

# P220 Printer User's Manual



**KESSLER-ELLIS PRODUCTS**

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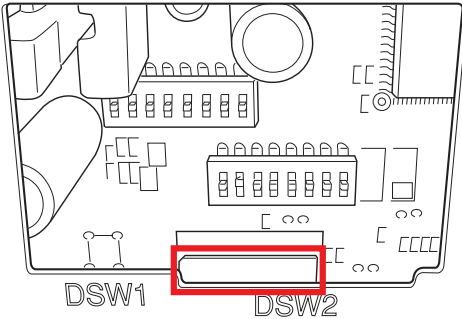


# DIP Switch Settings

## Dip Switch Location

1. Locate DIP switch cover on bottom of printer.
2. Remove screw securing DIP switch cover.
3. Remove DIP Switch cover to access switches.

4. Set Switches to desired position.
5. Reinstall cover and reinstall screw snugly.
6. Cycle the power for the new DIP switch settings to take effect.



Look at the numbers and letters in the area indicated in the illustration. If the last letters are "US", use the "US" tables below. If the last letters are "STD", use the "STD" tables.

### **⚠ CAUTION:**

Be sure to replace the DIP switch cover before using the printer.

## Serial Interface Settings



### Note:

The printer interface settings are set at the factory for communication with KEP Flow Computers. This provides a "plug-and-play" scenario in which neither the printer nor flow computer serial interface settings need to be set in order for them to communicate. If you are connecting the printer to a different device, you may need to change the serial interface settings for proper communication. Check the required settings of your device and use the Serial Interface DIP Switch Tables below to change the settings.

## DIP Switch Tables

### US

#### Serial (DIP Switch 1)

SW	Function	On	Off
1	Printing mode	Right side up printing mode	Normal printing mode
2	Receive buffer capacity	40 bytes	4 KB
3	Handshaking	XON/XOFF	DTR/DSR
4	Word length	7 bits	8 bits
5	Parity check	Yes	No
6	Parity selection	Even	Odd
7	Transmission speed	4800 bps	9600 bps
8	BUSY condition	Receive buffer full	Receive buffer full or Offline

#### Serial (DIP Switch 2)

SW	Function	On	Off
1	Print column	42/35	40/33
2	For internal use only (autocutter)	Enabled	Disabled
3	Pin 6 reset signal	Used	Not used
4	Pin 25 reset signal	Used	Not used
5	Undefined	-	-
6	For internal use only (flash memory rewriting)	Enabled	Disabled
7	Undefined	-	-
8	Serial interface selection	Memory switch	DIP switch

\*: If you set DIP Switch 1-1 to On (Right side up printing mode), make sure to set DIP Switch 1-2 to Off (Receive buffer capacity: 4 KB).

# STD

## Serial (DIP Switch 1)

SW	Function	On	Off
1	Data receive error	Ignored	Prints “?”
2	Receive buffer capacity	40 bytes	4 KB
3	Handshaking	XON/XOFF	DTR/DSR
4	Word length	7 bits	8 bits
5	Parity check	Yes	No
6	Parity selection	Even	Odd
7	Transmission speed	4800 bps	9600 bps
8	BUSY condition	Receive buffer full	Receive buffer full or Offline

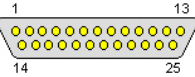
## Serial (DIP Switch 2)

SW	Function	On	Off
1	Print column	42/35	40/33
2	For internal use only (autocutter)	Enabled	Disabled
3	Undefined	-	-
4	Serial interface selection	Memory switch	DIP switch
5	Undefined	-	-
6	For internal use only (flash memory rewriting)	Enabled	Disabled
7	Pin 6 reset signal	Used	Not used
8	Pin 25 reset signal	Used	Not used

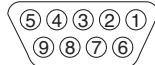
## Serial Port Connectors

### Panel Mount

25 pin D-SUB female connector on printer



9 pin D-SUB female connector at KEP flow computer (FC)

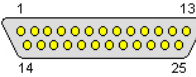


Printer Pin Number	Printer Pin Name
2	TXD
3	RXD
6	DSR
7	Ground
20	DTR
5	CTS
4	RTS

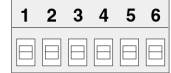
FC Pin Number	FC Pin Name
1	CTS
2	TXD
3	RXD
5	Ground
7	RTS

### ST2 Series Wall Mount

25 pin D-SUB female connector on printer



6 pin terminal block connector at KEP flow computer (FC)



