Thermal Printer

RING 8012PMH

Operation Manual

For the safety

- **Please read trough carefully and use the our product correctly.**
- **The listed bellows are very important to use our product safely therefore please hold by the instructions.**
- **The denotations and meaning are as followings.**

⚠ Warning	There are possibility of death or serious injury for wrong operation.
⚠ Caution	There are possibility of injury physical damage for wrong operation.

* The physical damage represents damage on such as house hold article, domestic animal and so on.

Example of flow chart symbol :

	△ represents cautions (danger, warning). The contents is indicated inside of △ . The character on left represents the caution for electrification.
	⃠ represents the prohibition. The contents is indicated inside of ⃠ . The character on left represents the prohibition of decomposition.
	● represents the compulsions. The contents is indicated inside of ● . The character on left represents the compulsion of pull out of power cable.

⚠ Warning

Please stop the operation in case of noise, smoke, abnormal smell, or abnormal temperature occurrence.
That might cause electrification or fire.
Please turn off the power switch and plug out power cable. Remove the battery in case of battery type. Never decompose the printer by yourself.

Do not decompose or convert the printer for the repair.
(Exclude the case of following manual instruction)
That might cause injury, electrification or fire.

Do not use power supply other than specified power supply.)
That might cause electrification or fire.

Do not operate the printer with incursion of foreign material, liquid such as water, oil, and piece of metal such as clip, pins.
That might cause electrification or fire.
Turn off the power switch immediately and remove the power cable.
Remove battery in case of battery type.

Do not use defected power cable.
That might cause electrification or fire.
Please follow the following instruction for handling power cable.

a) Do not locate any object on the power cable.
b) Do not pull, bent or twist the power cable.
c) Do not convert power cable.
d) Keep heating equipment away from power cable.

Do not do star-burst connection nor use auxiliary mains socket outlet located on back of table tap or PC.
That might cause the electrification or fire.

Warning

Do not use power cable other than included power cable.
That might cause the electrification or fire.

Please handle the power plug properly.
Wrong handling might cause the electrification or fire.
Please follow the following instructions for handling power plug.

a) Remove foreign material or dust before plug in.
b) Plug in all the way to the end.
c) Do not use loose plug socket outlet.

Removing power plug.

a) Insert or remove the plug by holding plug part. Do not pull cable part to remove the plug. That might cause the defection of the cable and cause fire.

b) Please unplug the power cable in case of not using for long time. Unplug the cable with dry hand. Handling of the power cable with wet hand might cause electrification.

Do not unplug the power cable with power switch on. It might cause deformation of plug or fire.

Do not add any impact to power cable as they are made by precision parts.

Turn off the power switch before connecting communication cable or options.
That might cause electrification.

Caution

Locate the printer at leveled stable place to avoid the printer to fall down. That might cause injury.

Locate the printer where children can not reach.
The falling down of the printer might injure the children.

Do not step on the printer or place heavy object on the printer.
That might cause some injury by printer to fall down.

Please turn off the power switch and check if every connector has been detached before removing the printer.

Do not locate the printer where there are no ventilation.
That might cause fire as heat stays inside of the printer.
Do not locate the printer in following places.

1. Closet or Book shelf.
2. On carpet or blanket.
3. Do not cover with cloth.

Note : The outer case will get high temperature during the operation. Keep the space of more than 5 cm between the printer and the surroundings.

Do not place the printer at humid or dusty place.
That might cause electrification or fire.

Locate the printer where there is no vibration.
The vibration might cause defection of the printer.
Also, the vibration might cause the printer to fall and cause some injury.

Keep finger away form paper vent part or inside of the printer during the operation or by the time of power on.
That might cause finger to be caught under the mechanism such as platen or peel roller.

Do not use paper and ribbon other than that are recommended by us. Using other supplies might cause defection of the printer.

Please attention for injury.

Table of contents

Introduction

Thank you for purchasing a PMH series thermal transfer barcode printer.
Your printer allows you to put an OCR character, barcode, and ordinary character and graphic character, on an ordinary paper-made label in high quality by using a thermal transfer ribbon.
Besides, you can also use it as a thermal printer using a thermal paper.
Please read the manual thoroughly to make full use of the capabilities of the printer and to handle it properly before using your printer.
Keep the manual and the related documents included with the product on hand to solve your question.
See the reference manual about the program preparation for control over the printer.
Also, we can provide the general-purpose package software that you can make label from for the models freely and easily.

Package list :

8012PMH thermal transfer barcode printer	1
Power cable	1
Operation Manual	1

Note : A cable for connecting to a host computer is not included.

Chapter 1　Feature of PMH

In addition to the basic print such as alphanumeric characters, graphic characters, OCR and the like, the printer series have their own characteristics as shown below.

(1) Since the printer measures label length automatically(in the feed direction) with label position control, replacement between various kinds of labels in length does not require troublesome preparation by users.

(2) To cut running costs, the gap between labels is well enough to be 2 mm at least. (if you use the cutter for label, 4 mm requires at least) To decrease unprintable area in the cutter, peel off and tear off mode, the printer has back feed feature.

(3) Label printing having the same format and layout allows continuous print out, which results in increasing print performance.

(4) An adjustable print density allows a fine tuning for print with good quality.

(5) The ability to adjust the print starting position in fine increments allows fine adjustment of the printing position.

(6) Easy return from errors (paper empty, paper jamming, no ribbon, print head open) that occur halfway through printing and the data saving function that can save data immediately before error occur allow you to continue a normal operation with the minimum loss time.

Chapter 2 Environment

2-1 Please try to install the printer with following conditions.

1. Stable leveled place.
2. Ventilated place.
3. Temperature of 10 to 35 centigrade and humidity of 20 to 80%.

2-2 Please do not install the printer in the conditions below to avoid being defected as the printer is composed by precision parts.

1. Direct sunlight
2. Grime and dust
3. Rapid temperature change
4. Rapid humidity change
5. Near flame
6. Near water
7. Near volatile material
8. Near air conditioner
9. Near Humidifier
10. Vibrations

2-3 About power supply

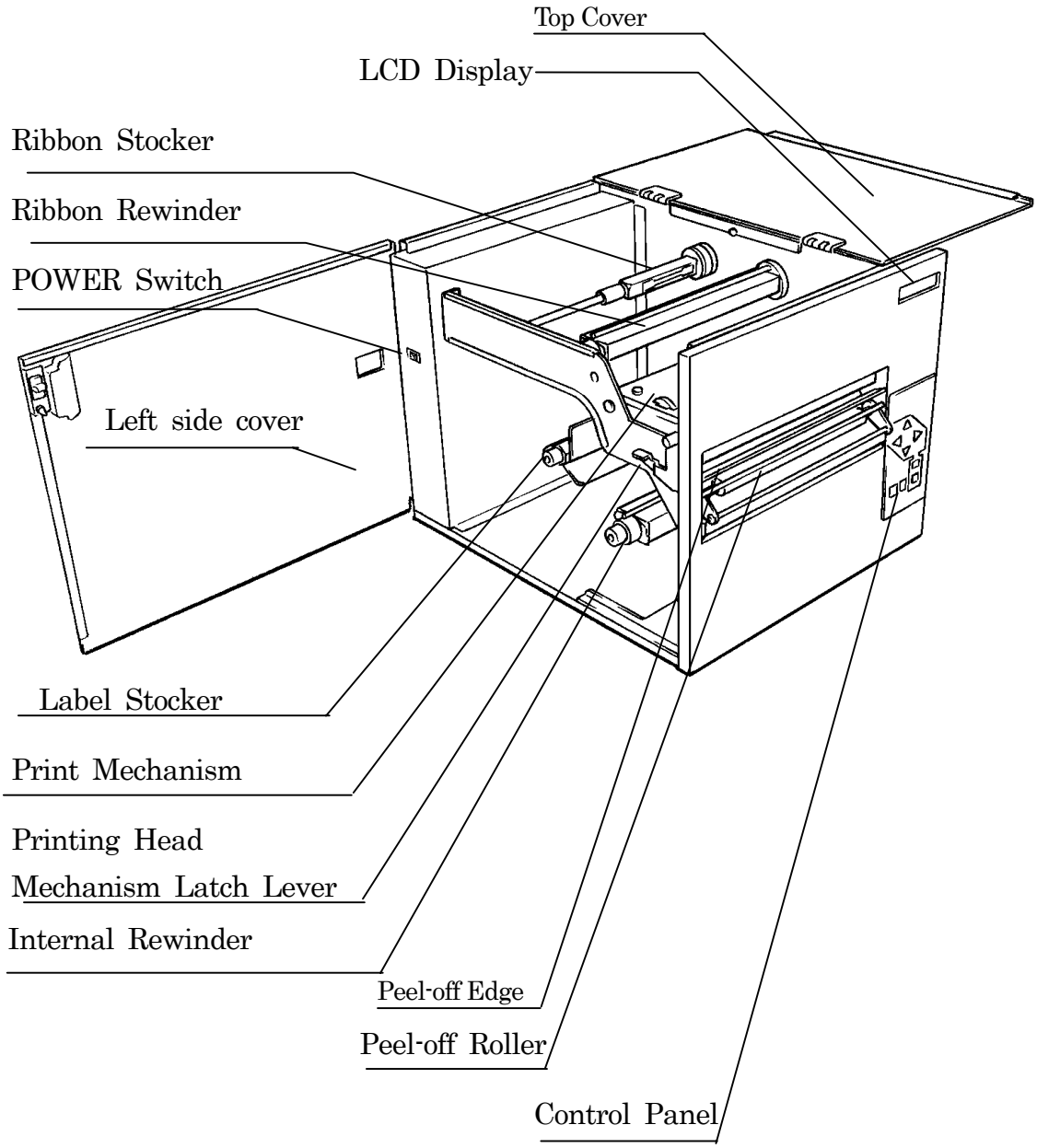
1) The voltage range : AC100 to AC260 50/60Hz. (Switchable power supply)
2) Do not take power from source that might generate noise. (Such as Motor).

2-4 About environment

1) Operating temperature is 5 to 40 centigrade.
   Prevent condensation by keeping relative humidity under 85 % RH.
2) Install the printer on leveled place with no vibrations.
3) Do not block the ventilation on of printer. Try to leave the space of at least 5 cm around the printer.
4) Never do a polishing work using a grinder or a sand paper beside your printer. The printer hates dusts, especially, such as high hardness dusts, sands, metallic dust particles, because they might cause the failure of a print head. Pay careful enough attention to avoid the above dusts. Also, never use your printer in a dump place or in a dusty place having an oil/iron content dust.
5) Please do not install the printer near TV or radio. The electric wave might cause some noise to the equipment.
6) In case of using the printer under the condition where electrostatic occurs, please try to use equipment like “Electrostatic prevention mat” to prevent the electrostatic.

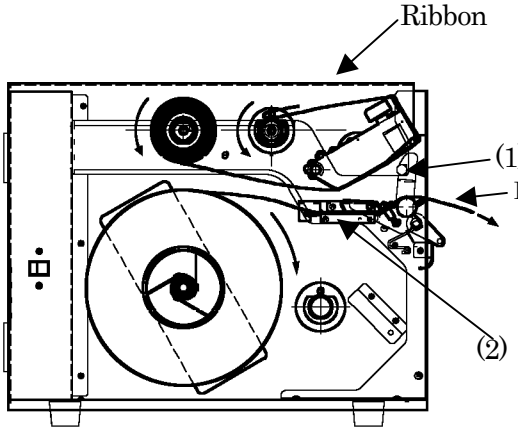
Chapter 3 Handling

3-1 : Designation of each part

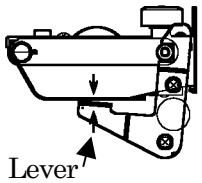


3-2 Loading Paper (Label) Roll and Thermal Transfer Ribbon

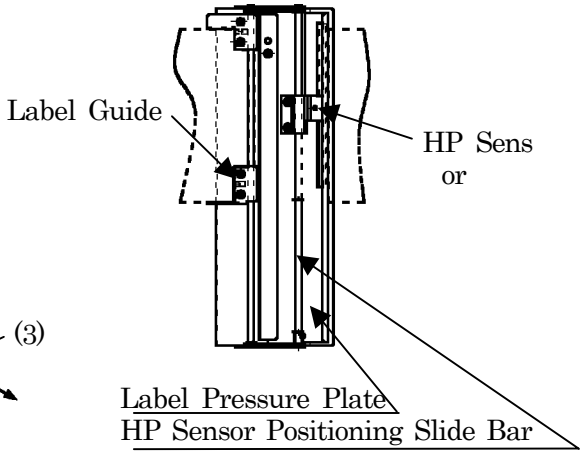
Feed-out/Tear-off Mode



(1) Head Latch Mechanism (Left Side View)

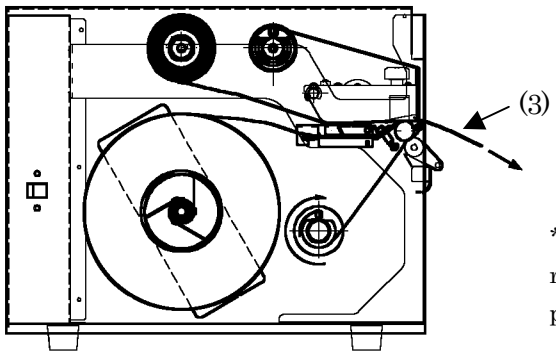


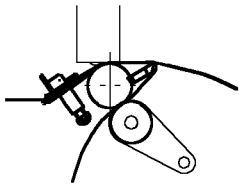
(2) Home Position (HP) Sensor/ Label guide(Top View)



*When this bar is pushed toward the right(upward in this illustration),the label pressure plate can be opened.

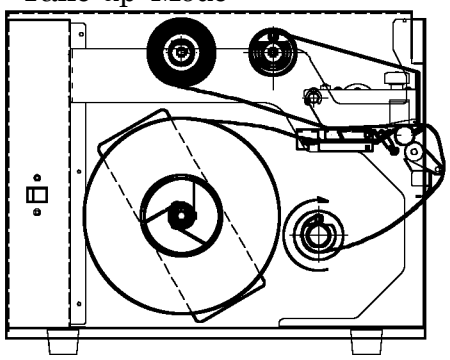
Peel-off Mode





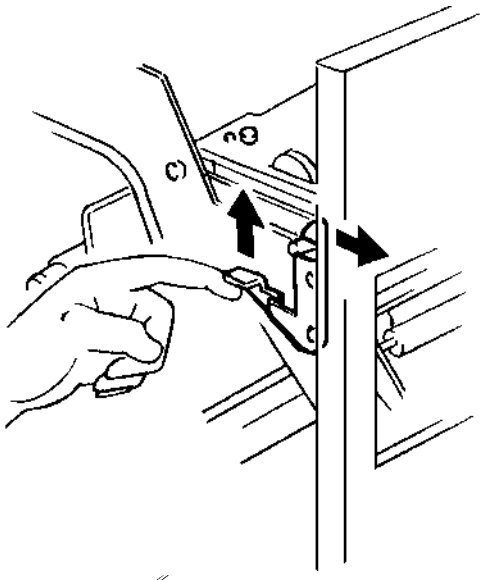
(3)Peel-off Mechanism (Side View)

Take-up Mode



3-3-1 Installation of Paper (Label) Roll

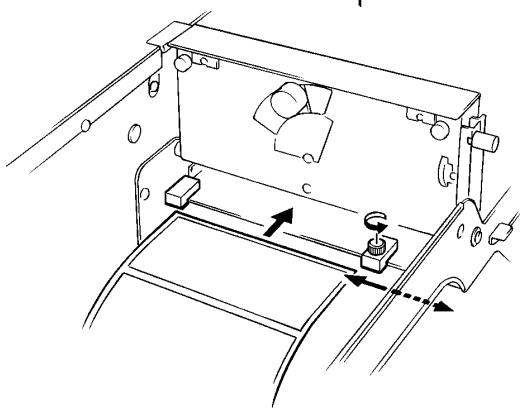
(1) Load a paper (label) roll into the Label Stocker all the way to the end.

