Confidential

Service manual

TM-U220 Series
(Type-B/Type-D)

Issued date	, ,
Issued by	

English

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Rev.B

EPSON

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Revision Table

Rev.	Page	Description
Rev. A	All pages	Newly authorized
Rev. B	1-1 to 6	Add the Operations and Specifications
	4-4 to 7, 12, 13, 5-2	Revision of the Guide, roll paper, Detector adjustment screw and Ering1.5
	4-4	Revision of the Window RP and the rubber foot. (Be changed two "rubber foot (112)" to two "rubber foot B (141)".)
	A-1, 4-4	Add the Rubber foot B
	4-10	Added the explanation of lubrication for improvement in a performance for feeding the paper.
	Appdix-B	Add the Assembling and disassembling the Wall Hanging Bracket Set WH-10

For Safe Repair and Maintenance Work

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:*

You must follow warnings carefully to avoid serious bodily injury.

⚠ *CAUTION:*

Observe cautions to avoid minor injury to yourself, damage to your equipment, or loss of data.

✎ ***Note:***

Notes have important information and useful tips on the operation of your equipment.

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Safety Precautions on Maintenance/Repair/Inspection

⚠ *WARNING:*

- *Be sure to use the EPSON-supplied fuse on the circuit board. Use of the other fuse may result in fire.*
- *Remove the power cord and all other cables from this product before disassembly or reassembly to prevent electrical shock.*
- *To prevent the possibility of electrical shock, do not perform maintenance, repair, or inspection during a thunderstorm.*
- *Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire or electric shock. Immediately unplug the equipment.*
- *Only disassemble this product as described in this manual. Do not make modifications to the unit. Tampering with this product may result in injury, fire, or electric shock.*
- *Be sure to use the specified power source. Connection to an improper power source may cause fire or shock.*
- *Never insert or disconnect the power plug with wet hands. Doing so may result in severe shock.*

⚠ *CAUTION:*

- *Parts on the circuit board may become hot during operation. Therefore, wait approximately 10 minutes after turning the power off before touching them.*
- *To avoid injury, take care not to insert fingers or any part of the hand in the paper roll opening where the manual cutter is installed.*
- *Do not open the paper roll cover without taking the necessary precautions, as this can result in injury from the autocutter fixed blade.*

Modular Connectors

Use the modular connectors specifically designed for the cash drawer and customer display for this product. Do not connect these connectors to an ordinary telephone line.

About This Manual

Aim of the Manual

This manual was created to provide the information on printer maintenance and repair required by technicians who handle this work.

Manual Content

The manual is made up of the following sections

Chapter 1	**Product Overview**	Describes the product overview.
Chapter 2	**Repair Guide**	Describes the instructions to complete repair of the product.
Chapter 3	**Troubleshooting**	Provides the information on troubleshooting.
Chapter 4	**Disassembly and Assembly**	Describes the disassemble and assemble procedures. Also shows Exploded diarrams and lubrication point diagrams for this product.
Chapter 5	**Adjustments and Settings**	Describes the adjusting and settings procedures.
Chapter 6	**Preparation for shipment**	Describes the preparing for transport. Also provides the information on maintenance, inspection, and cleaning.
Appendix	**Parts List**	Provides a parts list. Also describes screw types.

Chapter 1
Product Overview

The TM-U220 is a serial impact dot-matrix printer for POS systems that can print on roll paper of various widths.TM-U220 has the following type.

Type A

Type B

Type D

TM-U220 external views

	Type A	Type B	Type D
Two color printing	Yes	Yes	Yes
Autocutter	Yes	Yes	No
Take up device	Yes	No	No
Paper width (mm)	76	76/69.5/57.5	76/69.5/57.5
Interface	Serial or parallel	Serial or parallel	Serial or parallel
Characters supported	Alphanumeric or multilingual*	Alphanumeric or multilingual*	Alphanumeric or multilingual*

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

B type and D type are explained in this manual.

Notes on Connecting the Power Supply Unit

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

TM-U220 alphanumeric model	TM-U220 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.

Configurations

The TM-U220 is configured by combining features from the list below.

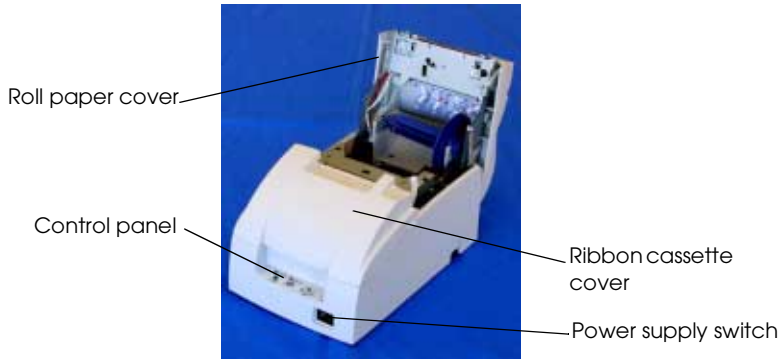
Table 1-1 configurations

Features	Selection	Description
Interface type	UB-S01 (RS-232) UB-P02II (IEEE1284 (bidirectional parallel)) EPSON UB universal interface board options	Use an EPSON-approved interface board
Autocutter setting	Type B only: Partial cut (default) Full cut	The full cut is a setting available from the dealer. Full cut should be selected only when the printer is installed horizontally. Never change the printer from partial cut to full cut after it has been used. Never leave pieces of cut paper in the paper exit.
Paper width selection	76, 69.5, or 57.5 mm {3", 2.74", or 2.26"}	Be sure to change the paper guide spacer if paper of a different width is used. Then, set the customized value in printer memory for the correct paper width. For details about how to set the paper width, see Chapter 6, "Installation."
Power supply unit type	Exclusive external power supply: AC Adapter C (North America only) (pre-packaged power supply specification only). External power supply unit for Multilingual model: PS-180.	—
Installation Position	Horizontally Can be installed hanging on the wall with the WH-10(option)	—

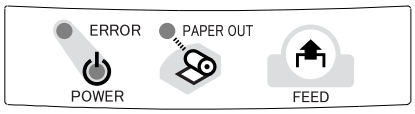
Note: Selections in the table above may be added to or changed in the future.
dpi: dots per 25.4 mm (dots per inch)

Part Names

The figures below show the partnames of the TM-U200.



Control Panel (LEDs and Buttons)



LEDs

POWER

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

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.

PAPER OUT

Lights when roll paper is out or nearly out.

Buttons

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

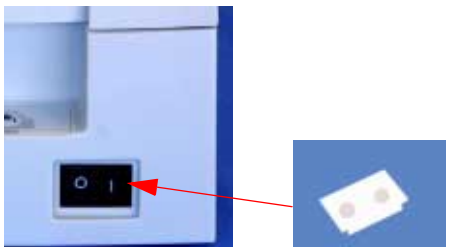
The power supply switch is on the front of the printer. Press the power supply switch to turn on the printer.

Power Supply Switch Cover

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.

⚠ WARNING:

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

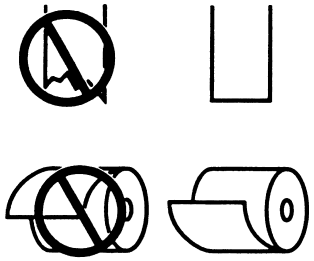


Inserting Roll Paper

⚠ 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.

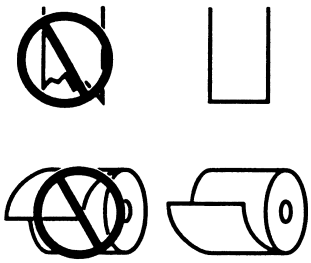
1. Using scissors, cut the leading edge of the roll paper.



2. Turn on the printer and open the roll paper cover by using the tab.

3. Insert the roll paper.

Note:
Note the direction the paper comes off the roll.



4. Close the roll paper cover and tear off the roll 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.

TM-U220 Specifications

Print method		9-pin serial impact dot matrix method
Print font	**Font (standard)**	Font A: 7 × 9, Font B: 9 × 9, Multilingual: 16 × 16, Thai (7 × 27/9 × 27)
	Column capacity (columns) (default)	7 × 9/9 × 9/16 × 16/7 × 27/9 × 27 76 mm: 40/33/22/40/33 69.5 mm: 36/30/20/36/30 57.5 mm: 30/25/16/30/25
	Character size (W × H) (standard)	1.2 × 3.1 mm/1.6 × 3.1 mm/2.7 × 2.7 mm/1.2 × 9.5 mm/1.6 × 9.5 mm (not including horizontal spacing)
	Character set	95 Alphanumeric, 48 International,128 × 12 Graphic (Japanese Kanji only: 128 × 15 Graphic) 2-pass printing font: Japanese Kanji 6879 (JIS X0208-1990), special font 83 (JIS code: 2D-21~2D-7E, Shift JIS code: 87-40~87-9D), Simplified Chinese 28553 (GB18030-2000), Traditional Chinese 13494 (Big 5), Korean Kanji 8366 (KSC5601 type) 3-pass printing font: Thai character 128 characters × 7 pages (133 character types)
	Characters per inch (standard)	Font A (7 × 9): 16 cpi, Font B (9 × 9): 13.3 cpi, Thai characters (7 × 27): 16 cpi, Thai characters (9 × 27): 13.3 cpi (3 half dot spacing) kanji (16 × 16): 8.9 cpi (2 half dot spacing)
Paper	**Dimensions (mm)**	57.5 ± 0.5, 69.5 ± 0.5, 76 ± 0.5
	Normal paper (mm)	Thickness: 0.06~0.085 (1 sheet)
	Pressure-sensetive paper	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
Ribbon cassettes		ERC-38 (P) Purple life: 4,000,000 characters 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}
Print speed (Paper width 76 mm)		4.7 lps (40 columns, 16 cpi)
Interface		RS-232 or IEEE 1284
Data buffer	**Receive buffer**	4 KB or 40 bytes
	NV bit image data	128 KB
	User NV memory	8 KB
Power supply		+24 VDC ± 7%
Power consumption (Stand-by)		2.2 W
D.K.D. function		2 drives
Reliability (Life)	**Mechanism**	7,500,000 lines
	Print head	150 million characters
	Autocutter	800,000 cuts
Temperature	**Operating**	0~50°C
	Storage	–10~50°C, without paper and ribbon cassette
Humidity	**Operating**	10~90%, must be no condensation
	Storage	10~90%, must be no condensation, without paper and ribbon cassette
Overall dimensions (mm)		***Type A:*** 160 × 286 × 157.5 (W × D × H) ***Type B:*** 160 × 248 × 138.5 (W × D × H) ***Type D:*** 160 × 248 × 138.5 (W × D × H)
Mass (approx.)		***Type A:*** 2.7 kg ***Type B:*** 2.5 kg ***Type D:*** 2.3 kg

lps: lines per second

Chapter 2
Repair Guide

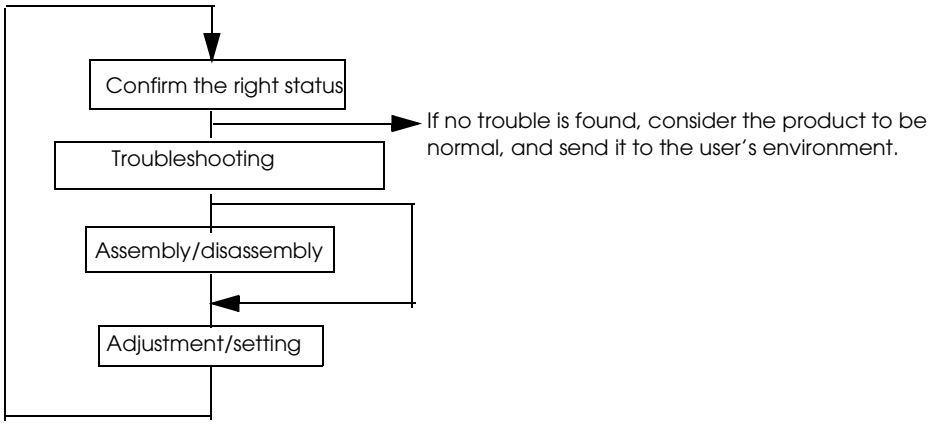
This chapter gives instructions to complete repair of the product. Follow the process in this section for repair.

Repair Process

Outline of repair

Check each item before and after repair, as shown in the following flowchart. This chapter explains the operations to confirm the "normal state" of the operation of items in the flowchart. If an item is in a state other than the "normal state," follow the instructions in the chapter to troubleshoot based on the symptom.

Repair flow



Confirming the user's environment

Confirm the printer's setting by using the service utility.

Confirming the printer status

Confirm the status of the printer you are repairing. Confirm that the power turns on/off; run the self-test; run all function tests with the service utility, and check other items, following the table below. Perform the appropriate measures for the symptom.

Printer status checks

Operation	Normal printer operation	When a problem occurs
Power on.	Power LED light comes on. Mechanical initializing operation occurs. ERROR LED light is off.	POWER LED does not light. (See page 3-3) ERROR LED light. (See page 3-3) ERROR LED flashes. (See page 3-4) PAPER OUT LED lights. (See page 3-6)
Run the self-test. *Refer to page 2-2 for operation.	Power LED light comes on. Prints the printer status (See page 2-3). Prints the roll pattern after the FEED button is pressed (See page 2-3). Mechanical initialization occurs. ERROR LED light is off.	Self-test cannot be performed. (See page 3-6) Printing cannot be performed. (See page 3-7) The print result is not normal. (See page 3-7) A paper jam occurs. (See page 3-14) PAPER OUT LED lights. (See page 3-6)
Run the "all function test" with the service utility. *Refer to page 2-7 for operation.	Reads printer status. Prints the RECEIPT sheet (See page 2-9). Prints the STATUS sheet after confirming the sensor operation (See page 2-10). Prints the REPORT sheet (See page 2-12).	The communication test fails. (See page 3-16) The print result is not normal. (See page 3-16) Drawer kick is not performed. (See page 3-17) The sensor does not work. (See page 3-18)
Perform other checks of operation.	Normal opening/closing of roll paper cover. Normal opening/closing of ribbon cover. The case is dirty.	Parts do not move smoothly. (See page 3-20). The case is dirtyl. (See page 3-20)

Once you have confirmed the printer status using the table above, you can perform the necessary functions below.

- ❏ Identification of defective parts (See Chapter 3).
- ❏ Preparation for replacing parts (Read and follow the precautions and notes at the beginning of Chapter 4).
- ❏ Parts replacement, assembly, and disassembly (See Chapter 4).
- ❏ Adjustment and setting (See Chapter 5).
- ❏ Preparation for shipment (See the Chapter 6 before sending the printer back to the customer).

Self-test

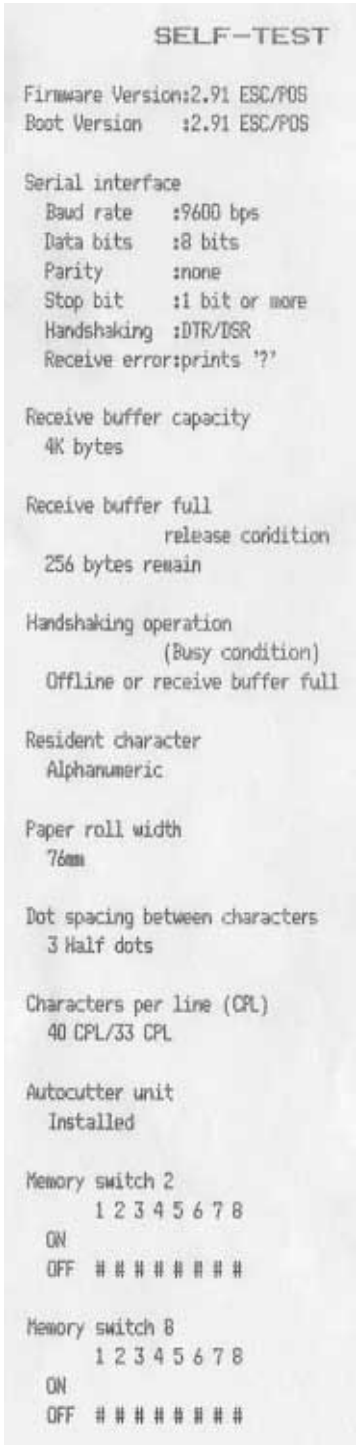
Operation

The Self-test can be operated by using the service utility or operating the panel.See page 2-12 about the panel operation.