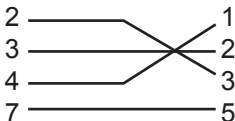
Printer Pin Number	Printer Pin Name
2	TXD
3	RXD
6	DSR
7	Ground
20	DTR
5	CTS
4	RTS

FC Pin Number	FC Pin Name
1	TXD
2	RXD
3	Ground
4	Bias
5	CTS
6	MP (+8V)

## Typical Cable Connections

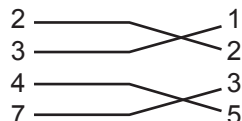
DB25

DB9



DB25

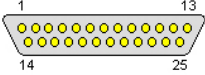
TB



## Serial Port Connectors

### ST1 Series Wall Mount

25 pin D-SUB female connector on printer



Printer Pin Number	Printer Pin Name
2	TXD
3	RXD
6	DSR
7	Ground
20	DTR
5	CTS
4	RTS

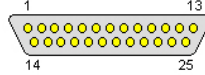
6 pin terminal block connector at KEF flow computer (FC)



FC Pin Number	FC Pin Name
1	TXD
2	RXD
3	Ground
4	MP
5	CTS
6	Do Not Use

### MS716

25 pin D-SUB female connector on printer



Printer Pin Number	Printer Pin Name
2	TXD
3	RXD
6	DSR
7	Ground
20	DTR
5	CTS
4	RTS

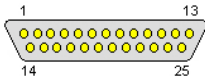
6 pin terminal block connector at KEF flow computer (FC)



FC Pin Number	FC Pin Name
1	TXD
2	RXD
3	Ground
4	MP
5	CTS
6	Do Not Use

### MS748

25 pin D-SUB female connector on printer



Printer Pin Number	Printer Pin Name
2	TXD
3	RXD
6	DSR
7	Ground
20	DTR
5	CTS
4	RTS

6 pin terminal block connector at KEF flow computer (FC)

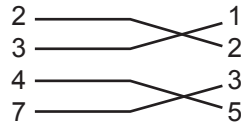


FC Pin Number	FC Pin Name
1	TXD
2	RXD
3	Ground
4	Bias
5	CTS
6	MP (+8V)

### Typical Cable Connections

DB25

TB



## P220 Specifications

<b>Printing method</b>		9-pin serial impact dot matrix method
<b>Print font</b>	<b>Font (standard)</b>	Font A: 7 × 9, Font B: 9 × 9
	<b>Column capacity (columns)</b>	7 × 9/9 × 9: 76 mm: 40/33 69.5 mm: 36/30 57.5 mm: 30/25
	<b>Character size (W × H) (standard)</b>	1.2 × 3.1 mm/1.6 × 3.1 mm (not including horizontal spacing)
	<b>Character set</b>	95 Alphanumeric, 48 International, 128 × 12 Graphic
	<b>Characters per inch (standard) (3 half dot spacing)</b>	Font A (7 × 9): 16 cpi, Font B (9 × 9): 13.3 cpi
<b>Paper</b>	<b>Dimensions (mm)</b>	57.5 ± 0.5, 69.5 ± 0.5, 76 ± 0.5
	<b>Normal paper (mm)</b>	Thickness: 0.06~0.085 (1 sheet)
	<b>Pressure-sensitive paper</b>	Thickness: 0.05~0.08 (1 sheet), total thickness must be 0.14 mm or less. Number of copies: Original 1 sheet + one copy sheet
<b>Ribbon cassettes</b>		ERC-38 (B) Black life: 3,000,000 characters ERC-38 (B/R) Black/Red life: Black 1,500,000/Red 750,000 characters Life based on continuous printing at 25°C {77°F}
<b>Printing speed (Paper width 76 mm)</b>		4.7 lps (40 columns, 16 cpi)
<b>Interface</b>		RS-232 or IEEE 1284
<b>Receive buffer</b>		4 KB or 40 bytes
<b>Power supply<sup>*1</sup></b>		24 VDC ± 7%
<b>Cash drawer function</b>		2drives
<b>Temperature</b>	<b>Operating</b>	0~50°C
	<b>Storage</b>	-10~50°C, without paper and ribbon cassette
<b>Humidity</b>	<b>Operating</b>	10~90%, must be no condensation
	<b>Storage</b>	10~90%, must be no condensation, without paper and ribbon cassette
<b>Overall dimensions (mm)</b>		160 × 248 × 138.5 (W × D × H)
<b>Mass (approx.)</b>		2.3 kg

dpi: dots per 25.4 mm (dots per inch); lps: lines per second; lpi: lines per 25.4 mm (lines per inch)

\*1: Be sure to use a safety-standards-applied power source that meets the following specifications.