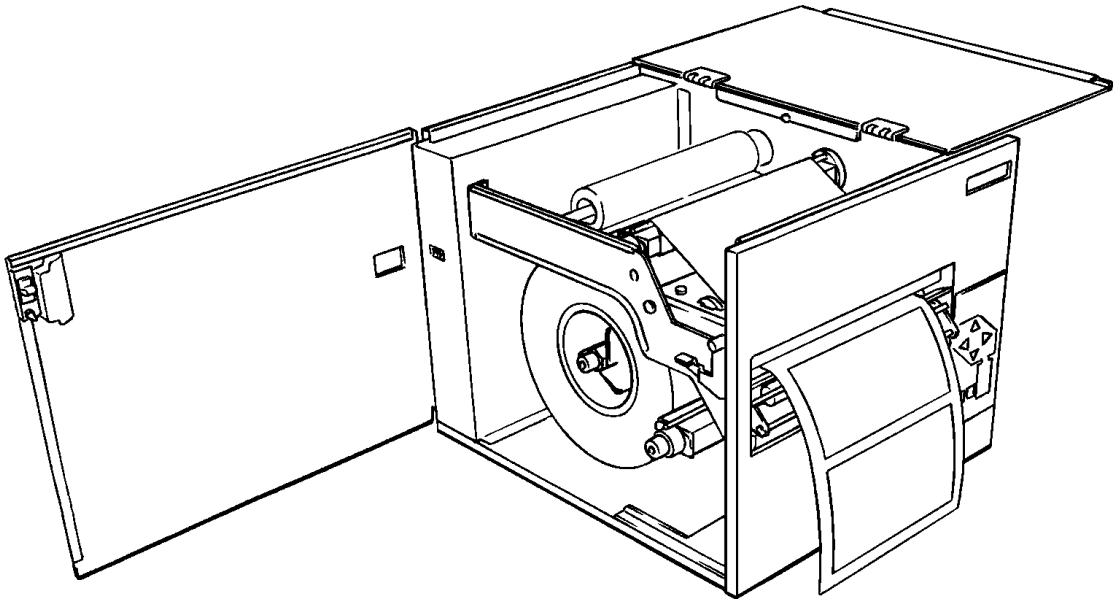


2) To open the Print Mechanism, push up latch lever.

(3) Thread the end of the paper roll through a space under the HP sensor and bring it over the platen.

4) In the peel-off mode, pass the label backing through between the peel-off roller and the platen. Also, see the illustration 2) Peel-off in 3-3 Loading Paper (Label) Roll for threading of the paper.



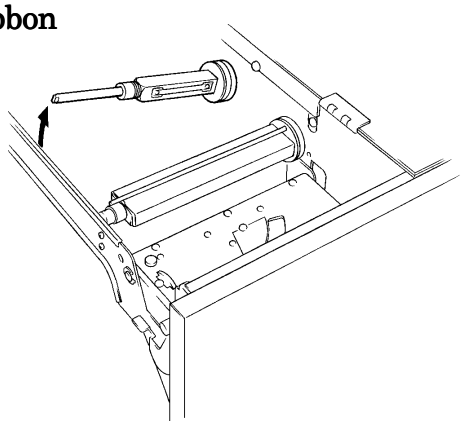


3-3-2 Installation of Thermal Transfer Ribbon

1) To remove the Ribbon Rewinder, lift the left end of the shaft, and slide it toward the left.
2) Load the ribbon roll into the Ribbon Stoker all the way to the end.
3) Open the printing mechanism by pushing the latch lever up. Then unroll the ribbon and tread the end of the ribbon as shown on as the drawing on the right.
4) Bring the end of the ribbon to the Ribbon Rewinder and wind it on the Rewinder by taking the procedures a) to c) described below.
   a) Pass the end of ribbon under the bar for the Ribbon Rewinder.
   b) Keeping the a) status, rotate the knob on the left end of the take-up spool by 90 or 45 degrees in the arrow direction (2) so that the knob comes into a collision with the bar.
   c) From the b) status rotate the right-side end of the take-up spool in the arrow direction (3) a few turns to make sure a wind-up of the ribbon.

This completes the setup of the thermal transfer ribbon.

The following illustrations show an axial view of the ribbon take-up spool , and the status with its knob rotated 90 or 45 degrees counterclockwise -- in the arrow direction (2).



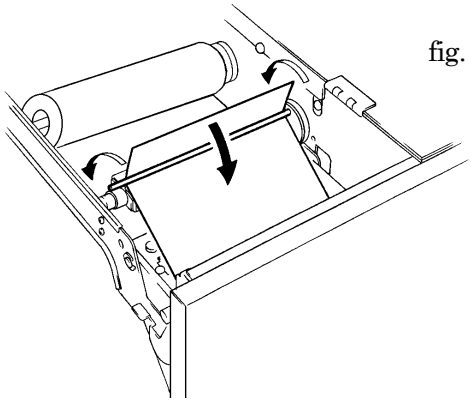
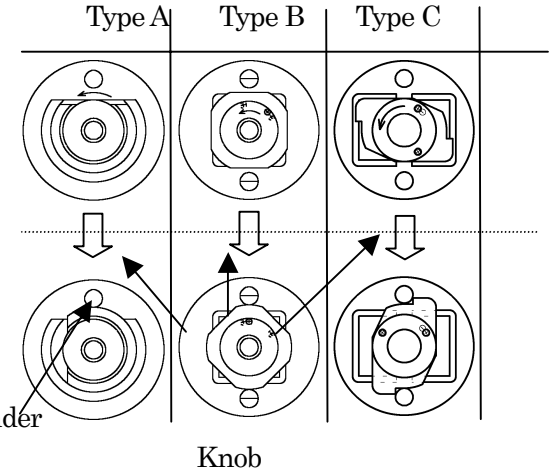


fig. 3-9



3-3-3 Removing the Wound (Used) Ribbon

a) When the wound ribbon is tied with the Ribbon Stocker, cut the ribbon with a knife or scissors to free the take-up spool.

b) Remove the Ribbon Rewinder by holding the left end of the spool and lift it while sliding it toward the right.

c) Return the knob of the Rewinder to its original position as shown in fig. 3-11.

d) Remove the used ribbon from around the Rewinder, and discard it in accordance with the manner set by the local municipal office of your area.

e) Return the Ribbon Rewinder to its original position by putting the spool in the groove on the right side of the spool holder, and rotate the spool so that the groove can catch it.

3-4 Adjusting the Printing Pressure and Pressure Balance

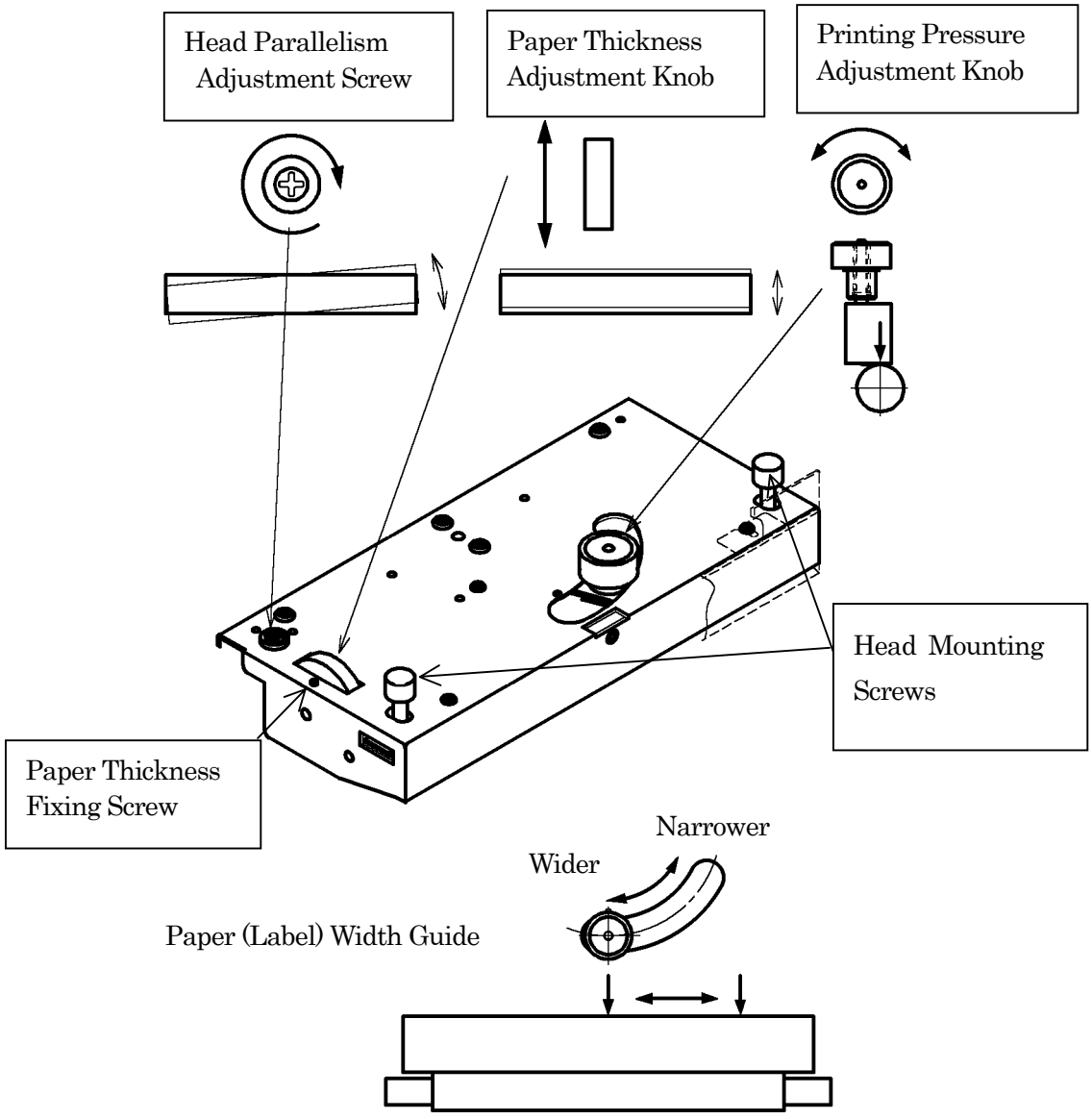
The best printing results partly depends on the printing pressure and pressure balance over the full width of the printing medium. These factors must be adjusted to the optimum conditions by taking the following procedures:

a) Adjust the position of the label width guide in accordance with the width of the printing paper or label backing, leaving margins of 0.5 mm on either side of the medium (a total of 1 mm or so).

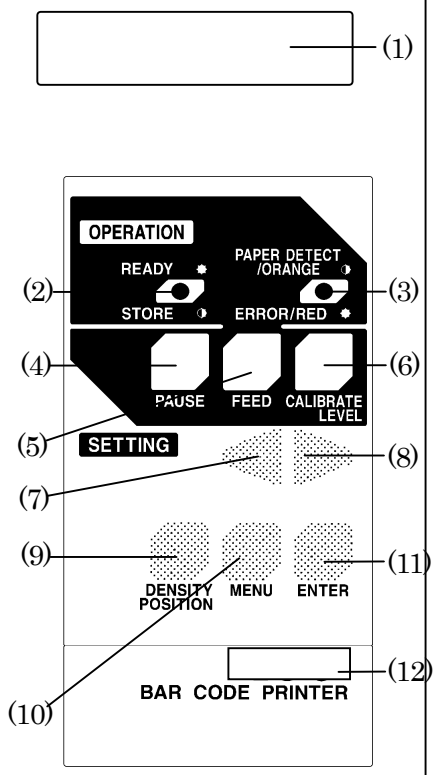
b) Set the printing width adjusting knob to the center of the paper (label) width.

c) For thick paper (label), adjust the printing pressure by turning the paper thickness adjustment knob clockwise.

d) If the print line is not parallel nor perpendicular to the printing area, correct it by turning the head parallelism adjustment screw clockwise.



3-5 Explanation of Operation panel



(1) LCD display :
Displays the status of printer by 16 digits x 2 rows.
Please refer the followings for more details.

(2) READY/STORE
The green light on in case of "Ready" and blinks when sending data to memory such as Firmware up date.

(3) PAPER DETECT/ERROR
The red light blinks and buzzer sounds in case of errors.

(4) PAUSE
The button to switch "Ready" to "Pause".

(5) FEED
The button to feed the paper from "Pause" position.

(6) CALIBRATE LEVEL
The button to execute automatic HP adjust and paper calibration.

(7) Left arrow
The button to change values and selects mode.

(8) Right arrow
The button to change values and selects mode.

(9) DENSITY/POSITION
The button to adjust printing such as density, position, cut position.

(10) MENU
The button to chose operation mode such as speed, print mode, print method.

(11) ENTER
The button to fix or execute the selected functions.

(12) Printer model name :
Contents in box varies depend on the model.

3-6 Procedure of operation

The contents in [ ] represents front panel button and ' ' represents LCD display.

3-6-1 Operation with Die cut label

The followings are the procedure for using Die cut label for the first time after purchasing the printer or different size of Die cut label.

1) Connect power cable to the printer.
2) Connect interface cable to the host PC.
3) Load Die cut label and thermal ribbon to the printer.
4) Turn power switch on.
5) Check if the LCD shows "Ready".
6) Execute HP level adjustment and calibration.
   A) Press [PAUSE] to show 'Pause' on LCD.
   B)
   B) Press [CALIBRATE LEVEL] to show 'Learn Gap Level / Sensing 60 mm'.
   (Note : 60 mm is default value)
   C) Change the value to the length of "Label length + 20 mm) b[◀] [▶]
   D) Press [ENTER] to execute the calibration. The printer starts feeding several labels for the calibration and goes back to 'Ready'.

   Note : Please refer "Chapter 6 Errors" in case of error occurrence.

7) The printer starts printing as it receives data from host PC.

   Note : Please refer "3-7 Test Print" for executing the test print.

From next time, the printer will goes to 'Ready' as you turn on the power switch as long as using same label.

3-6-2 Operation with Continuous label

The followings are the procedure for using Continuous label for the first time after purchasing the printer or changing to Continuous label from Die cut label.

1) Connect power cable to the printer.
2) Connect interface cable to host PC.
3) Load only thermal ribbon only and latch the print mechanism.
4) Turn power switch on.
5) Change 'Label Type' to 'Continuous' by front panel.
   A) Press [PAUSE] to show 'Pause' on LCD.
   B) Press [MENU] for several times to show 'Label Type / Die cut' on LCD.
   C) Press [▶] to select 'Continuous' .
   C) Press [ENTER] to fix.
   D) The LCD shows 'Set Label Pitch / 53 mm'.
   E) Press [PAUSE] to show 'Pause' on LCD.
6) Execute HP level adjustment and calibration.
   A) Press [CALIBRATE LEVEL] and show 'Learn Gap Level / Sensing 60 mm'.
   B) Press [ENTER] to execute calibration. The LCD shows 'Learn Gap Level / Busy !!' and goes back to 'Ready'.

Note : Please refer "Chapter 6 Errors" in case of error occurrence.

7) Open print mechanism and load the Continuous label and close print mechanism. Stop the beep sound by pressing [PAUSE] .

8) Press [PAUSE] again to clear 'E01 / Head Open' and show 'Pause' on LCD.
9) Press [PAUSE] again. The printer feed the label and goes back to 'Ready'.
10) The printer starts printing as it receives data from host PC.

Note : Please refer "3-7 Test Print" for executing the test print.

From next time, the printer will goes to 'Ready' as you turn on the power switch as long as using same label.

3-6-3 Switching Die cut to Continuous label

The followings are the procedure to change Continuous label into Die cut label.

1) Load Die cut label and thermal ribbon to printer.
2) Turn power switch on.
3) Change 'Label Type' from 'Continuous' to 'Die cut' by front panel.
   A) Press [PAUSE] to show 'Pause' on LCD.
   B) Press [MENU] several times to show 'Label Type / Continuous' on LCD.
   C) Press [◀] to select 'Label Type / Die cut'.
   D) Press [ENTER] to fix. The LCD will displays 'Measure Label / Manual'.
   E) Press [PAUSE] to show 'Pause' on LCD.
4) Execute HP level adjustment and calibration.
   A) Press [CALIBRATE LEVEL] to show 'Learn Gap Level / Sensing 60 mm'.
   (Note : 60 mm is default value)
   B) Change the value to the length of "Label length + 20 mm) by [◀] [▶]
   C) Press [ENTER] to execute the calibration. The printer start feeding several labels for the calibration and goes back to 'Ready'.

   Note : Please refer "Chapter 6 Errors" in case of error occurrence.

8) The printer starts printing as it receives data from host PC.