Before running the self-test, make sure roll paper and a ribbon are correctly installed in the printer. Then turn power off. To run the self-test, turn the power on while holding down the FEED button.

The first page of the self-test printout should look like the example in the table below. To print the second part of the self-test, press FEED again.

Printer status print

	Normal printout result	Explanation
①		①Version information Main program version Boot program version
②		②Interface classification Interface information
③		③Receive buffer capacity *1)
④		④Busy release conditions for receive buffer full *2)
⑤		⑤Busy condition *3)
⑥		⑥Resident character *4)
⑦		⑦Paper roll width *5)
⑧		⑧Dot spacing between characters *6)
⑨		⑨Characters per line *7)
⑩		⑩Autocutter unit installed/not installed *8)
		Note: *1)Differs depending on DIP SW1-2. *2)Differs depending on MSW 8-7. Prints only when the receive buffer capacity is 4KB. (Does not print when the receive buffer capacity is 40 bytes.) *3)Differs depending on DIP SW1-8. *4)Performs a multilingual CG judgment when printing resident characters. *5)Differs depending on the paper roll width set with the memory switch (customized value). *6)Differs depending on DIP SW2-1. *7)Differs depending on the paper roll width and dots between characters. *8)Differs depending on DIP SW2-2.

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Roll pattern

Normal print result	Explanation
	Black (6 lines) Red (6 lines) Red (6 lines) Paper feeds 2 lines. Paper is fed to the position where the user can see the ending message at left.

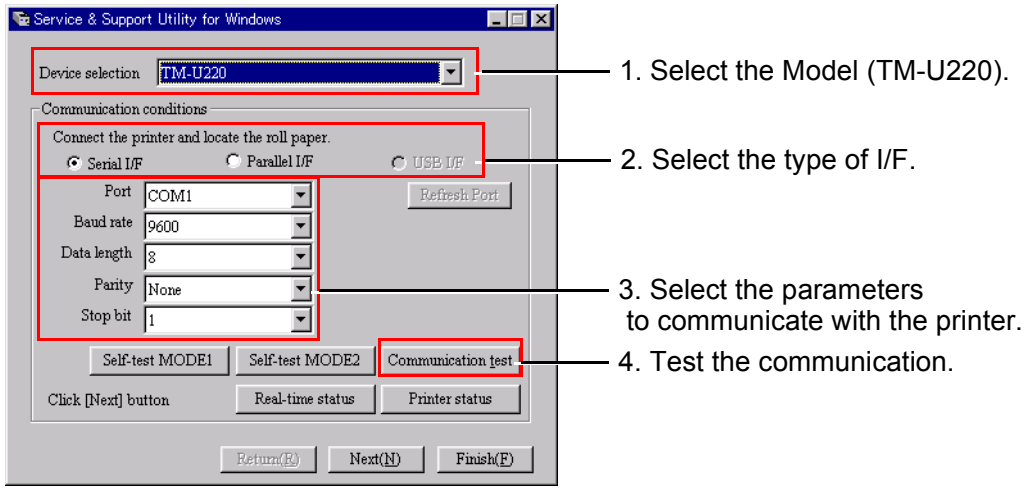
Service Utility

Using the service utility, you can confirm the printer status and change settings. The following section explains the operation for confirming the printer status.

* To use the repair functions in the service utility, a password is required. Refer to the manual supplied with the service utility for the password.

Start-up of the service utility

When you start the service utility, the following communication conditions dialog box appears.



1. Model selection:

   Select the TM-U220 (for either Type B or Type D model printers).

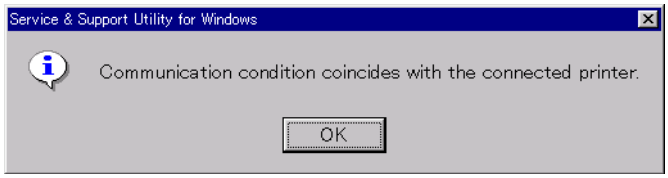
2. Communication condition selection:

   Select the I/F used with the printer. You can confirm the communication conditions set for the printer by running the self-test. Refer to the self-test section for details.

3. Communication test:

4. Confirm the communication status with the connected printer. Normally, the following message appears.

   .



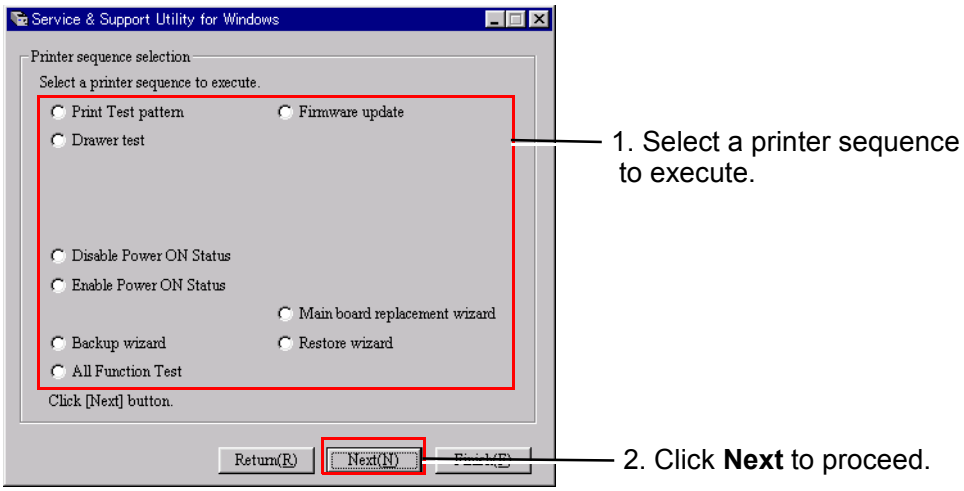
When the communication conditions are set correctly, the following functions are available.

- ❏ Self-test Mode 1: Outputs the same results as the self-test printout of status.

- ❏ Self-test Mode 2: Outputs the same results as the self-test printout of the roll pattern.
- ❏ Real-time status: Lets you confirm sensor operations, such as cover open/close, in real time.
- ❏ Printer status: Lets you read and set the printer values collectively. Also, you can save the settings to a file, read the set values in the file, and the display the default state. Refer to the chapter on adjustment settings.

Printer sequence selection

When you click the Next button at the bottom of the communication conditions dialog box, the printer sequence selection screen appears.



- ❏ Test printing:

  This outputs a test pattern to confirm printer status. Follow the screen instructions to operate.

- ❏ Confirmation of the drawer operation:

  You can confirm the drawer open function and the change in the open/close status. Follow the screen instructions to operate.

- ❏ Setting for notification of power on:

  You can enable or disable for the notification function for power on.

- ❏ Firmware update:

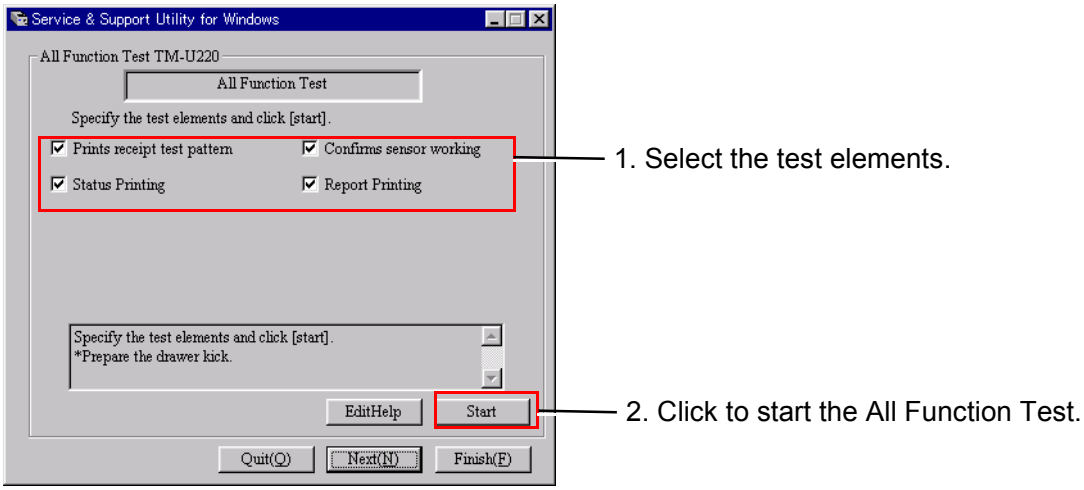
  You can update the firmware. Follow the screen instructions to operate.

- ❏ Main circuit board replacement wizard/back-up wizard/restore wizard:

  You can back up the data in the main circuit board and restore it in the repaired product. Follow the screen instructions to operate.

All function test

When you select the all function test in the printer sequence selection screen and click Next, the all function test screen appears.



Select the test elements and click the Start button to start the all function test.

Using this test, you can check the following functions for the printer.

- ❏ Communication function:

  You can confirm that communication with the printer is enabled/disabled.

- ❏ Setting function:

  Reads and prints on the status sheet the status settings for EPSON NV memory, memory switches, communication conditions, and customized value.

- ❏ Receipt print function:

  Prints patterns to confirm print operations and print quality.

- ❏ Roll paper cut function:

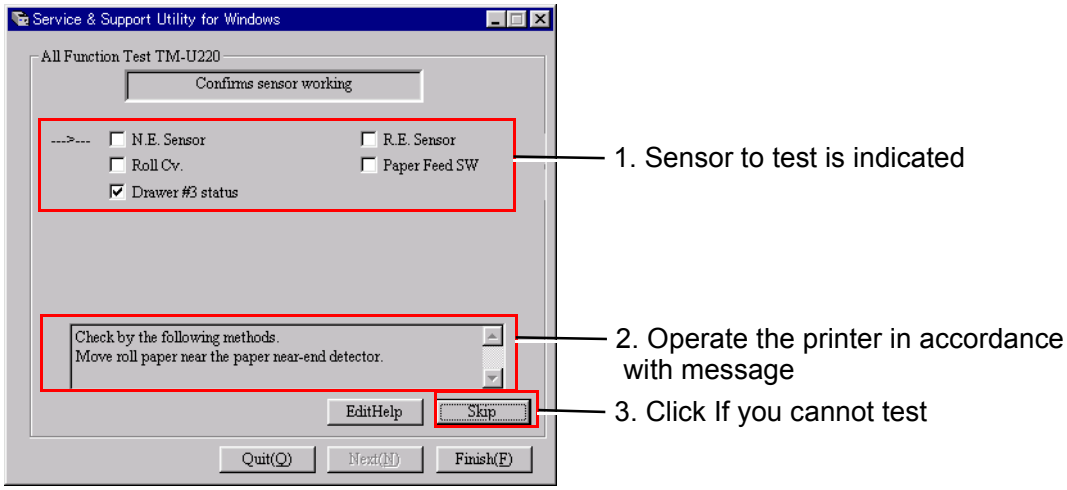
  For printers with an autocutter, cuts roll paper after each printing on the roll.

- ❏ Drawer open/close function:

  Runs a test of drawer open/close operation while printing the receipt pattern. Be sure to connect the drawer kick to the printer before executing the all function test.

- ❏ Sensor function:

  Confirms the operation of sensors controlling and detecting printer operations. The checking method for the sensor indicated with the arrow is displayed on the screen. Operate the printer following the instructions on the screen.



When the sensor detects the printer operation correctly, OK is displayed.
When the sensor is not installed (depending on the printer model), you can skip with the Skip *button.*
Test results are OK when the tests confirm the normal operation of the sensors.

Output result

When the printer operates normally, the following sheet is printed. Refer to the chapters on Troubleshooting and Adjustment and Setting when print results differ.

Receipt print

Normal print result	Explanation
	①Execution date is printed. ②Execution time is printed. ③"EPSON" is printed. ④"TM-U220" is printed. ⑤Serial no. for the product is printed. *1) ⑥Graphic pattern is printed. Checks for dot missing. (Refer to"Dots are missing continuously." on page 3-12) ⑦ANK characters are printed. *2) ⑧Full cut is performed. *3) ***Note:*** **1) When the serial no. is not registered on the product itself, "NG" is printed.* **2) When using the 2 color ribbon, prints in 2 colors.* **3) When autocutter setting is partial cut, full cut is not performed.*

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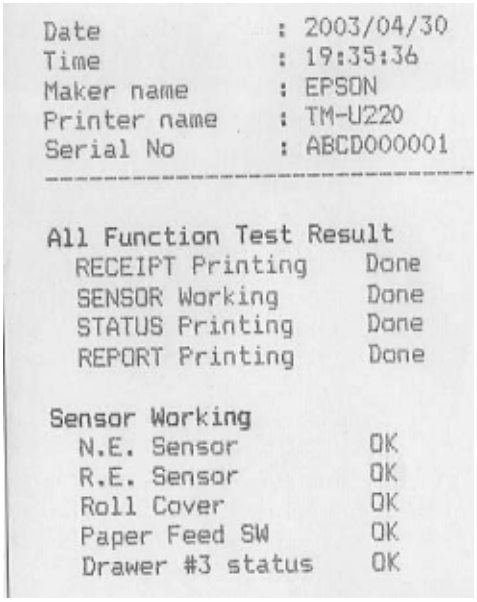
Status print

Normal print result	Explanation
	①Execution date is printed. ②Execution time is printed. ③"EPSON" is printed. ④"TM-U220" is printed. ⑤Serial no. for the product is printed. *1) ⑥Setting status of memory switch is printed. *2) ⑦Setting status of customize value is printed. *3) ⑧Partial cut is performed. *4) ***Note:*** **1) When the serial no. is not registered on the product itself, "NG" is printed.* **2, 3) When the default setting is changed, "*" is printed before the memory switch number.* **3) When autocutter setting is full cut, partial cut is not performed.*

Normal print result	Explanation
	①Program version is printed. Main program version is printed. Boot program version is printed. Original program version is printed. ②"Power on status" set with printer sequence is printed. ③Size of main ROM is displayed. (Differs depending on specifications.) ④"Size of extended ROM is displayed. (Differs depending on specifications.) ⑤Definition of the bit image data for NV memory is printed. *1) ⑥Definition of data for user NV memory is printed. *2) ⑦Information of EPSON NV memory is printed. It is changeable with the printer status. *3) Manufacturer name Model name Product serial no ⑧Definition of data for space page is printed. ⑨Definition of command default value is printed. ***Note:*** **1, 2) When some data was used by an user, it is necessary to backup and restore.*

Report print

Normal print result	Explanation
	①Execution date is printed. ②Execution time is printed. ③"EPSON" is printed. ④"TM-U220" is printed. ⑤Serial no. for the product is printed. ⑥Execution status of all function test is printed. ⑦Test result of sensor operation is printed. *1) ***Note:*** **1) When it is not OK by operating such as the cover and skipped using the button on the screen, there is a problem on the item. (Refer to "Cannot pass are of the tests for a sensor." on page 3-18.)*

Self-test Procedure

The method of Self-test with panel operation indicated in the steps below.

1. Make sure the printer is turned off and the roll paper cover is closed properly.
2. While holding down the FEED button, turn on the printer using the switch on the front of the printer. The self test prints the printer settings and then prints the following, cuts the paper, and pauses. (The PAPER OUT light blinks.)

   If you want to continue SELF-TEST printing, Please press the FEED button.

3. Press the FEED button to continue printing. The printer prints a pattern using the built-in character set.
4. The self test automatically ends and cuts the paper after printing the following:

   ***** completed *****

The printer is ready to receive data as soon as it completes the self test.

Note:
If you want to pause the self test manually, press the FEED *button. Press the* FEED *button again to continue the self test.*

Chapter 3
Troubleshooting

Preparations for Troubleshooting

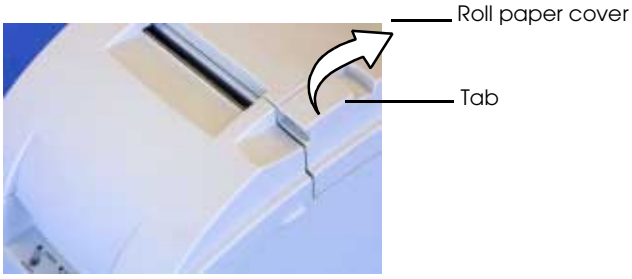
Before troubleshooting, check and, if necessary, correct the following points.

