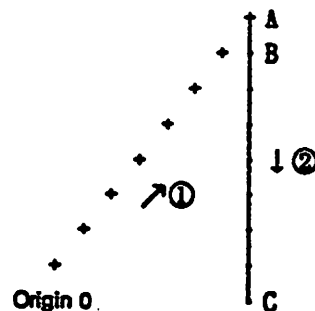
### 3. Basic Input

8. Straight line (P-P) data input  
Straight line (P-P) is entered.

Operation

1. Input the point "C" of the pattern.

STITCH:	28	SEW
100 %	50 mm	H P-P



### 3. Basic Input

#### 9. Bend data input

Sewing speed is changed to medium high speed (M1), input mode is changed to point (POINT) and bend data is input.

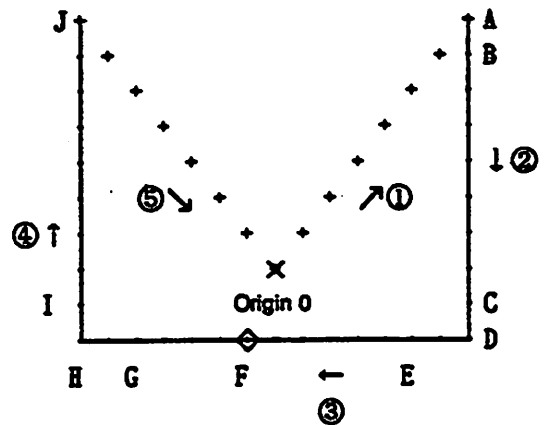
#### Operation

1. Press the button 2 of mouse (digitizer cursor) to change the sewing speed (high - medium high).

STITCH:	23	[SPEED]
100 %	50 mm	M1 P/P

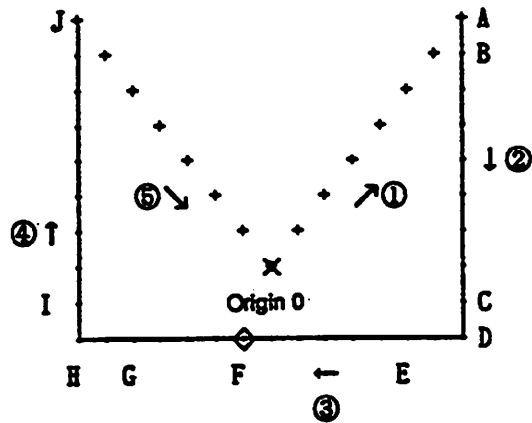
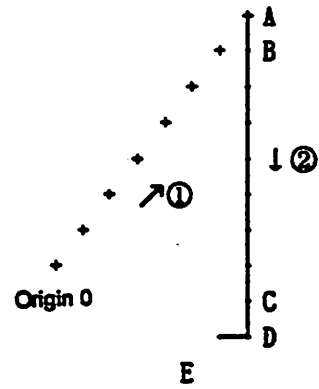
2. Press the button 3 of mouse to change the input method (straight line - point).

STITCH:	23	[METH]
100 %	50 mm	M1 POINT



### 3. Basic Input

3. Input the point "D" of the pattern.
4. Input the point "E" of the pattern.



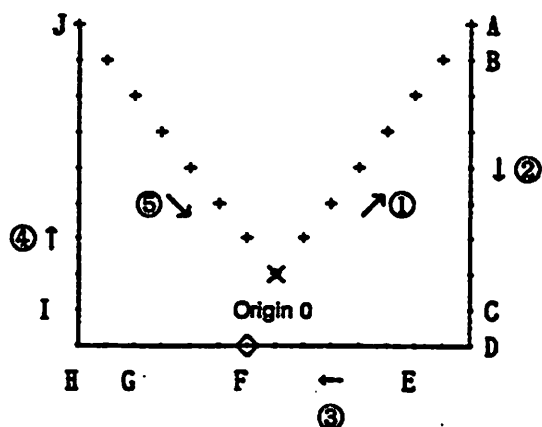
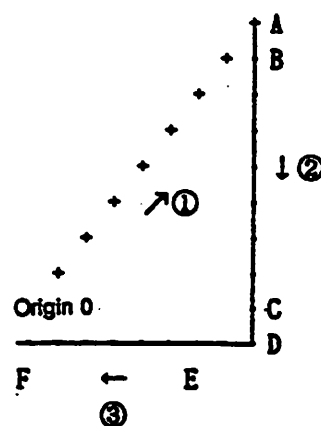
### 3. Basic Input

#### 10. Bend and straight line data input

Sewing speed is set to high speed (H) and input mode is changed to straight line (P-P) to input line data.

#### Operation

1. Press the button 2 of mouse to change the sewing speed (medium high - high).
2. Press the button 3 of mouse to change the input method (point - straight line).
3. Input the point 'F' of the pattern.



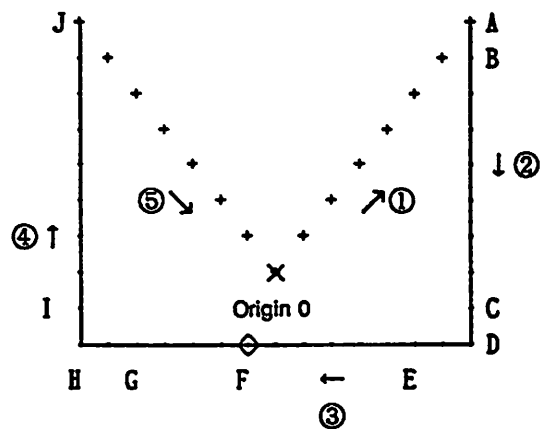
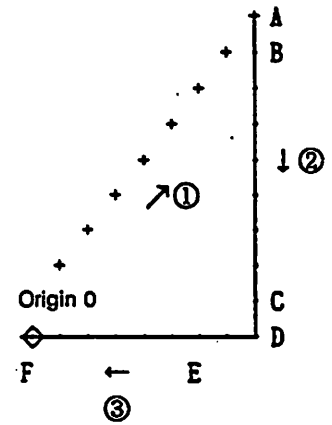
### 3. Basic Input

11. Midpoint stop (STOP) code input  
Midpoint stop (STOP) code is input

Operation

1. Operate the "STOP" of the menu.

STITCH:	38	STOP
100 %	50 mm	H P



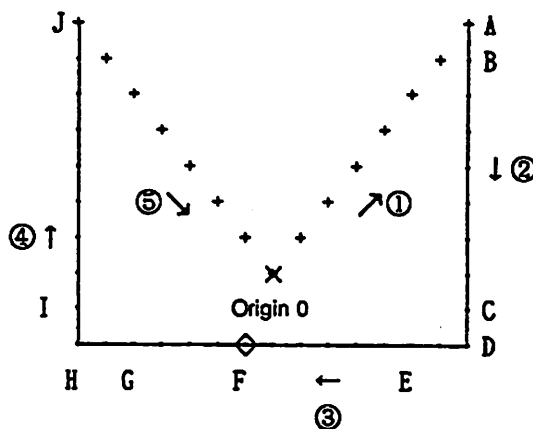
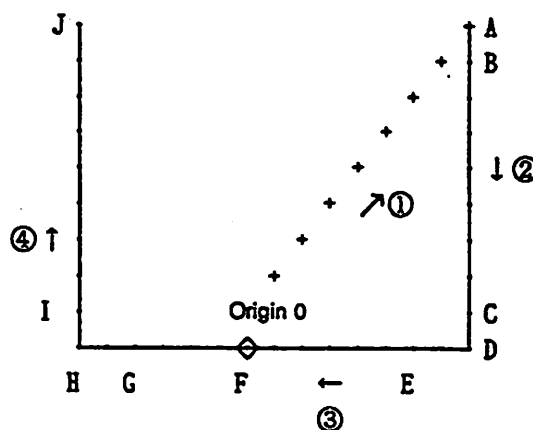
### 3. Basic Input

#### 12. Input of remaining pattern

Input the remaining pattern in compliance with the fore-going procedures.

##### Operation

1. Input the point "G" of the pattern.
2. Press the button 2 of mouse to change the sewing speed (high - medium high).
3. Press the button 3 of mouse to change the input method (straight line - point).
4. Input the point "H" of the pattern.
5. Input the point "I" of the pattern.
6. Press the button 2 of mouse to change the sewing speed (medium high - high).
7. Press the button 3 of mouse to change the input method (point - straight line).
8. Input the point "J" of the pattern.



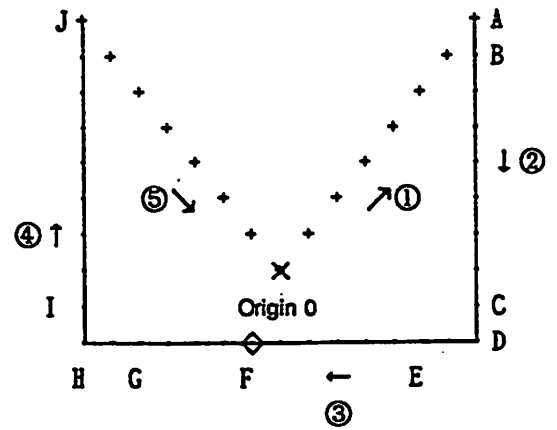
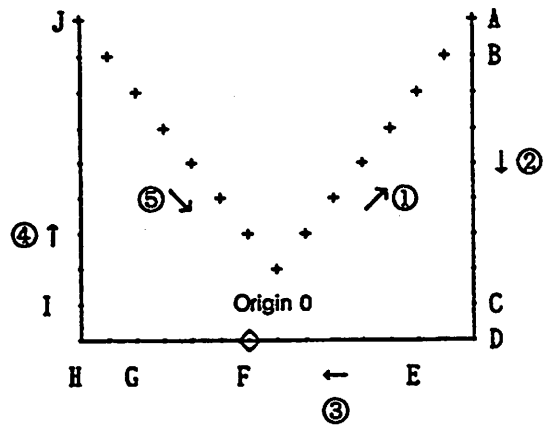
### 3. Basic Input

13. Origin return data input  
Origin return data is entered.

Operation

1. Operate the "RETURN" key of the menu section.

STITCH:	75	[FIN]
100 %	5.0 mm	H PP





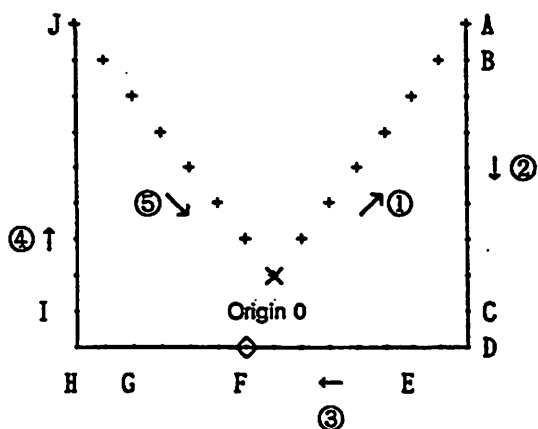
### 3. Basic Input

14. End (END) code input  
End (END) code is entered.

Operation

1. Operate the "END" key of the menu section.

1. PEN-IN	2. READ
3. WRITE	4. FUNCTION



15. "WRITE" mode selection  
"WRITE" mode is selected under reset condition.

1. PEN-IN	2. READ
3. WRITE	4. FUNCTION

Operation

1. Input "3" key of the menu section.

### 3. Basic Input

#### 16. Write condition setting

Input the write conditions using the cursor.

Operation

##### ◆ Write destination selection

Selection of write to the floppy disk.

DESTINATION		1	↵
1. FLOPPY	2. PROM		

##### ◎ Pattern name input

Set \*PATTERN\* as the pattern name.

PATTERN NAME		↵
	PATTERN	

##### ◆ Confirmation of executing of writing

Execution of writing

FLOPPY	PATTERN	1	↵
WRITE?	1	1. y 2. n	

○ End

#### 17. End of pattern data writing

Following message will be displayed on the LCD as the writing is completed.

FLOPPY	No. :	100
NAME: PATTERN	(1024)	C

Number and name of the written pattern and number of stitches will be displayed on the LCD.

## 4. Reference

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### 4. Reference

#### 4.1 Pattern Input Mode

Patterns are created or edited.

**(1) Pattern input mode selection**

Select "1. PEN-IN" under the reset state.

**(2) Setting the input conditions**

Set respective pattern input conditions before starting the pattern input.

**1) Confirmation of erasing of pattern data (This is displayed when the input system retains the pattern data.)**

Select whether to erase the pattern data which are retained in the system, and to input a new pattern data or to add new pattern data.

When the pattern data addition "2. n" is selected, the "END code" at the end of a pattern data, if it exists, is erased automatically.

PATTERN RAM CLEAR		
CLEAR?	<input checked="" type="checkbox"/>	1. y 2. n

When the pattern data is newly input:

1

When the data is added to the one which is created or which was written:

2  or  only

**2) Data type input (This is displayed when the data type is not yet set.)**

Select the type of data to be input depending on whether the sewing machine is the PLK-A Series machine or the conventional electronic sewing machine (PLK Series, etc.).

Please note that, if the data type is input, the stitch length and the limitation of stitch number which can be input, are changed as shown below.

**Length and number of stitches which can be input**

Data type	Max. stitch length	Max. number of stitches
PLK-A	12.7 mm	8000 stitches
PLK	6.2 mm	4000 stitches

DATA TYPE <span style="float: right;"><input checked="" type="checkbox"/></span>	
1. PLK-A	2. PLK

In case of PLK-A series: 1

Any other cases : 2

## 4. Reference

### 3) Input of the input scale

Ratio of size of the actual sewing material against the pattern on the tablet digitizer is input in the unit of %.

Range of input is 10 to 200%.

If 100  is input, the ratio becomes 100% which means the size of the actual sewing material and the pattern on the tablet digitizer are the same. If 50  is input, the size of sewing pattern and stitches reduced to 1/2 (50%).

INPUT SCALE	<input type="text"/>
	100 %

Scale

### 4) Input of stitch length

Length of one stitch is input in the unit of mm when the straight line input is specified by the method explained later.

It can be set within the range of 0.1 to 12.7 mm.

STITCH LENGTH	<input type="text"/>
	0.0 mm

Stitch length

### 5) Sewing speed selection

Speed to sew the pattern is specified.