   Note : Please refer "3-7 Test Print" for executing the test print.

From next time, the printer will goes to 'Ready' as you turn on the power switch as long as using same label.

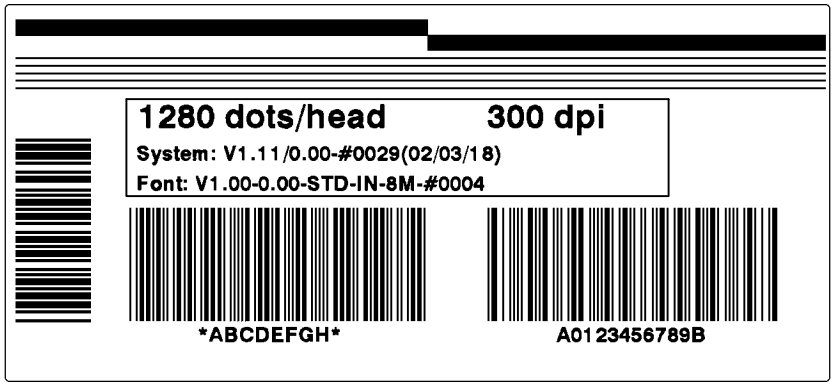
3-7 Test Printing

Please take procedure in "3-6 Procedure of operation" and show 'Ready' on LCD previous to the Test Printing.

1) Press [PAUSE] to show 'Pause' on LCD.
2) Press [FEED] several times to feed the label and check if the label runs straightly (without meandering) and also check the absence of ribbon wrinkle.
1) In case of appearance of the ribbon wrinkle, open the print mechanism and take up the slack of ribbon by rotating the Ribbon Rewinder by hand. Then close the print mechanism.
The beep sound will ring as you open the print mechanism. Press [PAUSE] to stop the sound. Press [PAUSE] again to show 'Pause' on LCD.

4) Press ◀ and ▶ at same time. The LCD will displays 'Test Print / Pattern 1'.
5) Press [ENTER] to execute the test printing.
Press [PAUSE] to stop and restart the test printing.

Example of test print :



The contents inside the [ ] varies depend on the printer type and ROM version.

Chapter 4 Function and settings

4-1 Panel functions

This chapter describes how to customize the printer's function for your use with the panel button. Please refer "4-1-7 Table of panel functions" for list of functions.

4-1-1 Configuration mode

Initial setting of the printer is done in this mode.

A) Turn power on while pressing [ENTER] to show 'Configuration' on LCD.
B) Use [ENTER] and to proceed.
C) Press [◀] [▶] for selection and press [ENTER] to fix.
D) Press [PAUSE] twice to get out from mode.

1) Interface : 'Interface / □□□□'
Function : Selects interface type for communicating with host PC.

Type	RS	For using RS232C interface.
	Parallel	For using parallel interface.
	LAN	For using LAN interface (100 BASE-TX).

A) The optional interface can be added only one.
B) Only selected interface can communicate with host PC.
C) Parallel interface in one way. Therefore can not receive the status from host PC.
D) The settings become valid after exiting from Configuration mode.
E) The default is set as 'RS'.

2) Command : 'Command / □□□'.
Function : Selects command type.
Type : ALL Function with standard command.

Please refer ALL command reference manual for the details.

3) Character code : 'Character Code / □□□□□□'.
Function : Selects Kanji Code. (Used only for Japanese market)

4) Home position sensor : 'HP sensor / □□□□'.
Function : Selects HP sensor type.
Type :Transmit, Reflect.
A) The sensor type need to be selected for paper type you use.
B) The settings becomes valid after exiting from Configuration mode.
C) The default is set as 'Transmit'.

5) Count Dictation : 'Count Dictation / □□□□□'.
Function : Selects the way of display for counting.

Type	None	For not displaying counting.
	Repeat	For displaying the count by repeat.
	Total	For displaying the count by total.

A) The settings becomes valid after exiting from Configuration mode.
B) The default is set as 'Repeat'.

6) Feed Speed : 'Feed Speed / □□□'.
Function : Selects the speed of feeding.
Range : + 00 to +99
A) The settings becomes valid after exiting from Configuration mode.
B) The default is set as " +00".

7) Plane format : 'Plane format／□□□'.
Function : Selects number of drawing memory.

Type	Single
	Double
	Triple

A) Change only when expanding printing area.
C) The settings becomes valid after exiting from Configuration mode.
D) The default is set as 'Triple'.

4-1-2 Operation setting mode

Print conditions are set in this mode.

A) Press [PAUSE] after power on to show 'Pause' on LCD.
B) Press [MENU] to get in to the mode.
C) 'Print Speed / □□□mm/s' will be shown on LCD.
D) Press [MENU] to proceed.
E) Press [◀] [▶] keys for selection and press [ENTER] to fix.
F) Press [PAUSE] to exit from this mode.

1) Print Speed : 'Print Speed / □□□mm / s'
Function : Set print speed

Speed range

300 mm	Available on 4012PSH
250 mm	
200 mm	For high speed ribbon
150 mm	
120 mm	
100 mm	
80 mm	
60 mm	
40 mm	For high energy ribbon
30 mm	
20 mm	
15 mm	

A) The max print speed differs by printer type. Please refer ' 5-3-7 Print speed' for the details.
B) Please select suitable print speed for the ribbon and label you use to obtain best print quality.
C) The settings becomes valid after exiting from Operation mode.

2) Print Mode : 'Print Mode / □□□□□□'.
Function : Selects print mode.

Type

Standard	Print as feeding labels.
Strip	Print as feeding labels. (Stops at cutting position)
Tear off	Print as feeding labels. (Stops at cutting position and do not execute
Peel off	Peel off the label from backing paper after printing.
Cut off	Cut the label after printing by cutter.

A) Cut off will only be shown in case of installing cutter unit to printer.
B) The settings becomes valid after exiting from Operation mode.
C) The default is set as "Standard".

3) Print Method : 'Print Method / □□□□'.

Function : Selects printing method.

Type { Transfer — For printing with thermal transfer ribbon.
Direct Thermal — For printing with thermal paper.

A) The settings becomes valid after exiting from Operation mode.

B) The default is set as "Transfer".

4) Label Type : 'Label Type / □□□□□□'.

Function : Selects paper type to use.

Type { Die cut — For using Die cut label.
Continuous — For using continuous label.

A) Continuous label can not be selected in case of printing with peel off mode.

B) The setting becomes valid after exiting from Operation mode.

C) The default is set as "Die cut".

6) Measure label : 'Measure label / □□□□□'.

(Only displayed in case of selecting 'Die cut' label)

Function : Select the way of calibrating the paper.

Type {
- Every time — Start calibrating label automatically every time the power switch is turned on. It is recommended in case of frequent change of paper type.
- First — Calibrate the label only when you execute the calibration. It is recommended to save the label to avoid unnecessary calibration by the time of turning on the power switch. (Please refer "3-6 Procedure of operation" for more details.)
- PGM — Handle the label by the data input manually.

A) The settings become valid after exiting from Operation mode.

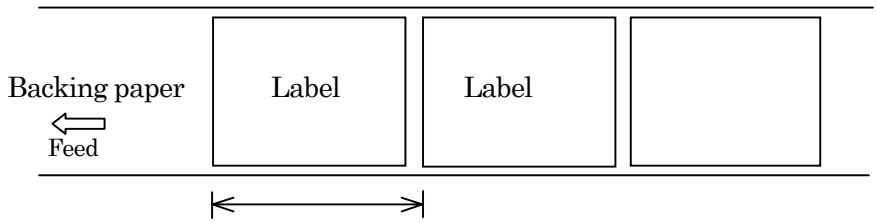
B) The default is set as 'Manual'.

6) Set Label Pitch : 'Set Label Pitch / □□□.□mm'.

Function : Sets label length.

Value : 000.0 (unit = mm)

Only displayed when 'PGM' or 'Continuous' is selected.



Label length(Label length + Gap length)

A) This mode is displayed only when 'PGM' is selected at 'Measure Label'.

B) The settings become valid after exiting from the mode.

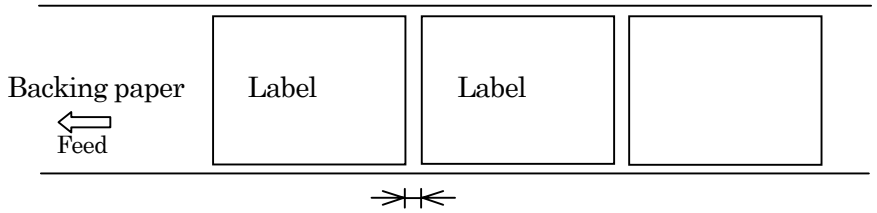
C) The default is set as 053.0 mm.

7) Set Gap Length : 'Set Gap Length / □□□.□mm'.

Function : Sets Gap length.

Value : 000.0 (unit = mm)

Only displayed when 'PGM' or 'Continuous' is selected.



Gap length (The gap between labels)

A) This mode is displayed only when 'PGM' is selected at 'Measure label'.

B) The settings become valid after exiting from the mode.

C) The default is set as 003.0 mm.

8) Left margin : 'Left Margin' / □□□'.

Function : Creates space on left side for the printing.

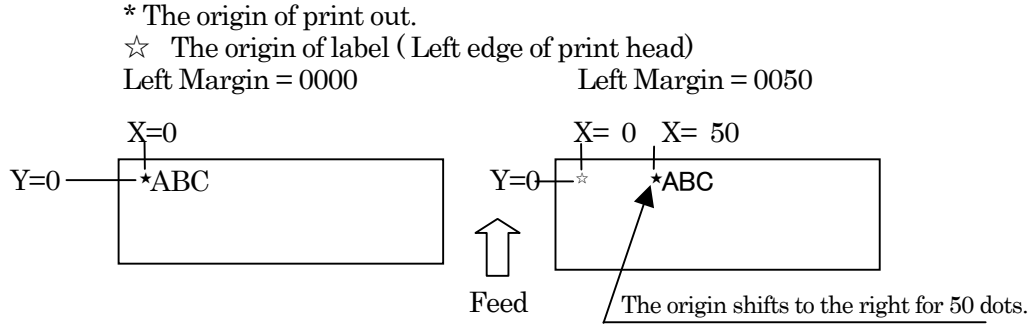
Range : 0 to total element amount – 1 (dot)

A) The print out shift to the right as increasing the value.

B) The setting become valid after exiting from the mode.

C) The default is set as 0000.

Example :



9) Label Skip : 'Label Skip / □□'.
Function : Select how many label absence to ignore.
Range : 00 to 10 labels
A) The setting becomes valid after exiting from the mode.
B) The default is set as 01.

10) RS baud rate : 'RS232C Baud Rate / □□□□□□'.
Function : Sets the baud rate.

Range
- 115.2K
- 57.6K
- 38.4K
- 19.2K
- 9600
- 4800

A) Match the baud rate to host PC.
B) The setting becomes valid after exiting from the mode.
C) The default is set as 9600.

11) RS parity : 'RS232C Parity / □□□□'.
Function : Sets parity bit.

Type		
	None	For no parity
	Even	For even parity setting
	Odd	For odd parity setting

A) Match the setting to host PC.
B)The setting become valid after exiting from the mode.
C)The default is set 'None'.

12) RS Stop bit : 'RS232C Stop Bit / □'.
Function : sets stop bit.

Type		
	1.	Sets stop bit to 1.
	2.	Sets stop bit to 2.

A) Match the setting to host PC.
B) The setting becomes valid after exiting from the mode.
C) The default is set '1'.

13) RS data bit : 'RS232C Data Bit / □'.

Function : Sets data bit.

Type { 8 Sets data bit as 8. / 7 Sets data bit as 7.

A) Match the setting to host PC.

B) The setting becomes valid after exiting from the mode.

C) The default is set as '8'.

14) RS control : 'RS232C Control / □□□□□□□□'.

Function : Select hand shaking method.

Type { RS / CS Controls by RS / CS signal line. / ER / DR Controls by ER / DR signal line. / XON / XOFF Controls by XON / XOFF code.

RS(RTS) - - - 8 pin Return to send(output). : Requests data to the parity (computer) on the other end line with "SPACE" (ON, about + 7V).

CS(CTS) - - - 7 pin Clear to send(input) : The line shows the preparation for reception of the parity. (Host PC) is ready. "SPACE" (ON, about + 7V) on the line allows to return status.

DR(DSR) - - - 4 pin Data Set Ready (input) : The line shows data to be sent is ready in the parity (Host PC).

ER(DTR)- - - 6 pin Data terminal Ready (output) : The line shows your printer is ready.

XON - - - Code (11H) Shows the receiver is enable for reception.

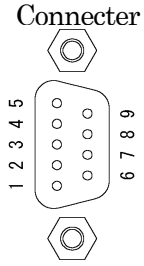
XOFF - - - Code(13H) Shows the receiver is disable for reception.

A) Only selected becomes valid.

Ex) In case of setting RS / CS, the XON / XOFF code is not generated.

B) The settings become valid after exiting from the mode.

C) The default is set as 'RS / CS'.



15) LAN setting :

'LAN IP Address', 'LAN Sub Net MSK', LAN Gate way', 'LAN Port Number', and 'LAN Protocol' will appear in case the LAN interface is installed.

Please refer LAN interface manual for the details.

4-1-3 Print adjustment mode

Setting of print density and print position are done in this mode.

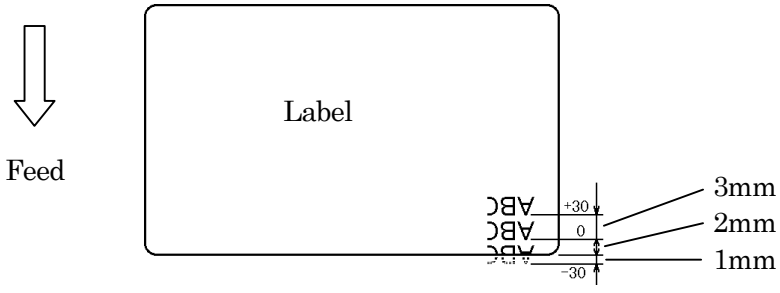
A) Press [PAUSE] to show 'Pause' on LCD.
B) Press [DENSITY / POSITION] to show 'Print Density / +-00'.
C) Press [DENSITY / POSITION] again to proceed.
D) Press [◀] [▶] to change the values and press [ENTER] to fix.
E) Press [PAUSE] to exit from Print adjustment mode.

1) Print density ' Print Density / □□□'
Function : Change print density.
Range : - 15 to + 15

The density increase as the value increases.

2) Print position 'Print Position / □□□'
Function : Adjusting print starting position by 0.1 mm.
Range : - 30 to + 30

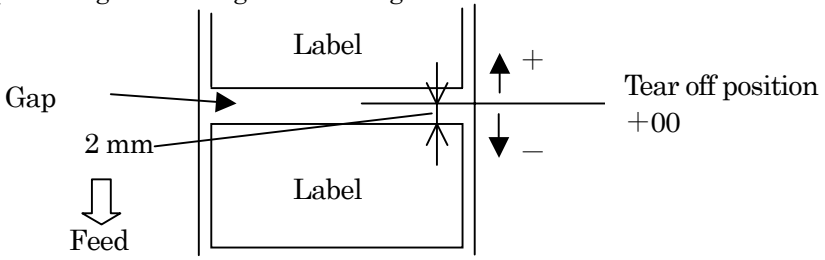
The print out goes back against feeding direction as increasing the value.



(3) Tear position ' Tear Position / □□□'
Displayed in Tear off / Strip mode.

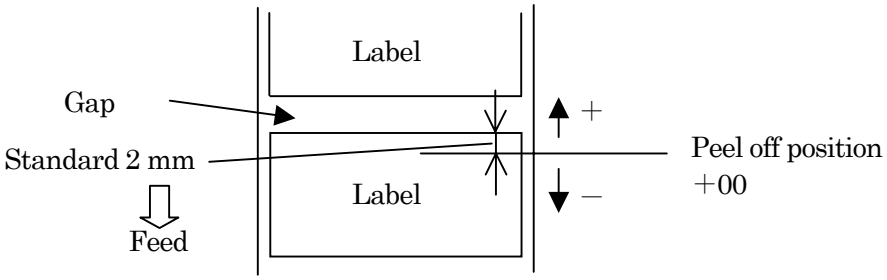
Function : Adjusts the stop position of label after printing in Tear off / Strip mode by 0.1 mm.
Range : - 30 to + 30

The position goes back against feeding as value increases.