Paper is jammed inside the printer

⚠ CAUTION:

Be sure not to touch the manual cutter. Otherwise you may cut your finger.

1. Turn the power off.
2. Open the roll paper cover using the tab, as shown in the below illustration.

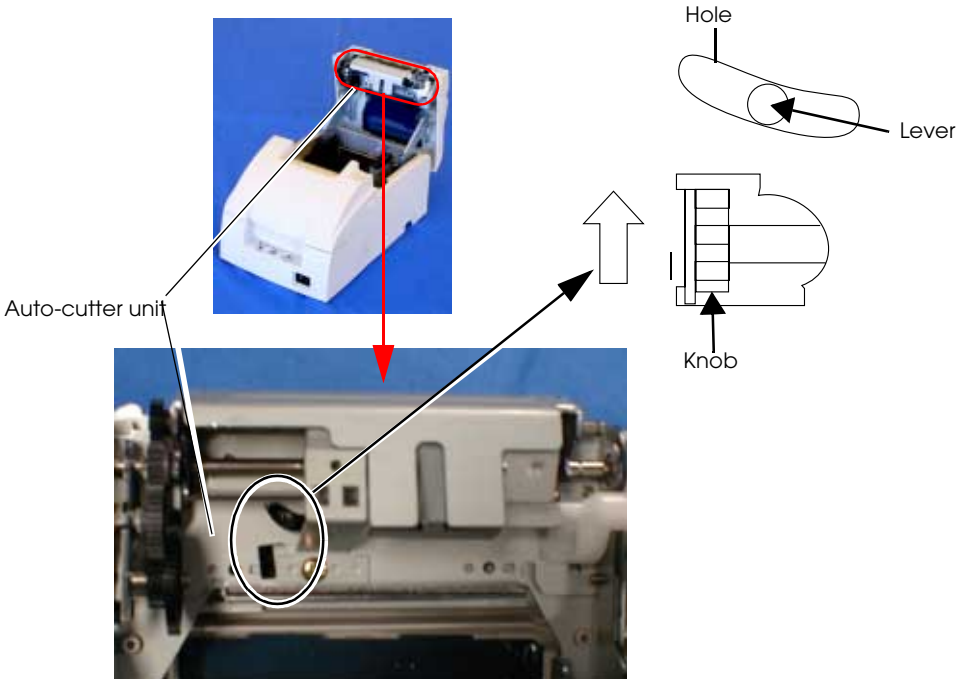


3. Remove the jammed paper.

Note:
If you turn the power off accidentally during printing, the cutter blade may stop in the paper feed path. So paper may not be fed normally at first when you turn the power on again. If the symptom happens again after you remove the jammed paper, follow the procedure described below.

1. Power off the unit and open the roll paper cover.
2. Remove the jammed paper.

3. Return the cutter blade to the normal position by rotating the autocutter knob in the direction of the arrow. When it is returned to the normal position, a lever comes in the center of hole in the autocutter frame.



4. Lift up the roll paper cover.

Note:

❏ *Besides a paper jam, a foreign object, such as a push pin, can cause the autocutter to lock up. If this is the case, follow the same procedure described above to return the cutter to its normal position.*

Before Servicing

Pages *iv* to *v* at the beginning of this manual provide precautions you should observe to perform work safely and supply the necessary information to service this product safely. Always read that information before starting your work.

Diagnosing Failures

Use one of the following methods to identify the area where a failure occurred.

❏ See the tables in the section "Symptoms and Solutions" for diagnosing failures by the symptom of the problem.

❏ See "Test Points on the Main Circuit Board Unit" for failures on the main circuit board unit.

Symptoms and Solutions

Symptoms when the power is On

POWER LED does not light.

Table 3-1 Power LED does not light

Probable part/probable cause	Checkpoints	Action to correct the problem
External power unit	Check the connections. Make sure the connector is plugged in.	Plug in the connector. Completed if the POWER LED lights.
	Check the output voltage. Make sure 24V is coming out.	Replace power unit. Completed if the POWER LED lights.
Cable connector (1098)	Check the connectors. Make sure the ones below are plugged in: ❑ Connector (CN10) on the main circuit board unit (201) ❑ Connector (CNC3) on the sub circuit board unit (123)	Plug in the connectors. Completed if the POWER LED lights.
Sub circuit board unit (123)	Check the sub circuit board unit for damage. Make sure it looks normal.	Replace the sub circuit board unit (123). Completed if the POWER LED lights.
Main circuit board unit (201) (Refer to page 3-20)	Check the resistance value of fuses F1 and F4. Make sure neither fuse is blown.	If the circuit board has no damage, such as burns, replace fuse F1 or F4. Completed if the POWER LED lights. If the fuse blows when power is turned on, unplug all connectors from the mechanism assembly (120) and check again. If the POWER LED does not light and the fuse is blown, replace the main circuit board unit.
	Check the operation of SW1.	Replace the main circuit board unit (201). Completed if operation is normal.
	Check the power voltage. Make sure the power voltage has proper voltage rating.	

ERROR LED lights

Table 3-2 ERROR LED lights

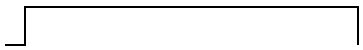
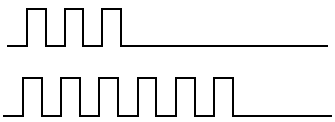
Probable part/probable cause	Checkpoints	Action to correct the problem
Roll paper cover assembly (119)	Check the roll paper cover assembly. Make sure the roll paper cover is closed.	Close the roll paper cover assembly. Completed if the ERROR LED turns off.
Paper-end state	Check the roll paper.	Load the roll paper properly. Completed if the ERROR LED turns off.

ERROR LED flashes

Table 3-3 ERROR LED flashes

Probable part/probable cause	Checkpoints	Action to correct the problem
Home position detection error 	Check for a paper jam around the carriage. Make sure there is no paper jam.	Remove any paper jam. Completed if operation is normal.
	Check the tension of the carriage belt (507). Make sure the carriage belt has appropriate tension.	Adjust the tension of the carriage belt (Refer to page 4-5). Completed if operation is normal.
	Check operation of the parts around the carriage by moving the carriage from side to side. Make sure the belt drive pulley (505) rotates by moving the carriage sub assembly (1025) from side to side.	Install the carriage belt (507) into the carriage sub assembly (1025). Completed if operation is normal.
	Check the resistance value of the carriage motor sub assembly (1034). Make sure it is 7.2 Ω or less.	Replace the carriage motor sub assembly (1034). Completed if operation is normal.
	Check the operation of the HP board assembly (518). Make sure the signal changes when you block the sensor.	Replace the HP board assembly (518). Completed if operation is normal.
	Check the connection of main circuit board unit (201) connectors. Make sure they are plugged in securely. CN7: carriage motor sub assembly (1034) CN4: HP board assembly (518)	Plug in the connectors securely. Completed if operation is normal.
	Check if the parts on the main circuit board unit (201) have any damage. Make sure connector CN7 and U8 look normal.	Replace the main circuit board unit (201). Completed if operation is normal.
R/W error in memory 	Check for repeatability. Make sure operation is normal by rebooting.	Replace the main circuit board unit (201). Completed if operation is normal.
High-voltage error 	Check the DC power voltage on the main circuit board unit (201). Make sure the power voltage has the proper voltage rating. (Refer to page 3-20.)	Replace the main circuit board unit (201). Completed if operation is normal.
Low-voltage error 	Check the DC power voltage on the main circuit board unit (201). Make sure the power voltage has proper voltage rating. (Refer to page 3-20.)	Replace the main circuit board unit (201). Completed if operation is normal.

Table 3-3 ERROR LED flashes

Probable part/probable cause	Checkpoints	Action to correct the problem
CPU execution error 	Check the connection of the I/F circuit board unit (122). Make sure the connector is plugged into the main circuit board unit (201).	Connect the I/F circuit board unit (122). Completed if operation is normal.
	Check parts on the I/F circuit board unit (122) for damage. Make sure the I/F circuit board unit appears normal.	Connect the I/F circuit board unit (122). Completed if operation is normal.
	Check main circuit board unit (201) parts for damage. Make sure the main circuit board unit (201) looks normal.	Replace the main circuit board unit (201). Completed if operation is normal.
Head high-temperature detection circuit error 	Check the print head temperature. Make sure it is not too high.	Wait for the print head temperature to drop. Completed if operation is normal.
	Check connection of the head FFC (521). Make sure it is plugged into the print head unit (503) and connector (CN9) on the main circuit board unit (201).	Connect the head FFC (521). Completed if operation is normal.
	Check the continuity of the print head unit (503). Make sure wires are not broken or shorted out.	Connect the print head unit (503). Completed if operation is normal.
	Check if main circuit board unit (201) parts have any damage. Make sure the main circuit board unit (201) looks normal.	Replace the main circuit board unit (201). Completed if operation is normal.
The ERROR LED flashes 3 or 6 times and then does not operate all. 	Check the setting of DIP SW2-6. OFF: Initial state ON: Rewriting flash memory.	Switch DIP SW2-6 on the main circuit board unit (201) to OFF. Completed if operation is normal. If operation is not normal, rewrite the firmware. Completed if operation is normal.

PAPER OUT LED lights

Table 3-4 Paper OUT LED lights

Probable part/probable cause	Checkpoints	Action to correct the problem
Roll paper	Check the roll paper. Make sure it is loaded correctly. Make sure enough paper is left.	Replace the roll paper. Completed if the PAPER OUT LED turns off.
Paper end assembly (514)	Check operation of the paper end assembly (514). Make sure the continuity changes when you operate the switch.	Replace the paper end assembly (514). Completed if the PAPER OUT LED turns off.
Near-end sensor	Check operation of the micro switch (1039). Make sure the continuity changes when you operate the switch.	Replace the near-end sensor. Completed if the PAPER OUT LED turns off.
Main circuit board unit (201)	Check the parts for damage. Make sure the following parts look normal. CN6: for lead wires of the near-end sensor CN4: on the HP board assembly	Replace the main circuit board unit (201). Completed if operation is normal.

Symptoms when the self-test is executed

Self-test is not executed

Before running the self-test, make sure the roll paper and ribbon are correctly installed in the printer. Then turn power off. To run the self-test, turn the power on while holding down the FEED button. If the test does not print, check the following:

- ❏ When the POWER LED does not light: Refer to page 4-3.
- ❏ When the POWER LED lights: Refer to page 4-7.
- ❏ When the POWER LED flashes: Refer to page 4-7.

When initializing operation only is executed

Table 3-5 Only the initializing operation occurs

Probable part/probable cause	Checkpoints	Action to correct the problem
DIP switch setting	For the serial I/F, check the reset function setting for pins # 6 and # 25. If the I/F cable is connected and the reset function is available, the I/F may always be resetting.	Disable the reset function with the DIP switch setting. Completed if operation is normal.
Main circuit board unit (210)	Check the operation of SE2. Make sure pressing the FEED button feeds paper. Make sure the continuity changes when you operate the switch.	Replace the main circuit board unit (201). Completed if operation is normal.

The printer does not print

The print head operates, but paper is not fed..

Table 3-6 The printer does not print

Probable part/probable cause	Checkpoints	Action to correct the problem
Roll paper is inserted incorrectly	Check the roll paper. Make sure it meets specifications. Make sure it is loaded correctly.	Load roll paper that meets specifications. Completed if operation is normal.
Paper jam	Check for a paper path. Make sure there is no paper jam.	Open the roll paper cover assembly and remove the paper jam. Completed if operation is normal.
Gear does not rotate	Check the gear operation. Make sure the following gears rotate: Paper feed gear (1063) Paper feed middle gear B (510) Paper feed middle gear (509) Paper feed reduction gear 1 (1093) Make sure the paper feed motor sub assembly (1046) shaft rotates with rotation of paper feed reduction gear 2 (1058).	Replace the defective gear. Completed if operation is normal.
Paper hold spring (1014)	Check the mounting state. Make sure it is mounted correctly. (See page 4-17.)	Insert the paper hold spring (1014) correctly. Completed if operation is normal.
Paper hold roller (1015)	Check operation. Make sure it rotates smoothly.	Replace the paper hold roller (1015). Completed if operation is normal.
Paper guide roller (1045)	Check the operation. Make sure the roller rotates smoothly.	Clean, so that the paper guide roller (1045) rotates correctly. Completed if operation is normal.
	Check for damage. You should see no damage, such as wear.	Replace the mechanism assembly (120). Completed if operation is normal.

Table 3-6 The printer does not print

Probable part/probable cause	Checkpoints	Action to correct the problem
PF (paper feed) lead wire set (1047)	Check the connectors. Make sure they are plugged in securely: Paper feed motor sub assembly (1046) Connector (CN8) on the main circuit board unit (201)	Plug in the connectors. Completed if operation is normal.
	Check the wires for breaks and shorts. Make sure no wires are broken or shorted out.	Replace the PF lead wire set (1047). Completed if operation is normal.
Paper feed motor sub assembly (1046)	Check the resistance value. Make sure it is 7.2 Ω or less.	Replace the paper feed motor sub assembly (1046). Completed if operation is normal.
Main circuit board unit (201)	Check if the parts have any damage. Make sure the following parts look normal. Connector (CN8) U8	Replace the main circuit board unit (201). Completed if operation is normal.

Paper is fed, but characters are not printed.

Table 3-7 Paper is fed, but characters are not printed

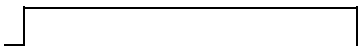
Probable part/probable cause	Checkpoints	Action to correct the problem
Ribbon cassette	Check the ribbon mounting. Make sure it is installed correctly.	Load the ribbon cassette correctly. Completed if operation is normal.
	Check the ribbon. Make sure it is not wrinkled, kinked, or broken.	Replace the ribbon cassette with a new one. Completed if printing is correct.
Head FFC (521)	Check the continuity with a tester. Make sure wires are not broken or shorted out.	Replace the head FFC (521). Completed if printing is correct.
Print head unit (503)	Check the continuity with a tester. Make sure wires are not broken or shorted out.	Replace the print head unit (503). Completed if printing is correct.
Main circuit board unit (201)	Check parts for damage. Make sure the following parts look normal. Connector (CN9) QM22, QM23, QM24	Replace the main circuit board unit (201). Completed if the print is correct.

Error occurs during printing.

Table 3-8 ERROR occurs during printing

Probable part/probable cause	Checkpoints	Action to correct the problem
Autocutter error 	Check the connection of the main circuit board unit (201) connector. Make sure the AC lead wire set (1090) is connected.	Plug in the connector. Completed if operation is normal.
	Check the operation of the drive gear sub assembly (1072). Make sure it rotates with rotation of the cutter motor sub assembly (117).	Replace the drive gear sub assembly (1072). Completed if operation is normal.
	Check the operation of the cutter motor sub assembly (117).	Replace the cutter motor sub assembly (117). Completed if operation is normal.
	Check the operation of the micro switch (121). Make sure the continuity changes when you operate the switch.	Replace the micro switch (121). Completed if operation is normal.
	Check the AC lead wire set (1090) for breaks and shorts. Make sure wires are not broken or shorted out.	Replace the AC lead wire set (1090). Completed if operation is normal.
	Check fuse F3 on the main circuit board unit (201). Make sure it is not blown.	If the circuit board has no damage such as burns, replace fuse F3. Completed if operation is normal. If the fuse blows again in operation of the autocutter, replace the main circuit board unit.