\*1. H\* is for the high speed, \*2. M1\* for the medium high speed, \*3.M2\* for the medium low speed and \*4. L\* for the low speed.

Please note that the sewing speed can be changed at any time with the button 2 of the mouse.

SEWING SPEED	<input type="text"/>
1. H 2. M1 3. M2 4. L	1 ~ 4 <input type="text"/>

### 6) Selection of input method

Input method of pattern data is specified.

When the point input is selected, the stitch length can be specified for each stitch and it is possible to input any stitches under 12.7 mm regardless of the stitch length, which was explained previously. On the other hand, if the straight line input method is specified and 2 points are defined, the data of stitch of specified length for the straight line between these 2 points are created automatically.

The input method can be changed at any time by the button 3 of mouse.

INPUT METHOD	<input type="text"/>
1. POINT 2. P-P	

When it is input one stitch after another: 1

When two points are specified first and then the stitches in between are created automatically : 2

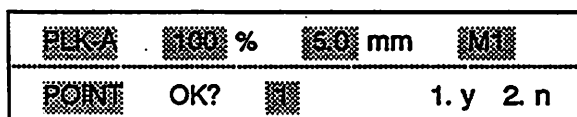
## 4. Reference

### 7) Confirmation of the end of setting

Confirm the setting value.

If the end of setting "1. y" is selected, the pattern input is initiated.

If the reset "2. n" is selected, the input can be repeated from the stitch length.



To end the setting: 1

To reset : 2

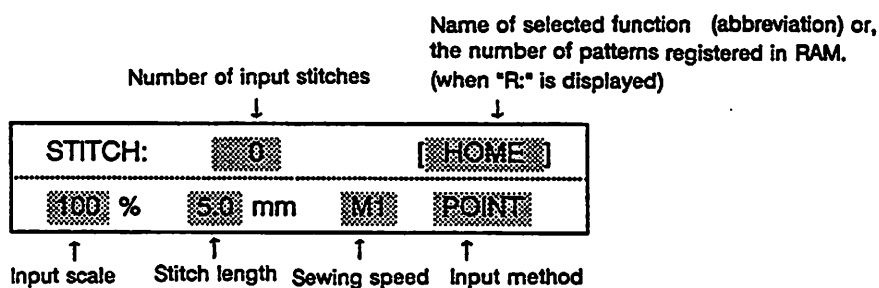
After the input system is started, the setting of conditions on and after 2nd setting are saved in memory and the state is displayed on the screen. When the set conditions are not changed, just press  key so that the cursor moves to the next setting item.

### (3) Input operation

Refer to "3. Basic Input" regarding the pattern input method, etc.

### (4) Start of pattern input

As the pattern input is started, the following message will be shown on the LCD.



### (5) Selectable functions

1. RECORD	2. RECALL
3. PATTERN RAM CLEAR	
4. RECORD DELETE	
5. ONLINE	6. MODIFY
7. SERIAL TRANSMIT	
8. CHANGE	
9. SPLINE	

## 4. Reference

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### Menu

1. RECORD	'1'
2. RECALL	'2'
3. PATTERN RAM CLEAR	'3'
4. RECORD DELETE	'4'
5. ONLINE	'5'
6. MODIFY	'6'
7. SERIAL TRANSMIT	'7'
8. CHANGE	'8'
9. SPLINE	'9'

### Digitizer cursor (mouse)

10. Sewing speed change	'Button 2'
11. Input method change	'Button 3'

### Tablet

12. Stitchless feed	'FEED'
13. 2nd origin	'ORIG POINT'
14. Stop	'STOP'
15. Reverse	'REVERSE'
16. X-INV	'X-INV'
17. Y-INV	'Y-INV'
18. X Y-INV	'X Y-INV'
19. Circle	'CIRCLE'
20. Arc	'ARC'
21. Zigzag	'ZIGZAG'
22. Trim	'TRIM'
23. Origin return	'RETURN'
24. End	'END'
25. Line clear	'LINE CLEAR'
26. 1 stitch clear	'1-STITCH CLEAR'
27. Function code input	'FUNC CODE'
28. Record list	'RECORD LIST'
29. Pattern list	'PATTERN LIST'

### (6) Record

Pattern data held by the control unit is down-loaded to record memory or floppy disk. Maximum 20 patterns (record No. 400 to 419) and maximum 40 patterns (record No. 300 to 339), up to 4000 stitches, can be stored in record memory and floppy disk respectively. Available record No. is assigned automatically to each pattern in incremental order.

Please note that, if the power of the control unit is turned off, the data stored in the record memory will be cleared.

## 4. Reference

1) Selection of the record destination

DESTINATION <span style="float: right;">■</span>	1 or 2 <input type="button" value="↔"/>
1. REC RAM      2. FLOPPY	

Select the address to record. When it is saved in the record memory, select "1. REC RAM" or, when saving on the floppy disk, select "2. FLOPPY".

2) Confirmation of execution of recording

REC RAM	1 or 2 <input type="button" value="↔"/>
RECORD? ■      1. y   2. n	

To record under the specified conditions, select "1. y" and to change the conditions, select "2. n".

If "1. y" is selected, recording starts. If it is recorded in a floppy disk, be sure to set a floppy disk in the disk drive.

3) Display of end of recording

a. When saving in the record memory.

REC RAM      No.      :	400
(150 / 150 / 4000) C	

Number which has been given by recording, the number of pattern data which have been recorded, and the total number of stitches of the data saved in the record memory are displayed on the LCD screen.

b. Recording on a floppy disk

FLOPPY      No.      :	300
(98) C	

Number which has been given by recording and the number of stitches of pattern data which has been recorded are displayed on the LCD screen.

(7) Recall

Data saved on the record memory or the floppy disk can be added to the pattern data which are now input.

1) Input of record No.

RECORD No. <span style="float: right;">■</span>	0
R: 400-419    F: 300-339	

## 4. Reference

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Record No. of data to be recalled is entered.

Record No. of the record memory is 400 - 419 and it is 300 - 339 for the floppy disk.

### 2) Confirmation of execution of recall

No. :	400	REC RAM	
RECALL?	<input checked="" type="checkbox"/>	1. y	2. n

1 or 2

To recall under the specified conditions, select '1. y' or, to change the conditions, select '2. n'.

Since the recall starts as soon as '1. y' is selected, be sure to set a floppy disk beforehand in the disk drive if you wish to recall from the floppy disk.

Even if the data type of pattern which is retained in the input system and the data type in recorded data are different when the recall has been selected, the recall can be executed.

Please note, however, that the stitch length is not checked.

### (8) Clear of pattern data

Pattern data which is created presently can be cleared and it can be brought to the pattern input start state. In such occasion, any data other than the pattern data are not accepted.

#### 1) Confirmation of execution of clearing

PATTERN RAM CLEAR			
CLEAR?	<input checked="" type="checkbox"/>	1. y	2. n

1 or 2

Select '1. y' to clear the pattern data or '2. n' unless the data are cleared.

### (9) Deleting the recorded data

The data recorded in the record memory or floppy disk are deleted.

In this occasion, any data other than the specified recorded data are not accepted.

#### 1) Input of record No.

RECORD No.	6
R: 400-419 F: 300-339	

Input the record No. of pattern to be deleted.



## 4. Reference

---

### 2) Confirmation of execution of deleting

No. :	400	REC RAM	
DELETE?	2	1. y 2. n	1 or 2 <input type="button" value="↩"/>

When it is recorded under the specified condition, select "1. y" or, to change the conditions, select "2. n".

Since deleting starts as soon as "1. y" is selected, be sure to set a floppy disk on the disk drive when the data of floppy disk is deleted.

### (10) On-line

Pattern data retained in the input system are corrected by connecting with the sewing machine.

For further details, refer to "4. 5 On-line Function".

### (11) Modification

Pattern data retained in the input system are modified (it is not connected with the sewing machine in this case.)

For further details, refer to "4. 6 Modification Function".

### (12) Serial transmission

Pattern data for 1 pattern is transmitted to an external device (electronic sewing machine, etc.) via the RS-232C serial interface.

Connect one end of RS-232C serial interface to RS-232C connector at the left side of main unit of the input system and the other end to the external device.

#### 1) Confirmation of execution of transmission

SERIAL TRANSMIT			
TRANSMIT?	1	1. y 2. n	1 or 2 <input type="button" value="↩"/>

When the pattern data is transmitted to an external device, select "1. y" or, if not and to end the mode, "2. n".

Since the transmission by the system takes place as soon as "1. y" is selected, be sure to set beforehand the external device ready for data communication.

## 4. Reference

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### 2) Display of result of transmission

TRANSMIT STITCH: 1023
C

CANCEL
--------

When the data transmission is completed, the number of stitches of transmitted pattern data is displayed.

### (13) Change of input conditions

Pattern input conditions which have already been set can be changed.

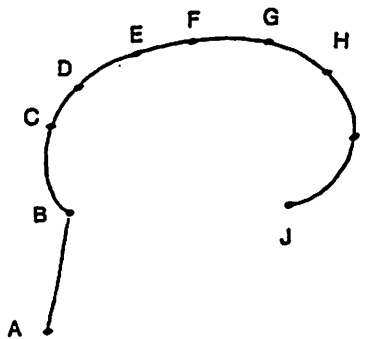
Conditions which can be changed with this function are 3 items of the stitch length, the speed and the input method.

Regarding the setting of these conditions, refer to "(2) Setting the input conditions".

### (14) Curve (SPLINE)

Data of a smooth curve, which passes over the last position specified before this function is selected and the points larger than 1 and less than 127 being set next, can be created. However, when the point which is specified next is only one, the data of straight line is produced.

#### 1) Example of curve data

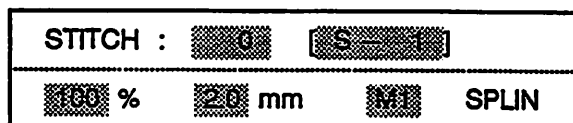


Input the points A and B to draw a straight line before inputting '9' key to put it at the state to input a curve data. And then specify orderly the point C - D - ... - J. The result will be as shown above.

## 4. Reference

### 2) Input of a curve data

Following message will be shown on the LCD screen while respective points of a curve are being inputted.




Input respective points on a curve under the above state. The number of input points is displayed on the LCD.

### 3) Erasing the input point(s)

If the "1-STITCH CLEAR" key is input, the last input point is erased.

### 4) Creation of curve data

Input every point on a desired curve (the processing time varies depending on the number of stitches) and then input  key.

When a curve data is completed, the number of input point turns to 1 and the next curve data can be input.

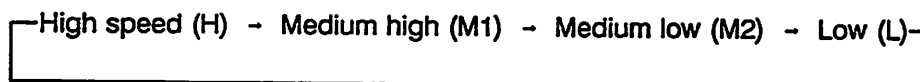
### 5) Ending the input of curve data

Press the "CANCEL" key so that the curve data input is ended and it returns to the pattern input state.

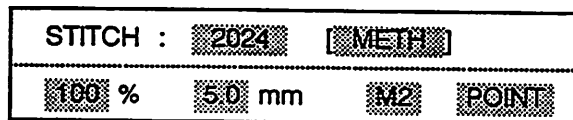
## (15) Sewing speed change

This is used to change the sewing speed in the pattern input conditions which have already been established.

Sewing speed is incremented as shown below with each push on the button 2.



Result of change is displayed on the LCD as shown below.



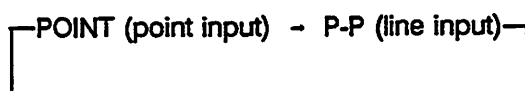
† Stitching speed which is set presently.

## 4. Reference

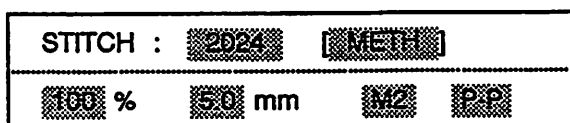
### (16) Input method change

This is used to change the pattern data input method in the pattern input conditions which have already been established.

Pattern data input method is changed as shown below with each push on the button 3.



Result of change is displayed on the LCD as shown below.



↑ Input method which is set presently.

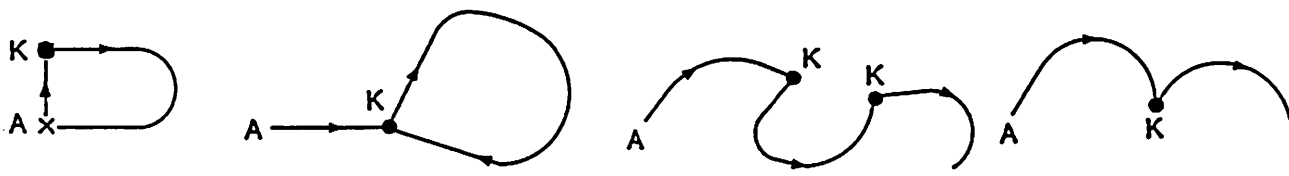
### Cautions at the input of curve

#### 1) Regarding the stitch length at the input of curve

Although the normal stitch length is 0.1 to 12.7 mm, it is limited to 0.1 to 12.0 mm with the input of curve.

If you specify more than 12.1 mm, a correct stitch data may not be obtained.

#### 2) When you create a data like the one which is shown below, complete the input of curve at the point K temporarily and proceed to input the further data of curve.



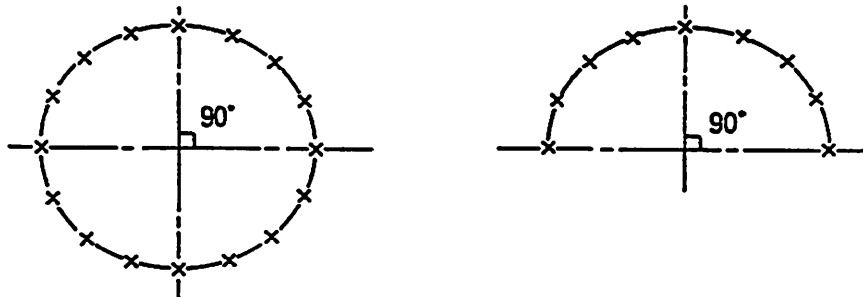
## 4. Reference

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- 3) When a curve input data is created, a more precise data will be obtained by inputting as many points as possible. Do not hesitate to specify many points to obtain a more faithful and smooth data.