Peel position 'Peel Position / □□□'
Displayed in Peel off mode.
Function : Adjusts the stop position of label after printing in Peel off mode by 0.1 mm.
Range : - 30 to + 30

The position goes back against feeding as value increases.



Cut position 'Cut Position / □□□'

Displayed in Cut off mode.

Function : Adjusts the stop position of label after printing in Cut off mode by 0.1 mm.

Range : - 30 to + 30

The position goes back against feeding as value increases.

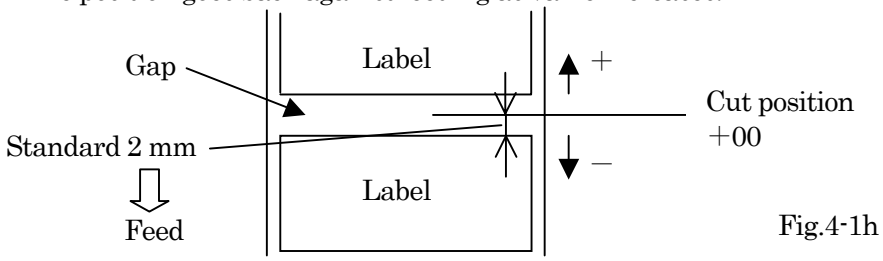


Fig.4-1h

(4) Engulf defense 'Engulf Defense / □□.□mm'

Displayed in Tear off / Cut off mode.

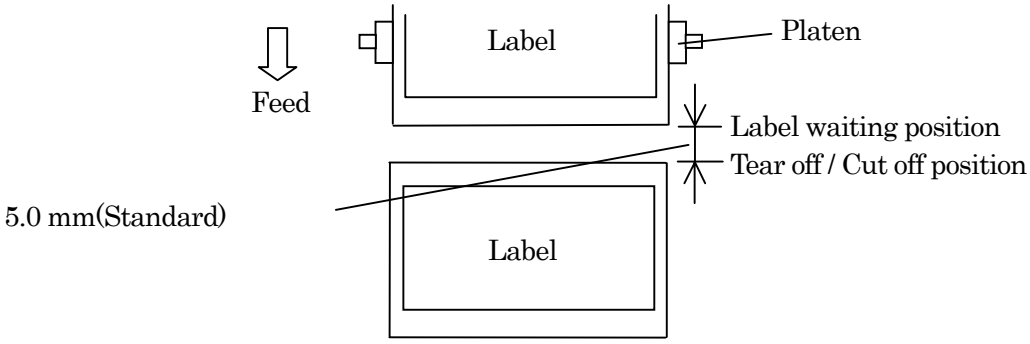
Function : Adjusts waiting position of label after printing in Tear off / Cut off mode by 0.1 mm.

Range 0 to 99.9 mm.

A) The position goes back against feeding as value increases.

B) Press [◀] and [▶] to change values and press [FEED] to shift digit.

C) Press [ENTER] to fix.



The default is set as 5.0 mm.

4-1-4 HP adjustment

This printer has function of automatic HP sensor adjustment.
The learned adjustment is registered in printer therefore not necessary to make the adjustment as long as using same paper.

Note : Please make sure to do HP sensor adjustment in case of changing paper.

Procedures :

In case of using Die Cut label.

(1) Load label and ribbon and turn on power switch to show 'Ready' on LCD.

(2) Select 'Label Type' to 'Die Cut'.
   A) Press [PAUSE] to show 'Pause' on LCD.
   B) Press [MENU] several times to show 'Label Type '.
   C) Select 'Die cut' by using [◀] .
   D) Press [ENTER] to fix.
   E) Press [PAUSE] to show 'Pause' on LCD.

(3) Executing HP adjustment.
   A) Press [PAUSE] and show 'Pause' on LCD.
   B) Press [CALIBRATE LEVEL] to show 'Learn Gap Level / 060 mm'.
   (The default is 60 mm)
   C) Set the value to length of "Label length + 20 mm" by usin [◀] [▶] .
   D) Press [ENTER] to execute the HP level adjustment.
   E) The LCD shows 'Learn Gap Level / BUSY !!' and feed labels.
   The printer starts calibration of the label successively in case the 'Measure Label' mode is set as 'Every' or 'Manual'.
   The LCD shows 'Measure Label / Busy !!' and feed several labels.
   F) LCD shows 'Ready' as completing HP adjustment.

Please refer "Chapter 6 Errors" in case of error appearance.

In case of using Continuous label.

(1) Load only thermal ribbon(Do not load paper) and close print mechanism.
(2) Turn power on.
(3) Change 'Label Type' to 'Continuous' by front panel.
   A) Press [PAUSE] to show 'Pause' on LCD.
   B) Press [MENU] several times to show "Label Type'.
   C) Select 'Continuous' by using [▶] .
   D) Press [ENTER] to fix.
   E) The LCD shows 'Set Label Pitch / 53 mm'.
   F) Press [PAUSE] to show 'Pause' on LCD.
(4) Executing HP adjustment.
   A) Press [CALIBRATE LEVEL] to show 'Learn Gap Level '.
   B) Press [ENTER] to execute HP level adjustment.
      G) The LCD shows 'Learn Gap Level / BUSY !!' and shows 'Ready' on LCD.
(5) Load label to printer.
   The beep sound will ring as opening head mechanism. Press [PAUSE] to stop the sound.
(5) Press [PAUSE] again to show 'Pause' on LCD.
(6) Press [PAUSE] once again to show 'Ready' on LCD.

Please refer "Chapter 6 Errors" in case of error appearance.

4-1-5 Test print

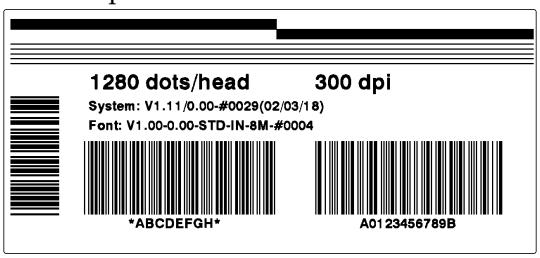
(1) Press [PAUSE] to show 'Pause' on LCD.
(2) Press [◀] [▶] all together.
(3) 'Test Print / Pattern 1' will be shown on LCD.
(4) Press [▶] to select 'Test Print / Pattern 2' .
(5) Press [ENTER] to execute the test print.

Press [PAUSE] to stop or restart the test print.
To exit, press [ENTER] and [DENSITY / POSITION] together to reset or turn off the power.

Test print pattern 1 :

Used for print quality adjustment.

Example



Test print pattern 2 :

Used for checking the status of printer.

1) Farm version
2) Font version
3) Mechanism
4) Maximum print speed
5) Minimum print speed
6) Generation memory amount
7) Print head
8) Panel setting

Example

```
01. MODEL INFORMATION
Model Type       = Standard edition
System Version   = 1.11/0.00-#0029(02/03/18)
Font Version     = 1.00-0.00-STD-IN-8M-#0004
Model Code       =  23
Head No.         =  0
Machine No.      =  0
Power Supply No. = 1
Max Print Speed  = 200mm/s
Min Print Speed  =  15mm/s
Memory Size      =  8MB

02. HEAD INFORMATION
Head Size        = 1280dots/head
Head Density     = 11.800dots/mm
Element Test     = NG
Maker            = KYOCERA
Groupe           = 2
Strobe Dication  = CONT

03. USER MAINTENANCE
Head Resistance  = 1250 Ohm
Total Mileage    =      0m

04. CONFIGURATION
Interface        = RS
Command          = ALL
Character Code   = SFT JIS
HP Sensor        = Transmit
Count Dication   = Repeat
Feed Speed       = +00
Plane Format     = Triple

05. ADJUST
Print Density    = +00
Print Position   = +00
Peel/Cut/TearPos= +00
Engulf Defense   =  5.0mm

06. MOVEMENT MODE
Print Speed      = 100mm/s
Print Mode       = Standard
Print Method     = Transfer
Label Type       = Continuous
Measure Label    = Manual
Set Label Pich   = 200.0mm
Set Gap Length   =  3.0mm
Left Margin      = +00
Label Skip       =  1

07. RS-232C
RS232C Baud Rate= 9600
RS232C Parity    = NONE
RS232C Stop Bit  = 1
RS232C Data Bit  = 8
RS232C Control   = RS/CS

08. LAN
LAN IP Address   = 001.001.001.001
LAN Sub Net MSK  = 000.000.000.000
LAN Gateway      = 002.002.002.002
LAN Port Number  = 00000
LAN Protocol     = FTP
```

4-1-6 Other panel setting

1) Reprint :
It is the function to reprint previous format.
It functions when there is no printing data in printer. (After printing)
< Operation >
Press [FEED] from 'Ready' after the printing.

2) Implementing external character (To internal ROM)
Writing registered external character to internal ROM.
< Operation >
a) Register the external character.
b) Show 'Ready' on LCD.
c) Press [ENTER] a to execute writing into the ROM.
Note : The 'READY / STORE" light blinks during the writing.
(It takes 10 to 20 seconds)

3) Reset (Warm start) :
It initializes printer. (Does not execute the calibration)
< Operation >
Press [DENSITY / POSITION] and [ENTER] together.

4) Resting 'Count Dictation' :
It is the function to reset (00000) 'Count Dictation'.
This function is valid only when 'Total' in 'Count Dictation' is selected.
< Operation >
From 'Pause', press [◀] and [DENSITY / POSITION] together.

5) Self printing :
This is the function for demonstration printing.
'Pattern 1' for Characters and 'Pattern 2' for Barcode are available.
< Operation >
A) Turn on power switch while pressing down [PAUSE] .
B) The LCD shows 'Self Print / Pattern 1'.
C) Press [▶] to select 'Self Print / Pattern 2'.
D) Press [ENTER] to execute the self printing.
E) To exit, try reset or turn of the power.

6) Calibration of label:
This is the function for calibrating label as feeding the label.
Note : HP adjustment is not executed.
< Operation >
A) Turn on power switch while pressing down [FEED] .
B) 'Ready' will be shown on LCD as calibration completes.
C) Please try 'HP adjustment' in case of ' HP Adjust Error'.

7) Label positioning :

This is the function to adjust the label position to print starting position.

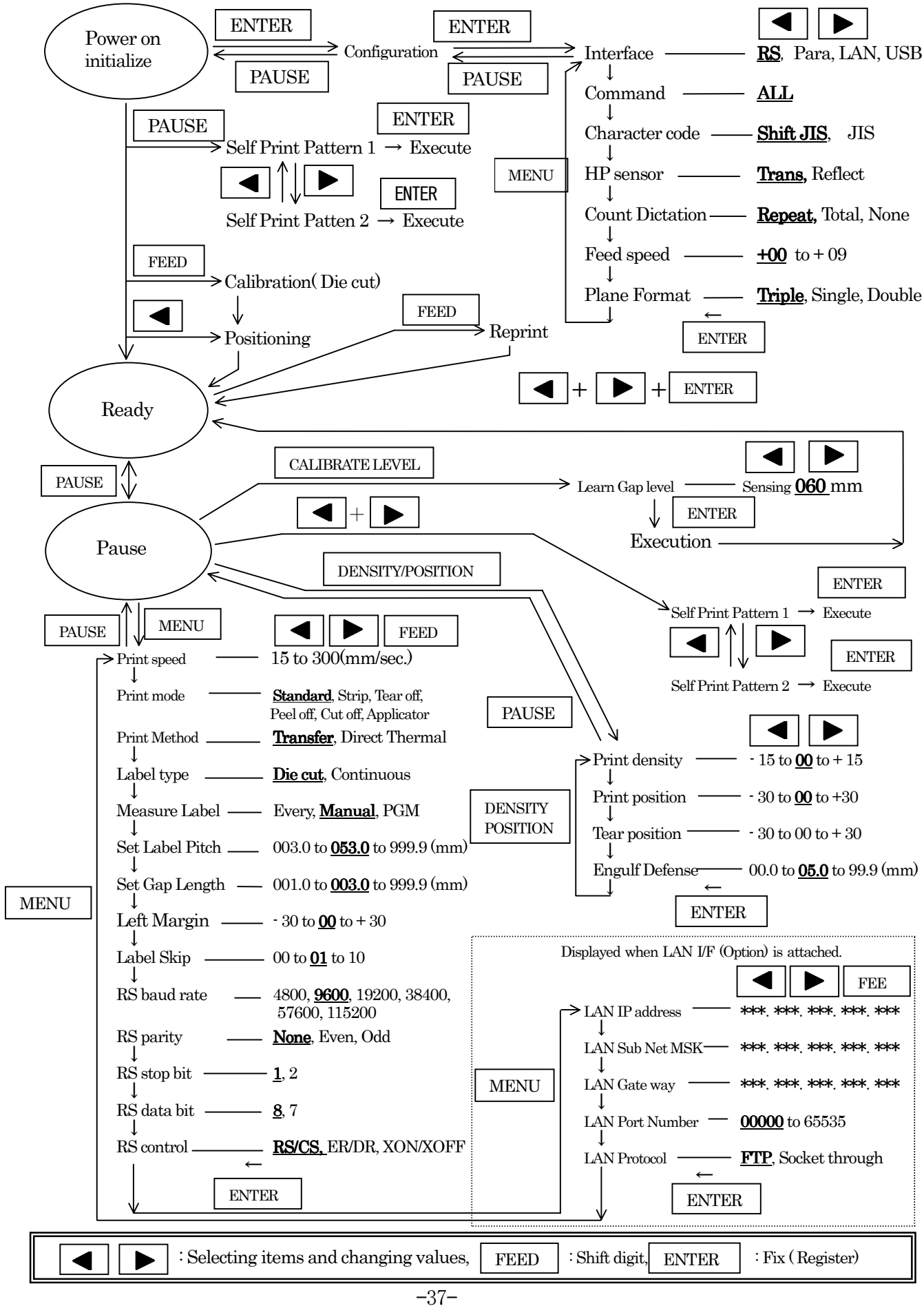
< Operation >

A) Turn on power switch while pressing ◀ .

C) 'Ready' will be shown on LCD as completing.

4-1-7 Table of panel functions

(Please refer 4-1-1 to 4-1-6 for the details) The **Bold character** represents the default.



4-2 Example of changing panel setting

4-2-1 Changing print density

Turn power on and show 'Ready' on LCD.

LCD display	Panel operation
Ready	
	(1) PAUSE
Pause	
	(2) DENSITY/POSITION
Print Density +00	
	(3) Please use following button to change values. The range is from – 15 to + 15.
	▶ Press once to increase 1.
	◀ Press once to decrease 1.
	(4) ENTER Press once to fix the value.
Print Position +00	
	(5) PAUSE
Pause	
	(6) PAUSE
Ready	

This completes the process of changing print density.

4-2-2 Changing print position

Turn on power and show 'Ready' on LCD.

LCD display		Panel operation
Reday		
	(1)	PAUSE
Pause		
	(2)	DENSITY/POSITION
Print Density +00		
	(3)	DENSITY/POSITION
Print Position +00		

(4) Please use followng buttons for changing values.
The range is from – 30 to + 30 (Range of + - 3 mm)

▶	Press once to increase 1.
◀	Press once to decrease 1.

(5) ENTER Press once to fix value.

Print Density +00	
	(6) PAUSE
Pause	
	(7) PAUSE
Ready	

This completes the process of changing Print position.

4-2-3 Changing tear off position

'Tear Position' is displayed when 'Strip', or 'Tear off' is chosen as Print mode. 'Peel Position' will be displayed for 'Peel off' mode and 'Cut Position' will be displayed for 'Cut off' mode. The operation stays same however.

Turn on power to show 'Ready' on LCD.

LCD display		Panel operation
Ready		
	(1)	PAUSE
Pause		
	(2)	DENSITY/POSITION
Print Density +00		
	(3)	DENSITY/POSITION
Print Position +00		
	(4)	DENSITY/POSITION
Tear Position +00		

(5) Please use following buttons for changing values.
The range is from – 30 to + 30. (Range of + - 3 mm)

▶	Press once to increase 1.
◀	Press once to decrease 1.

(6) ENTER Press once to fix the value.