Table 3-8 ERROR occurs during printing

Probable part/probable cause	Checkpoints	Action to correct the problem
	Check the parts on the main circuit board unit (201) for damage. Make sure the following parts look normal. Connector (CN2) QM1	Replace the main circuit board unit (201). Completed if operation is normal.
Head high-temperature detection circuit error 	Check the print head temperature. Make sure it is not too high.	Wait for the print head temperature to drop. Completed if operation is normal.
	Check the error frequency. Make sure it does not occur too often.	Replace the print head unit (503). If the symptom continues, replace the main circuit board unit (201). Completed if operation is normal.
Roll paper cover open error 	Check the state when the error occurs. Be sure not to open the roll paper cover during printing.	If MSW 8-8 is OFF, close the roll paper cover again. Completed if operation is normal. If the MSW 8-8 is ON, turn power on again. Completed if operation is normal. If the error occurs when the roll paper cover is not open, refer to Cannot pass are of the tests for a sensor. : Page 3-18.
	Check the error frequency. Make sure it does not occur too often.	Replace the print head unit (503). Completed if operation is normal. If the symptom continues, replace the main circuit board unit (201). Completed if operation is normal.

Paper is not cut correctly.

Table 3-9 Paper is not cut correctly

Probable part/probable cause	Checkpoints	Action to correct the problem
DIP switch setting	Check the setting of DSW 2-2. OFF: Autocutter is disabled. ON: Autocutter is enabled. Paper is not cut when DSW 2-2 is disabled, even when the autocutter unit is connected (Type B).	Switch DSW 2-2 to ON. Completed if cutting is normal.
Full cut/partial cut setting	Check the full cut and partial cut setting. Make sure the autocutter unit (113) is mounted in the correct position.	Mount the autocutter unit (113) in the correct position. Completed if cutting is normal.
Fixed blade spring (1016)	Check the spring power. Make sure it has enough power to push the fixed blade (513) against the fixed blade holder (1017).	Replace the fixed blade spring (1016). Completed if cutting is normal.
Cutter blade	Check the fixed blade (513). Make sure it does not have any nicks.	Replace the fixed blade (513). Completed if cutting is normal.
	Check the movable cutter blade on the cutter frame sub assembly (114). Make sure it does not have any nicks.	Replace the cutter frame sub assembly (114). Completed if cutting is normal.

Ribbon feed mechanism does not operate.

Table 3-10 Ribbon feed mechanism does not operate

Probable part/probable cause	Checkpoints	Action to correct the problem
Ribbon cassette	Check the mounting. Make sure it is installed correctly.	Install the ribbon cassette correctly. Completed if printing is normal.
	Check the ribbon cassette itself. Make sure the ribbon is fed by turning the tab.	Replace the ribbon cassette with a new one. Completed if printing is normal.
Ribbon take-up function	Check the take-up operation. Be sure the following parts operate with operation of the carriage sub assembly (1025): ❑ Belt drive pulley (505) ❑ Ribbon middle gear (512) ❑ Ribbon drive plate sub assembly (517) ❑ Ribbon take-up gear sub assembly (516)	Replace the defective gear. Completed if the operation is normal.
Adjustment roller shaft holders (506)	Check the platen gap adjustment. 0.45 mm: falls with no weight applied 0.55 mm: does not fall	Adjust the platen gap (refer to page 4-4). Completed if printing is normal.

Print result is not normal.

Print is light or irregular.

Table 3-11 Print is light or irregular

Probable part/probable cause	Checkpoints	Action to correct the problem
Ribbon cassette	Check the ribbon mounting. Make sure it is installed correctly.	Install the ribbon cassette correctly. Completed if printing is normal.
	Check the ribbon cassette. Make sure the ribbon is fed by turning the tab.	Replace the ribbon cassette with a new one. Completed if printing is normal.
Ribbon take-up function	Check the take-up operation. Be sure the following parts operate with operation of the carriage sub assembly (1025) ❑ Belt drive pulley (505) ❑ Ribbon middle gear (512) ❑ Ribbon drive plate sub assembly (517) ❑ Ribbon take-up gear sub assembly (516)	Replace the defective gear. Completed if the operation is normal.
Adjustment roller shaft holders (506)	Check the platen gap adjustment. 0.45 mm: falls with no weight applied 0.55 mm: does not fall	Adjust the platen gap (refer to page 4-4). Completed if printing is normal.

Print is dark.

Table 3-12 Print is dark

Probable part/probable cause	Checkpoints	Action to correct the problem
Adjustment roller shaft holders (506)	Check the platen gap adjustment. 0.45 mm: falls with no weight applied 0.55 mm: does not fall	Adjust the platen gap (refer to page 4-4). Completed if printing is normal.

Dots are missing continuously.

Table 3-13 Dots are missing continuously

Probable part/probable cause	Checkpoints	Action to correct the problem
Head FFC (521)	Check the continuity with a tester. Make sure no wires are broken or shorted out.	Replace the head FFC (521). Completed if printing is normal.
Print head unit (503)	Check the continuity with a tester. Make sure no wires are broken or shorted out.	Replace the print head unit (503). Completed if printing is normal.
	Check the state of the dot wires. Make sure they are not broken.	

Line spacing is irregular.

Table 3-14 Line spacing is irregular

Probable part/probable cause	Checkpoints	Action to correct the problem
Roll paper is inserted incorrectly	Check the roll paper. Make sure it meets specifications and is loaded correctly.	Load roll paper that meets specifications correctly. Completed if operation is normal.
Paper jam	Check the paper path. Make sure there is no paper jam.	Open the roll paper cover and remove the paper jam. Completed if operation is normal.
Gear does not rotate	Check gear operation. Make sure the following gears rotate with each other. Paper feed gear (1063) Paper feed middle gear B (510) Paper feed middle gear (509) Paper feed reduction gear 1 (1093) Make sure the I/F circuit board unit (122) shaft rotates with the rotation of paper feed reduction gear 2 (1058).	Replace the defective gear. Completed if operation is normal.
Paper hold spring (1014)	Check the spring mounting. Make sure it is mounted correctly. (Refer to page 4-17)	Insert the paper hold spring (1014) correctly. Completed if operation is normal.
Paper hold roller (1015)	Check operation. Make sure it rotates smoothly.	Replace the paper hold roller (1015). Completed if operation is normal.
Paper guide roller (1045)	Check operation. Make sure it rotates smoothly.	Clean, so the paper guide roller (1045) rotates correctly. Completed if operation is normal.

Two-color printing is not performed, or colors are mixed.

Table 3-15 Printing is not two-color, or colors are mixed

Probable part/probable cause	Checkpoints	Action to correct the problem
Ribbon cassette	Check the ribbon type. Make sure it is for 2-color printing.	Replace the ribbon cassette with one for 2-color printing. Completed if printing is normal.
	Check the mounting. Make sure the ribbon is installed correctly.	Install the ribbon cassette correctly. Completed if printing is normal.
Two-color shift function	Check the mounting of the spring. Make sure the following springs are mounted correctly. Ribbon take-up spring (1088) Ribbon frame spring (1022))	Mount the springs correctly. Completed if printing is normal.

Printed contents are not normal.

Table 3-16 Abnormal printing content

Probable part/probable cause	Checkpoints	Action for the problem
Firmware version	Check the version number. (See page 4-1.) Make sure it is the same as the version used by the customer, or the latest version.	Update the firmware. Completed if printing is normal.
Boot version	Check the version number. (See page 4-1.) Make sure it is the same as the version used by the customer, or the latest version.	Update the firmware. Completed if printing is normal.
DIP switch settings	Check the DIP switch settings printed. Make sure the following items are same as the DIP switch settings. (See page 5-8.) Serial Interface (when serial I/F is installed) Receive buffer capacity Receive buffer full release condition Handshaking operation Characters per line (CPL) Autocutter unit If they are not correct, check the continuity of the DIP switch.	Replace the main circuit board unit (201). Completed if printing is normal.
Resident character	Check the resident character. Make sure it is same as the character set used by the customer.	Update the firmware. Completed if printing is normal.
	Check if this error message is printed: ### ERROR ### If so, the multilingual font is not correct. Please download the correct one. Make sure the message above is not printed.	Update the firmware. Completed if printing is normal. If printing is not normal, replace the main circuit board unit (201).
Paper width	Check the print item corresponding to the paper width. Make sure the entire area of the paper width is printed.	Match the paper width setting to the paper width. Completed if printing is normal

Paper jam occurs.

Table 3-17 Paper jam occurs

Probable part/probable cause	Checkpoints	Action to correct the problem
Roll paper is inserted incorrectly	Check the roll paper. Make sure it meets specifications and is loaded correctly.	Load roll paper that meets specifications correctly. Completed if operation is normal.
Manual cutter (513)	Check for defects. Make sure you see no defects, such as deformation.	Replace the manual cutter (513). Completed if operation is normal.
Paper hold rollers (1015)	Check operation. Make sure the 2 rollers rotate smoothly.	Replace the paper hold roller(s) (1015). Completed if operation is normal.

Table 3-17 Paper jam occurs

Probable part/probable cause	Checkpoints	Action to correct the problem
Paper guide rollers (1045)	Check operation. Make sure the 2 rollers rotate smoothly.	Clean, so that both paper guide rollers (1045) rotate correctly. Completed if operation is normal.
	Check for defects. Make sure you see no defects, such as wear.	Replace the mechanism assembly (120). Completed if operation is normal.
Roll paper holder plate (508)	Check for defects. Make sure you see no defects, such as deformation.	Replace the roll paper holder plate (508). Completed if operation is normal.

Printing noise loud.

Table 3-18 Printing is loud

Probable part/probable cause	Checkpoints	Action for the problem
Roll paper is inserted incorrectly	Check the roll paper. Make sure it meets specifications and is loaded correctly.	Load roll paper that meets specifications correctly. Completed if printing noise is reduced.
Adjustment roller shaft holders (506)	Check the platen gap adjustment. 0.45mm: falls with no weight applied 0.55mm: does not fall	Adjust the platen gap. (Refer to page 4-4.) Completed if the printing noise is reduced.

Symptoms when the all function test is executed.

When an error occurs during printing: Refer to page 4-7.

When paper is cut incorrectly: Refer to page 4-9.

Communication test fails.

Table 3-19 Communication test fails

Probable part/probable cause	Checkpoints	Action to correct the problem
Communication condition	Check the communication settings. Make sure the settings printed by the self-test are the same as the communication settings shown by the service utility.	Set the correct communication settings. Completed if operation is normal.
I/F cable	Check the I/F cable connection. Make sure the I/F cable is plugged in securely.	Plug in the I/F cable correctly. Completed if operation is normal.
	Check the continuity with a tester. Make sure no wires are cut or shorted out. Be sure the cable is wired correctly.	Replace the I/F cable. Completed if operation is normal.
I/F circuit board unit (122)	Check the connection. Make sure the connector is plugged in securely.	Connect the I/F circuit board unit (122). Completed if operation is normal.
	Check the parts for defects.	Replace the I/F circuit board unit (122). Completed if operation is normal.
Main circuit board unit (201)	Check parts on the main circuit board unit (201) for defects. Make sure connector (CN1) is connected.	Replace the main circuit board unit (201). Completed if operation is normal

Print result is not normal.

When print is light or irregular: Refer to page 4-11.

When print is dark: Refer to page 4-11.

When dots are missing continuously: Refer to page 4-12.

When line spacing is irregular: Refer to page 4-12.

When two-color printing is not performed, or the colors are mixed: Refer to page 4-13.

Printed contents are not normal.

Table 3-20 Abnormal contents are printed

Probable part/probable cause	Checkpoints	Action to correct the problem
Communication setting	When a question mark (?) is printed, check communication settings. Make sure DTR/DSR control is selected by DIP switch or memory switch.	Select DTR/DSR control. Completed if ? is not printed.
I/F cable	When a question mark (?) is printed, check the continuity of the I/F cable with a tester. Make sure DTR/DSR cross.	Replace the I/F cable. Completed if the operation is normal.
Printer information setting	Check the printer information setting. Make sure the following information is printed: Maker name: "EPSON" Printer name: "TM-U220" Serial No: Serial number on the manufacturer's plate	Set again using the printer status function. Completed if printing is normal.
Memory switch setting	Check the memory switch setting. Make sure it is the same as the setting used by customer. If you do not know the customer's setting, make sure it is in the factory default state. (Refer to page 4-10)	Set again, using the printer status function. Completed if printing is normal.

Drawer 1 or 2 is not kick out.

Table 3-21 Drawer 1 or 2 is not kick out

Probable part/probable cause	Checkpoints	Action to correct the problem
Drawer kick	Check the connection. Make sure the cable is plugged in securely. Check each leading pin for drawer 1 or drawer 2.	Plug in the connector. Completed if the drawer is kicked out.
Sub circuit board unit (123)	Check board parts for defects. Make sure connectors (CNC2 and CNC3) are connected securely.	Replace the sub circuit board unit. Completed if the drawer is kicked out.
Main circuit board unit (201)	Check the parts for defects. Verify the parts below. Connector (CN10) Element (U7)	Replace the main circuit board unit. Completed if the drawer is kicked out.

Cannot pass are of the tests for a sensor.

Cannot pass the test for the NE (near-end) sensor.

Table 3-22 Test for the NE sensor fails

Probable part/probable cause	Checkpoints	Action to correct the problem
NE lead wire set (1096)	Check connection. Ensure cable is plugged in. Be sure the NE lead wire set (1096) is connected to the connectors below. Micro switch (1039) Connector (CN6) on the main circuit board unit (201)	Plug in the connector. Completed if the test passes.
	Check the continuity with a tester. Make sure wires are not cut or shorted out. Verify that wires are arranged correctly.	Replace the NE lead wire set. Completed if the test passes.
Micro switch (1039)	Check micro switch (1039) operation. Make sure the continuity changes when you operate the switch.	Replace the near-end sensor. Completed if the test passes.
NE detector holder (1042) NE detector lever (1043)	Check the operation. Make sure the NE detector lever rotates smoothly.	Replace the NE detector holder or lever. Completed if the test passes.
Main circuit board unit (201)	Check the parts for defects. Make sure connectors (CNC2 and CN6) are connected.	Replace the main circuit board unit. Completed if the test passes.

Cannot pass the test for the RE (real end) sensor.

Table 3-23 Test for the RE sensor fails

Probable part/probable cause	Checkpoints	Action to correct the problem
HP board assembly (518)	Check the connection. Make sure the cable is plugged in. Make sure the connector on the HP board assembly (518) is connected to connector (CN4) on the main circuit board unit (201).	Plug in the connector. Completed if the test passes.
	Check the continuity with a tester. Make sure wires are not cut or shorted out. Be sure wiring is arranged correctly.	Replace the HP board assembly (518). Completed if the test passes.
Paper end assembly (514)	Check the continuity of paper end assembly (514) wires with a tester. Make sure wires are not cut or shorted out. Be sure wiring is arranged correctly.	Replace the paper end assembly. Completed if the test passes.
Main circuit board unit (201)	Check the parts for defects. Make sure connector (CN4) is connected.	Replace the main circuit board unit. Completed if the test passes.

Cannot pass the test for the Roil Cover.

Table 3-24 Paper roll cover test fails

Probable part/probable cause	Checkpoints	Action to correct the problem
Memory switch setting	Check the setting of MSW 8-5. If the setting is OFF, status is not sent from the roll cover, but the RE sensor is changed. Confirm if the setting status is ON.	Change the setting of MSW 8-5 to ON. Completed if the test passes.
HP board assembly (518)	Check the connection. Make sure the cable is plugged in. Make sure the connector on the HP board assembly (518) is connected to connector (CN4) on the main circuit board unit (201).	Plug in the connector. Completed if the test passes.
	Check the continuity with a tester. Make sure wires are not cut or shorted out. Be sure wires are arranged correctly.	Replace the HP board assembly (518). Completed if the test passes.
Cover open assembly (515)	Check the continuity of the wires for the cover open assembly (515) with a tester. Be sure wires are not cut or shorted out. Be sure wires are arranged correctly.	Replace the cover open assembly. Completed if the test passes.
Main circuit board unit (201)	Check the parts for defects. Make sure connector (CN4) is connected.	Replace the main circuit board unit. Completed if the test passes.

Cannot pass the test for the Paper Feed Switch.

Table 3-25 Paper FEED button test fails

Probable part/probable cause	Checkpoints	Action to correct the problem
Main circuit board unit (201)	Check the operation of SW2. Make sure roll paper is fed when you press the paper FEED button. Make sure the continuity changes when you press the button.	Replace the main circuit board unit. Completed if the test passes.