Rated output: 24 V/2.0 A or more, Maximum output: 240 VA or less

## ***Important Safety Information***

This section presents important information intended to ensure safe and effective use of this product. Read this section carefully and store it in an accessible location.

### ***Key to Symbols***

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.



#### ***WARNING:***

*Warnings must be followed carefully to avoid serious bodily injury.*



#### ***CAUTION:***

*Cautions must be observed to avoid minor injury to yourself or damage to your equipment.*

### ***Safety Precautions***



#### ***WARNING:***

*Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact your dealer or a service center for advice.*

*Never attempt to repair this product yourself. Improper repair work can be dangerous.*

*Never disassemble or modify this product. Tampering with this product may result in injury or fire.*

*Be sure to use the specified power source. Connection to an improper power source may cause fire.*

*Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire.*

*If water or other liquid spills into this equipment, do not continue to use it. Continued use may lead to fire. Unplug the power cord immediately and contact your dealer or a service center for advice.*

*If you open the DIP switch cover, be sure to close the cover and tighten the screw after adjusting the DIP switch. Using this product with the cover open may cause fire or electric shock.*

*Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.*

 **CAUTION:**

*Do not connect cables in ways other than those mentioned in this manual. Different connections may cause equipment damage and burning. Be sure to set this equipment on a firm, stable, horizontal surface. Product may break or cause injury if it falls.*

*Do not use in locations subject to high humidity or dust levels. Excessive humidity and dust may cause equipment damage or fire.*

*Do not place heavy objects on top of this product. Never stand or lean on this product. Equipment may fall or collapse, causing breakage and possible injury.*

*Take care not to injure your fingers on the manual cutter*

- *When you remove printed paper*
- *When you perform other operations such as loading/replacing roll paper*

*To ensure safety, unplug this product before leaving it unused for an extended period.*

*Before moving the product, unplug it and unplug all cables connected to it.*

## ***Safety Label***

The caution labels on the product indicate the following precautions.

 **WARNING:**

*Do not connect a telephone line to the drawer kick out connector; otherwise, the printer and the telephone line may be damaged.*

  **CAUTION:**

*During printing or after printing, the print head can be very hot.*

## ***Notes on Usage***

- Do not install the printer in a dusty place.
- Protect the printer from impact.
- Cords or other foreign objects must not be caught on the printer.
- Do not apply excessive force to the printer case.
- Do not place food or beverages such as coffee on the case of the printer.

## ***Notes on Installation***

- When using the printer, be sure that the printer is installed horizontally.



- ❑ Wall Mount option is available, you can hang it on a wall, using the optional hanging bracket set, P220WMB.

**Note:**

*To hang the printer on a wall, see Appendix A at end of this manual.*

***Notes on Connecting the Power Supply Unit***

Be sure to use the correct power supply unit as listed below:

P220 alphanumeric model	P220 multilingual* model
“AC adapter, C” (packed with the alphanumeric model) or “PS-180” (option)	“PS-180” (packed with the multilingual* model)

**Note:**

*The “AC adapter, C,” which is packed with the alphanumeric model, cannot be used with the multilingual\* model. Be sure to use the “PS-180” with the multilingual\* model. If the “AC adapter, C,” packed with the alphanumeric model, is connected to the multilingual\* model by mistake, the printer might not operate correctly. For example, printing might stop before all the lines are printed or the printer might print the same line repeatedly.*

\*Multilingual means the printer model that can print any one of the following: Japanese Kanji, Simplified Chinese, Traditional Chinese, Thai characters, or Korean characters.

***Purpose of This Manual***

This manual provides information to operators of the P220 to describe basic operations to enable safe and correct use of the printer.

***Restriction of Use***

When this product is used for applications requiring high reliability/ safety, such as transportation devices related to aviation, rail, marine, automotive, etc.; disaster prevention devices; various safety devices, etc.; or functional/ precision devices, etc.; you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability. Because this product was not intended for use in applications requiring extremely high reliability/ safety, such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care, etc., please make your own judgment on this product’s suitability after a full evaluation.

## ***Unpacking***

The following items are included for the standard specification printer. If any item is damaged, contact your dealer.

- ❑ Printer
- ❑ Roll paper
- ❑ Exclusive ribbon cassette [ERC-38]
- ❑ AC adapter (May not be included with the printer.)