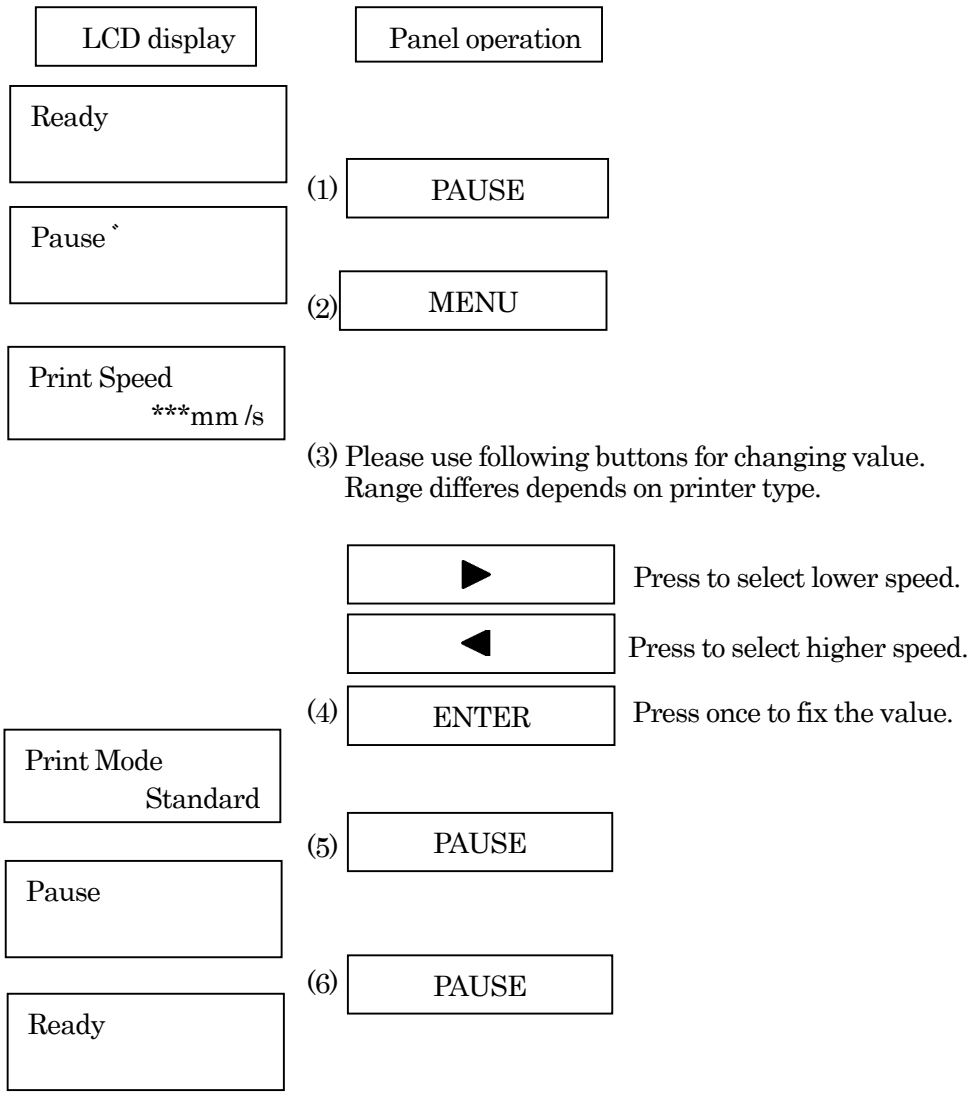
Engulf Defense 05.0 mm		
	(7)	PAUSE
Pause		
	(8)	PAUSE
Ready		

This completes the process of changing Tear Position.

4-2-4

Changing print speed

Turn on power and show 'Ready' on LCD.



This completes the changing print speed.

4-3 Function of other switch

There are three DIP switch on main board. They are named as DS1, DS2 and DS3. DS1 and DS2 are for internal setting of the printer therefore must not be changed.

1) Explanation of function for DS3

Switch No.	Function	Switch function		Factory setting	
		ON	OFF	Over seas	Domestic
1	LCD display	English	Japanese	ON	OFF
2	—	—	—	—	
3	—	—	—	—	
4	—	—	—	—	
5	—	—	—	—	
6	—	—	—	—	
7	—	—	—	—	
8	—	—	—	—	

Chapter 5 Specification

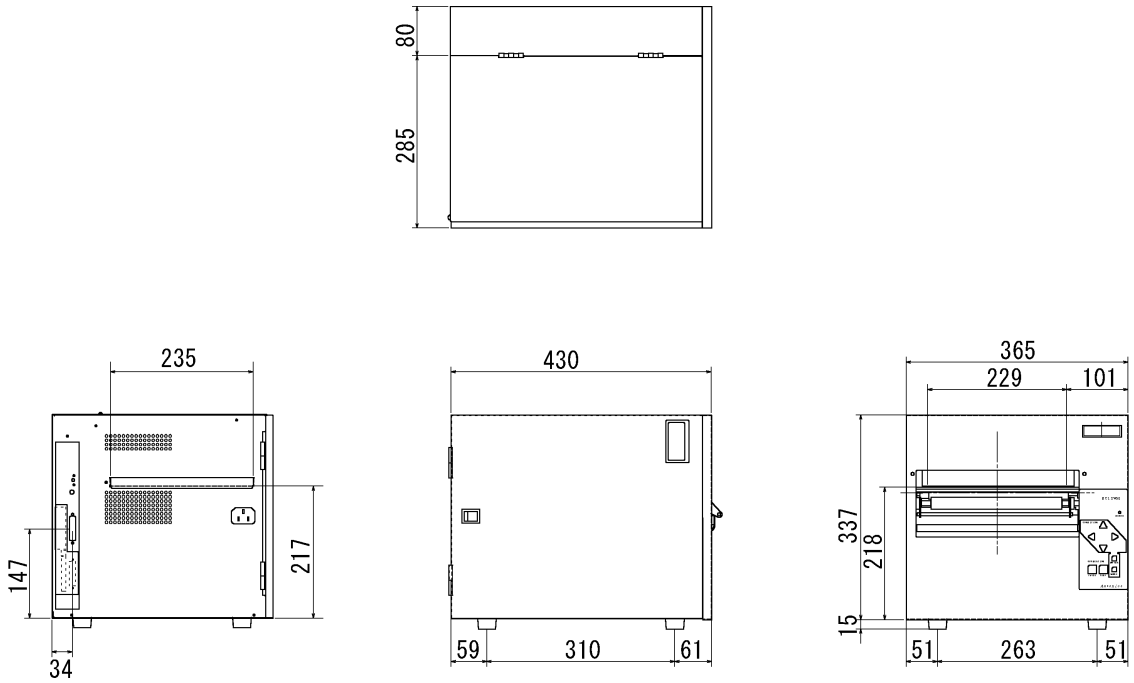
5-1 Rating

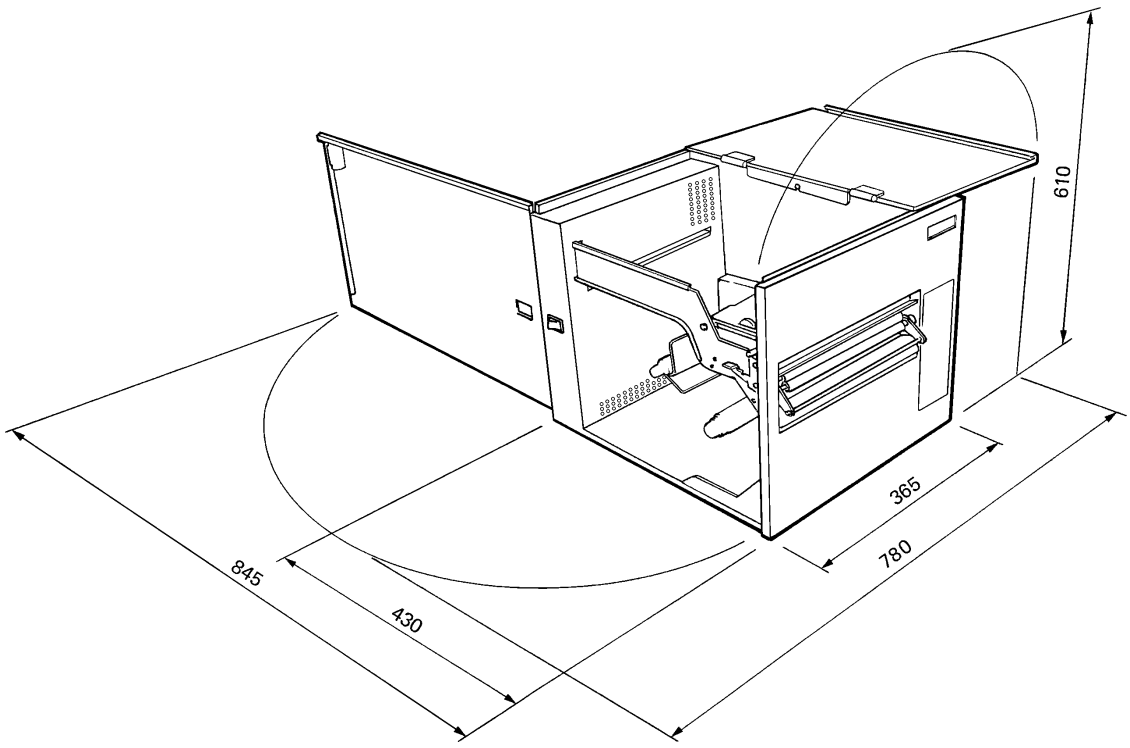
1) Power supply	AC100V to 260V	
2) Rated frequency	50 / 60Hz	
3) Power consumption	About 340VA (Max)	
4) Print media	Recommended paper form by Autonics.	
5) Thermal ribbon	Recommended thermal ribbon by Autonics.	
6) Environment	Operating	:An ambient temperature of 5 to 40℃. Maximum relative humidity of below 85%RH. (No condensation)
	Storage	:An ambient temperature of 0 to 70℃ Maximum relative humidity of below 90%RH.

Note : The storage condition of Media (Label) and thermal ribbon should kept same as printer.

7) Dimensions	365(W) x 335(H) x 430(D) mm (Protrusions are not included)
8) Weight	About 23 kg

5-2 Outer dimensions





5-3 Print mechanism

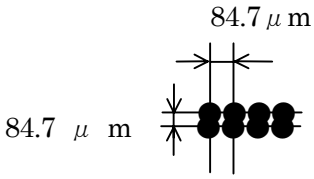
5-3-1 Print method

(1) Thermal transfer printing :Use of thermal transfer ribbon
(2) Thermal printing :Use of thermal paper

5-3-2 Print head

1) Maximum printable width : 219.5 mm +- 0.2 mm
Composition of thermal elements : 2592 dots in one line.
Dot density : 11.8 dots / 1 mm in width and feeding direction.

2) Arrangement of Heater elements :



5-3-3 Printable character type

Alphanumeric characters, Kana, Symbol(Defined by JIS C6220), Graphics.
For characters, please refer Table 5-1.
Character size are as followings.

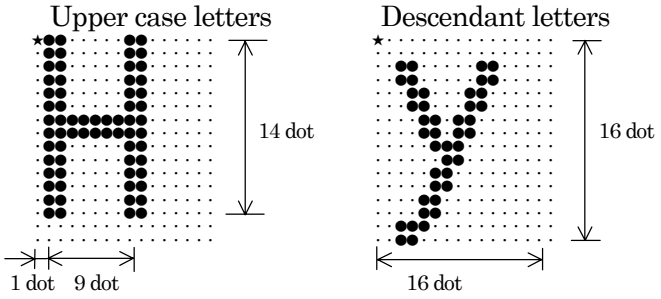
1) 16 x 16 :Dot matrix
2) 16 x 24 :Dot matrix
3) 48 x 60 : Dot matrix
4) 32 x 40 : Dot matrix
5) 24 x 36 : Dot matrix
6) 24 x 24 : Dot matrix
7) 12 x 12 : Dot matrix
8) 8 x 8 : Dot matrix

Table 5-1 Character code table

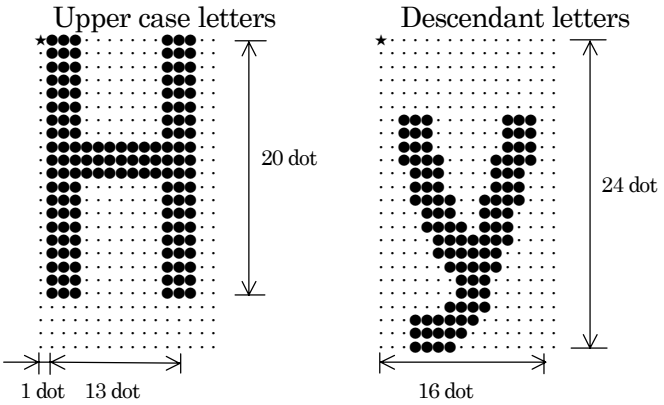
下位4ビット ＼ 上位4ビット	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P		p	▁	┴		－	タ	ミ	＝	╳
1			!	1	A	Q	a	q	▂	┬	。	ア	チ	ム	ㅏ	円
2			"	2	B	R	b	r	▃	┤	「	イ	ツ	メ	ㅐ	年
3			#	3	C	S	c	s	▄	├	」	ウ	テ	モ	ㅑ	月
4			$	4	D	T	d	t	▅	─	、	エ	ト	ヤ	◢	日
5			%	5	E	U	e	u	▆	┼	・	オ	ナ	ユ	◣	時
6			&	6	F	V	f	v	▇	│	ヲ	カ	ニ	ヨ	◥	分
7			'	7	G	W	g	w	▇	│	ァ	キ	ヌ	ラ	◤	秒
8			(	8	H	X	h	x	▏	┌	ィ	ク	ネ	リ	♠	
9			)	9	I	Y	i	y	▎	┐	ゥ	ケ	ノ	ル	♥	
A			*	:	J	Z	j	z	▍	└	ェ	コ	ハ	レ	♦	
B			+	;	K	[	k	{	▋	┘	ォ	サ	ヒ	ロ	♣	
C			,	<	L	¥	l	¦	▋	┌	ャ	シ	フ	ワ	●	
D			－	=	M	]	m	}	▉	┐	ュ	ス	ヘ	ン	○	
E			.	>	N	^	n	~	▉	└	ョ	セ	ホ	゛	／	
F			／	?	O	_	o		＋	ノ	ッ	ソ	マ	°	＼	

5-3-4 Font size

a) 16 x 16 dots (Font number 1)

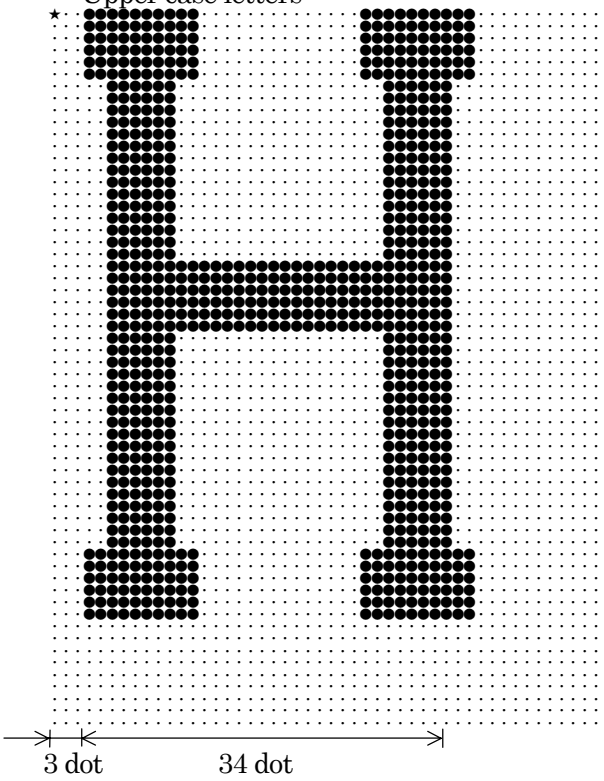


b) 16 x 24 dots (Font number 2)