Cannot pass the test for drawer #3 status.

Table 3-26 Drawer 3 status fails

Probable part/probable cause	Checkpoints	Action to correct the problem
Drawer kick	Check the connection. Make sure the cable is plugged in. Check each leading pin for drawer 1 or drawer 2.	Plug in the connector. Completed if the drawer is kicked out.
Sub circuit board unit (123)	Check the parts for defects. Make sure connectors (CNC2 and CNC3) are connected.	Replace the sub circuit board unit. Completed if the drawer is kicked out.
Main circuit board unit (201)	Check the parts for defects. Make sure connector (CN10) is connected.	Replace the main circuit board unit. Completed if the drawer is kicked out.

Symptoms for other operations

Parts do not move smoothly

Cannot open and close he ribbon cover smoothly.

Table 3-27 Opening and closing he ribbon cover is not smooth

Probable part/probable cause	Checkpoints	Action to correct the problem
Ribbon cover (109)	Confirm the condition of 2 projections on the cover. Make sure neither broken.	Replace the ribbon cover (109). Completed if the cover opens and closes smoothly.

Cannot open and close the roll paper cover assembly smoothly.

Table 3-28 Opening and closing the roll paper cover assembly is not smooth

Probable part/probable cause	Checkpoints	Action to correct the problem
Frame rotation spacer (1050)	Confirm that the spacer is fixed. Make sure it is located in the correct position.	Confirm that the frame rotation spacer is attached correctly. Completed if cover opens and closes.
Rotation springs	Confirm spring attachment. Make sure they are located in the correct positions.	Confirm that rotation spring L (1007) and rotation spring R (1006) are attached correctly. Completed if cover opens and closes.
Platen release spring (1056)	Confirm spring attachment. Make sure it is located in the correct position.	Confirm that the platen release spring (1056) is attached correctly. Completed if cover opens and closes.
Hook spring C (1092)	Confirm spring attachment. Make sure it is located in the correct position.	Confirm that hook spring C (1092) is attached correctly. Completed if cover opens and closes.

The case is dirty.

Use a dry cloth or one lightly moistened with water to clean case. Be sure to disconnect the power cord from the wall outlet before doing this.

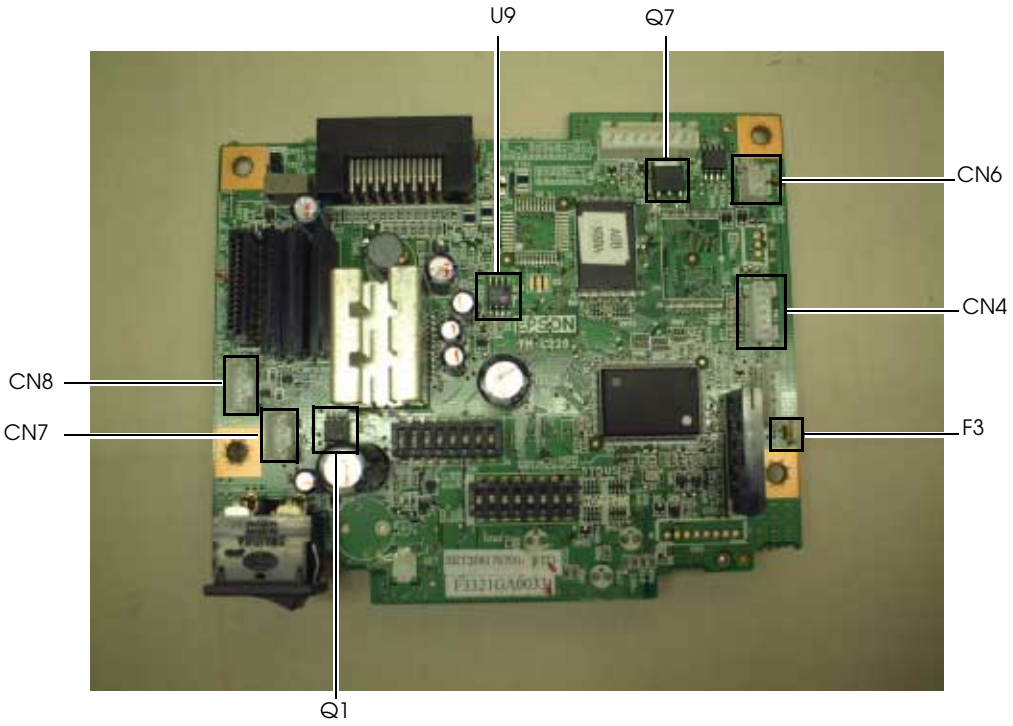
Avoid using alcohol, benzene, thinner, trichloroethylene, or ketone-based substances to remove dirt or foreign matter from the printer, because these substances can affect or damage plastic and rubber parts.

Test Points on the Main Circuit Board Unit

Table 3-29 Test points on the main circuit board unit

Power supply	Pin name	Status	Test connector	Component connector	Correct value
Power supply	Semiconductor switch on	-	-	U9,pin#3 or pin#4	5V
	Semiconductor switch off	-	-	Q1,#5 or #6 or #7 or #8	24V
Logic circuit power supply	Logic circuit power supply	-	-	U9,pin#5	3.3V
	Logic circuit power supply (GND)	-	-	Bottom assembly frame	0V
Mechanism power supply	Autocutter (117) power supply	-	-	F3	24V
	Print Head power supply	-	-	Q7,#5 or #6 or #7 or #8	24V
	Roll paper cover open sensor (515) power supply	Cover opened	-	CN4,#5	3.3V
		Cover closed	-		0V
	HP sensor (518) power supply	On Home Positioned	-	CN4,#2	0V
		On not Home Positioned	-		3.3V
	NE sensor (1096) power supply	On installing the roll paper	-	CN6,#1	3.3V
		On not installing the roll paper	-		0V
	RE sensor (514) power supply	On installing the roll paper	-	CN4,#4	0V
		On not installing the roll paper	-		3.3V
Drawer power supply	-	-	-	CNC3,#5	24V

The locations of the main elements on the main circuit board unit are identified below.



Resistance Values of Printer Mechanism Components

Part Name	Internal Element	Function	Where to Check	Normal Status
Carriage motor (1034)	4-phase stepping motor 	Head carriage drive	Remove the cable connector connected to CN7 on the main circuit board. Test between pin 1 and pin 3 and between pin 2 and pin 4.	Approx. 7.2 Ω (per 1 phase)
Receipt paper feed motor (1046)	4-phase stepping motor 	Receipt paper feed	Remove the cable connector connected to CN8 on the main circuit board. Test between pin 1 and pin 3 and between pin 2 and pin 4.	Approx. 7.2 Ω (per 1 phase)

Chapter 4
Disassembly and Assembly

This chapter gives instructions to disassemble and assemble of the product. Also the maintenance and cleaning in this section for reair is explained.

Lubricants

Lubrication is critical to retaining the printer at its initial performance level throughout its product life, as well as avoiding potential problems. Always lubricate at prescribed intervals, using the correct lubricants.

Standard Lubrication

- ❏ During disassembly and reassembly, clean the parts first, then lubricate them.
- ❏ Lubricate or overhaul after every 7.5 million lines printed.

Lubricants

The types of lubricants used greatly affect the printer's performance and durability, and a lubricant's low-temperature characteristics require special attention. EPSON has conducted thorough analyses of the technical data and wide-ranging experimentation on different lubricants. The EPSON selection of lubricants prescribed for use with the printer is based on the results of such research. The prescribed EPSON lubricants are available in 40 cc (40 gr) metal cans or plastic containers (the smallest unit of supply).

The two types of lubricants used with this printer are G-15, G-36 and O-13.

Lubrication Points

The following table describes the lubrication points, type, and class. See the explanations contained the diagrams in this chapter.

Tool List

- ❏ Please use the tools indicated below for assembly and disassembly.

Items	Parts cord	Note
Gap gauge	1080567	Size: 0.45
	1080568	Size: 0.55
Tension gauge	1213123	-
E-ring holder	1074111	Size: 2.3
	1080545	Size: 3
	1080546	Size: 4

❑ Please use the grease indicated below for lubrication.

Items	Parts cord	Note
Grease	1041442	O-13
	1080605	G-15
	1080619	G-36

❑ Please use the item indicated below for operaton the printer.

Items	Parts cord	Note
AC adapter	2081786	-
Ribbon cassettes	S0152440000	ERC-38(B)
	S0152450000	ERC-38(B/R)
	S0152460000	ERC-38(P)

Notes for Assembly and Disassembly

❑ For assembly, reverse the disassembly procedures under "Disassembly".

❑ The 🕮 symbol in the disassembly procedure indicates the item need to be checked.

❑ The ♦ symbol in the disassembly procedure indicates the item need to lubricate.

⚠ *CAUTION:*

❑ *Wear a grounded wrist band when handling the internal circuit boards to prevent damage from static electricity.*

❑ *When removing an internal circuit board, place it on an anti-static rubber sheet or similar surface to prevent damage from static electricity.*

❑ *Be careful not to subject the circuit boards to shock or vibration, because this may damage them.*

❑ *Do not touch the circuit board or cable terminals with your hands to prevent contamination that may result in a malfunction.Hold circuit boards only by their edges.*

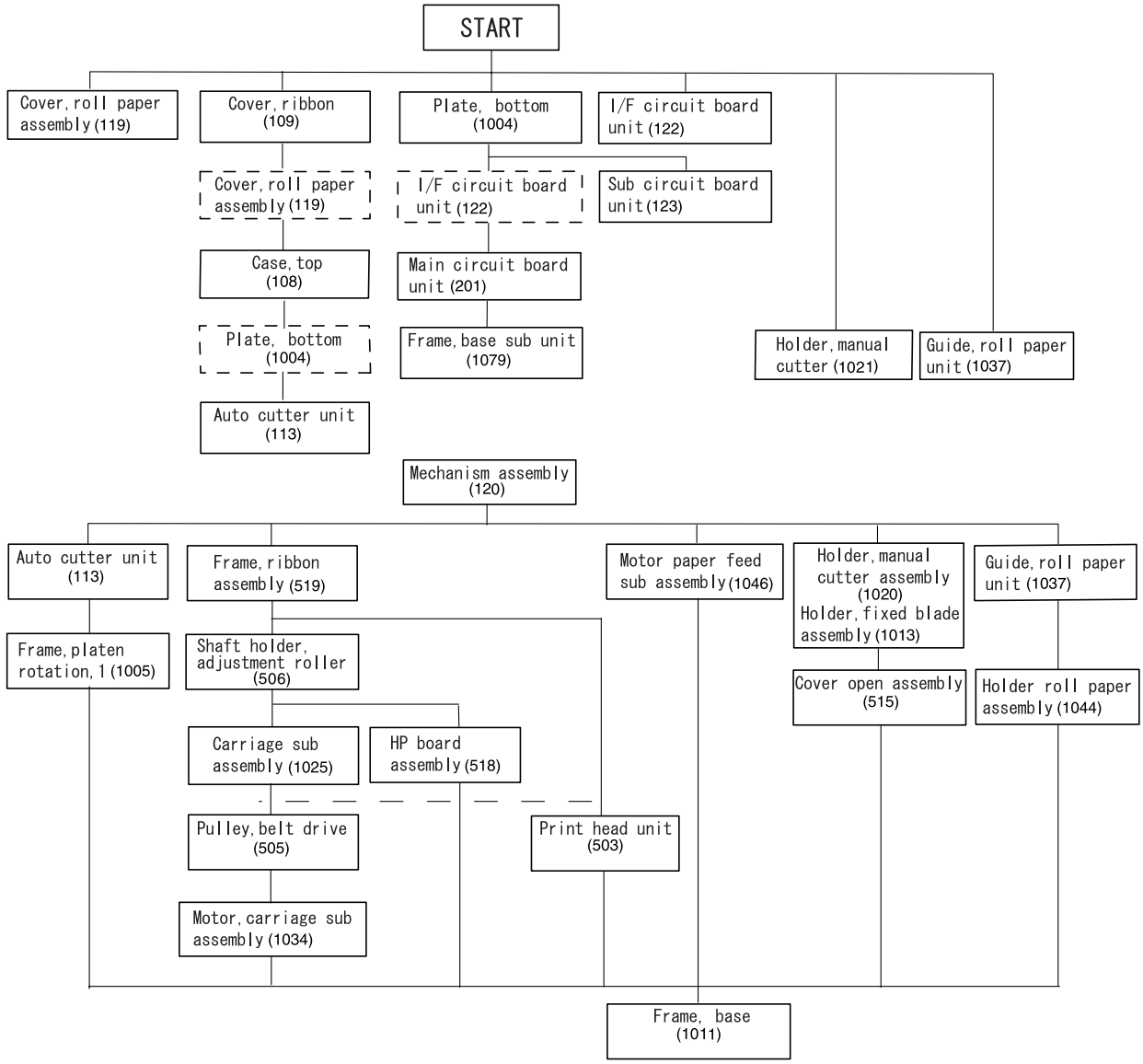
❑ *Always remove the power supply unit from the printer before working. Power is flowing to the internal circuit boards even if you turn the printer off at the power supply switch. You may damage the printer if you work while the power supply is still attached.*

❑ *Remove all peripheral equipment connected to the printer before starting work.*

❑ *Do not perform any work that is not described in this chapter. Doing so may result in injury or damage to the printer.*

Shortest Route for Disassembly of Major Parts

The next diagram shows the shortest disassembly route of major parts. Perform disassembly by following this diagram as well as explanations for the target item.



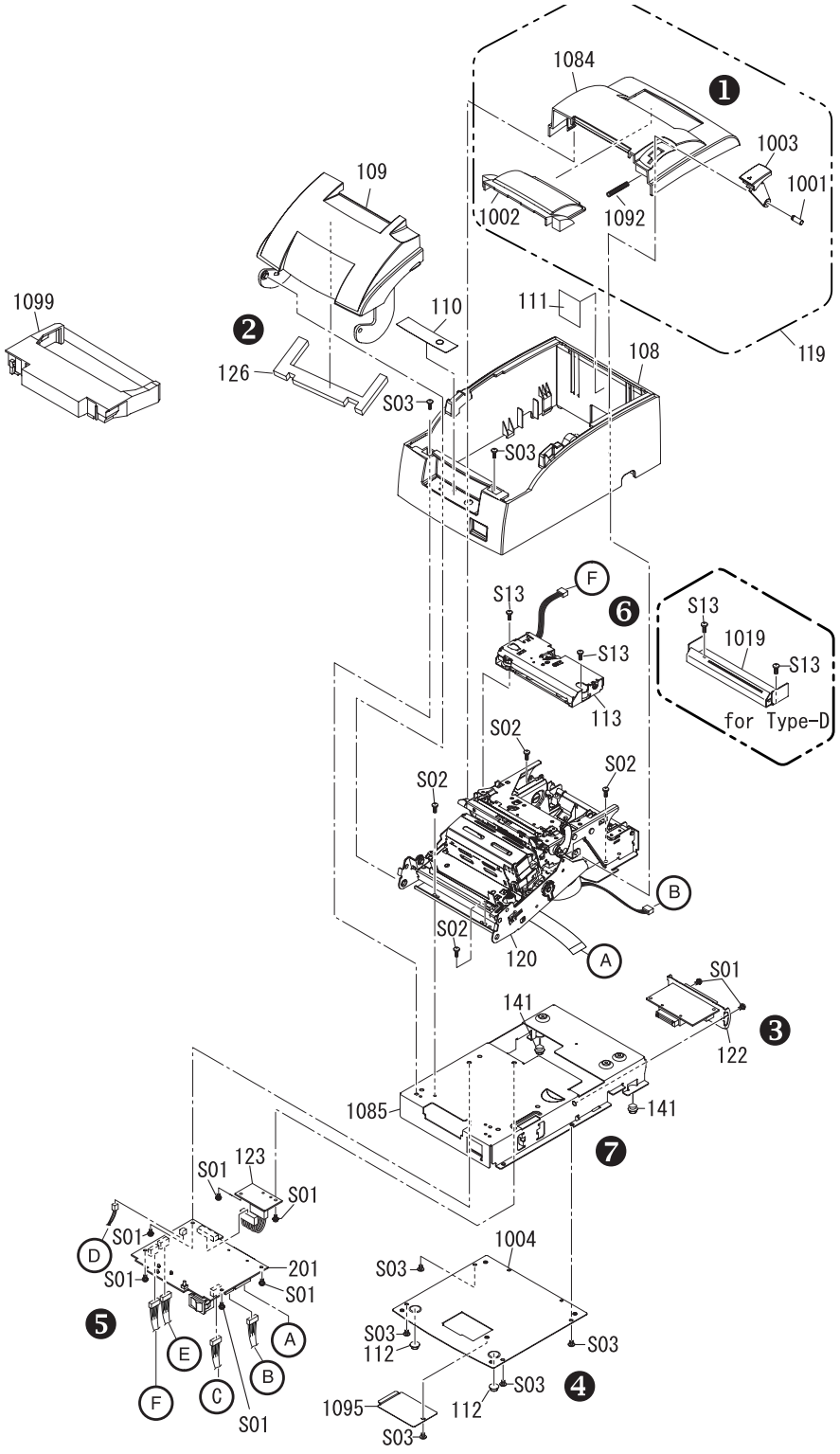
How to use the key map:

1. Find a component that you want to removed that is enclosed in a box with black lines (not blue dotted lines).
2. Trace the line upward from the component to **START**.
3. You need to remove all components or units on the path back to **START**.