## ***Control Panel (LEDs and Buttons)***

See illustration **B**.

### ***LEDs***

#### ***POWER (POWER)***

Lights when the power is on and is off when the power is off.

#### ***ERROR (ERROR)***

Lights when the printer is offline (when the roll paper is at the end, or the roll paper cover is open). Off when the printer operates correctly. Flashes when an error occurs. (See the Troubleshooting section.)

#### ***PAPER OUT (PAPER OUT)***

Lights when roll paper is out or nearly out.

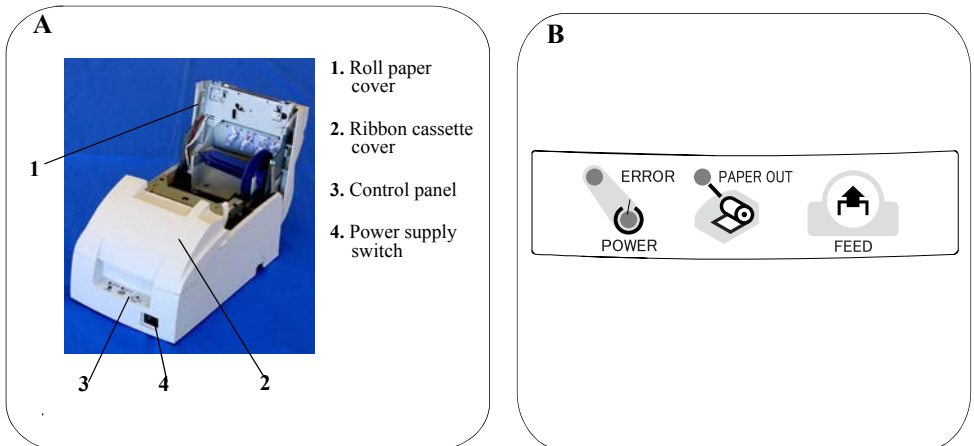
### ***Buttons***

#### ***FEED (FEED)***

FEED (FEED) feeds the roll paper.

***Note:***

*Paper cannot be fed by using this button when a paper out is detected.*



## ***Power Supply Switch and Power Supply Switch Cover***

The power supply switch is on the front of the printer. Press the power supply switch to turn on the printer.

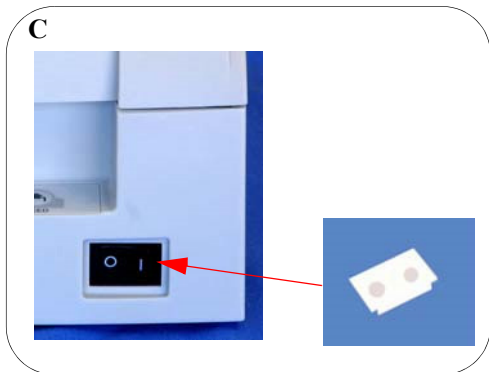
### ***Power Supply Switch Cover***

You can use the enclosed power supply switch cover to make sure that the power supply switch is not accidentally pressed. Just press the cover into place to install it. If you need to turn the power supply switch on or off with the cover attached, you can insert a thin tool into one of the holes in the cover to operate the switch. See illustration C.

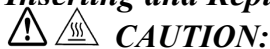
### ***⚠ WARNING:***

*If an accident occurs when the power supply switch cover is attached, immediately unplug the power supply cable to avoid fire.*

If you are going to store the printer or leave it unused for a long time, turn it off using the power supply switch on the printer.



## Inserting and Replacing the Ribbon Cassette



**CAUTION:**

The print head becomes very hot during printing. Allow it to cool before you replace the ribbon cassette.



**CAUTION:**

Never turn the ribbon cassette's feed knob in the opposite direction of the arrow marked on the cassette; otherwise the ribbon cassette may be damaged.



**Note:**

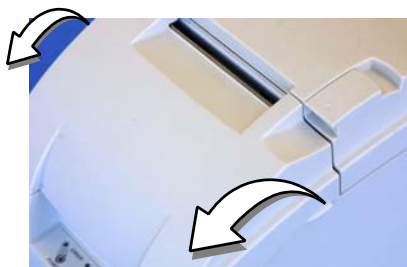
1. Open the ribbon cassette cover by using the tabs on the sides of the cover, as shown in illustration **D**.
2. Turn the knob two or three times in the direction of the arrow, as shown in illustration **E**.
3. Insert the ribbon in the position shown in illustration **F** and push the ribbon cassette down until it clicks.