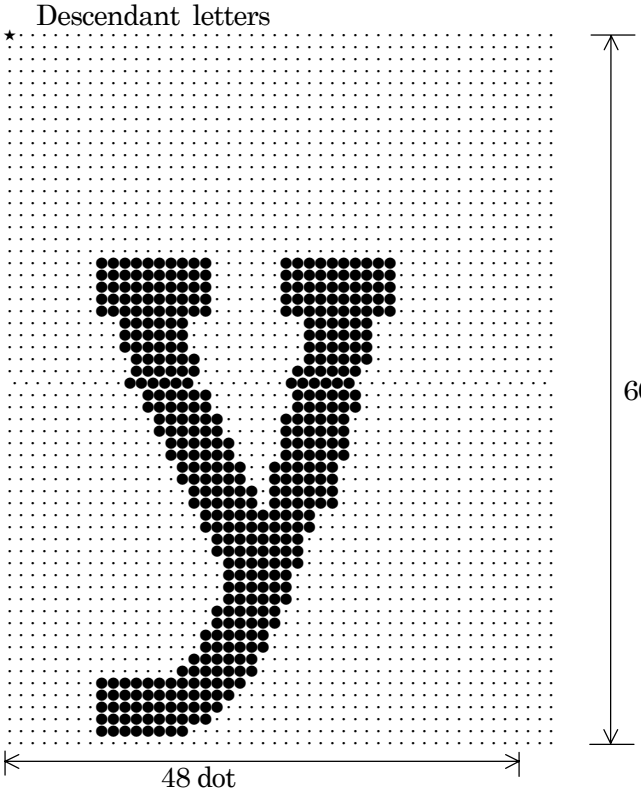


C) 48 x 60 dot (Font number 3)

Upper case letters



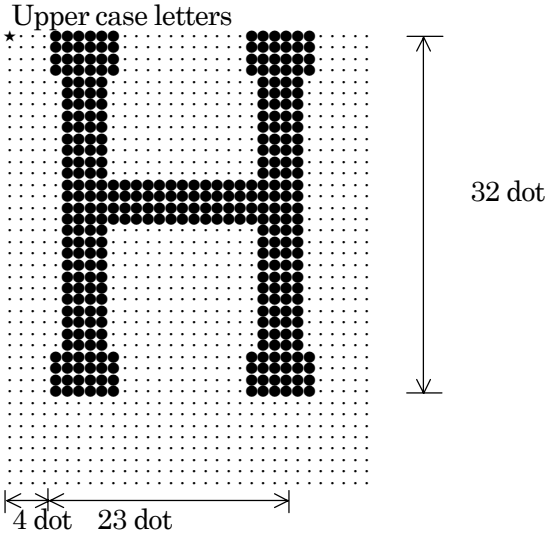
Descendant letters



d) 32 x 40 dot (Font number 4)

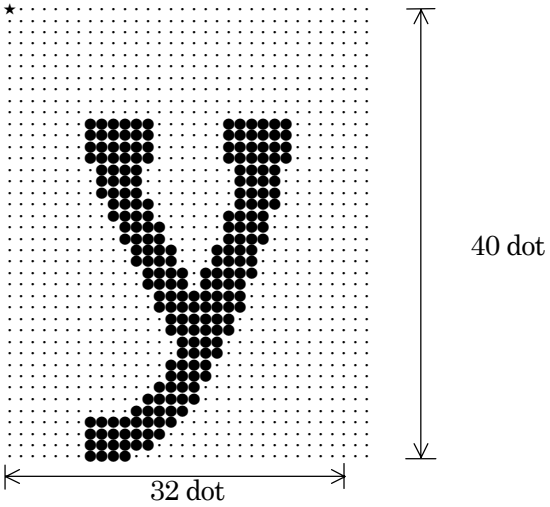
Upper case letters

* shows the original point



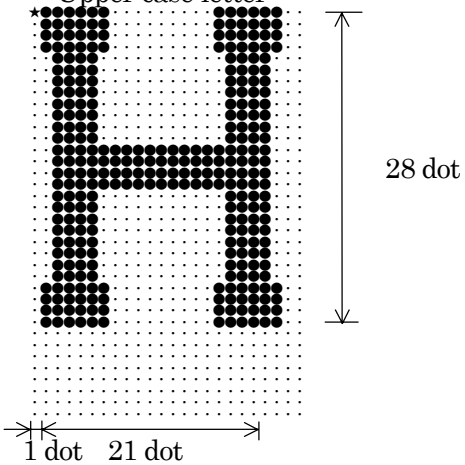
Descendant letter

*shows the original point



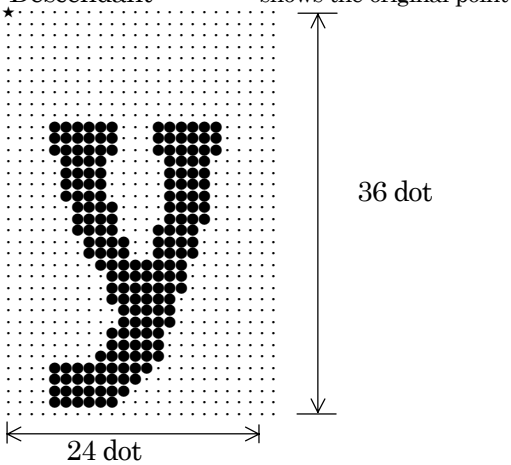
e) 24 x 36 dot (Font number 5)

Upper case letter



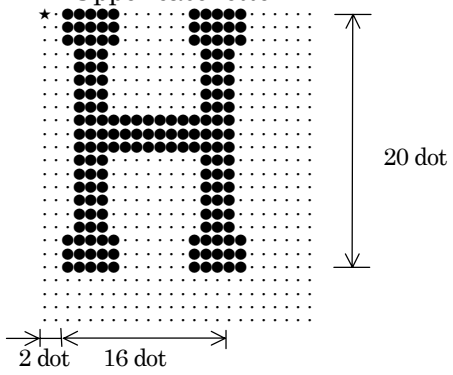
Descendant

shows the original point

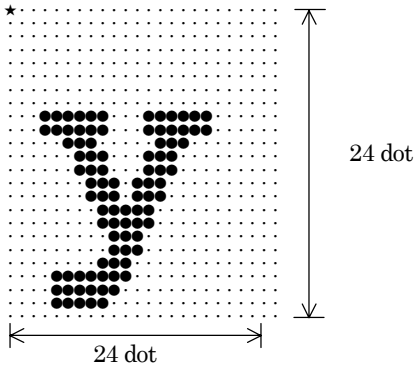


f) 24 x 24 dot (Font number 6)

Upper case letter

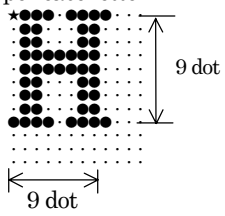


Descendant letter * shows the origin

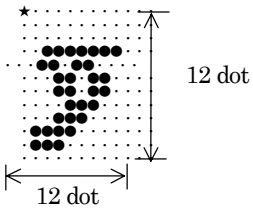


g) 12 x 12 dot (Font number 7)

Upper case letter



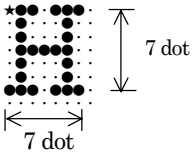
Descendant letter



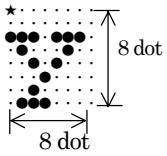
* shows the origin point.

h) 8 x8 dot (Font number 8)

Upper case letter



Descendant letter

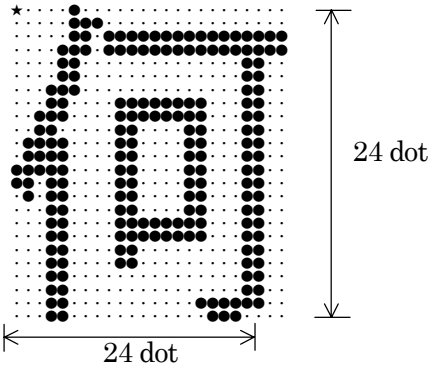


* shows the origin point.

i) Kanji

JIS first standard characters and special characters

JIS second standard characters are embedded. * shows the origin point.



j) OCR B

Alphanumeric character of SIZE I JIS C6250 (Upper case letters only), and optional OCR A characters (alphanumeric uppercase only) can be used as the alternative.

K) External character

24 x 24 dot matrix character 340 characters

About 2 mm x 2 mm (Only character)

* The data is erased by turning off the power switch as there is not back up by battery.
It is necessary to implement the data to internal ROM to save the data.
Please refer "4-1-6 Implementing external character" for the details.

l) Character magnification

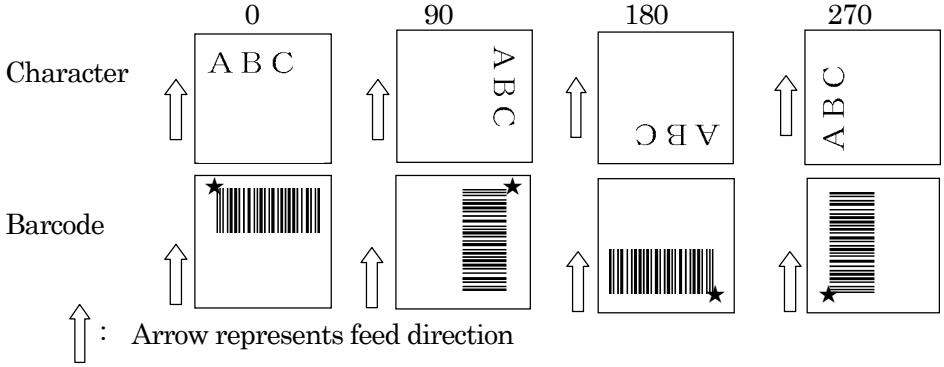
Width 1 to 10, and 16 times.
Height 1 to 10, and 16 times.
(Except OCR character)

5-3-5 Available barcode

a) CODE 39
b) NW7 (CODABAR)
c) JAN 13 / 8
d) JAN 13 / 8 with human readable
e) EAN 13 / 8
g) 2 of 5 (Interleaved, Industrial)
h) CODE 93
i) CODE 128
j) PDF417
k) QR Code
l) Veri Code
m) Data Code

5-3-6 Printing direction

Setting moves in a clockwise direction.
0, 90, 180, 270 degrees
Please refer "ALL command reference manual" for the details.



* represents the position of start code.

5-3-7 Print speed

1"-6" / sec. (15 mm to 150 mm / sec.)

5-3-8 Print area

8.6" x 25.5" (219 x 650 mm)

5-3-9 Data interface

(1) RE232C interface (Compliance)

a) Data transfer speed (bps) 4800, 9600, 19200, 38400, 57600, 115200

b) Data configuration

Data	7 bit / 8 bit
Parity	Presence / Absence, Even / Odd
Stop bit	1 / 2

c) Transfer method Half-duplex channel

(2) Parallel interface

a) Data configuration 8 bit parallel

b) Control signal
No paper
BUSY
ACK
FAULT
SELECT

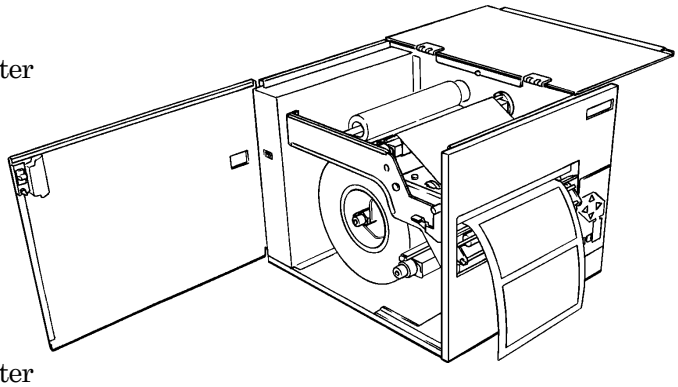
5-4 Functions

5-4-1 Print mode

The printer has the following ways (mode) to handle paper after printing.

1) Standard mode :
Prints label for specified numbers and stops just at the end of print out.

2) Strip mode :
Prints label for specified numbers and stops at cutting position. The printer starts printing with back feeding the label to print from top position.



3) Tear off mode :
Prints label for specified numbers and stops at cutting position. The printer starts printing with back feeding the label to print from top position.
The difference from Strip mode is that printer does not accept next data until tearing print label off.

4) Peel off mode :
The label is automatically peeled off from backing paper after the printing.
The printer starts printing with back feeding the label to print from top position.

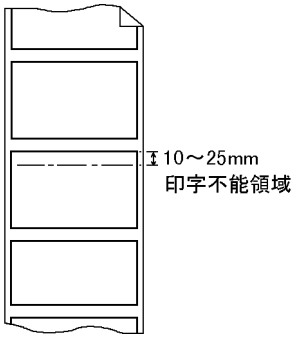
5) Backing paper rewinding (The factory option)
This is option to rewind backing paper to optional Rewinder.
This is used for the label that is difficult to peel off.
This is option that function under "Peel off mode".

6) Cut off mode : (The factory option)
The label is cut by the cutter unit that is attached in front of the printer after printing. The label can be cut by either each label or specified number of labels.

5-4-2 Back feeding

In general, about 10 to 25 mm unprintable area occurs between the print head element and the tear off position. To eliminate the loss, printer has back feed function.

The back feeding is activated in “Peel off”, “Tear off”, “Cut off” mode.



5-4-3 Sensors

(1) Home Position sensor (HP sensor)

This is a sensor to detect control the paper. (Label)

(2) Ribbon sensor :

This is a sensor to detect ribbon break and empty.

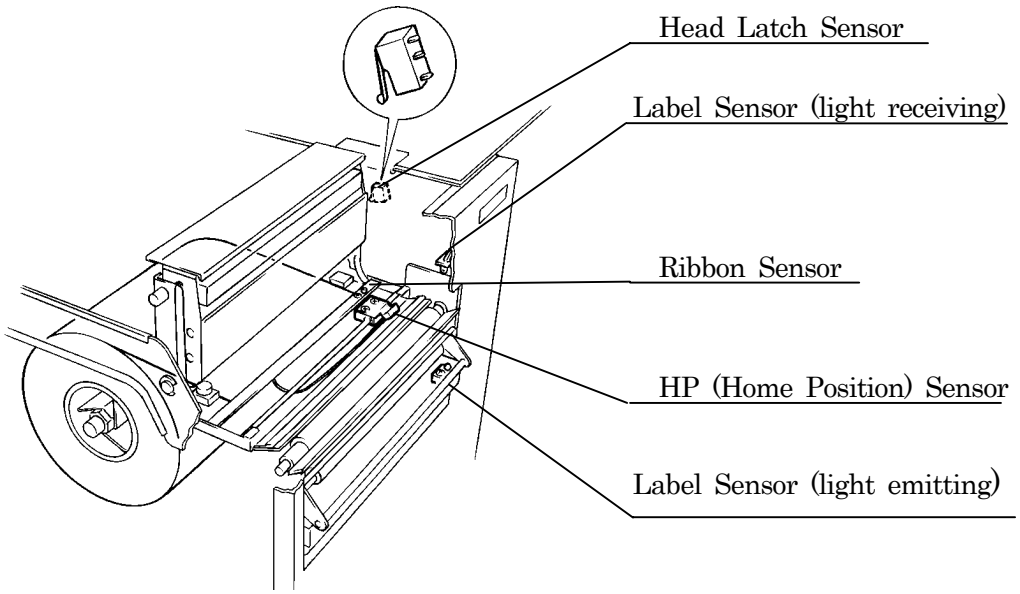
(3) Head latch sensor :

This is a sensor to detect head closed.

(4) Label sensor :

This is a sensor to detect existence of paper(label) in "Peel off" or "Tear off" mode.

Sensors in the Printing Head Mechanism



5-5 Registration of external character

Number of external character : 340 characters
Character size : 24 x 24 dot matrix character
About 2 mm x 2 mm(Only characters)

* The data will be erased by turning off the power switch as there is not back up by battery.
It is necessary to implement the data to internal ROM to save the data.
Please refer "4-1-6 Implementing external character for the details.

5-6 Optional function

(1) Other size character font, Gothic Kanji(32 x 32)
(2) OCR A character (JIS C6250) Alpha numeric character (Upper case letters only)
(3) Auto cutter
(4) Reflective sensor : Controls paper(Label) by the mark on the paper instead of gap.