### Example 1

When a circle or any data closely resembles an arc, input more than 3 points with  $90^\circ$  as shown below.



### Example 2

With a curve as shown below, which turns abruptly from a section of smooth curve, make sure to input as many points as possible.



If the number of input points are scarce, a desired curve may not be obtained.

### (17) Stitchless feed (FED-\*)

If this function is selected, a straight line stitchless feed data is inserted between the last position before the function is selected and the position specified next. (3.0 mm unit)  
When the last data is a stitch data, the thread trimming code is automatically added, and when the basting, the basting code and the thread trimming code are added automatically.

## 4. Reference

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### (18) Second origin (ORIG)

This function makes the last position specified just before the selection of this function as the start point of stitching cycle.

This is used when the start point of stitching cycle is set at a point other than the mechanical zero point of the sewing machine. Please note that only one 2nd origin is allowed in each pattern data due to the character of this function.

### (19) Stop (STOP)

Sewing machine operation (stitching) stops at previously specified point with the needle at up position.

If the start switch of the sewing machine is turned on, the subsequent pattern can be stitched.

When the data after the stop code is the stitching data, the start code is added automatically. "STOP" can be input several times in each pattern data.

### (20) Reverse (REVER)

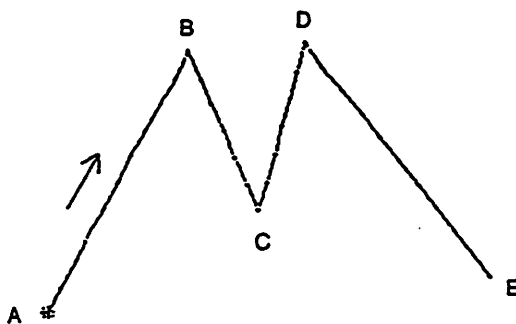
When this function is selected, the reverse presser is driven at the last position which was specified before the selection of this function.

"REVER" can be input several times in each pattern data. The reverse presser is started with the input of odd number and released with the input of even number.

### (21) X symmetry (X-INV)

If this function is selected, the previous data is inverted around Y axis which passes the last position specified before selecting this function.

#### 1) Example of X symmetry



Input A - B - C and press the "X-INV" key so that the symmetrical pattern of C - D - E is created.

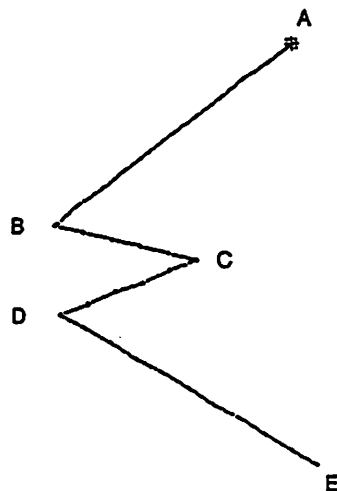
## 4. Reference

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### (22) Y symmetry (Y-INV)

If this function is selected, the previous data is inverted around X axis which passes the last position specified before selecting this function.

#### 1) Example of Y symmetry

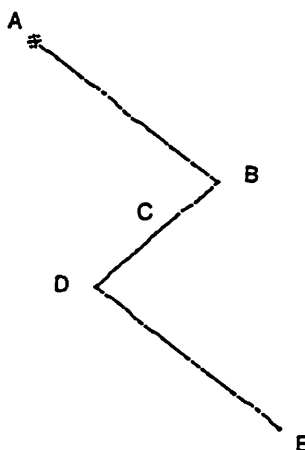


Input A - B - C and press the "Y-INV" key so that the symmetrical pattern of C - D - E is created.

### (23) Point symmetry (XY-INV)

If this function is selected, the previous data is inverted at the point symmetry position around the last position before selecting this function.

#### 1) Example of point symmetry



Input A - B - C and press the "XY-INV" so that a symmetrical pattern of C - D - E is created.

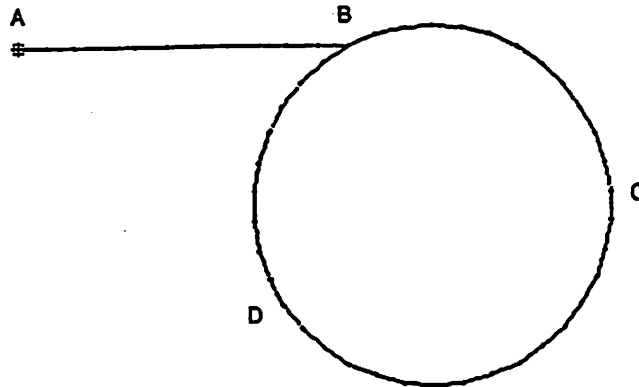
## 4. Reference

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### (24) Circle (CIR-\*)

If the function is selected, a data of circle which passes a total 3 points, i.e. the last position specified before selecting this function and 2 points specified next, is created.

#### 1) Example of circle data



Input the points A - B to draw a straight line and press the "CIRCLE" key to bring it to the circle data input state. Then input the points C - D and complete the data of A - B - C - D - B.

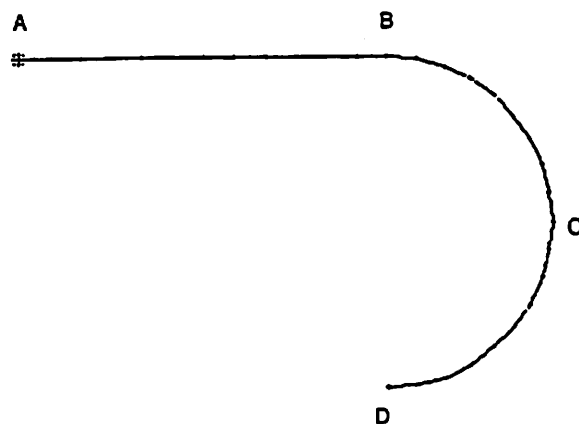
If it is specified the points D - C after the operation of "CIRCLE" key, the pattern data of A - B - D - C - B is created.

In either cases, the end stitch point does not coincide with the point C or D.

### (25) Arc (ARC-\*)

If this function is selected, an arc data which passes a total 3 points, i.e. the last position specified before selecting the function and 2 points specified next, is created.

#### 1) Example 1 of arc data



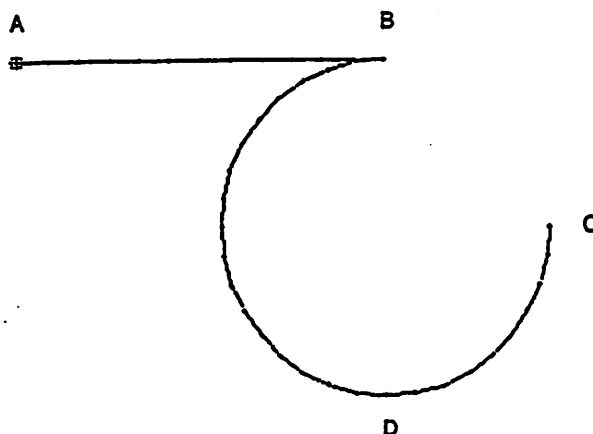
Input the points A - B to draw a straight line and operate the "ARC" key to bring it to the arc data input state. Next, specify the points C - D to complete the pattern data of A - B - C - D.

Point C does not necessarily coincide with the end stitch point.



## 4. Reference

### 2) Example 2 of arc data



If the points D - C are specified after the input of the "ARC" key, the pattern data of A - B - D - C is created.

Point D does not necessarily coincide with the end stitch point.

### (26) Zigzag (ZIGZA)

If this function is selected, a zigzag data connecting from the last position before selecting the function to the position specified next is created.

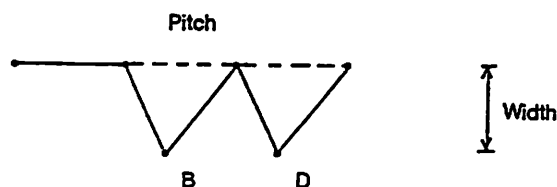
#### 1) Setting the conditions of zigzag input

If this function is selected after the input system is started, the following zigzag input condition setting menu is displayed on the LCD.

##### a. Input of width

ZIGZAG WIDTH
0.0 mm

Input the width, which can be set within the range of 0.5 to 8.9 mm.



##### b. Input of pitch

ZIGZAG PITCH
0.0 mm

Input the pitch which can be set within the range of 0.4 to 17.9 mm.

## 4. Reference

---

### c. Confirmation of creating of zigzag

WID/PIT :	20/30 mm	
OK?	1. y 2. n	1 or 2

When the zigzag pattern is created under the specified conditions, select "1. y", or to change the conditions, "2. n".

Since the value is saved in memory if the input conditions are set, if the zigzag function is selected later, the zigzag input is conducted with the width and the pitch in memory.

### 2) Change of zigzag input conditions

If you wish to change the width or the pitch during the zigzag input, press again the "ZIGZAG" key so that the previous zigzag conditions setting item is displayed.

### 3) Method of zigzag input

Zigzag pitch is determined by the input method which has been set.

For POINT : Priority is given to the pitch setting by the digitizer cursor over the pitch specified previously.

For P-P : Pitch takes the set value.

### 4) Other selectable functions

Following functions can be used for zigzag stitching.

<u>Digitizer cursor</u>	Sewing speed change	"Button 2"
	Input method change	"Button 3"
<u>Menu</u>	Line clear	"LINE CLEAR"
	1 stitch clear	"1-STITCH CLEAR"
	Zigzag circle	"CIRCLE"
	Zigzag arc	"ARC"

### 5) Example of zigzag



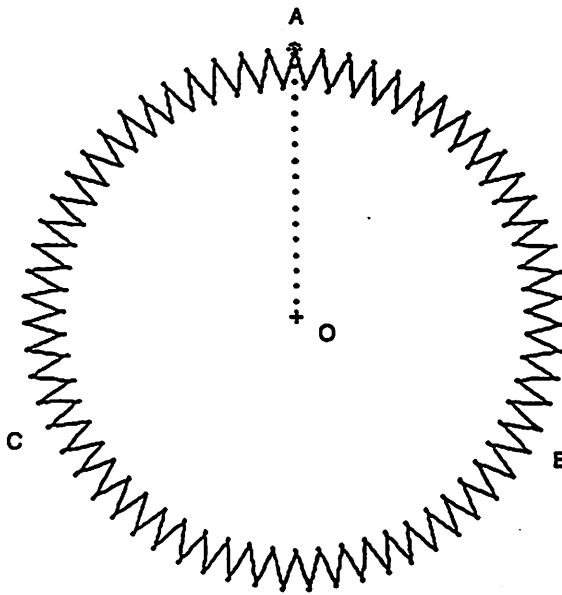
## 4. Reference

---

### 6) Creation of zigzag circle data

If the "CIRCLE" key is pressed while making a zigzag data, a zigzag circle data can be created.

#### a. Example 1 of zigzag circle data



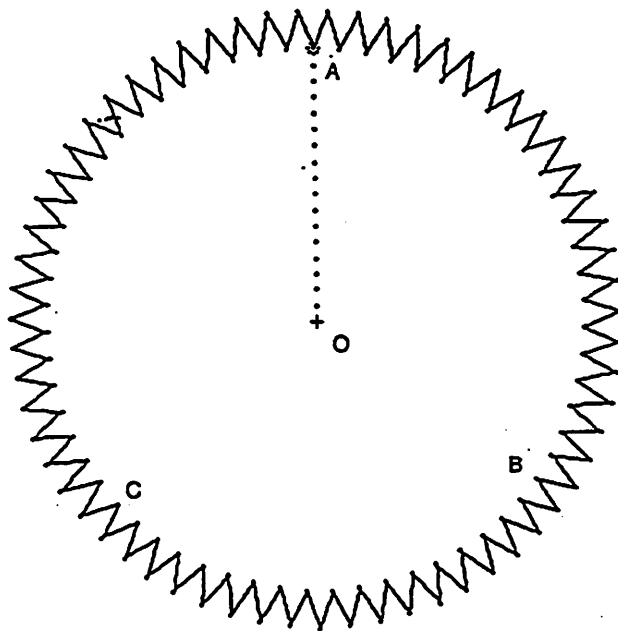
Input the stitchless feed data from the origin O to the point A and press the "ZIGZAG" key to put it in the zigzag data input state. Input next the "CIRCLE" key and specify the points B and C so that zigzag circle data O - A - B - C is created.

With this example, the zigzag data are made within the specified circle (at right) because the circle is drawn in clockwise direction.

## 4. Reference

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b. Example 2 of zigzag circle data



Input the stitchless feed data from the origin O to the point A and put it under the zigzag data input state. Input next 'CIRCLE' key and specify the points C and B (contrary to the Example 1) so that zigzag circle data O - A - C - B is obtained.

With this example, the zigzag data are made at outside of specified circle (at right) because the circle is drawn in counterclockwise direction.

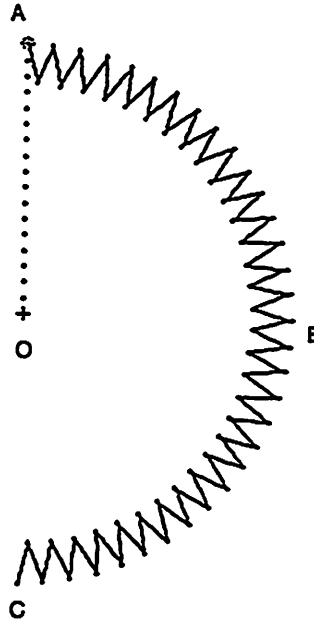
## 4. Reference

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### 7) Creation of zigzag arc data

If the "ARC" key is input while making a zigzag data, a zigzag arc data can be created.