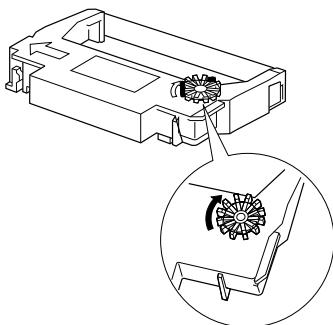
**Note:**

Make sure the ribbon is installed between the print head and the platen without wrinkles or creases.

**D**



**E**



**F**



4. Again turn the ribbon cassette's knob 2 or 3 times in the direction of the arrow and close the ribbon cassette cover.



**CAUTION:**

Be careful not to touch the print head with your fingers when turning the ribbon cassette knob because the print head is hot and you might be burned.

When you replace the ribbon cassette, lift the left side of the ribbon cassette first; then lift the whole ribbon cassette.

## Inserting Roll Paper

### CAUTION:

Be sure to use roll paper that meets the specifications.

Be sure not to touch the manual cutter. Otherwise your fingers might be injured.

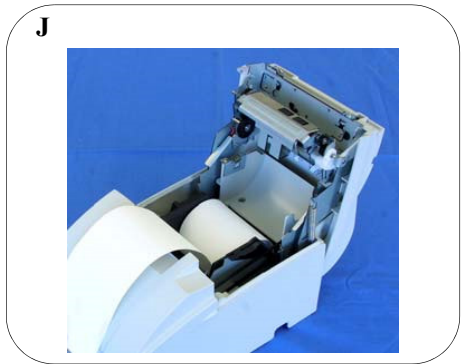
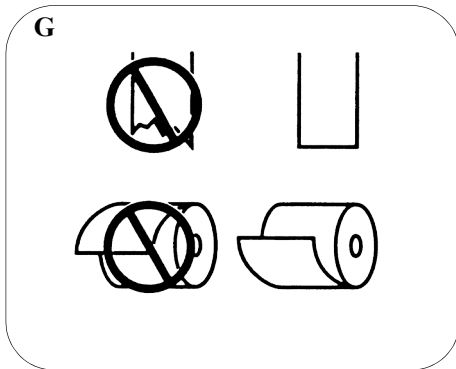
1. Using scissors, cut the leading edge of the roll paper, as shown in illustration **G**.
2. Turn on the printer and open the roll paper cover by using the tab, as shown in illustration **H**.
3. Insert the roll paper, as shown in illustration **J**.

### Note:

Note the direction the paper comes off the roll, as shown in the illustration **G**.

When using 2-ply roll paper, be sure that the top and bottom sheets are aligned at the paper exit. See illustration **G-a**.

5. Pull out a small amount of roll paper and close the roll paper cover; then tear off the paper with the manual cutter.



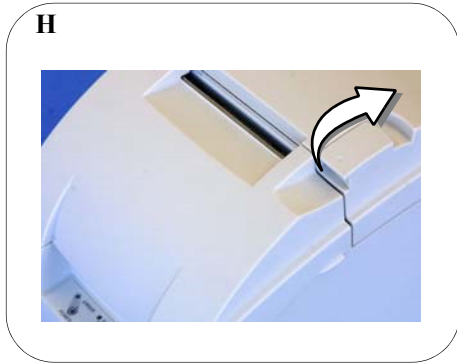
### Note:

Do not open the roll paper cover during printing or paper feeding.

When using the printer, be sure to cut the roll paper with the manual cutter after paper feeding is complete.

## ***Replacing Roll Paper***

1. Open the roll paper cover by using the tab, as shown in illustration **H**.
2. Remove the used roll paper core.
3. Insert new roll paper. See the section “Inserting Roll Paper”.



## Troubleshooting

### Printing stops before all the lines are printed or the printer prints the same line repeatedly

If the correct power supply unit is not used, the printer cannot operate correctly. Make sure the correct power supply unit is connected to the printer, referring to the table below:

The power supply unit that can be used with the P220 alphanumeric model	The power supply unit that can be used with the P220 multilingual* model
“AC adapter, C” (packed with the alphanumeric model) or “PS-180” (option)	“PS-180” (packed with the multilingual* model)

\*Multilingual means the printer model that can print any one of the following: Japanese Kanji, Simplified Chinese, Traditional Chinese, Thai characters, or Korean characters.

### No lights on the control panel

Check the power supply cable connections and the power outlet.