Note that the steps of disconnecting cables and removing plates on the units are not described in this key map.

Disassembling the TM-U220B/TM-U220D

Exploded diagram

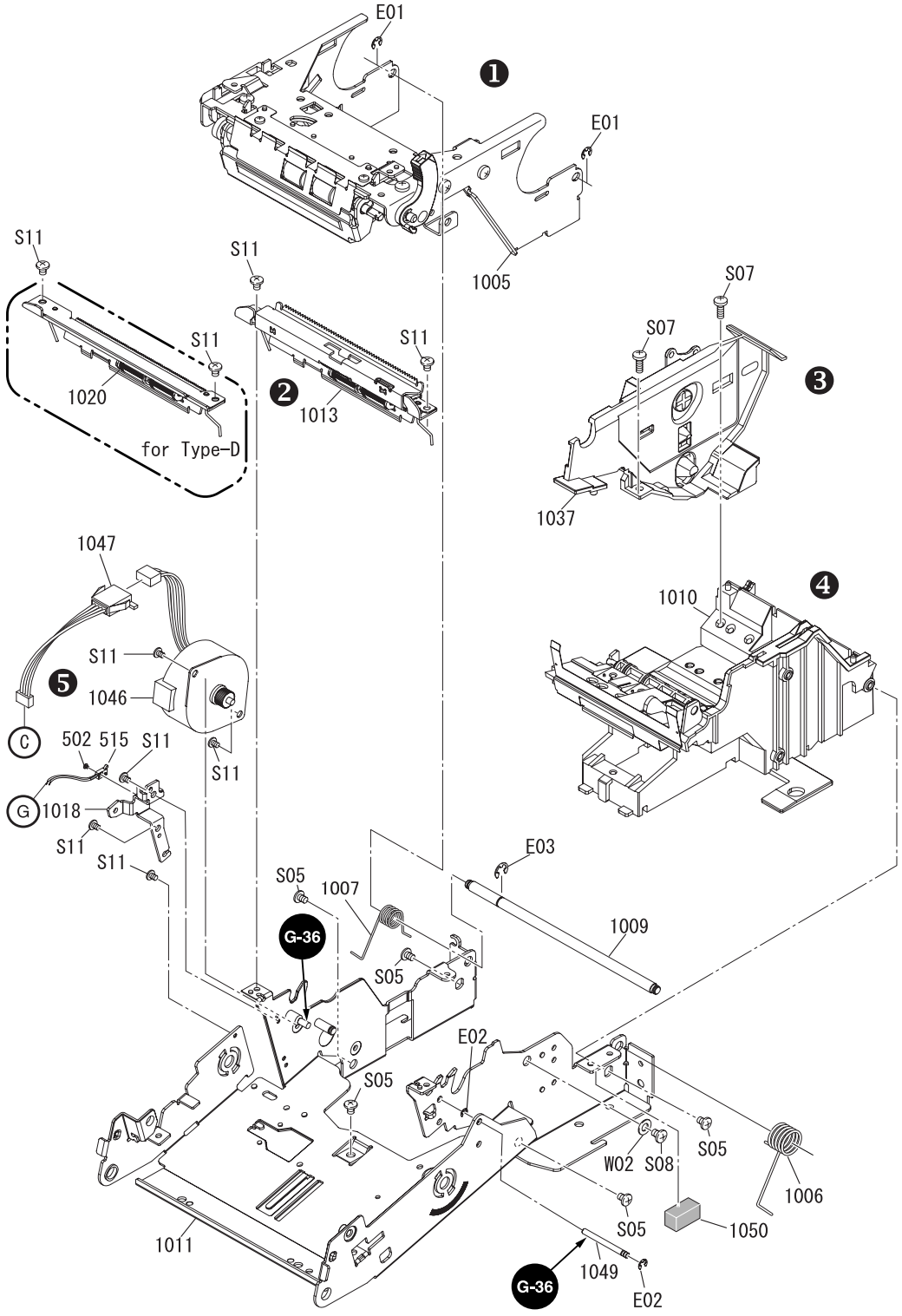


Disassembly Procedures

Disassembly steps	Part names	Disassembly procedures
❶	Cover,roll paper assembly (119)	❑Open the Cover,roll paper assembly (119). ❑Push and take out the Shaft,lever open (1001), remove the Cover,roll paper assembly (119). 🕮 When removing the cover, roll paper assembly, release the three hooks. (See page 4-16.)
❷	Case,top (108)	❑Remove two screws (S03). ❑Open the Cover,ribbon (109). ❑Remove the Case,top (108) and Cover,ribbon (109) together. 🕮 When removing the Case,top, release the two hooks. (See page 4-16.)
❸	I/F circuit board unit (122)	❑Remove two screws (S01). ❑Remove the I/F circuit board unit (122).
❹	Plate,bottom (1004)	❑Remove the four screws (S03),and remove the Plate,bottom (1004).
❺	Main crcuit board unit (201)	❑Remove the connectors connected to the Main crcuit board unit (201) ❑Remove the four screws (S01),and remove the Main crcuit board unit (201) 🕮When attaching each cable to the main circuit board,be sure that the each cable is attached correctly. (See page 4-23.)
	Sub crcuit board unit (123)	❑Remove the two screws (S01), and remove the Sub crcuit board unit (123)
❻	Auto cutter unit (113)	**<For type-B only>** ❑Remove the two screws (S02), and remove the Auto cutter unit (113). 🕮When attaching the autocutter, confirm if the cutting patern is selected correctly. (See page 5-4.)
	Plate,paper guide,D (1019)	❑Remove the two screws (S02), and remove the Plate,paper guide,D (1019).
	Frame,bottom assembly (1085)	**<For type-D only>** ❑Remove the four screws (S02), and separate the Frame,bottom assembly (1085) from the Mechanism assembly (120).

Disassembling the Mechanism Assembly

Exploded diagram

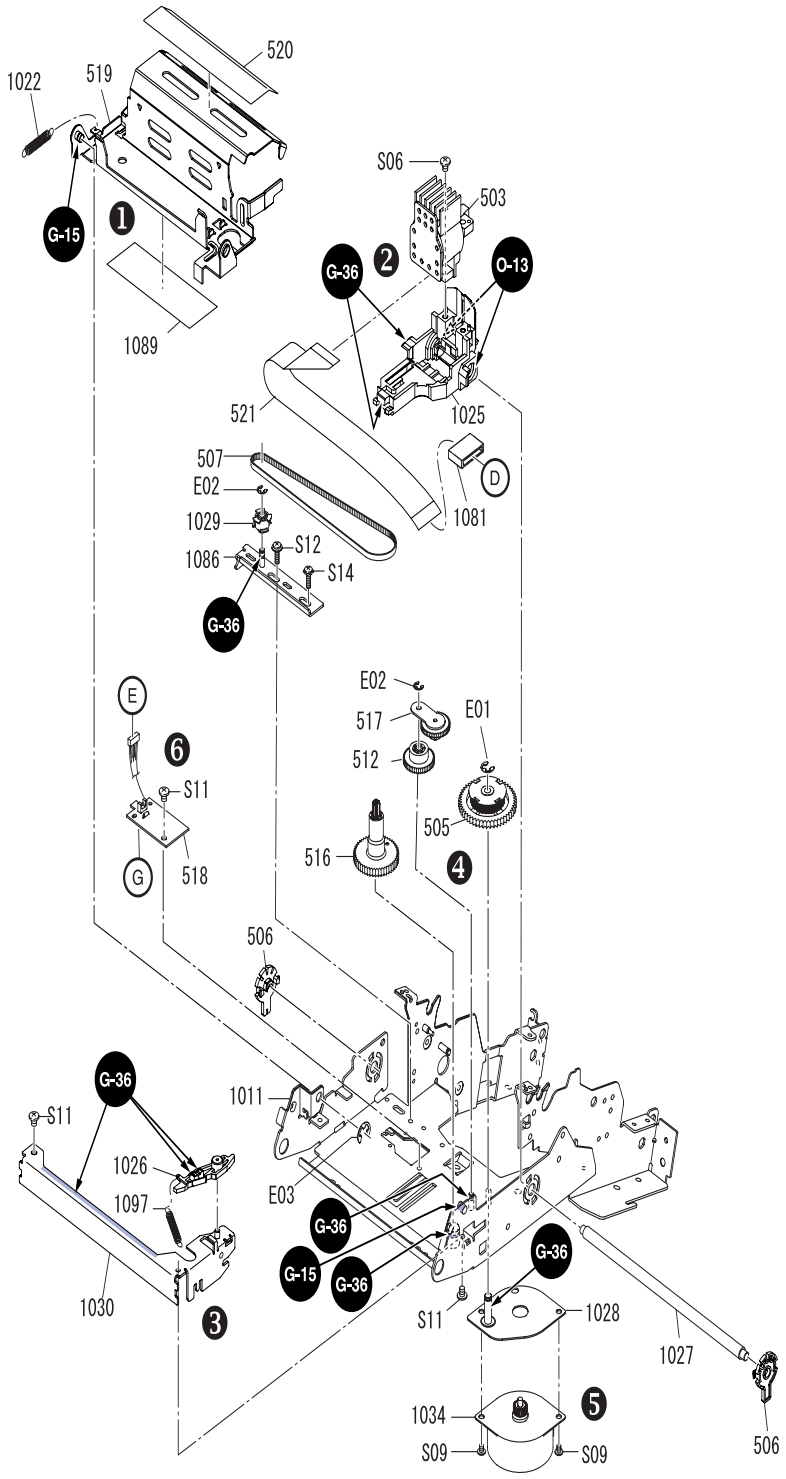


Disassembly Procedures

Disassembly steps	Part names	Assembly procedures
❶	Platen rotation frame 1 unit (1005)	❑ With Platen rotation frame 1 unit closed, remove E-ring 3 (E01). ❑ Release rotation springs R and L from the hooks. ❑ Remove E-ring 4 (E03), and remove the rotation shaft (1009). ❑Remove the platen rotation frame 1 unit (1005). 🕮 *Remove it while spreading its sides to the right and left. (See page 4-17.)*
❷	Fixed blade holder assembly (1013) Manual cutter holder assembly (1020)	**<For type-B only>** ❑Remove 2 screws (S11), and remove the fixed blade holder assembly (1013). **<For type-D only>** ❑Remove 2 screws (S11), and remove the manual cutter holder assembly (1020).
❸	Roll paper guide unit (1037)	❑Remove the two screws (S05), and remove the Guide,roll paper unit (1037).
❹	Roll paper holder (1010)	❑Remove 2 screws (S08) with 1 ???(W02), and remove the roll paper holder (1010).
❺	Cover open assembly (515) Motor paper feed sub assembly (1046)	❑Remove 1 screw (502) securing the cover open assembly (515). ❑Remove 2 screws (S11), and remove the motor paper feed sub assembly (1046). ❑Remove 1 E-ring 2.3 (E02), and remove the platen fix shaft R (1049). ♦Lubricate the platen fix shaft R (1049) with G-36.After this, you can remove the base frame (1049). ♦Lubricate the base frame (1049) with G-36.