#### a. Example 1 of zigzag arc data



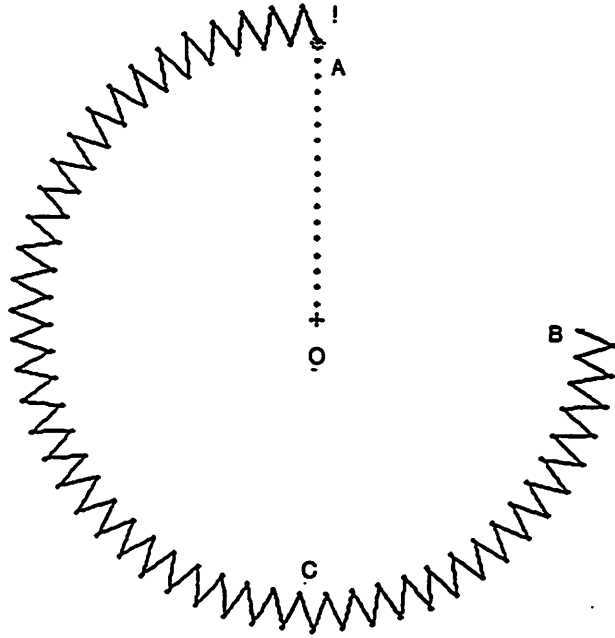
Input the stitchless feed data from the origin O to the point A and put it under the zigzag input state. Input next the "ARC" key and specify the points B and C so that a zigzag arc data O - A - B - C is obtained.

With this example, the zigzag data are made within the specified circle (at right) because the circle is drawn in clockwise direction.

## 4. Reference

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b. Example 2 of zigzag arc data



Input the stitchless feed from the origin O to the point A and put it under the zigzag data input state. Input next the 'ARC' key and specify the points C and B so that a zigzag arc data O - A - C - B is obtained.

With this example, the zigzag data are made at outside of specified circle (at right) because the circle is drawn in counterclockwise direction.

## 4. Reference

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### (27) Thread trimming (TRIM)

Thread trimming code is created at the last position specified before this function is selected. When the last data is the basting data, the thread basting code is inserted before the thread trimming code.

### (28) Origin return (RTN)

Stitchless feed data is created from the last position before selecting this function to the origin.

If there is the second origin in the pattern data, the stitchless feed data runs from the last position to the second origin.

### (29) End (END)

End code data is created at the last position specified before selecting this function, the pattern data input mode ends up and the reset state is established.

End code can be input only next to the stitchless feed (excluding the basting code) or the thread trimming.

### (30) Straight line clear (L-CLR)

Pattern data (straight line, zigzag, circle or arc), which was input in the end, is erased. However, in the case of data which was created with any other device than PTN-A or 2 bytes pattern data, it is erased one stitch by another. If it is operated several times, the data can be erased one by one starting from the last data.

### (31) 1 stitch clear (1-CLR)

One stitch in the pattern data which was input in the end, is erased.


If it is operated several times, the data can be erased one by one starting from the last data.

## 4. Reference



### (32) Function code (FUNCT)

Function code data is created at the last position specified before this function is selected. Please note that the pattern data containing the function code cannot be used with the "2 bytes data writing" or with the on-line function of PLK Series sewing machine.

#### 1) Input of function code No.

FUNCTION-CODE	
7-30	

Specify the function code No. to be input. Function code No. 7 to 30 can be specified. Code Nos. which can be used at present, are as shown below.

Function code No.	7	Basting code	7	
Function code No.	8	Continuous code	8	

#### 2) Code input

##### a. Basting code (BST-\*)

The basting data, in a straight line, is drawn from the last specified position on the presently created pattern to the position to be specified next.

Basting data consists of the basting code and the stitchless feed data and the stitch starts from the basting code position. If such data as thread trimming, origin return, stitchless feed data are created after the completion of basting data, the basting code is automatically programmed in front of these data.

When it is connected with the on-line with PLK Series machine or 2 bytes data is written, it is necessary to insert a sewing data of stitch or more in front of this basting code.

##### b. Continuous code

Continuous code is used to sew continuously the plural patterns saved in the same floppy disk and allows to create the pattern data of max. 32000 stitches.

With PTN-A10, the connection patterns can be created but the processing of connection cannot be done. Use PTN-A40 to process the connection (a process to record the plural connection patterns as a pattern).

Continuous code is created at the last position specified before this function is selected, the pattern data input is finished in the same way as the end code and the input system is brought to the reset state.



## 4. Reference

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### Connection pattern

Continuous code is used to make the pattern consisting of more than 8000 stitches. Number of patterns which can be combined is 2 to 4 patterns. Pattern data of a max. 32000 stitches can be created.

Continuous pattern is created by following procedures.

### Input of leading pattern

Input the pattern with the standard method and input the continuous code just before 8000th stitch and end the pattern input mode. Select the write mode next and save the data in a floppy disk.

### Input of midpoint pattern (2nd, 3rd patterns)

Take the last stitch position on the last preceding pattern as the origin and conducts the normal pattern input. Input the continuous code just before 8000th stitch and end the pattern input mode. Select the write mode next and save the data in a floppy disk.

### Input of final pattern

Take the last stitch position on the last preceding pattern as the origin and conducts the normal pattern input. Input the end code just before 8000th stitch and end the pattern input mode. Select the write mode next and save the data in a floppy disk.


Make sure to write all connection patterns into the same floppy disk and not to input the continuous code between the stitch data and the stitchless feed data.


## (33) Record list (RC LIS)

List of data recorded on the record memory or the floppy disk is displayed on the LCD screen. Display items for 1 pattern are as shown below but items to which the pattern data are not recorded are indicated with \* mark.

NO : Pattern No.  
Number of stitches : Number of stitches

### 1) Selection of display data

DISPLAY DATA : 	
1. REC RAM	2. FLOPPY

1 or 2 

Select the data to be displayed. If you wish to display the data on the record memory, select "1. REC RAM" or, to display the data of floppy disk, select "2. FLOPPY".

Since the display starts as soon as the display data is selected, be sure to set beforehand the floppy disk on the disk drive.

## 4. Reference

---

### 2) Example of record list display


400	25	401	362
402	***	403	196

Display shown above represents the case when the data of record memory has been selected.

Record No. is displayed with 3 digits figure and the stitch number with 4 digits figure.

### 3) Operation after the data display

Following keys can be operated after the display of recorded data.

- + : List of next 4 patterns are displayed.
- : List of preceding 4 patterns are displayed.
- CANCEL or  : RC LIS function is ended.

### (34) Pattern list (PT LIS)

List of pattern data which have been saved in the floppy disk or PROM under the write mode, can be displayed on the LCD. List of 2 bytes data cannot be displayed.

Items displayed for a pattern are as shown below. The items to which the pattern data are not recorded are indicated with \* mark.


#### Data on a floppy disk


No. : Pattern No.  
 Pattern name : Pattern name  
 Number of stitches : Number of stitches

#### Data on a PROM

No. : Pattern No.  
 Number of stitches : Number of stitches

### 1) Selection of display data

DISPLAY DATA : 	
1. FLOPPY	2. PROM

1 or 2 

Data for display can be selected. If you like to display any data on a floppy disk, select "1. FLOPPY" or, if it is on a PROM, select "2. PROM".

## 4. Reference

- 2) Selection of No. to start the display  
(This is displayed only at the display of floppy disk data.)

DISPLAY START NO. :	
1. 100                      2. 180	1 or 2 <input type="button" value="↵"/>

Pattern No. to start the display can be selected. If you like to start the display from No.100, select \*1. 100\* or, if it is No.180, select \*2. 180\*.

Since the display starts as soon as the number is selected, be sure to set beforehand a floppy on the disk drive.

- 3) Selection of kinds of PROM (This is displayed only at the display of PROM data.)

PROM :	
1. 27256                      2. 27512	1 or 2 <input type="button" value="↵"/>

Select the kind of PROM in which the data to display are saved. If it is the PROM 27256, select \*1. 27256\*, or if it is the PROM 27512, select \*2. 27512\*.

Since the display starts as soon as the kind of PROM is selected, be sure to set the PROM which contains the data, in the PROM socket beforehand.

- 4) Example of pattern list display

100	PATTERN	5000
101	*****	*****

Above screen shows the case of data display from a floppy disk.

Pattern No. in 3 digits, pattern name in 8 digits and stitch number in 5 digits are displayed.

In the case of PROM data, the pattern No. in 3 digits and the stitch number in 4 digits are displayed. Display and key operation are the same as the record list.

- 5) Operation after the data display (At the display of floppy disk data)

Following keys can be operated while the pattern data are displayed.

- + : List of next 2 patterns are displayed.
- : List of preceding 2 patterns are displayed.
- CANCEL or  : PT LIS function is ended.

## 4. Reference

### 4.2 Read Mode

Data for 1 pattern (adapted to PLK-A Series), which are written in a floppy disk or a PROM (equivalent to 27256 or 27512), can be read.

Please note that, if the reading is executed, the pattern data in memory are erased.

#### (1) Selection of read mode

Select '2. READ' under the reset state.

#### (2) Operation to read

##### 1) Pattern No. input

PATTERN No.	100
F: 100-249 R: 0-15	

Specify the pattern No.

Specify the No. of pattern to read. Initial display on the screen is No.100. Input 100 to 249 to read the data from a floppy disk or 0 to 15 to read the data from a PROM.

##### 2) Selection of kind of PROM (This is displayed only at the reading from a PROM)

PROM	1
1. 27256	2. 27512

1 or 2

Select the kinds of PROM to which the desired pattern is written. Select '1. 27256' for a PROM 27256 or '2. 27512' for a PROM 27512.

##### 3) Confirmation of execution of reading

No. :	100	FLOPPY
READ?		1. y 2. n

1 or 2

Select '1. y' to read under the specified conditions or '2. n' to change the conditions. Since the reading starts as soon as '1. y' is selected, be sure to set a floppy disk or a PROM, in the disk drive or in the PROM socket beforehand.

#### (3) Read of connection pattern

Connection pattern, which has been made with PTN-A40, cannot be read with PTN-A10. (Reading is executed but the data are not proper ones.)

## 4. Reference

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### (4) Display of end of reading

- 1) When a pattern on a floppy disk is read.

FLOPPY	No. :	100
NAME :	PATTERN	(1024) C

Pattern No., pattern name and number of stitches in memory are displayed on the LCD.

- 2) When a pattern on a PROM is read.

PROM	No. :	0
		(1024) C

Pattern No., pattern name and number of stitches in memory are displayed on the LCD.

## 4. Reference

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### 4.3 Write Mode

Pattern data (adapted to PLK-A Series) which have been completed and retained in the system are written on a floppy disk or a PROM (equivalent to 27256 or 27512).

Data writing cannot be conducted unless there is the end code or the continuous code at the end of the pattern data.

(1) Selection of write mode

Select "3. WRITE" under the reset state.

(2) Operation to write

1) Selection of writing destination

DESTINATION	
1. FLOPPY	2. PROM

 1 or 2 

Select the destination to write the pattern data. Select "1. FLOPPY" to write on a floppy disk or "2. PROM" to write on a PROM.

2) Input of pattern name

(This is displayed only at writing the pattern on a floppy disk.)

PATTERN NAME
PATTERN

Input the pattern name to be assigned at writing.

"PATTERN" is preset at the pattern name. If you like to change it, a new pattern name can be input with the alphanumeric character of less than 8 digits. Regarding the input method, refer to "2.2 Operating Method, (3) How to key-in the menu".

3) Selection of kind of PROM (This is displayed only at the reading pattern from a PROM)

PROM	
1. 27256	2. 27512

 1 or 2 

Select the kind of PROM which retains the pattern to read. Select "1. 27256" for the PROM 27256 or "2. 27512" for the PROM 27512.

## 4. Reference

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### 4) Confirmation of execution of writing

FLOPPY	PATTERN
WRITE? <input type="checkbox"/>	1. y 2. n

 1 or 2 

Select "1. y" to write under the specified conditions or "2. n" to change the conditions. Since the writing starts as soon as "1. y" is selected, be sure to set a floppy disk or a PROM, in the disk drive or in the PROM socket.

### (3) Display of end of writing

#### 1) When writing on a floppy disk

FLOPPY	No. :	100
NAME :	PATTERN	(1024) C

Pattern No., pattern name and number of stitches written are displayed on the LCD.

#### 2) When writing on a PROM

PROM	No. :	0
	(1024)	C

Pattern No. and number of stitches written are displayed on the LCD.

## 4. Reference

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### 4.4 Function Selecting Mode

In addition to the pattern input, read and write, there are such functions as the floppy disk format, write/read of data for PLK Series (2 bytes data) and a few other functions.

**(1) Selection of function selecting mode**

Select '4. FUNCTION' under the reset state.

**(2) Selectable functions**

1. FLOPPY/PROM HANDLE
2. 2 BYTE DATA I/O
3. RECORD DELETE
4. ONLINE                      5. MODIFY
6. SERIAL RECEIVE
7. SERIAL TRANSMIT
8. TEST
STITCH : <span style="background-color: #cccccc; padding: 0 5px;">0</span>

<u>Menu</u>	1. Floppy disk, PROM operation	'1'
	2. Read/write of 2 bytes pattern	'2'
	3. Erasing of recorded data	'3'
	4. On-line	'4'
	5. Correction	'5'
	6. SIO data input	'6'
	7. SIO data output	'7'
	8. Test	
<u>Tablet</u>	9. Record list	'RECORD LIST'
	10. Pattern list	'PATTERN LIST'



## 4. Reference

---

### (3) Operation of floppy/PROM

Floppy disk and PROM is processed.

#### 1) Selectable function

1. PATTERN DELETE	<input type="button" value="↵"/>
2. FLOPPY FORMAT	
3. PROM COPY	<input type="button" value="↵"/>
STITCH : <input style="width: 50px;" type="text" value="0"/>	<input type="button" value="↵"/>

<u>Menu</u>	1. Deleting of pattern data	*1*
	2. Floppy disk format	*2*
	3. Copy of PROM	*3*

#### 2) Deleting of pattern data

Patterns written on a floppy disk are deleted.

##### a. Pattern No. input

PATTERN No. <input style="width: 50px;" type="text" value="0"/>	Specify the No. <input type="button" value="↵"/>
F: 100-249	

Input the pattern No. to delete.

##### b. Confirmation of deletion

No.	:	<input style="width: 50px;" type="text" value="100"/>	FLOPPY	1 or 2 <input type="button" value="↵"/>
DELETE?	<input style="width: 20px;" type="text" value="1"/>		1. y 2. n	

Select \*1. y\* to delete under the specified conditions or \*2. n\* to change the conditions.