### ERROR (ERROR) LED is flashing or lit

- The print head temperature may be too high or low. Wait until the print head cools or warms and the printer resumes printing automatically.
- Make sure that the roll paper cover is properly closed.
- A paper jam has occurred. To remove the jammed paper, see the instructions below.
- Turn off the power, wait several seconds, and then turn it on again. If the error remains, contact your supervisor or a qualified service person.

### Removing jammed paper



#### CAUTION:

*The print head becomes very hot during printing. Allow it to cool before you reach into the printer.*

1. Open the roll paper cover by using the tab, as shown in illustration **H**. (Page 11)
2. Remove the jammed paper.
3. Re-insert the roll paper and close the roll paper cover.

## Ordering Information:

EXAMPLE	P220	N
<b>Series</b>	P220 Impact Receipt Printer	
<b>Options</b>	N = NEMA 4X Wall Mount Enclosure with sub-panel & duplex outlet	

## Accessories

- P220WMB = Wall Mount Bracket for P220 Printer
- P2CA25M9ML6 = 6' Serial Cable for SUPERtrol I, SUPERtrol ILE, LEVELtrol II, SUPERtrol II
- P2CA25MFL6 = 6' Serial Cable for MS716 or any Flow Computer with RS232 terminal block
- P220PR-1P = Paper Roll for P220 Printer; Single-ply Impact 3" width x 165' length, Single roll.
- P220PR-2P = Paper Roll for P220 Printer; Two-ply Impact, 3" width x 100' length. 1st copy is white, 2nd copy is yellow. Single roll.
- P220INK-B = Black Ink Fabric Ribbon
- PC12-24DC = Power Converter 12VDC input, 24VDC output

## Warranty:

Two-year limited warranty in the U.S. and Canada



## Appendix A

# How to Install the Printer on a Wall with the P220WMB

P220WMB is an option for the P220 printer, with it you can install a P220 on a wall. This section describes how to install wall hanging P220.

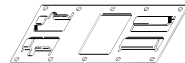
### A.1 The Procedure

#### A.1.1 Precautions

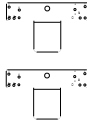
- ❑ Static electricity may cause cut paper to adhere to the printer case.  
(This static electricity will not affect the operation of the printer.)

#### A.1.2 Unpacking

Open the package and confirm that it contains all of the parts listed in the illustration. If any parts are missing or damaged, please contact your dealer for assistance.



wall-mount (note: screws for wall-mount not included; see the installation section.)



brackets (2 pieces)



control panel sheets  
Please attach the appropriate sheet.



screws for brackets (3×12)  
(4 pieces)



screws (3×10)



screws (3×6) (5 pieces) Note:  
4 of the screws are used for  
attaching the brackets



roll paper holder for  
hanging bracket



cam

Depending on the conditions during storage and shipping, some rust may form around the edges of the wall-mount or brackets. This may be removed with sandpaper.

### A.1.3 Installation

Before installation, be sure that the printer and all equipment connected to the printer is turned off. Detach all cables from the body of the printer.

#### A.1.3.1 Installing the wall-mount

### CAUTION:

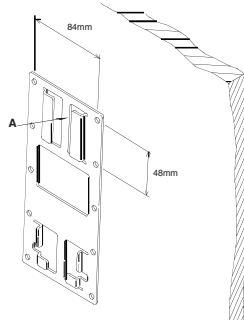
The weight of the printer is approx. 2.3 kg. In order to insure that the wall-mount can properly support the weight of the printer, please secure it with screws appropriate to the type of wall the wall-mount is installed on. A screw with 4 mm diameter and length of 12 mm or more is recommended. The thickness of the wall should be 10 mm or more.

Be sure to fasten the wall-mount securely to the wall with a screw in each of the ten holes.

Before attaching the wall-mount, make sure enough space remains around the printer.

Make sure that there is enough space for opening the printer cover.

Attach the wall-mount to the wall in the position illustrated to the right (with the area marked A at the top), and fasten securely with ten screws. These screws are not included; please use screws appropriate to the type of wall being used.



#### A.1.4 Affixing the operation panel sheet

When you mount the printer on the wall, the operation panel on the printer will be upside down. Therefore, operation panel sheets in the correct direction for wall mounting have been enclosed.

Align the FEED switch mark on the operation panel sheet with the FEED switch mark on the printer operation panel and affix the operation panel sheet to the printer.