5-7 Interface

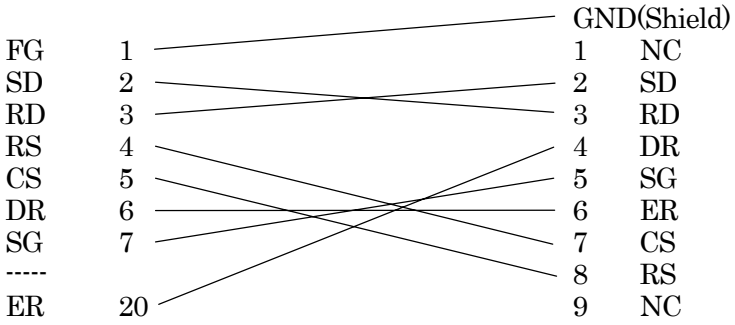
5-7-1 RS232C interface

Table 5-2 Pin assignment table (Pin insert)

Pin No.	Signal name	In/out	Note
1	NC		
2	SD (Send data)	Out	
3	RD (Receive data)	In	
4	DR (Data set ready)	In	
5	SG (Signal ground)		
6	ER (Data terminal ready)	Out	
7	CS (Send ready)	In	
8	RS (Send request)	Out	
9	NC		

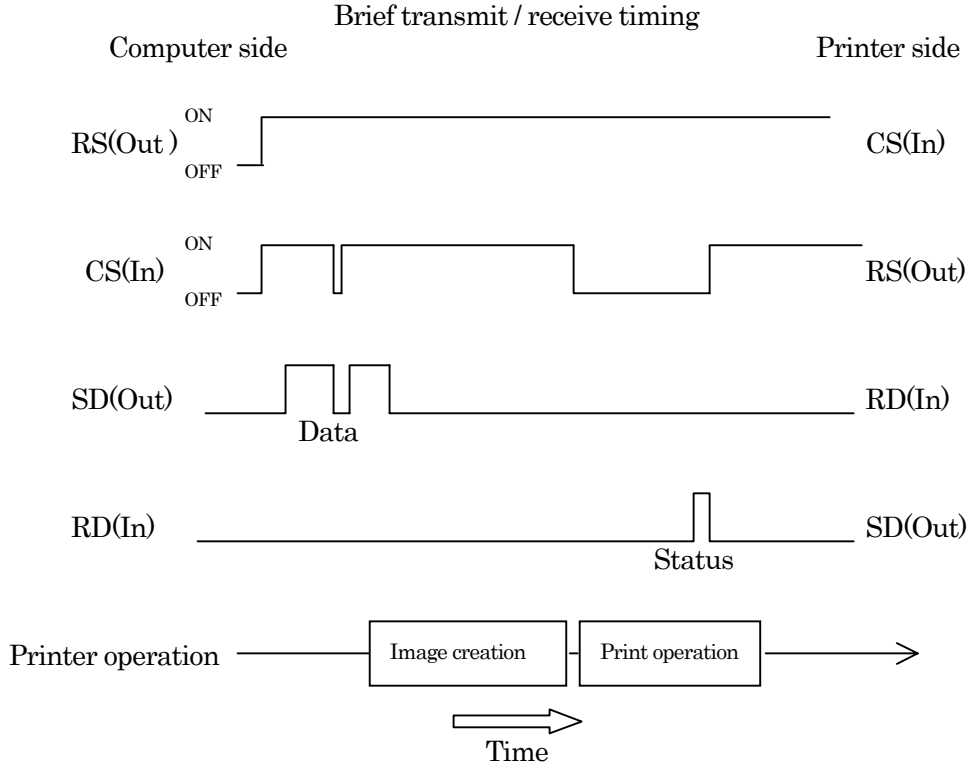
Connection to Host computer (25 to 9 pins connection cable)

Computer side (25 pins) Printer side (9 pin)



Connection to Host computer (9 to 9 pin connection cable)

Computer side (9 pin) Printer side (9 pin)



5-7-2 RS232C protocol

(1) Initialization (After power on)

Printer : Turn on RS/ER line to wait for receiving data.

Computer : Turn on RS/ER line to set ready for sending data.

(2) Data sending and printing

Prepare image based on data from the computer to perform printing.

The printer cannot receive data from computer during printing.

When RS line of the printer is off, the printer cannot receive data.

(3) Sending the status to computer

1) When required by host computer :

Do not make a status request immediately after the computer sends print data. This is because the printer needs to receive print completion signal previous to status request. The printer also permits the error status request after the error occurrence. After resetting the error, the status is transmitted to the computer.

2) Error occurrence :

The ribbon , paper, or paper jamming error is sent to the computer after printing for one sheet of paper is completed.

3) When errors are recovered :

4) When printing in print area is completed :

Please note that the print head is not positioned at the starting position of printing. Do not send data while RS line of the printer is off (About -7V) even though it seems that the printer make a request for next data.

Note : RS of the host computer should be always kept ON. (About +7V on RS line.)

The status transfer from the printer can happen at any moment. If the computer ignores the status of errors, or the transfer condition of the printer is set to be OFF, the status cannot be transferred correctly.

Check the following two lines from printer to host computer.

1) RS line of the computer is at the ON state. (CS of the printer is ON)
2) ER line of the computer is at the ON state. (DR of the printer is ON)

If both 1) and 2) lines are ON at the same time, the status can be transferred correctly.

If either of two lines is the off state, the status is not transferred correctly.

If you don't need the status, you don't think about the above condition.

If your computer needs status signal with either line to be off, the printer enters into the standby status for data input while the computer is waiting for the status, which may result in stopping in operation.

5-7-3 Parallel interface (Compliance)

(1) Data	8 bit parallel	Positive logic input
(2) Control signal	Paper empty	Positive logic output
	BUSY signal	Positive logic output
	ACK signal	Negative logic output
	Printer error signal	Negative logic output
	Select signal	Positive logic output
	Strobe signal	Negative logic input
(3)Connector	57-40360	(DDK)

Table 7-2 Pin Assignments

Pin No.	Input/ Output	Signal name	Pin No.	Input/ Output	Signal name
1	Input	STROBE (Negative logic)	19		STROBE 0V
2	Input	D0	20		D0
3		D1	21		D1
4		D2	22		D2
5		D3 DATA	23		D3 DATA 0V
6		D4	24		D4
7		D5	25		D5
8		D6	26		D6
9		D7	27		D7
10	Output	ACK (Negative logic)	28		ACK 0V
11	Output	BUSY (Positive logic)	29		BUSY 0V
12	Output	Paper empty (Positive logic)	30		Paper empty 0V
13	Output	Select (Positive logic)	31	Input	Printer reset (Negative logic)
14		NC	32		Print error (Negative logic)
15			33		0V
16			34		NC
17		Frame ground (0V)	35		Pull up to 5V at 5.1k ohm.
18		Pull up to 5V at 22 ohm.	36		NC

Signal level is TTL level

(4) Description of signals :

Paper empty : Outputs with positive logic at “Paper empty”, “Paper jam”.
BUSY : Outputs with positive logic during the data processing.
ACK : Negative logic signal by the time of data input completion.
Printer error : Outputs with negative logic by the time of error occurrence.
Select : Outputs with positive logic when power is turned on.
Strobe : A timing signal for synchronization for data. Negative logic 1 μ .

5-8 Papers and ribbons

5-8-1 Paper types

(1) Paper type

a) Roll type die cut paper

b) Roll type continuous paper

c) Fan fold paper

(2) Paper Type

Please contact us for selecting paper type as there are various kinds of combination of paper type and thermal ribbons.

Before you choose the paper type, be sure to check thermal transfer performance in advance.

If you can choose our standard paper, you can use it in an easier and more carefree manner. Print quality depends on paper type. Generally, use a paper with high surface smoothness.

(3) Paper thickness

0.065 to 0.27 mm. (Includes backing paper)

In case of selecting thick paper, select the one as soft as possible.

5-8-2 Paper size

(1) Paper width (Includes backing paper) and minimum length.

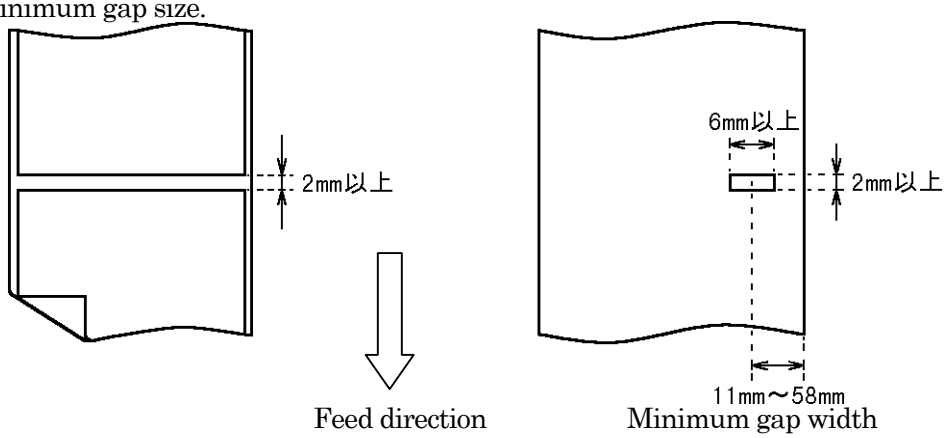
Width : 40 mm to 116 mm

Minimum length :

a) Standard mode	5 mm
b) Peel off mode	25 mm
c) Tear off mode	35 mm
d) Cut off mode	35 mm

Note : Please contact us in case of using shorter length than specified above.

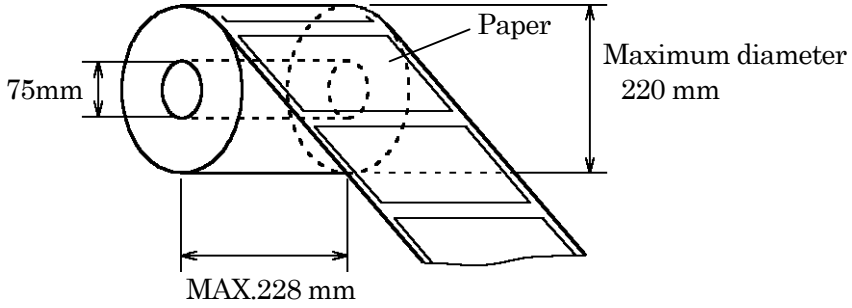
(2) Minimum gap size.



Feed direction Minimum gap width

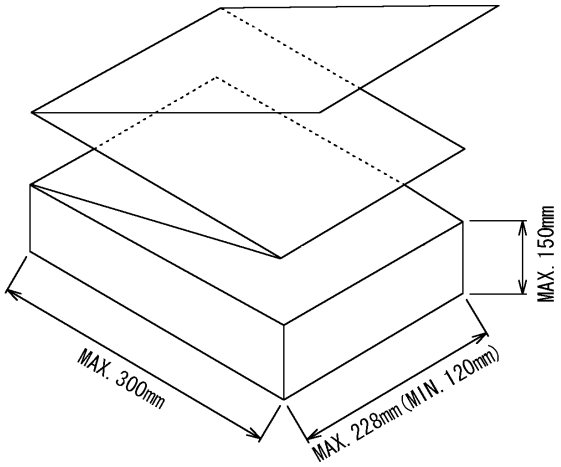
Note : Minimum gap length of 4 mm is needed for using with "Cut off" mode.

(3) Roll size



(4) Fan fold paper size

(Fan fold stocker is an option)

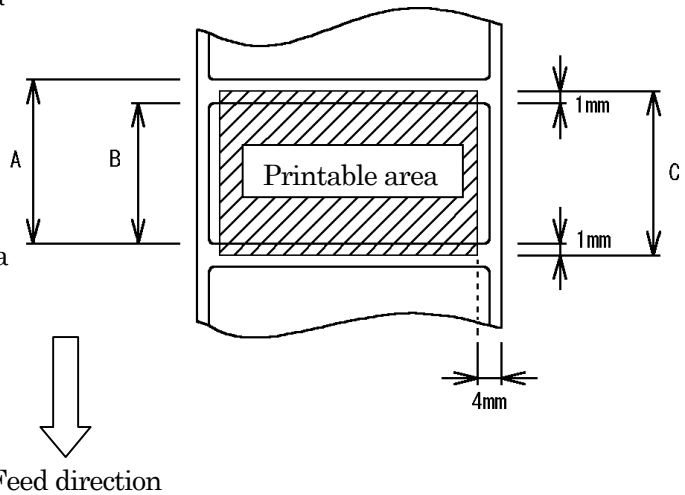


(5) Paper size and print area

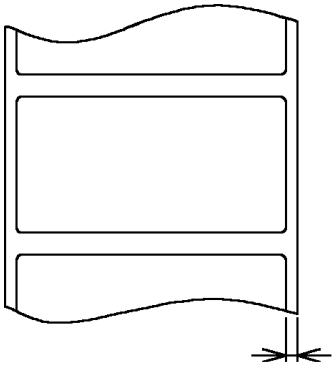
A : Label pitch

B : Actual label length

C : Actual printable area



(6) Label position in "Peel off" mode.
At the "Peel off" mode, the distance from the right edge of the label to the right edge of the backing paper must be within 4 mm because of limitation by the installed position of label sensor.



4 mm or less

5-8-3 Thermal ribbon

Thermal ribbon have much influence for not only print quality but also life of print head. It is recommended to use our genuine ribbons.
Also, the warranty does not cover any ribbons except our genuine ribbons.

(1) Ribbon thickness	6 μm / 4.5 μm
(2) Base material	Polyester film
(3) Ink color	Black
(4) Ink	Wax, Resin, and mixture of Wax and Resin.
(5) Length	300 m / 330 m / 450 m
(6) Width	110 mm, 130 mm or 220 mm. Please use slightly wider ribbon than paper width.

(7) Please ask us for color ribbons and ribbons with other sizes.

5-8-4 Storage of paper and ribbon

Papers and thermal ribbons should be stored in dust tight plastic bag to prevent the entry of dirt and avoid hot , humid surroundings.
Do not store them for long time as they get degradation.

Chapter 6 Errors

6-1 Error occurrence and error recovery

The followings are list of errors and its recovery methods.

	References
Mechanical errors :	6-1-1
Head open	A)
Ribbon empty	B)
Paper empty	C)
Paper jam	D)
Cutter error	E)
Over heat	F)
Level error	G)
Communication errors :	6-1-2
Framing error	A)
Parity error	B)
Over Run error	C)
Buffer Full error	D)
Analysis errors :	6-1-3
Syntax error	A)
Parameter error	B)
Other errors :	6-1-4
Mode error	A)
LAN Board error	B)
Receive error	C)

Error handling :

1. When the error occurs, the buzzer always sounds as showing red error LED blinks.
2. Some errors are informed to host computer.
3. Errors are classified into following items.
   a) Mechanical error.
   b) Communication error.
   c) Analysis error.
   d) Other errors.

6-1-1 Mechanical errors

A) Head open

(1) Check timing :

a) At the time of start up

b) At the time of calibration, feeding, printing

Note : Excludes by the time of "Over heat" error.

(2) How to Check :

Using Head latch sensor.

(3) Cause of the error :

Print mechanism is not closed completely.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E01	Head open
Press any button down.	OFF	ON	E01	Head open
Close print mechanism	OFF	ON	E01	Head open
Press 'PAUSE' button down.	OFF	OFF	PAUSE	—
Press 'PAUSE' button down. (Positioning the paper and stat printing)	OFF	OFF	READY	—

B) Ribbon empty

(1) Check timing :

At the time of start up.

(2) How to check :

By dictating ribbon empty by sensor.

(3) Cause of the error :

No ribbon.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E02	Ribbon empty
Press any button down.	OFF	ON	E02	Ribbon empty
Open print mechanism and set new ribbon.	OFF	ON	E02	Ribbon empty
Close print mechanism.	OFF	ON	E02	Ribbon empty
Press 'PAUSE' button down.	OFF	OFF	PAUSE	—
Press 'PAUSE' button down. (Positioning the paper and start printing)	OFF	OFF	READY	—

C) Paper empty

(1) Check timing :
After starting up the system.

(2) How to check :
By detecting the top of the label for feeding certain distance.

(3) Cause of error :
a) No paper
b) HP level is not set properly.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E03	PAPER EMPTY
Press any button down.	OFF	ON	E03	PAPER EMPTY
Open print mechanism and set new paper.	OFF	ON	E03	PAPER EMPTY
Close print mechanism.	OFF	ON	E03	PAPER EMPTY
Press 'PAUSE' button down.	OFF	OFF	PAUSE	–
Press 'PAUSE' button down. (Positioning the paper and start printing)	OFF	OFF	READY	–

(5) Please try 'HP adjustment' in case of 'Paper empty' error occurrence.