Since the deleting starts as soon as \*1. y\* is selected, be sure to set the floppy disk in the disk drive beforehand.

## 4. Reference

### 3) Floppy disk format

Format (initialize) the floppy disk to enable the write/record.

Type of format is determined with setting of dip switch at the touch up of input system.

#### a. Confirmation of execution of format

DISK FORMAT		
FORMAT? <input checked="" type="checkbox"/>	1. y 2. n	1 or 2 <input type="button" value="↩"/>

Select "1. y" to execute the format or "2. n" to abort the function without format.

Since the format starts as soon as "1. y" is selected, be sure to set a floppy disk in the disk drive beforehand.

### 4) Copy of PROM

Contents in a PROM is copied to another PROM.

Both the original and the copy PROMs must be the same type of the same maker.

Contents of copy PROM must be cleared before copying.

#### a. Selection 1 of kind of PROM

PROM <input checked="" type="checkbox"/>			
1. 256	2. 512	3. OTHER	ROM No. <input type="button" value="↩"/>

Specify the kind of PROM to copy. Select "1. 256" for the PROM 27256, "2. 512" for the PROM 27512 or "3. OTHER" for any other PROM.

#### b. Selection 2 of kind of PROM

(This is displayed only when "3. OTHER" was selected in the Selection 1 above.)

PROM <input checked="" type="checkbox"/>				
1. 32A	2. 32	3. 16	4. 64	ROM No. <input type="button" value="↩"/>

Specify the kind of PROM to copy. Select "1. 32A" for the PROM 2732A, "2. 32" for the PROM 2732, "3. 16" for the PROM 2716 or "4. 64" for the PROM 2764.

#### c. Confirmation of execution of copy

PROM COPY		<input checked="" type="checkbox"/> 27256	
COPY? <input checked="" type="checkbox"/>	1. y 2. n	1 or 2	<input type="button" value="↩"/>

Select "1. y" to copy under the specified conditions or "2. n" to change the conditions.

Since copying starts as soon as "1. y" is selected, be sure to set beforehand the original PROM at the socket 1 and the copy PROM at the socket 2.

## 4. Reference

---

### (4) 2 bytes data I/O

Pattern data (2 bytes data) adaptable to the conventional electronic sewing machines are read or written.

#### 1) Selectable functions

1. DATA READ	↵
2. DATA WRITE	

STITCH : <span style="background-color: #cccccc; display: inline-block; width: 20px; height: 1em; vertical-align: middle;"></span> 0	↵

<u>Menu</u>	1. Data reading	*1*
	2. Data writing	*2*

#### 2) Reading of 2 bytes data

Data are read from a PROM which stores 2 bytes data.

##### a. Pattern No. input

PATTERN No. <span style="background-color: #cccccc; display: inline-block; width: 20px; height: 1em; vertical-align: middle;"></span>	↵
0-9	

Pattern No. ↵

Input the pattern No. to read. The number can be selected out of 0 to 9.

##### b. Selection 1 of kind of PROM

PROM <span style="background-color: #cccccc; display: inline-block; width: 20px; height: 1em; vertical-align: middle;"></span>	↵
1. 256    2. 512    3. OTHER	

ROM No. ↵

Select the kind of PROM to read. Select \*1. 256\* for the PROM 27256, \*2. 512\* for the PROM 27512 or \*3. OTHER\* for any other PROM.

##### c. Selection 2 of kind of PROM

(This is displayed only when \*3. OTHER\* was selected with the Selection 1 above.)

PROM <span style="background-color: #cccccc; display: inline-block; width: 20px; height: 1em; vertical-align: middle;"></span>	↵
1. 32A    2. 32    3. 16	

ROM No. ↵

Select the kind of PROM to read. Select \*1. 32A\* for the PROM 2732A, \*2. 32\* for the PROM 2732 or \*3. 16\* for the PROM 2716.

## 4. Reference

d. Confirmation of reading

NO. :	0	27256	
READ?	1	1. y 2. n	1 or 2 <input type="button" value="↵"/>

Select '1. y' to read under the specified conditions or '2. n' to change the conditions.

Since the reading starts as soon as '1. y' is selected, be sure to set the PROM at the PROM socket beforehand. Setting is conducted as shown below.

Setting of PROM

Q'ty of PROMs	Socket 1	Socket 2
1	PROM set	Not used
2	Setting of 1st PROM	Setting of 2nd PROM

e. Confirmation of end of reading

PROM	No. :	0	
		1024	C

Pattern No. and number of stitches, which have been read, are displayed on the LCD.

3) Writing of 2 bytes data

Pattern data which is retained at present in the input system, is written on the PROM. When the last part of the retained pattern data is not the end code, the code is added automatically there.

a. Selection 1 of kind of PROM.

PROM	1		
1. 256    2. 512    3. OTHER			ROM No. <input type="button" value="↵"/>

Select the kind of PROM to write. Select '1. 256' for the PROM 27256, '2. 512' for the PROM 27512 or '3. OTHER' for any other PROM.

b. Selection 2 of kind of PROM

(This is displayed only when '3. OTHER' was selected with the Selection 1 above.)

PROM	1		
1. 32A    2. 32    3. 16			ROM No. <input type="button" value="↵"/>

Select the kind of PROM to write. Select '1. 32A' for the PROM 2732A, '2. 32' for the PROM 2732 or '3. 16' for the PROM 2716.

## 4. Reference

---

c. Input of number of PROMs

PROM NUMBER	<input type="checkbox"/>
Number <input type="button" value="↵"/>	

Input the number of PROM to write. Select 1 or 2.

d. Confirmation of writing

27255		
WRITE?	<input checked="" type="checkbox"/>	1. y 2. n
		1 or 2 <input type="button" value="↵"/>

Select "1. y" to write under the specified conditions or "2. n" to change the conditions.

Since the writing starts as soon as "1. y" is selected, be sure to set the PROM at the PROM socket. It can be set in the same way as 2) Reading of 2 bytes data.

e. Display of end of writing

PROM	No. :	0
		(1024) C

Pattern No. and number of stitches are displayed on the LCD.

The youngest pattern No. is automatically selected from the numbers which are not yet used.

(5) Deleting the recorded data

Data recorded on a RAM or a floppy disk are deleted.

This is the same function as "4.1 Pattern Input Mode, (9) Deleting the recorded data".

(6) On-line

When the system is connected with a sewing machine, the pattern data retained in the system can be modified. This is the same function as "4.1 Pattern Input Mode, (10) On-line". For further details, refer to "4.5 On-line Function".

(7) Modification

Pattern data retained in the system is modified (there is no connection with the sewing machine.)

This is the same function as "4.1 Pattern Input Mode, (11) Modification".

For further details, refer to "4.6 Modification Function".

## 4. Reference


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### (8) Serial receiving

Pattern data for 1 pattern is received from an external device via the RS-232C serial interface. Please note that, if this function is executed, the pattern data retained in the input system is cleared.

Connect one end of RS-232C serial interface with the RS-232C connector provided on the left side of main unit of input system and the other end with the external device.

#### 1) Confirmation of receiving


SERIAL RECEIVE	
RECEIVE? 	1. y 2. n

 1 or 2 

Select "1. y" to read the pattern data from the external device or "2. n" to end the serial input function.

As "1. y" is selected, the input system becomes ready to receive the communication so that you can transmit the pattern data from the external device.

#### 2) Display of result of receiving

RECEIVE STITCH :	 302
C	

When the data receiving is completed, the number of stitches of received pattern data is displayed.

### (9) Serial transmission

Pattern data for 1 pattern is transmitted to the external device (electronic sewing machine, etc.) via the RS-232C serial interface.

For further details, refer to "4.1 Pattern Input Mode, "(12) Serial transmission".

### (10) Test

Do not use this function because it is used only when the system is shipped from the factory. If "1. PROM TEST" is selected, the PROM which is set at the PROM socket may be destroyed or the internal data may be distorted. Be sure to remove it from the socket beforehand.

When "2. TABLET TEST" was selected by mistake, hold down the button 2 and press the button 4 of the digitizer cursor.

## 4. Reference

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### (11) Record list

List of data saved in the record memory or the floppy disk is displayed on the LCD. Display items for 1 pattern are as shown below. When the pattern data are not recorded in any items, such items are indicated with \* mark.

This is the same function as "4.1 Pattern Input Mode, (33) Record list".

#### Display item

No. : Pattern No.  
Number of stitches : Number of stitches

### (12) Pattern list

List of pattern data written with the write mode on a floppy disk or a PROM is displayed on the LCD. List of 2 bytes data cannot be displayed.

Display items for 1 pattern are as shown below. Items which have no recorded pattern are indicated with \* mark.

This is the same function as "4.1 Pattern Input Mode, (34) Pattern list".

#### Data on a floppy disk

No. : Pattern No.  
Pattern name : Pattern name  
Number of stitches : Number of stitches

#### Data on a PROM

No. : Pattern No.  
Number of stitches : Number of stitches

## 4. Reference

### 4.5 On-line Function

When the system is connected with a sewing machine, the pattern data retained in the input system can be modified.

This function can be selected from both the pattern input mode and the function selecting mode.

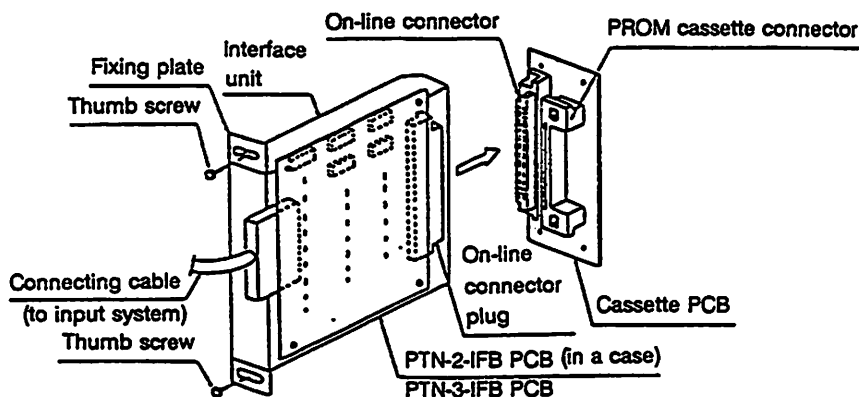
#### (1) Preparation before using the on-line

Following preparation is required before using the on-line function.

Make sure to turn off all power supplies and disconnect the power supply connectors before starting the preparation.

##### 1) Confirmation of cassette printed circuit board

Confirm that the cassette printed circuit board, which is located at the PROM cassette insert port of the main unit of sewing machine, is a cassette printed circuit board which has the on-line connector as shown below.



##### 2) Pattern selection

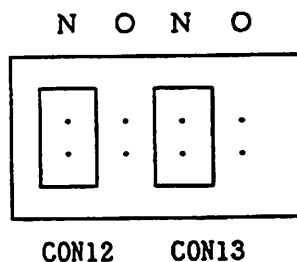
Set the pattern selecting dial to "0".

##### 3) Setting of jumper pin

Setting of jumper pins on the PTN-A10 printed circuit board varies depending on the series of sewing machine to be connected. Jumper pins to be changed are the CON12 and CON13 pins which are marked "NONO".

Change the setting as shown below.

PLK Series : 0 side  
PLK-A Series : N side



Above example shows the setting for PLK-A series.



## 4. Reference

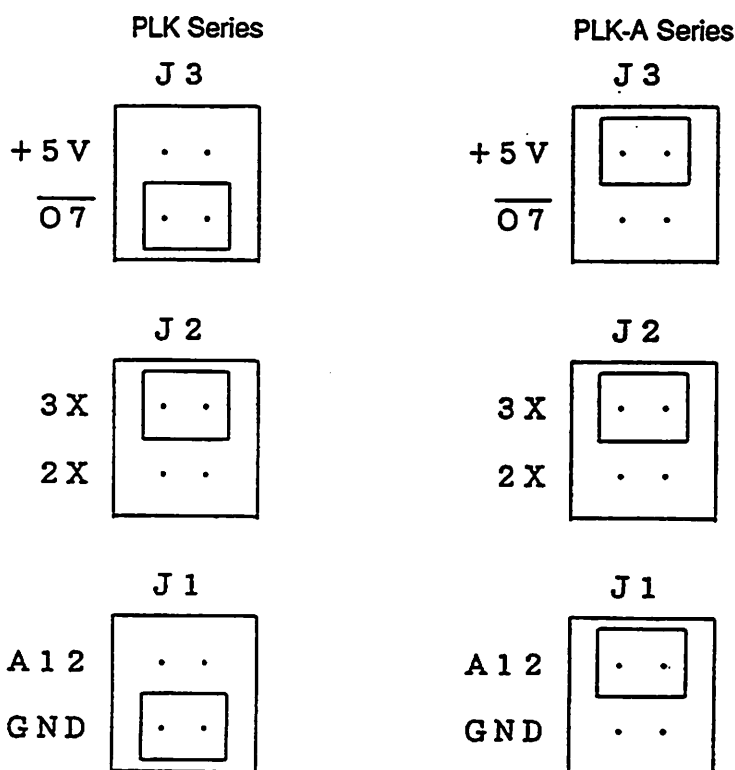
- 4) Connection with the main unit of sewing machine  
Input system and the main unit of sewing machine are connected via the interface unit and the connecting cable.

- a. Disconnect the PROM or the PROM cassette.
- b. Insert the interface unit so that the on-line connector is set in position. Direction to insert the interface unit is one way only. Do not try to insert forcibly.  
Different interface units are used depending on the series of sewing machine to be connected as shown below.

PLK Series : PTN-2-IFB or PTN-3-IFB

PLK-A Series : PTN-3-IFB

When PTN-3-IFB is used, change the setting of jumper pins on the board as shown below.



- c. Lock the interface unit with a pair of thumb screws at both sides of cassette insert port.
- d. Insert one end of connecting cable in the interface unit. Pins and the shape of hole are specified to only one end.
- e. Connect the other end of cable to the on-line connector located at left side of main unit of input system and lock firmly a pair of screws at both ends of the connector.

Note: At the shipping from the factory, the jumper pins are set for the "PLK Series".

## 4. Reference

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### (2) Selection of on-line function

Make the preparation, touch up the input system and then turn on the power of the main unit of sewing machine. Select '5. ONLINE' under the state or '4. ONLINE' under the function selecting mode.