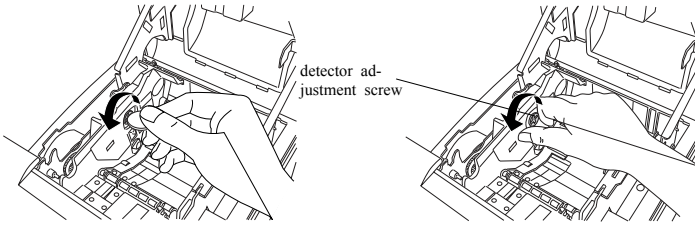
#### A.1.5 Changing the roll-paper detector position

Two types of screws are used with the P220WMB: 3×6 and 3×10. The longest screw (3×12) will not be used.

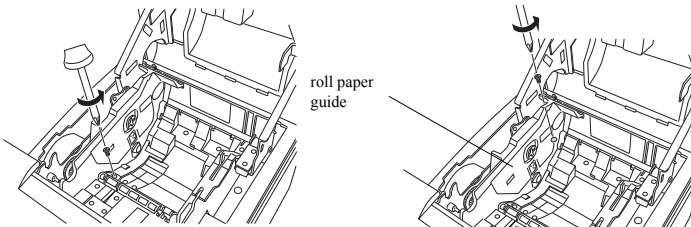
##### 1. Open the roll paper cover.

For a model that does not have a roll-paper near-end detector and does not need a change in paper width, jump to step 7. For a model that does not have a roll-paper near-end detector and needs a change in paper width, jump to step 3

2. Loosen the detector adjustment screw a little bit by using a tool such as a coin and then loosen the screw gently by hand as until it stops. It must not be removed completely.



3. Remove the two screws of the roll paper guide.



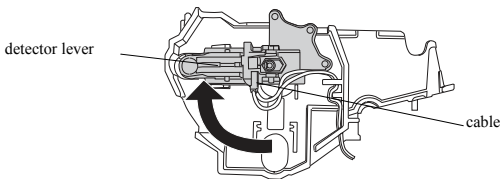
For a model that does not have a roll-paper near-end detector , jump to step 6.

4. Rotate the detector lever on the roll paper guide to change its direction.



**Note:**

After the direction of the detector lever is changed, be sure that the cable is connected to the connector firmly.

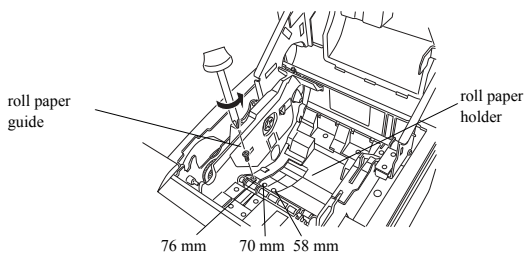


5. Tighten the detector adjustment screw.
6. Align the hole on the roll paper guide with the hole on the roll paper holder to match your roll paper width and then tighten the screw (3×10).



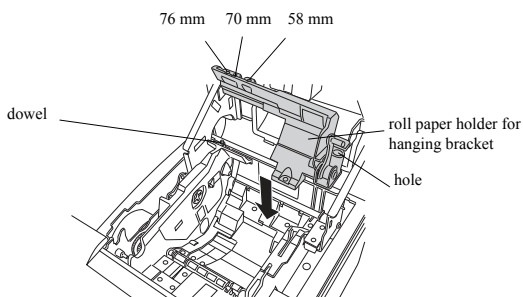
**Note:**

You will not use one of the two screws that have been removed when the roll paper guide is removed. Please store it as an extra screw in case you need it.

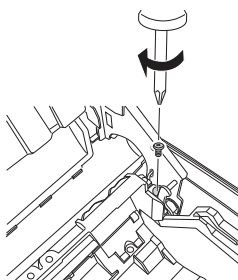


- Align the hole on the roll paper holder for hanging bracket with the dowel on the roll paper guide. (For a model that needs a change of paper width, the hole to be used will be different to match your roll paper width.)

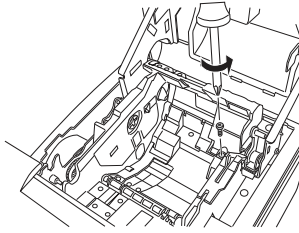
Putting the screw (3×6) in the hole on the roll paper holder for hanging bracket makes it easier for you to tighten the screw in the next step.