Disassembling the Carriage Unit

Exploded diagram

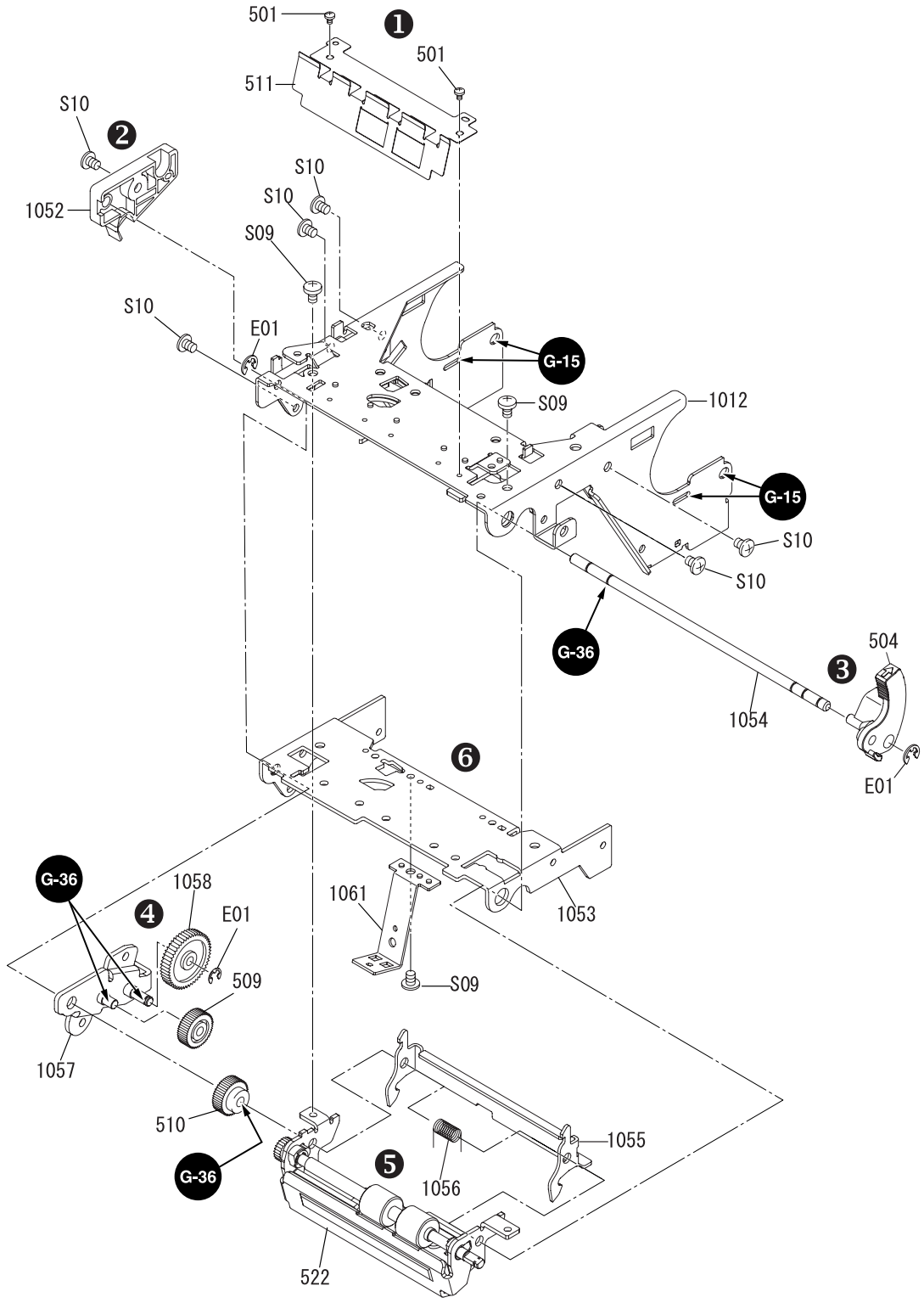


Disassembly Procedures

Reassembly steps	Part names	Assembly procedures
❶	Ribbon assembly frame (519)	❑Remove the ribbon frame spring (1022). ❑Remove 1 E-ring 4 (E03), and remove the ribbon frame assembly (519). ❑After this, you can remove the print head unit (503). ♦Lubricate the carriage sub assembly (1025) with O-13.
❷	Carriage sub assembly (1025) Carriage belt (507) Head FFC (521)	❑Remove the right and left adjustment roller shaft holder (506). ❑Pull out the carriage shaft (1027). ❑Remove the head FFC (521) from the carriage sub assembly (1025). ❑Loosen 2 screws (S12, S14) securing the belt tension plate sub assembly (1086). ❑Remove the carriage belt (507) together with the carriage sub assembly (1025). ❑Remove the plate belt tension sub assembly (1086). ❑Remove the head FFC (521). 🕮 *Confirm the method for removing the adjustment roller shaft holders(506). (See page 4-20.) When removing the shaft holder, adjustment roller (506), replace it to the new part. Because the part trasforms after removing it.* *Confirm the method for attaching the carriage sub assembly (1025). (See page 4-21.) Also when removing the carriage sub assembly (1025), you need to adjust the platen gap of the unit. (See page 4-5.)* *Confirm the method for attaching the carriage belt (507). (See page 4-20 .) Also When attaching the carriage belt, adjust its tension. (See page 4-6.)* *Confirm the method for attaching the head FFC (521). (See page 4-20.)* ♦Lubricate the carriage sub assembly (1025) with O-13. ♦Lubricate the plate belt tension sub assembly (1086) with G-36.
❸	Carriage guide plate (1030) Carriage guide plate sub assembly (1026)	❑Remove 2 screws (S11), and remove the carriage guide plate(1030). ❑Remove the carriage guide plate sub assembly (1026). ♦Lubricate the carriage guide plate(1030) and the plate belt tension sub assembly (1086) with G-36.
❹	Ribbon drive plate sub assembly (517) Ribbon middle gear (512) Ribbon take-up gear sub assembly (516) Belt drive pulley (505)	❑Remove 1 E-ring 2.3 (E02), remove the ribbon drive plate sub assembly (517). ❑Remove the ribbon middle gear(512). ❑Remove the ribbon take-up gear sub assembly (516). ❑Remove 1 E-ring 3 (E01), remove the belt drive pulley (505).
❺	Carriage motor sub assembly (1034)	❑Remove 2 screws (S09), and remove the carriage motor sub assembly (1034).
❻	HP board assembly (518) Base frame (1011)	❑Remove 1 screw (S11), and remove the HP board assembly (518). 🕮*When replacing the HP board assembly (518), you need to remove the solder. Confirm the method for attaching the HP board assembly (518). (See page 4-21.)* After this, you can remove the base frame (1011). ♦Lubricate the base frame (1011) with G-15 and G-36.

Disassembling the Platen Rotation Frame1 Unit

Exploded diagram

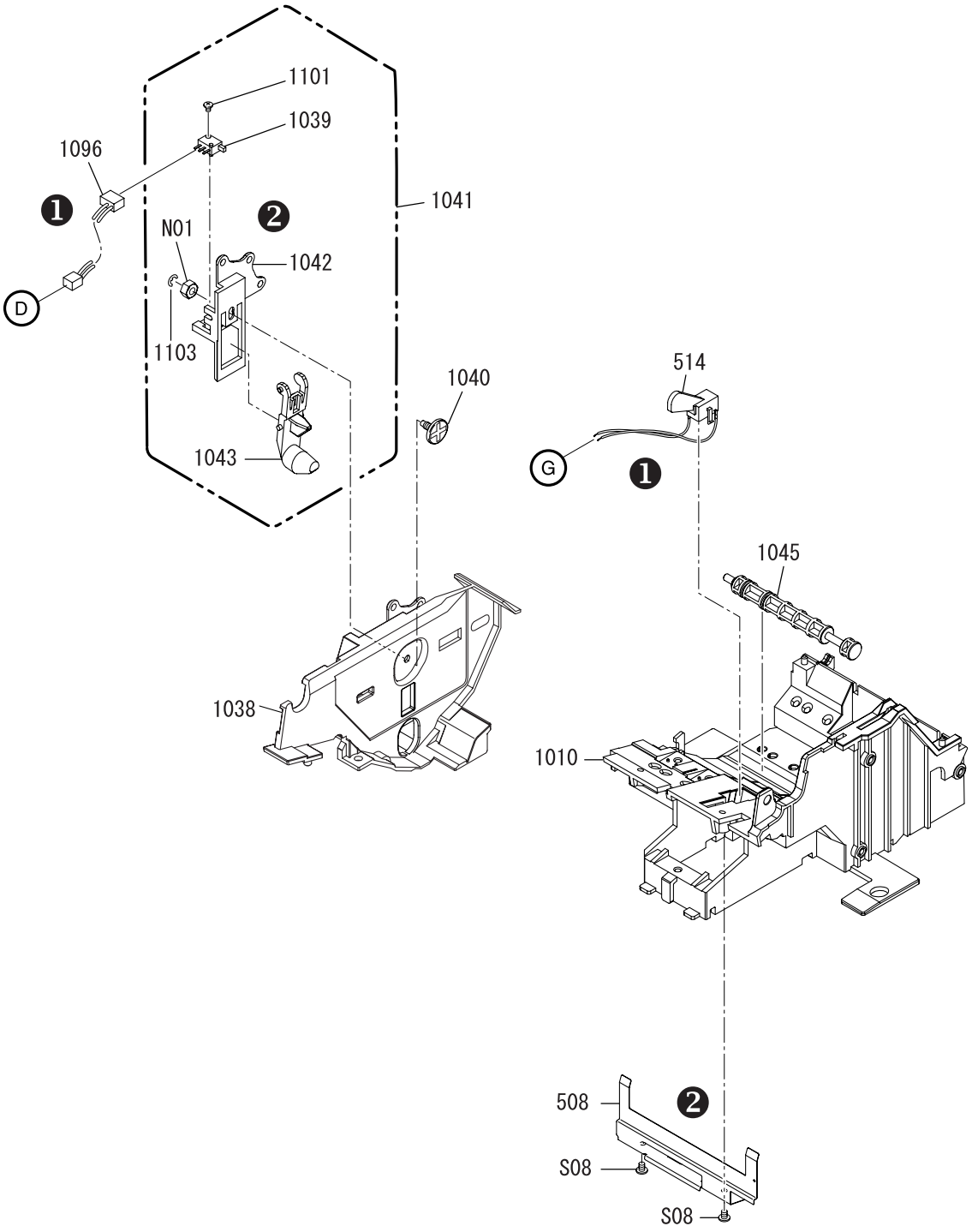


DIsassembly Procedures

Reassembly steps	Part names	Assembly procedures
❶	Paper feed roller plate B (511)	❑Remove 2 screws (501), and remove the paper feed roller plate B (511).
❷	Cover open lever (1052)	❑Remove 1 screw (S10), and remove the cover open lever (1052).
❸	Platen release lever (504)	❑Remove 2 E-ring 3 (E01), and remove the platen release lever (504) and Platen shaft (1054). ♦Lubricate the platen shaft(1054) with G-15.
❹	Gear plate D sub assembly (1057) Paper feed middle gear (509)	❑Remove 2 screws (S10), and remove the gear plate D sub assembly (1057). ❑Remove 1 E-ring 3 (E01), and remove the paper feed reduction gear 2 (1058). ❑Remove the paper feed middle gear (509). ♦Lubricate the paper feed reduction gear 2 (1058) with G-36. ♦Lubricate the gear plate D sub assembly (1057) with G-15.
❺	Platen assembly 1 (522)	❑Remove 1 E-ring 3 (E01), and pull out the platen shaft(1054). ❑In doing so, remove the paper feed middle gear B (510), the platen release plate (1055), and the platen release lever (504) together. Take care not to lose the platen release spring (1056). ❑Remove the platen assembly 1 (522). ❑Remove 1 screw (S09), and remove the bottom holding plate BM (1061). *📖When installing the platen rotation frame 1 unit (1005) on the base frame assembly, check how to lead the autocutter unit (113) cable. (See page 4-19.)*
❻	Platen frame (1053) Platen rotation frame 1 (1012)	❑Remove 3 screws (S10), and remove the platen frame (1053). After this, you can remove the platen rotation frame 1 (1012). ♦Lubricate the platen rotation frame 1 (1012) with G-15.

Disassembling the Roll Paper Guide / Roll Paper Holder

Exploded diagram



Disassembly Procedures

Apply the below procedure for disassembling the Roll Paper Holder.

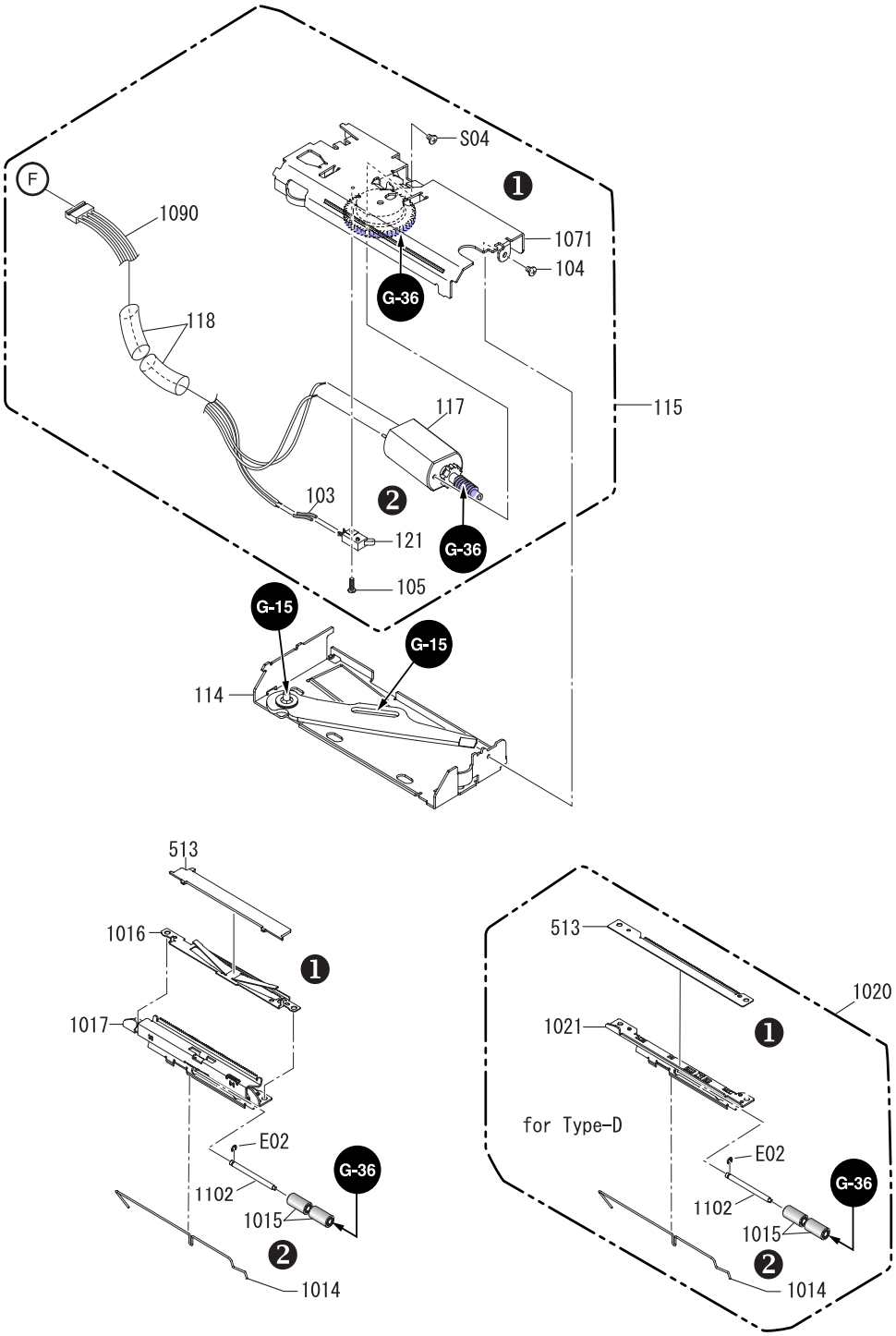
Reassembly steps	Part names	Assembly procedures
❶	Paper end assembly (514)	❑Remove the paper end assembly (514). *🕮When replace the paper end assembly (514), you need to pull out the wire attached on the HP circuit board.(See page 4-21.)*
❷	Roll paper holder (1010)	❑Remove 2 screws (S05), and remove the roll paper holder plate (508). ❑Remove the roll paper holder (1010).

Apply the below procedure for disassembling the Roll Paper Guide.

Reassembly steps	Part names	Assembly procedures
❶	Lead wire set NE (1096) Paper end assembly (514)	❑Remove the Lead wire set NE (1096). ❑ Remove the Paper end assembly (514).
❷	Roll paper guide (1038)	❑Remove the E-ring(1103) ❑Turn the NE detector adjustment screw (1040), and remove the NE detector assembly (1041) and nut (N01). Then remove the roll paper guide (1038).

Disassembling the Autocutter unit / Fixed Blade Holder Assembly / Manual Cutter Holder Assembly

Exploded diagram



Disassembly Procedures

Apply the below procedure for disassembling theAutocutter Unit.

Reassembly steps	Part names	Assembly procedures
❶	Paper end assembly (514)	❑Remove the paper end assembly (514). ♦Lubricate the paper feed roller plate (1051) with G-36. ♦Lubricate the cutter frame assembly (114) with G-36.
❷	Cutter motor sub assembly (117) Micro switch (121)	❑Remove 1 screw (S04), and remove the cutter motor sub assembly (117). ❑Remove 1 screw (105), and remove the micro switch (121). ❑Remove 2 guard tube C (118). 🕮*When removing the guard tube (118), you need to pull out the wire attached to the motor.(See page 4-19.)* ♦Lubricate the paper hold roller (1015) with G-36.

Apply the below procedure for disassembling the Fixed Blade Holder Assembly(Only TypeB)

Reassembly steps	Part names	Assembly procedures
❶	Fixed blade (513)	❑Remove the fixed blade (513). ❑Remove the fixed blade spring (1016). ❑Remove the fixed blade holder (1017). When you replace the paper hold roller (1015), you need to remove 1 E-ring 2.3 (E02).
❷	Paper hold roller (1015)	❑Remove the paper hold roller (1015) and the paper hold roller shaft (1102). ❑Remove the paper hold spring (1014). 🕮*When installing the paper hold spring (1014), check how to attach the hook. (See page 4-17.)* ♦Lubricate the paper hold roller (1015) with G-36.