### (3) Execution of reset at the sewing machine side

As the on-line function is initiated, following message will be shown.

M090: PLK RESETTING
C

When the message is shown, turn on the RESET key of sewing machine and then input the CANCEL key of PTN-A10.

After the CANCEL key was inputted, respective functions of on-line can be selected.

#### Caution

Reset the sewing machine positively before operating the CANCEL key of PTN-A10.

### (4) Specification of stitch (position) to be modified.

If the following sewing machine operating keys are operated after entering in the on-line function, the machine operates as directed with the pattern data which are retained at present by the input system.

Operate the machine as described above and feed the sewing needle to the position to modify and display.

#### Sewing machine operating keys which can be used

Operation with the keys is same as that of the sewing machine.

Origin return (RETURN)

Inching + (JOG+)

Inching - (JOB-)

### (5) Change in pattern data after the execution of on-line modification

When the pattern data is ended with 'Origin return' or 'End code', the data of 'Origin return' and 'End code' data are newly created if the following operation is conducted.

However, when a code data is contained in the 'Origin return' data, the 'Origin return' and 'End code' data are created from the code data.

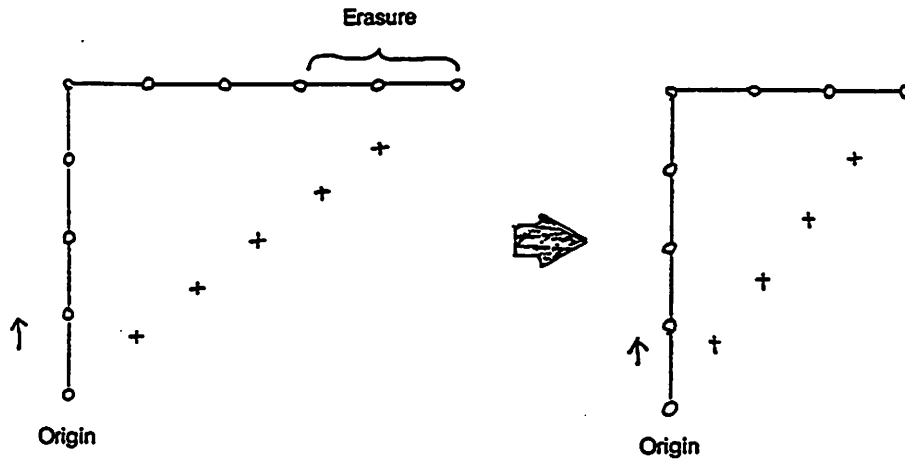
## 4. Reference

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### Functions which change the data

- Stitch position modification
- Erasing of code
- Erasing of stitch
- Addition of code
- Addition of stitch

### Example of change in data (erasing of stitch)



### (6) Selectable functions

1. MODIFY STITCH
2. MODIFY SPEED
3. ELSTCH      4. ADSTCH
5. ELCODE
6. ADCODE
7. DATA DISPLAY
STITCH : <span style="background-color: #cccccc; padding: 2px;">0</span>

- |             |                     |     |
|-------------|---------------------|-----|
| <u>Menu</u> | 1. Modify stitch    | *1" |
|             | 2. Modify speed     | *2" |
|             | 3. Eliminate stitch | *3" |
|             | 4. Add stitch       | *4" |
|             | 5. Eliminate code   | *5" |
|             | 6. Add code         | *6" |
|             | 7. Data display     | *7" |

## 4. Reference

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### (7) Modification of stitch position

Stitch position of pattern data is modified.

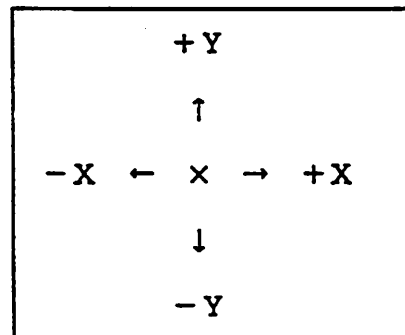
#### 1) Input of move and distance in X direction

X DIRECTION/DISTANCE	
1. +	2. -

Movement distance is input separately for X and Y axes.  
Input at first the move in X direction. Direction is as shown below.

#### Input direction

To move the stitch direction to this side.	-Y
To move the stitch direction to other side.	+Y
To move the stitch direction to left.	-X
To move the stitch direction to right.	+X



As the input of move direction is over, the cursor moves to the position to input the movement distance. Input the distance in mm unit under this state.

#### 2) Input of move and distance in Y direction

X DIRECTION/DISTANCE	
1. +	2. -

If the movement distance in X direction is input, the display changes to the screen to input the move and distance in Y direction. Input in the same manner as X direction.

#### 3) Selection of modifying method

MDSTITCH TYPE	
1. STITCH	2. PATTERN

Method of modification is selected. When only one stitch is changed at the specified position, select '1. STITCH' or '2. PATTERN' to change also the data subsequent to the specified position.

## 4. Reference

### 4) Confirmation of execution of modification

<b>STITCH</b>	OK?		1. y	2. n
X: 30	mm	Y: 20	mm	1 or 2 <input type="button" value="↩"/>

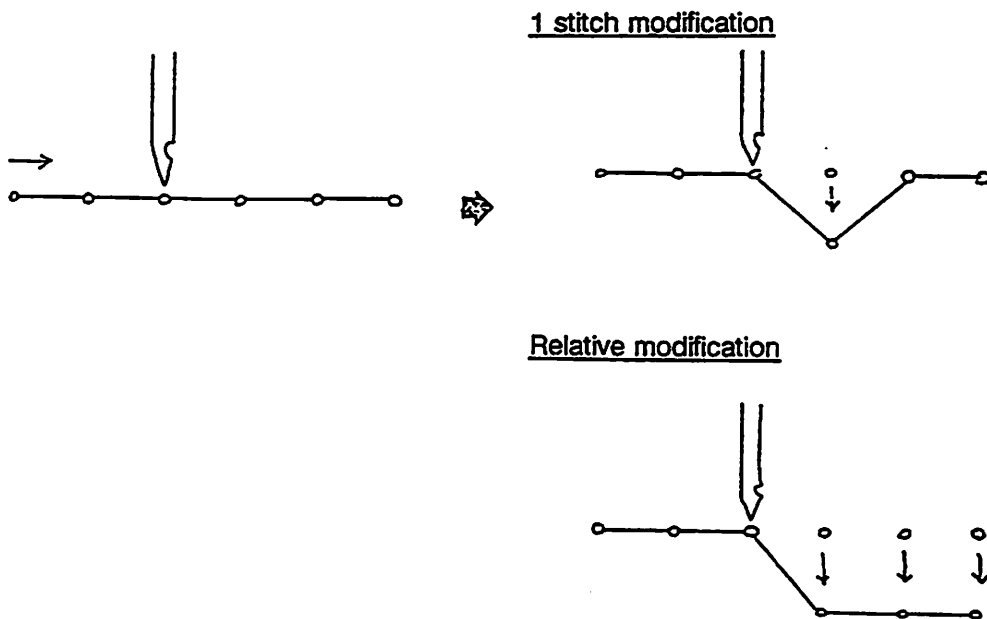
Select \*1. y\* to modify the stitch position under the specified conditions or \*2. n\* to change the conditions.

At the moment when the confirmation No. is input, the data, or the subsequent data, specified with the needle of connected sewing machine is modified.

### 5) Data (stitch) to be specified

Specify the sewing or the stitchless feed for the pattern. If any other data are specified, it is rejected as errors.

When the stitchless feed becomes larger than 3 mm after a change of stitchless feed, create the data with which the feed is divided so that the feed becomes automatically less than 3 mm.



## 4. Reference

### (8) Modification of sewing speed

Sewing speed of pattern data is modified.

#### 1) Input of stitch number to be modified.

STITCH	
<div style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; border: 1px solid black;"></div> stch	Modifying stitch number <input style="width: 30px;" type="text"/>

Number of stitch of which the sewing speed is changed, is input.

When the speed is modified up to the last stitch, operate the "LAST" key on the menu. "LAST" is displayed at the stitch number input position and the speed up to the last stitch is changed.

When the stitchless feed or the code is included in the specified stitch number, these data are neglected and the speed of sewing data within the stitch number only is changed.

#### 2) Selection of sewing speed

SEWING SPEED	
1. H   2. M1   3. M2   4.L	Specified speed No. <input style="width: 30px;" type="text"/>

Specify the sewing speed after modification with the No. "1" to "4".

Initially, the speed of data which was indicated with the sewing machine needle when it entered in this function, is displayed at the No. input position. When any data other than the sewing was indicated, "4L (Low speed)" is displayed.

#### 3) Confirmation of execution of modification

MDSPEED	OK?		1. y   2. n
SPEED : <div style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; border: 1px solid black;"></div>	STITCH : <div style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; border: 1px solid black;"></div>		1 or 2 <input style="width: 30px;" type="text"/>

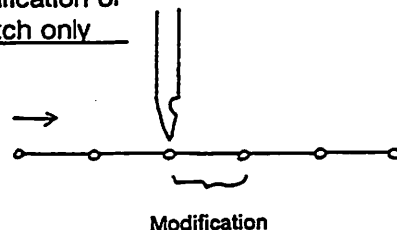
Select "1. y" to modify the speed under the specified conditions or "2. n" to change the conditions.

At the moment when the confirmation No. is input, the sewing data subsequent to the data indicated with the needle of connected sewing machine, are modified.

#### 4) Data (stitch) to be specified

It is optional the data which is specified with the machine needle.

Modification of  
1 stitch only



## 4. Reference

### (9) Eliminating of stitch

Stitches of pattern data are eliminated.

#### 1) Input of eliminating stitch number

STITCH
stch

 Eliminating stitch number 

Input the number of stitches to be eliminated. When eliminating the data up to the last stitch position, input the "LAST" key. "LAST" will be displayed at the stitch number input position. Be sure to count the code data as 1 stitch.

#### 2) Confirmation of execution of eliminationg

ELSTITCH	STCH :	1
OK?	1	1. y 2. n

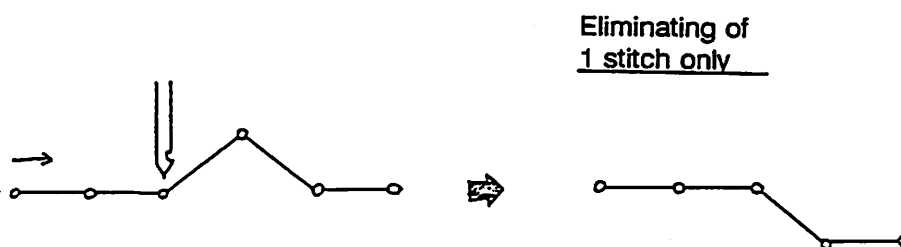
 1 or 2 

Select "1. y" to eliminate stitches under the specified conditions or "2. n" to change the conditions. At the moment when the confirmation No. is input, the data subsequent to the data specified with the machine needle are eliminated.

In such a case when a wrong data is created if the specified eliminating is done, it is rejected as an error.

#### 3) Data (stitch) to be specified

It is optional the data which is specified with the machine needle.



## 4. Reference

### (10) Addition of stitch

Pattern data are added.

What can be added with this function is the sewing data or the stitchless feed data. Which of the sewing data or the stitchless feed is added, it is determined automatically by the input system depending on the state of adding position.

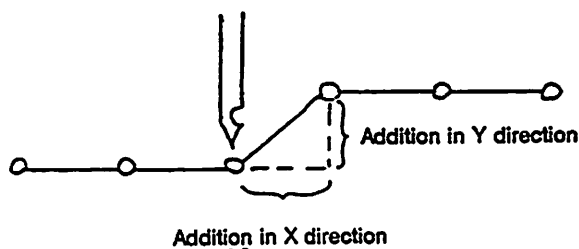
#### 1) Selection adding method

ADD METHOD		
1. STITCH	2. LINE	1 or 2 <input type="button" value="↔"/>

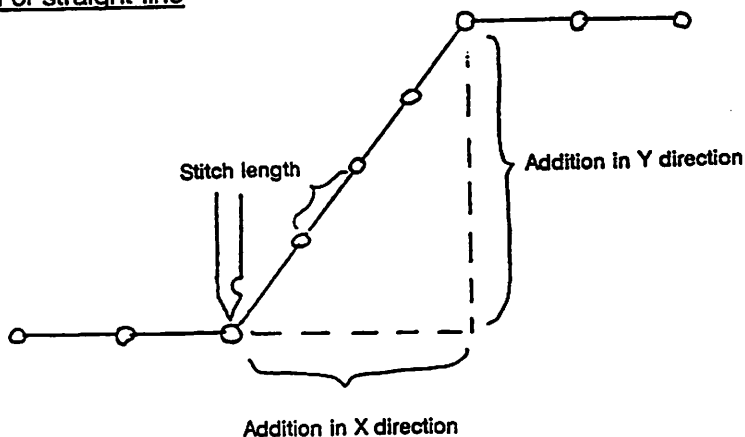
Method of addition is selected. Select "1. STITCH" to add 1 stitch only or "2. LINE" to add a straight line data.

#### Method of addition

##### 1 stitch addition



##### Addition of straight line





## 4. Reference

### 2) Input of move distance of additional data

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">X DIRECTION/DISTANCE</td> </tr> <tr> <td style="width: 30%;">1. + 2. -</td> <td style="text-align: center;">[1] 0.0 mm</td> </tr> </table>	X DIRECTION/DISTANCE		1. + 2. -	[1] 0.0 mm	1 or 2 Move distance mm <input type="button" value="↵"/>
X DIRECTION/DISTANCE					
1. + 2. -	[1] 0.0 mm				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Y DIRECTION/DISTANCE</td> </tr> <tr> <td style="width: 30%;">1. + 2. -</td> <td style="text-align: center;">[1] 0.0 mm</td> </tr> </table>	Y DIRECTION/DISTANCE		1. + 2. -	[1] 0.0 mm	1 or 2 Move distance mm <input type="button" value="↵"/>
Y DIRECTION/DISTANCE					
1. + 2. -	[1] 0.0 mm				

Move distance must be input separately for X and Y direction. Input method is same as at the modification of stitch position.