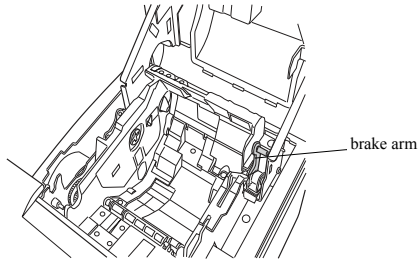
- Tighten the screw (3×6) to fix the roll paper holder for hanging bracket and the base frame.



9. Tighten the screw (3×10) to fix the roll paper holder for hanging bracket and the roll paper holder.



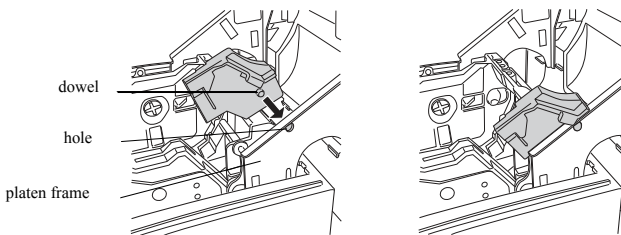
10. Check that the brake arm is up as shown in the illustration below.



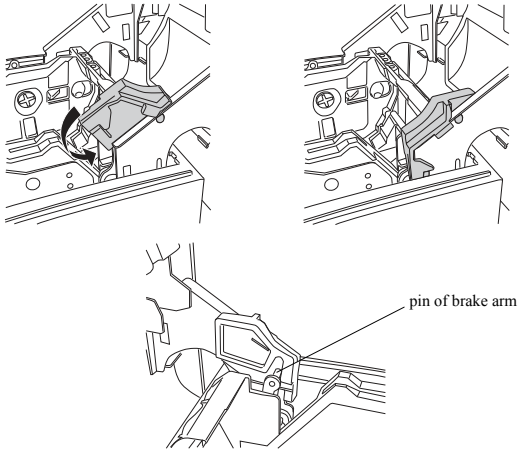
**CAUTION:**

*Do not move the brake arm until the roll paper holder for hanging bracket is attached onto the base frame. Otherwise the arm part will be damaged.*

11. Insert the dowel of the cam into the hole of the platen frame.



12. While you make sure the pin of the brake arm is in the groove on the inner side of the cam, rotate the cam along with the surface of the platen frame in the direction indicated by the arrow until it clicks into position.

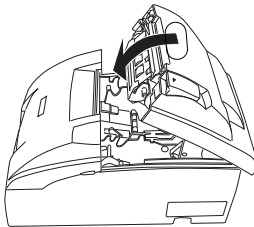


13. Close the printer cover.

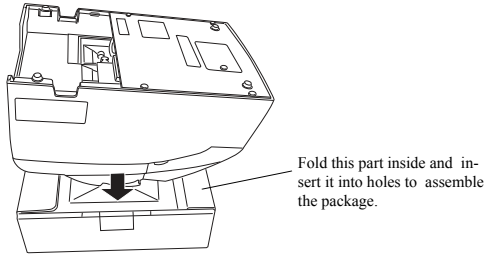


**Note:**

*When closing the cover, push the middle of the printer indicated by the circle in the illustration below.*



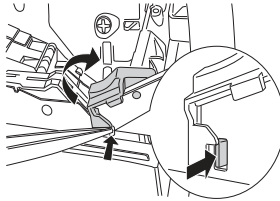
14. Turn the printer over and then put it on a packing box as a platform horizontally.



15. See the "Installing the Brackets" section for attaching the brackets.

### Removing the cam

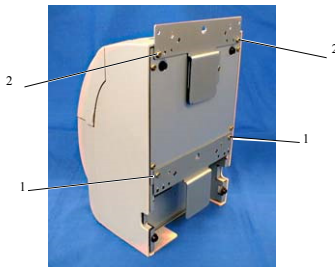
While you push the cam through the hole on the platen frame with a pointed tool such as tweezers, rotate the cam in the upper direction to remove it.



### A.1.6 Installing the brackets

Four different sets of screw holes are found on each bracket. Each hole is identified by a number; be sure to use the holes indicated in the instructions.

Attach the upper bracket to the holes numbered "2" and the lower bracket to the holes numbered "1" using the screws (3×6).



### ***A.1.7 Mounting the printer on the wall***



#### **CAUTION:**

*When mounting the printer, make sure that the wall-mount is securely fastened to the wall.*

*When the brackets are attached properly for the P220, the printer's operation panel will be on the top and the connector side on the bottom. If this is not the case, please see the installing the brackets section and reattach the brackets in the proper position.*

Slide the brackets into the slots of the wall-mount, starting with the top bracket.