D) Paper jam

(1) Check timing :
At the time of feeding.

(2) How to check :
By detecting the paper for feeding certain distance.

(3) Cause of error :
a) Paper is not running smoothly.
b) HP level is not set properly.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E04	Paper JAM
Press any button down.	OFF	ON	E04	Paper JAM
Open print mechanism and set new ribbon.	OFF	ON	E04	Paper JAM
Close print mechanism.	OFF	ON	E04	Paper JAM
Press 'PAUSE' button down.	OFF	OFF	PAUSE	–
Press 'PAUSE' button down. (Positioning the paper and start printing.)	OFF	OFF	READY	–

(5) Please try 'HP adjustment' in case of 'Paper jam' error occurrence.

E) Cutter error

(1) Check timing :

When the cutter works at the cut off mode.

(2) How to check :

By detecting the difference of cutter sensor level.

(3) Cause of the error :

Malfunction of cutter. (Paper stuck to cutter unit)

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E05	Cutter Error
Press any button down.	OFF	ON	E05	Cutter Error
Turn power off.	OFF	—	—	—
Remove paper when it is stuck in to cutter unit. If not, check the cutter connector.	—	—		—
Turn power on.	OFF	OFF	READY	—

Note : The received data will be lost after the turning off the power.

F) Over heat

(1) Check timing :

When print starts.

(2) How to check :

a) By detecting head temperature by thermistor.

(3) Cause of the error :

a) Temperature of print head gets to high.

b) Defection of thermistor.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Print stops)	ON	ON	E07	Over Heat !!
Press any button down.	OFF	ON	Open print head	Head temperature 69 ℃
Open print mechanism.	OFF	ON	Open print head	Head temperature 69℃
Close print mechanism after buzzer sounds.	OFF	ON	Close print head	Head temperature 59 ℃
Press 'PAUSE' button down.	OFF	OFF	PAUSE	—
Press 'PAUSE' button down. (Positioning the paper and starts printing.	OFF	OFF	READY	—

Note : The printing will not be executed until temperature goes down.

G) Level Error

(1) Check timing :

At the time of HP adjustment.

(2) How to check :

Detecting the sensor as feeding paper.

(3) Cause of the error :

a) Using continuous paper.

b) 'Learn Gap Level' is not set properly.

c) HP sensor defection.

d) Using unordinary paper.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E15	Level Error
Press any button down.	OFF	ON	E15	Level Error
Open print mechanism and check the paper. Remove the paper if it is continuous paper.	OFF	ON	E15	Level Error
Close print mechanism.	OFF	ON	E15	Level Error
Press 'PAUSE' button down.	OFF	OFF	PAUSE	—
Press 'PAUSE' button down.	OFF	OFF	READY	—
Try HP adjustment again.				

Note : Select Label Type as 'Continuous' in case of using continuous paper.

6-1-2 Communication errors

A) Framing error

(1) Check timing :

When receiving data from host computer at 'Ready' position (RS232C connection)

(2) How to check :

By detecting framing error.

(3) Cause of the error :

The communication speed (Baud rate) is not matching with host computer.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Stops data receiving immediately)	ON	ON	E51	Framing error
Press any button down.	OFF	ON	E51	Framing error
Reset by power switch (OFF / ON)	OFF	OFF	READY	—
Set communication condition again by front panel.	OFF	OFF	READY	—
Power switch on again.	OFF	OFF	READY	—

Note :The date will be lost after turn off the power switch.

B) Parity error

(1) Check timing :

When receiving data from host computer at 'Ready' position. (RS232C connection)

(2) How to check :

By detecting parity error.

(3) Cause of the error :

The communication condition (RS232C Parity) is not matching with host computer or some data is defected.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection (Stops data receiving immediately)	ON	ON	E52	Parity error
Press any button down.	OFF	ON	E52	Parity error
Reset by power switch (OFF / ON)	OFF	OFF	READY	—
Set communication condition again by front panel.	OFF	OFF	READY	—
Power switch on again.	OFF	OFF	READY	—

Note : The data will be lost after turn off the power switch.

C) Over run

(1) Checking timing :
When receiving data from host computer at 'Ready' position.
(RS232C connection)

(2) How to check :
By detecting problem during internal processing.

(3) Cause of the error :
The new data is input before completing the process of current data.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E53	Over run
Press any button down.	OFF	ON	E53	Over run
Reset by power switch. (OFF / ON)	OFF	OFF	READY	—
Set communication condition again by front panel.	OFF	OFF	READY	—
Power switch on again	OFF	OFF	READY	—

Note : The data will be lost after turn off the power switch.

D) Buffer Full

(1) Check timing :
When receiving data from host computer at 'Ready' position.

(2) How to check :
By receiving new data when receiving buffer is full.

(3) Cause of the error :
By receiving new data when receiving buffer is full.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E54	Buffer Full
Press any button down.	OFF	ON	E54	Buffer Full
Power switch on again	OFF	OFF	READY	—

a) The error occurs when sending data exceeds 256 byte.
b) Please check communication condition and cables.
c) The error occurs when remaining memory become 256 byte in X ON / X OFF mode.
d) Reset by power switch to recover.

Note : The data will be lost after turn off the power switch.

6-1-3 Analysis errors

A) Syntax error

(1) Checking timing :

When analyzing received data.

(2) How to check :

By comparing with command specified data.

(3) Cause of the error :

Mistake on command data or communication data become garbage.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E55 □□□	Syntax error
Press any button down	OFF	ON	E55 □□□	Syntax error
Power switch on again.	OFF	OFF	READY	—
Setting external command again.	OFF	OFF	READY	—

Note :□□□ represents error command. Reset by power switch.
The data will be lost after turn power switch off.

B) Parameter error

(1) Check timing :

When analyzing host data.

(2) How to check :

By analyzing argument of command.

(3) Cause of error :

a) Mistake on format or definition of data.

b) Data become garbage.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E56	Parameter error
Press any button down.	OFF	ON	Contents of error detection	
Power switch on again.	OFF	OFF	READY	—
Setting external command again.	OFF	OFF	READY	—

Note :The contents of error will be displayed on LCD. Please check the contents and rest by power switch. The data will be lost after turn power switch off.

6-1-4 Other error

A) Mode error

(1) Check timing :

At the time of start up.

(2) How to check :

By detecting utility (Cutter, USB etc.) during initialization.

(3) Cause of the error :

The selected utility is not available.

(4) How to recover :

How to recover	Beep sound	ERROR LED status.	LCD	
			Upper	Lower
Error detection	ON	ON	E09 □□□	Mode error
Press any button down.	OFF	ON	Print mode	Cutter
			Interface	USB
Turn power switch again.	OFF	OFF	READY	—
Set front panel again	OFF	OFF	READY	—

a) □□□

b) Pressing [PAUSE] will display the contents of error.

c) Turn off the power and check utilities.

d)The print mode will be changed to 'Standard' after showing 'Print mode Cut off' on LCD.

e)The interface will be changed to 'RS' after showing 'Interface USB error' on display.

B) LAN Board error

(1) Check timing :

a) When power switch is on. (Initialization)

b) When changed the settings by front panel or by command.

(2) How to check :

By detecting existence of LAN board.

(3) Cause of the error :

a) The setting is invalid.

b) No. LAN board.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E 67	LAN Board error
Press any button down	OFF	ON	E 67	LAN Board error
Reset by power switch	OFF	OFF	READY	—

C) Receive error.

(1) Check timing :

When receiving the data from host. (LAN connection)

(2) How to check :

By detecting framing or parity error during internal processing of data.

(3) Cause of the error :

LAN setting does not match to host computer.

(4) How to recover :

How to recover	Beep sound	ERROR LED status	LCD	
			Upper	Lower
Error detection	ON	ON	E60 LAN	Receive error
Press any button down	OFF	ON	E60 LAN	Receive error
Press 'PAUSE' button down	OFF	OFF	PAUSE	—
Turn power switch again.	OFF	OFF	READY	—

Chapter 7 Maintenance

7-1 Cleaning and routine check

Preparation (1) Ethyl alcohol / Neutral detergent
(2) Gauze (Soft cloth) / Cotton swabs
Using the other solvents (such as thinner, toluene) might cause deformation or discoloring.

7-1-1 Cleaning and routine check on print head

Cleaning steps (1) Open print mechanism.
(2) Dip cotton swabs or gauze into ethyl alcohol.
(3) Clean element part of print head.

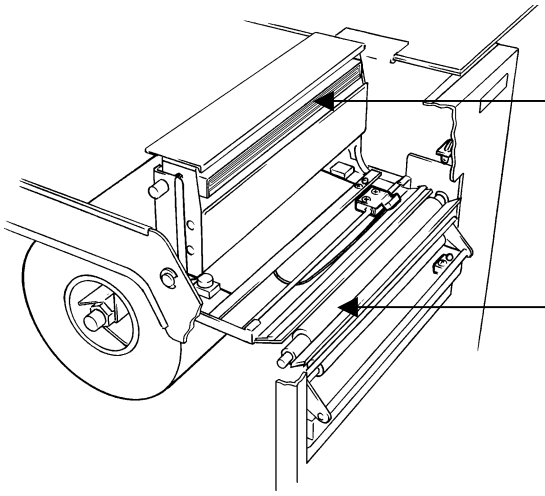
Checking print head Please check any damage on each part such as element during the clean up.
Try test print after the clean up to see if it prints completely.

7-1-2 Cleaning and routine check on platen roller

It is recommended to clean the platen roller once a day.

Cleaning steps (1) Open print mechanism.
(2) Dip cotton swabs or gauze into ethyl alcohol.
(3) Wipe the platen out as rotating it.

Checking platen roller Please check any damage or dirt during the cleaning.
Replace the platen to new in case of damaged.



7-1-3 Cleaning inside and outside of printer

Wipe dirt out with soft cloth dampened with an ethyl alcohol or neutral cleaner. Make sure that there is no dirt on the path of ribbon and paper.

7-2 Handling and replacing print head

(1) The print head has its own life. It is necessary to replace it in case of defection. (Replace for value)

Handling instruction of print head :

1. Do not force to rotate the platen roller without ribbon and paper installed on print mechanism closed.
2. Clean the print head once a day, at the time of label replacement, or at the time of trouble of ribbon running.
3. Try not to use ribbon and paper that is not recommended by Autonics.
4. Keep out dust especially powder from grinder, sand paper, or grains of sand paper from print mechanism.
5. Do not touch the print head with firm materials such as metal.
6. Try not touch the print head element by hand as it hates oils, fats and salt.

(2) Contact us or your nearest Ring authorized dealer for exchanging the print head.

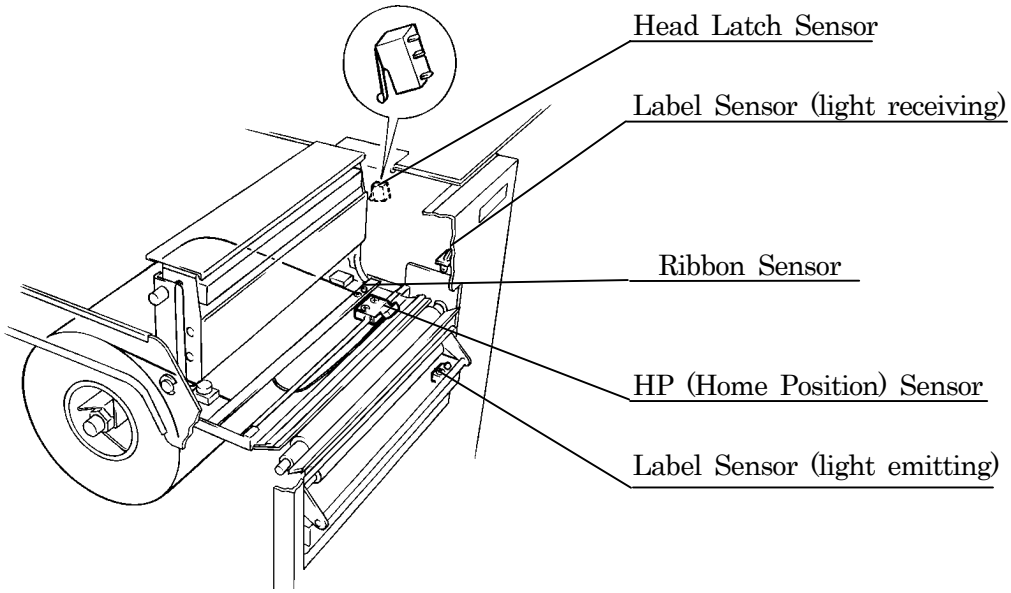
7-3 Consumable parts

Print head
Platen roller
Peel off roller
} These components are on chargeable basis. (Out of warranty)

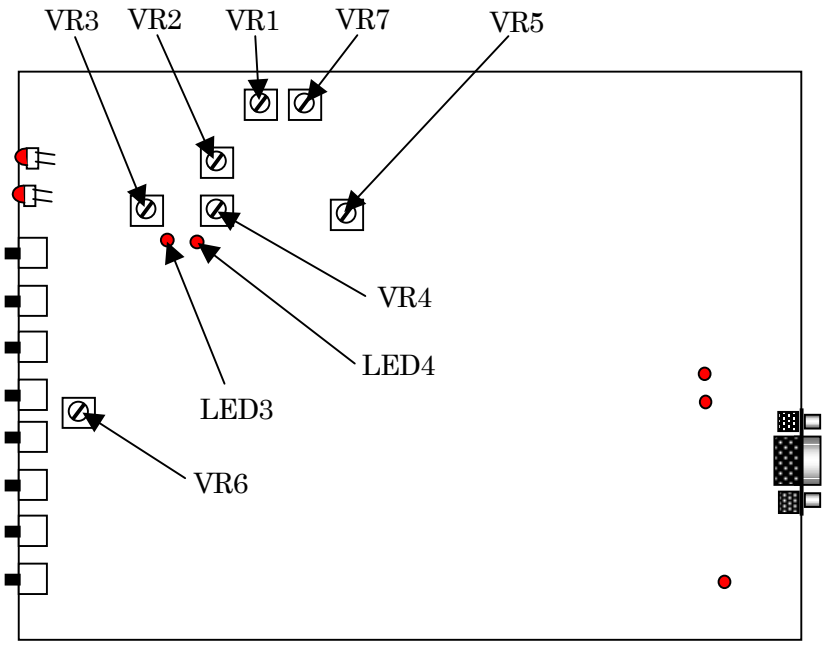
7-4 Adjustment of sensors

The sensors are set properly previous to the shipment therefore it is not necessary to be re adjusted in usually.

Sensors in the Printing Head Mechanism



The volumes and LED are located as below.



Function of adjustment volumes :

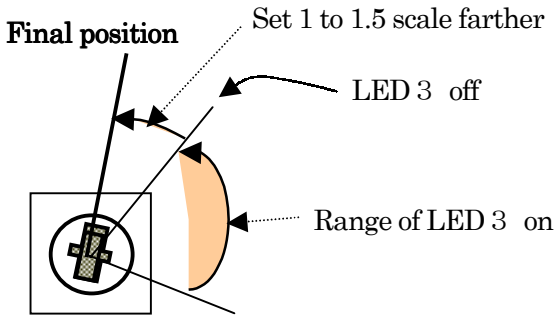
VR1 : Adjustment for HP sensor sensitivity. (Receiver)
VR2 : Adjustment for light amount of Ribbon sensor.
VR3 :Adjustment for detection level of Label sensor.
VR4 :Adjustment for detection level of Ribbon sensor.
VR5 : Adjustment for HP sensor light amount.
VR6 :Adjustment for the contrast of LCD.
VR7 : Off set adjustment of HP sensor receiving level.

1) Adjustment of Ribbon sensor :

1. Remove the ribbon and close print mechanism.
2. Measure check pin TP3 and TPG1(GND) by volt meter. Turn VR2 to counter clockwise from far right and stop at 0.9V.
3. Turn VR4 to counter clockwise from far right and stop when LED4 turns on.
4. Load ribbon to the printer and measure TP3 and TPG1(GND). Check if the voltage is above 3.5V.

2) Adjustment of Label sensor :

1. Remove the paper from the sensor.
2. Turn VR3 counter clock wise from far right and stop when LED 3 turns off.
3. Load paper to printer and check if LED3 turns on.



3) Adjustment of LCD contrast :
View the LCD from slightly above and turn VR6. Stop turning VR6 at the proper position.