### 3) Input of stitch length (Displayed only at the addition of straight line.)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">STITCH LENGTH</td> </tr> <tr> <td style="width: 70%;"></td> <td style="text-align: center;">0.0 mm</td> </tr> </table>	STITCH LENGTH			0.0 mm	Stitch length mm <input type="button" value="↵"/>
STITCH LENGTH					
	0.0 mm				

It is input with how much stitch length the X, Y move distance data, which was input at 2) above, are divided. In the case of addition of stitchless feed, however, the stitch length specified here is neglected and the data is created with the move distance of 3 mm.

### 4) Selection of sewing speed

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="4" style="text-align: center;">SEWING SPEED</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="width: 20%;">1. H</td> <td style="width: 20%;">2. M1</td> <td style="width: 20%;">3. M2</td> <td style="width: 20%;">4. L</td> <td></td> </tr> </table>	SEWING SPEED				4	1. H	2. M1	3. M2	4. L		Specified speed No. <input type="button" value="↵"/>
SEWING SPEED				4							
1. H	2. M1	3. M2	4. L								

Select the speed of stitches to be added with the No. of '1' to '4'. However, in the case of addition of stitchless feed data, the sewing specified here is neglected.

### 5) Confirmation of execution of additional stitch

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">ADSTCH</td> <td style="width: 10%;">OK?</td> <td style="width: 10%;">[1]</td> <td style="width: 10%;"></td> <td style="width: 10%;">1. y</td> <td style="width: 10%;">2. n</td> </tr> <tr> <td>X:</td> <td>3.0</td> <td>Y:</td> <td>2.0</td> <td>[1]</td> <td></td> </tr> </table>	ADSTCH	OK?	[1]		1. y	2. n	X:	3.0	Y:	2.0	[1]		1 or 2 <input type="button" value="↵"/>
ADSTCH	OK?	[1]		1. y	2. n								
X:	3.0	Y:	2.0	[1]									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">ADLINE</td> <td style="width: 10%;">OK?</td> <td style="width: 10%;">[1]</td> <td style="width: 10%;"></td> <td style="width: 10%;">1. y</td> <td style="width: 10%;">2. n</td> </tr> <tr> <td></td> <td>10.0</td> <td>15.0</td> <td>3.0</td> <td>[1]</td> <td></td> </tr> </table>	ADLINE	OK?	[1]		1. y	2. n		10.0	15.0	3.0	[1]		1 or 2 <input type="button" value="↵"/>
ADLINE	OK?	[1]		1. y	2. n								
	10.0	15.0	3.0	[1]									

Contents of display (from left)

Move distance of X(mm)	Move distance of Y(mm)	1 stitch length(mm)	Sewing speed
2) X	Y	3)	4)

## 4. Reference

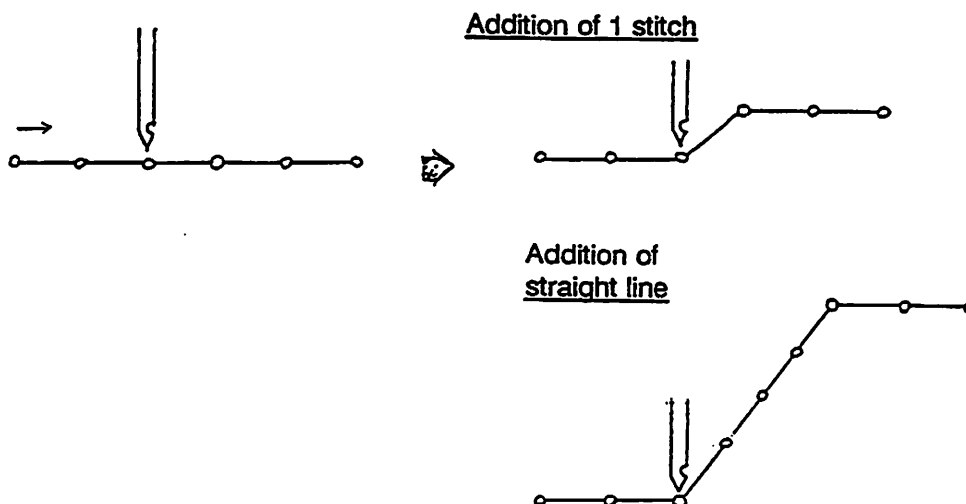
---

Select "1. y" to add the stitch under the specified conditions or "2. n" to change the conditions.

At the moment when the confirmation No. is input, the specified data is added next to the data specified with the needle of connected sewing machine.

### 6) Data (stitch) to be specified

It is optional the data specified with the machine needle.



### (11) Code data table

Table of code data which are valid under the on-line function is shown below.

Code No.	Function
2	Thread trimming code
4	Midpoint stop code
5	Reverse code
6	2nd origin code
7	Basting code
31	End code

### (12) Eliminating of code

Code data in the pattern data is eliminated.

1) Input of code No. to be eliminated.

ELMINATE CODE No.	
<input style="width: 90%; height: 20px;" type="text"/>	Code No. <input style="width: 30px; height: 20px;" type="text"/>

Input of code No. to be eliminated.

## 4. Reference

### 2) Confirmation of execution of eliminating

ELCODE	CODE : <input style="width: 20px;" type="text" value="2"/>
OK? <input style="width: 20px;" type="checkbox"/>	1. y 2. n

1 or 2 

Select "1. y" to eliminate the code under the specified conditions or "2. n" to change the conditions. In the moment when the confirmation No. is input, the specified code starting from the data specified with the needle of connected sewing machine to the last stitch, is eliminated. When there are more than one specified codes, only one code of the smallest stitch number is eliminated.

In such occasion when a wrong data is created if the specified eliminating is done, it is rejected as an error.

### 3) Data (stitch) to be specified

It is optional the data specified with the machine needle.



### (13) Addition of code

Code data is added to the pattern data.

#### 1) Input of additional code

ADD CODE No.	<input style="width: 20px;" type="text" value="0"/>
--------------	---

Code No. 

Input the additional code with the code No.

#### 2) Confirmation of execution of addition

ADCODE	CODE : <input style="width: 20px;" type="text" value="2"/>
OK? <input style="width: 20px;" type="checkbox"/>	1. y 2. n

1 or 2 

Select "1. y" to add the code under the specified conditions or "2. n" to change the conditions. In the moment when the confirmation No. is input, the specified code is added next to the data specified with the needle of connected sewing machine.

In such occasion when a wrong data is created if the specified addition is done, it is rejected as an error.

## 4. Reference

### 3) Data (stitch) to be specified

It is optional the data specified with the machine needle.

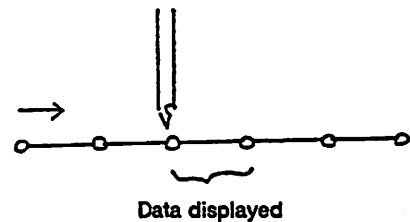


### (14) Data display

Contents of sewing data of patterns retained in the input system are displayed.

#### 1) Data display

No.	CW	X	Y
01	03	30	00



When the function is selected, the 1 stitch of data specified with the needle of connected sewing machine is displayed.

Contents of display for 1 stitch are as shown below.

#### Contents of display

- No. : Stitch No.
- CW : Control word (Kind of function of stitch)
- X (mm): Move distance in X direction
- Y (mm): Move distance in Y direction

This function will be effective to check the stitch position, data, etc. to be modified with the on-line modification.

#### 2) End of data display function

To end this function, press  or the cancel key.

#### 3) Cautions at the data display

Do not operate the connected machine nor turn off the power supply while the data is displayed.

In some cases, the data may be turned off or some error message may be displayed during the data display but there is no problem with the pattern data.

## 4. Reference


### 4.6 Modification Function

Pattern data retained in the input system are modified.

This function can be selected from both the pattern input mode and the function selecting mode.

#### (1) Data type input


When the modifying function is selected under the function selecting mode, this is displayed if the data type is not set. Data type for modification is selected depending on whether the sewing machine is PLK-A Series electronic sewing machine or the conventional PLK Series electronic sewing machine.

DATA TYPE		
1. PLK-A	2. PLK	

PLK-A Series : 1   
PLK Series : 2 

#### (2) Selectable function

1. ROTATE
2. ENLARGE (REDUCE)

STITCH : 


Menu 1. Rotate \*1\*  
2. Enlarge (reduce) \*2\*


#### (3) Rotation

Pattern data is rotated with an optional angle.

##### 1) Selection of rotation start position

(Displayed only when the data has 2nd origin.)

STARTING POINT		
1. HOME	2. ORIGINAL	

1 or 2 

Select the rotation start position. Select \*1. HOME\* to rotate the pattern from the origin or \*2. ORIGINAL\* to rotate the pattern after the 2nd origin.

This function cannot be selected unless there is the 2nd origin.

## 4. Reference

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2) Selection of rotating direction

DIRECTION <span style="float: right;">█</span>	
1. RIGHT	2. LEFT

1 or 2 

Direction of rotation is selected. Select \*1. RIGHT\* to turn to right or \*2. LEFT\* to turn to left.

3) Input of rotation angle

ANGLE	
90.0 °	

Rotation angle 

Rotation angle is input. Range of input angle is 0.1 to 90° with the minimum scale of 0.1°.

4) Confirmation of execution of rotation

ROTATE OK? <span style="float: right;">█</span>	
1. y	2. n
HOME DRCT : R 90.0 °	

1 or 2 

Select \*1. y\* to rotate under the specified conditions or \*2. n\* to change the conditions.

(4) Enlargement (reduction)

Pattern data is enlarged or reduced with an optional magnification.

1) Selection of enlargement start position (Displayed only when 2nd origin data is included.)

STARTING POINT	
1 HOME	2 ORIGINAL

1 or 2 

Enlargement start position is selected. Select \*1. HOME\* to enlarge the entire pattern or \*2. ORIGINAL\* to enlarge the pattern after the 2nd origin.

This function cannot be selected unless there is the 2nd origin.

2) Input of magnification

PERCENTAGE	
X : 100 %	Y : 100 %

X Magnification   
Y Magnification 

Magnification is input. It can be input in the range of 10 to 200% with the minimum scale of 1%. If the magnification of X direction is specified, that for Y direction of the same value is automatically set but it is possible to take different magnifications for X and Y.

## 4. Reference

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### 3) Confirmation of execution of enlargement

ENLRGE	OK?	<input type="checkbox"/>	1. y	2. n
HOME	X:	200 %	Y:	200 %

1 or 2

Select "1. y" to enlarge under the specified conditions or "2. n" to change the conditions.

## 5. Message

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### 5. Message

#### 5.1 List of Messages

Meaning (cause) of and remedies for the messages displayed on the LCD during the operation of input system are described here. Letters at the head of messages (M, W, E) have the following meaning.

- M – Message                    Indicates the present processing state, etc.
- W – Warning error            Although the specified process is conducted, there are some hidden problem.
- E – Error                        A critical error has occurred. Specified process cannot be executed in this case.

M001: RS-232C INIT		RS-232C is under initializing.
M002: FDC INIT		Floppy disk drive is under initializing.
M005: INIT END		Initializing is over.
M010: TRANSMITTING		Data are transmitted to the external device.
M011: RECEIVING		Data are received from the external device.
W050: ORIGINAL POINT SKIPPED	C	Since the 2nd origin is generated as the result of repeated recall, 2nd origin in the recorded data was deleted.
M090: PLK RESETTING	C	Displayed when it enters in the on-line mode. Reset the sewing machine and hold down the CANCEL key.
E100: STITCH DATA EMPTY	C	No pattern data exists for the specified operation. Create or recall any pattern data before proceeding.
E101: END CODE NOT EXISTED	C	No end code at the end of the pattern data to be written. Create the end code at the end of the data.
E102: PATTERN NUMBER FULL	C	There is no pattern No. to be newly assigned. Erase any unnecessary pattern data or set a new floppy disk or PROM.

Continued on the next page.



## 5. Message

E200: RECORD NUMBER		There is no record No. to be newly assigned. Erase any unnecessary record data or set a new floppy disk or PROM.
FULL	C	
E201: RECORD RAM FULL		There is no memory space to save the present data. Erase unnecessary record data from the memory.
	C	
E202: PATTERN DATA		Data of specified pattern No. cannot be found. Confirm the pattern No.
NOT FOUND	C	
E203: RECORD DATA		Specified record No. is not used. Confirm the record No.
NOT FOUND	C	
E400: TRANSMIT ERROR		Failed to transmit the data to external devices. Check the setting on these devices or the cable connection.
	C	
E401: RECEIVE ERROR		Failed to receive data from external devices. Check the setting on external devices or the cable connection.
	C	
E500: DRIVE NOT READY		Floppy disk is not set.
	C	
E501: WRITE-PROTECTED		Floppy disk is write-protected. Release the protect or set another floppy disk.
DISK	C	
E502: READ ONLY FILE		Specified file is special to reading only. Confirm the file No., change the file attributes, etc.
	C	
E503: READ FAULT		Failed to read the floppy disk or the PROM. If the same message is displayed at the retry, the disk or the PROM is broken or the format or the type may be different.
	C	
E504: WRITE FAULT		Failed to write on the floppy disk or the PROM. If the same message is displayed at the retry, the disk or the PROM is broken or the format or the type may be different.
	C	
E505: DISK FULL		Area on the floppy disk is insufficient. Erase unnecessary data or set a new floppy disk.
	C	
E521: PROM FULL		Area on the PROM is insufficient. Set a new PROM.
	C	
E522: TARGET PROM		This occurs during copying a PROM. Memory in the target PROM is not cleared. Use a properly cleared PROM.
ERASE ERROR	C	

Continued on the next page.

## 5. Message

E523: SOURCE PROM		C	This occurs during copying a PROM. There is no data in the source PROM. PROM which is devoid of data cannot be copied.
EMPTY			
E530: DISK I/O ERROR		C	Failed to read from or write to the floppy disk.
E531: PROM I/O ERROR		C	Failed to read from or write to the PROM.
E700: MODIFY STITCH		C	At the on-line modification, the sewing machine is under the reset state or the position which cannot be modified is specified with the needle. Check the modifying position.
ERROR			
E701: MODIFY TOO LONG		C	If it is modified as specified, the stitch length exceeds the max. stitch length. Max. stitch length is 12.7 mm with the data type of PLK-A or 6.2 mm with PLK.
STITCH			
E702: MODIFY STITCH		C	At the modification of on-line, the number of stitches which is beyond the last stitch data, is specified. Check the number of stitches.
NUMBER OVER			
E703: CAN'T ELIMINATE		C	A wrong data is created if it is eliminated as specified. Check the stitch number to eliminate or the method to eliminate.
E704: CODE NOT FOUND		C	Specified code does not exist after the specified position. Check the position and the code.
E705: CAN'T DISPLAY		C	Sewing machine needle does not specify the stitch. (Reset state) Data cannot be displayed.
DATA			
E706: CAN'T ADD PLK-A		C	Since a PLK Series sewing machine is connected, the special code for PLK-A Series cannot be added.
CODE			
E711: ONLINE ERROR		C	Failed to communicate with the sewing machine during the on-line.
E810: ORG ALREADY		C	Only one 2nd origin can be input in a pattern.
EXISTED			
E811: CAN'T MAKE		C	Specify the 2nd origin within the stitchless feed.
ORIG-POINT			

Continued on the next page.

## 5. Message

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<p><b>E812: CAN'T MAKE TRIM</b></p> <hr/> <p style="text-align: right;">C</p>	<p>Thread trimming cannot be specified next to the stitchless feed or the thread trimming.</p>
<p><b>E813: CAN'T MAKE END</b></p> <hr/> <p style="text-align: right;">C</p>	<p>Specify the end code next to the thread trimming or the stitchless feed.</p>
<p><b>E814: TOO LONG STITCH</b></p> <hr/> <p style="text-align: right;">C</p>	<p>Stitch of larger than 12.7 mm cannot be made with the data type of PLK-A while the stitch of larger than 6.2 mm cannot be made with the data type of PLK. Check the input position and method.</p>
<p><b>E815: TOO MANY</b></p> <hr/> <p style="text-align: right;">C</p> <p style="text-align: center;">STITCHES</p>	<p>Stitch number exceeds the max. stitch number at the on-line modification. Max. stitch number is 8000 stitches for PLK-A or 4000 stitches for PLK.</p>
<p><b>E850: PLK-A CODE</b></p> <hr/> <p style="text-align: right;">C</p> <p style="text-align: center;">EXIST</p>	<p>Pattern data which contains the special code for PLK-A Series can not be converted to the data for PLK Series.</p>
<p><b>E851: PLK CODE EXIST</b></p> <hr/> <p style="text-align: right;">C</p>	<p>Reading of 2 bytes data cannot be done with the pattern data containing the special code for PLK-A Series. Pattern data which contains the basting code cannot be modified with the on-line.</p>

## 6. Functions

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### 6. Functions

#### 6.1 Basic Functions

The system can be operated in the following four major modes and each mode has the diversified functions listed in the function list.

##### (1) Basic functions

1) "Pattern input" mode

This mode is selected to generated pattern data.

2) "Read" mode

This mode is selected to up-load pattern data stored in floppy disk or P-ROM to the input system.

3) "Write" mode

This mode is selected to down-load pattern data stored in the input system to floppy disk or PROM.

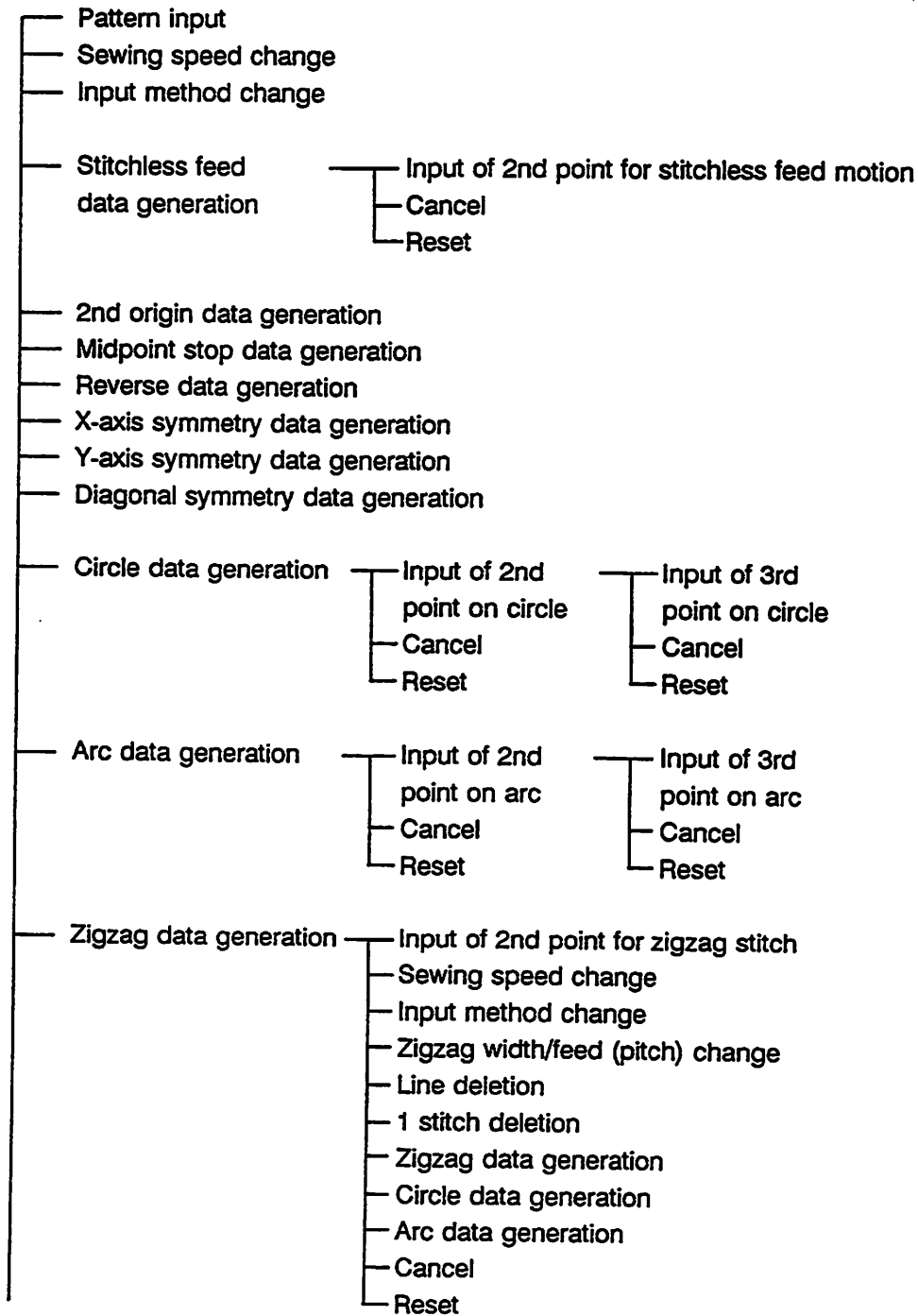
4) "Function selection" mode

This mode is selected to convert data into that applicable to conventional electronic sewing machine, or for data communication between the system and sewing machine, to modify data or operating floppy disk and PROM.

## 6. Functions

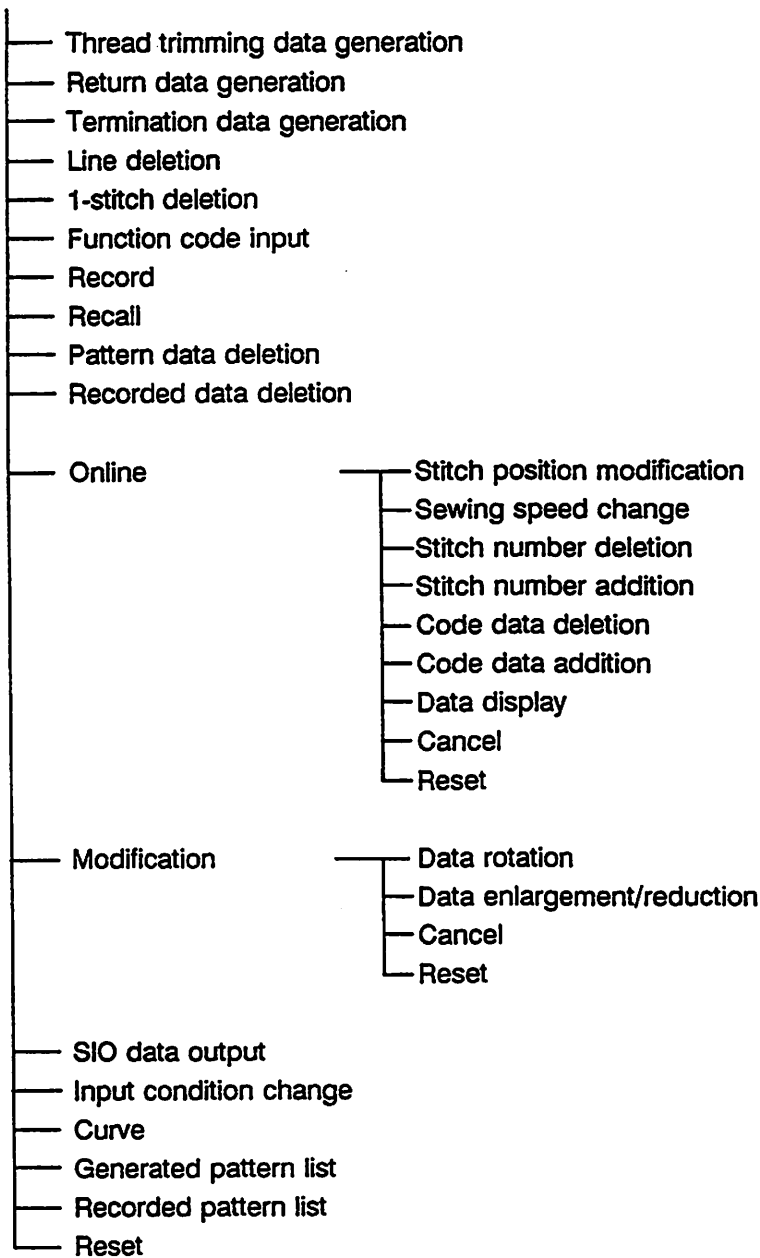
### 6.2 Function Lists

#### (1) Pattern input mode



## 6. Functions

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### (2) Read mode

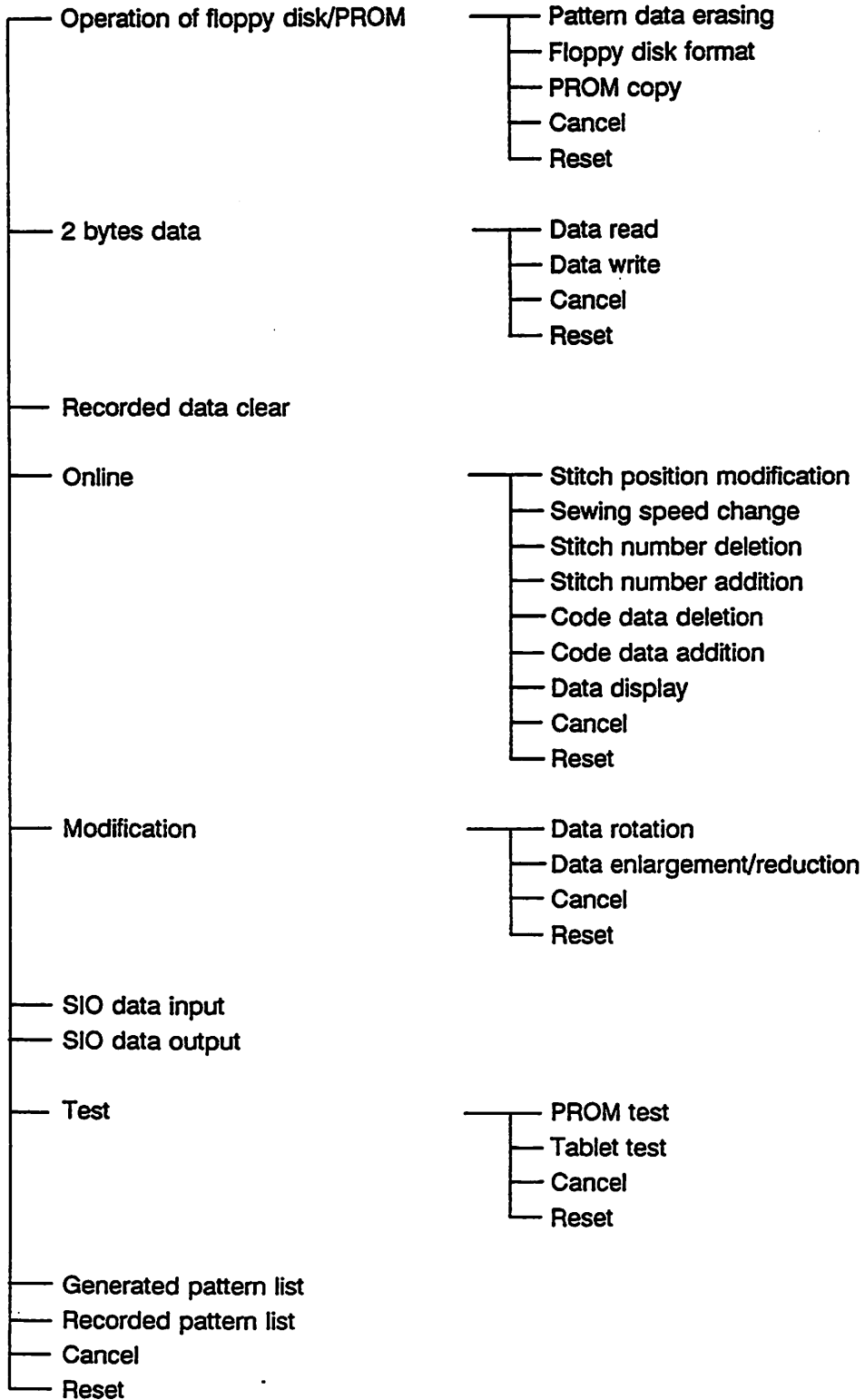
- Reading from floppy disk
- Reading from PROM

### (3) Write mode

- Writing into floppy disk
- Writing into PROM

## 6. Functions

### (4) Function mode





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