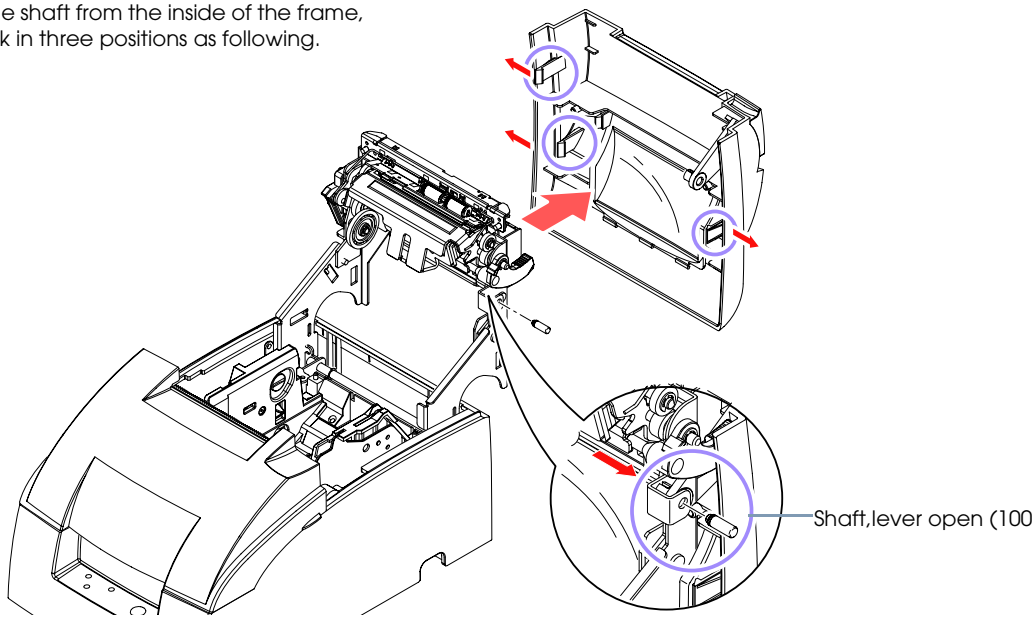
Apply the below procedure for disassembling the Manual Cuter Holder Assembly(Only TypeD)

Reassembly steps	Part names	Assembly procedures
❶	Fixed blade (513)	❑Remove the fixed blade (513).
❷	Paper hold roller (1015)	❑Remove the manual cutter holder (1021). ❑Remove 1 E-ring 2.3 (E02), and remove the paper hold roller (1015). ❑Remove the paper hold spring (1014). 🕮*When installing the paper hold spring (1014), check how to attach the hook. (See page 4-17.)When installing the manual cutter holder assembly (1020), check how to attach the hook. (See page 4-18.)* ♦Lubricate the paper hold roller (1015) with G-36.

Reference of Disassembly and Aseembly

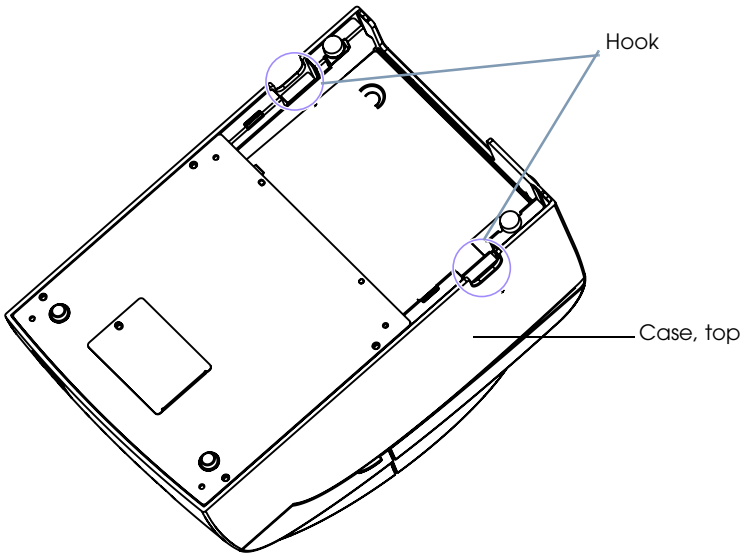
Method for Removing the Roll Paper Cover Assembly

Push and take out the shaft from the inside of the frame, and release the hook in three positions as following.



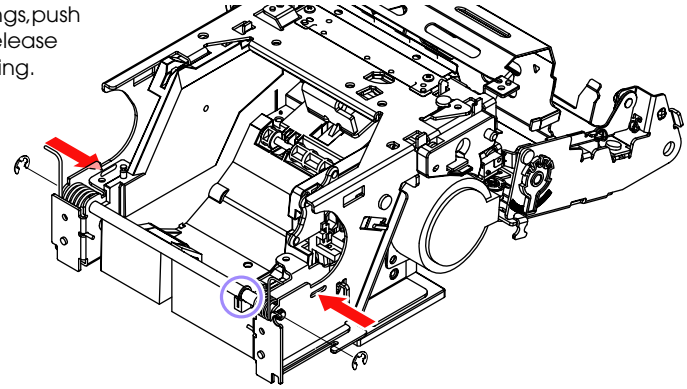
Method for Removing the Case, top

When removing the Case, top, release the each hook as following.

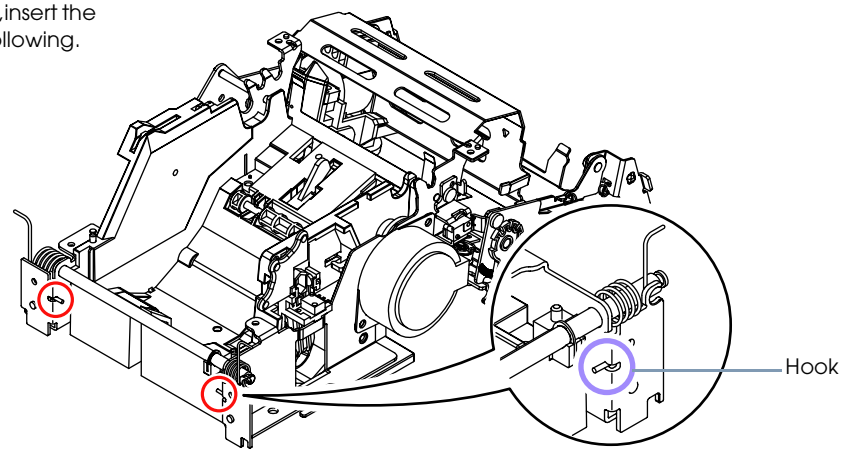


Method for Removing and Attaching the Rotation Spring L and R

When removing the springs,push the springs to inside to release the each hook as following.

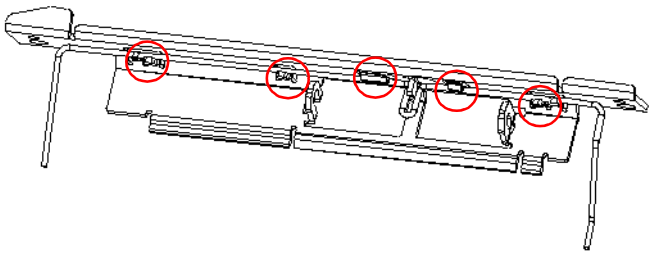


When attaching the springs,insert the each hook in the hole as following.

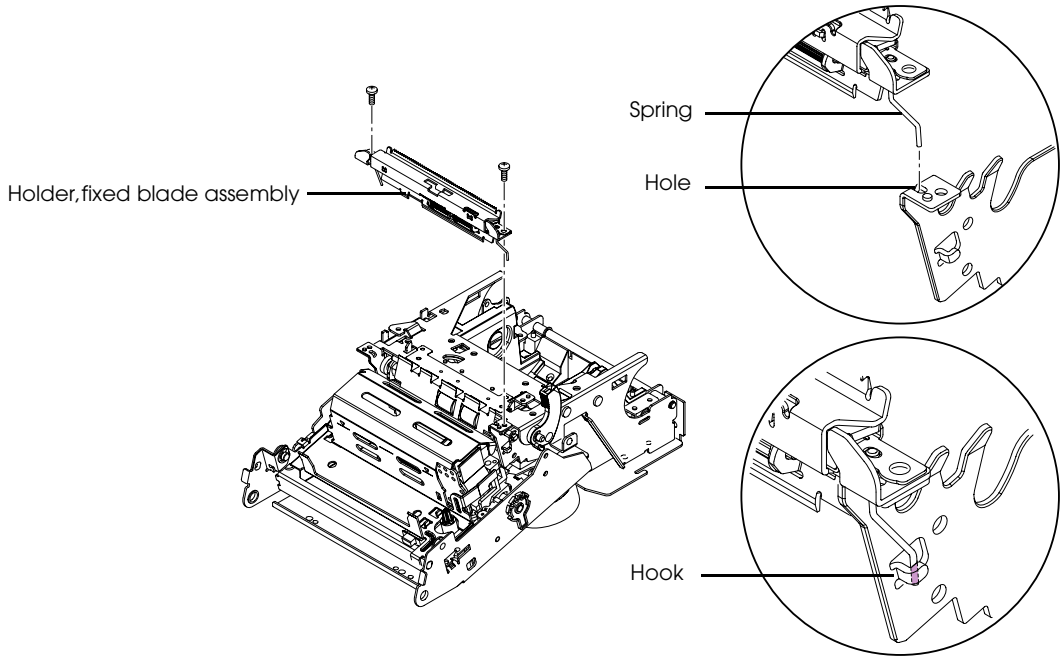


Method for Attaching the Paper Hold Spring

Put the paper hold spring on the Fixed blade holder as following.

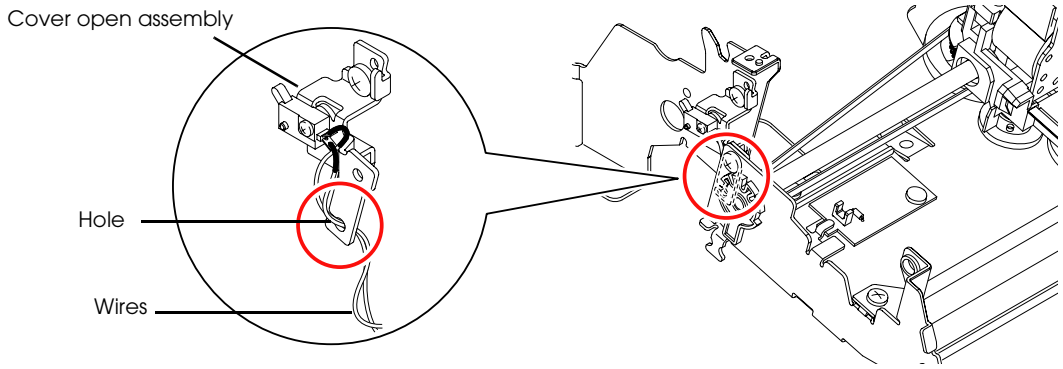


Method for Attaching the Fixed Blade Holder Assembly and Manual Cutter Holder

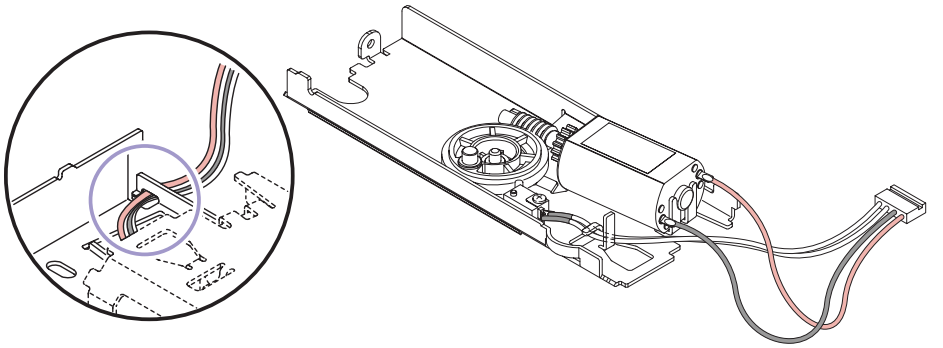


Method for Attaching the Cover Open Assembly

When attaching the Cover open assembly to the frame, be sure that the wires throw the hole.

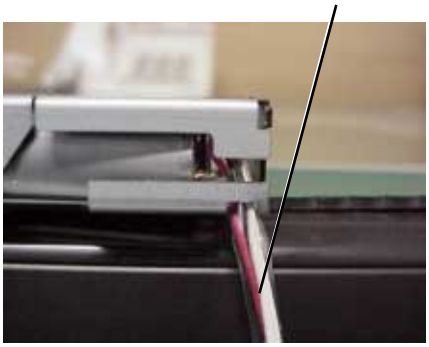


Method for Leading the Autocutter Unit Wires

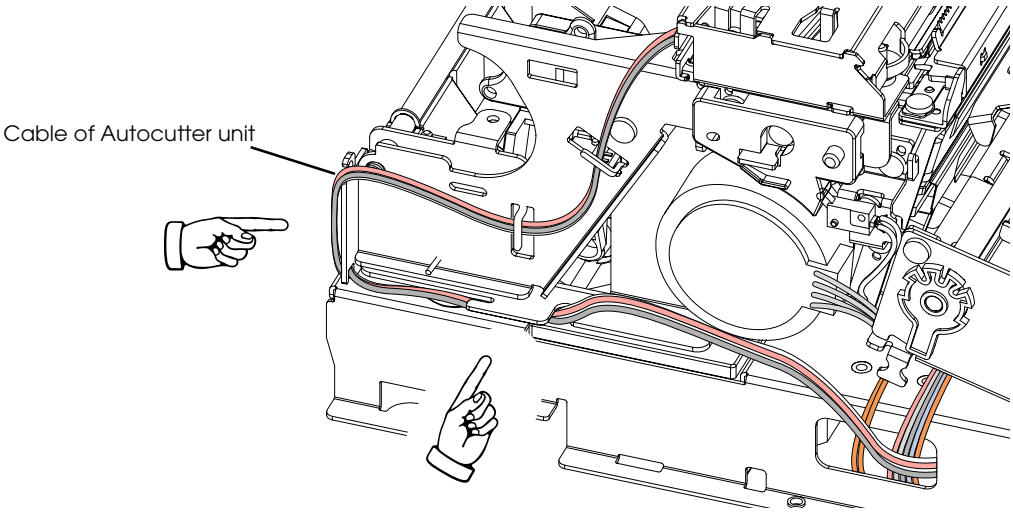


guard tube and lead wire

guard tube and lead wire

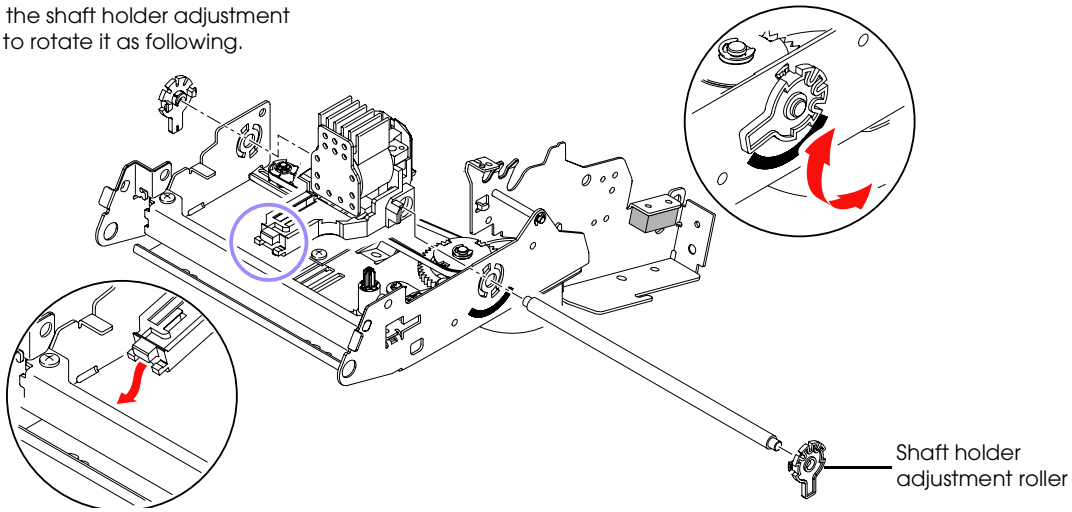


Be sure that there is a certain slack in the cable as following.

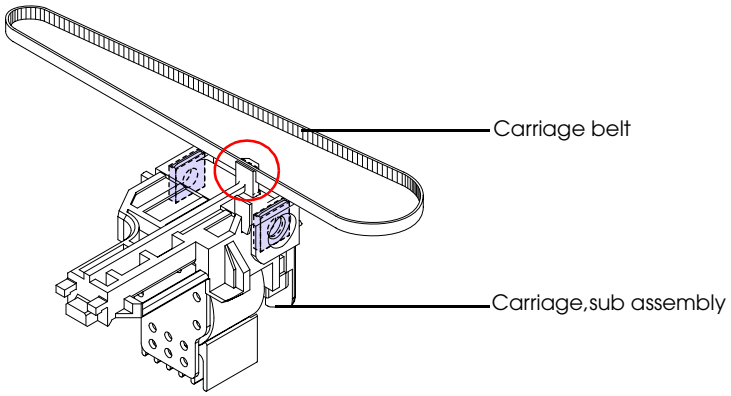


Method for removing the Shaft Holder Adjustmen Roller

When removing the shaft holder adjustment roller, you need to rotate it as following.

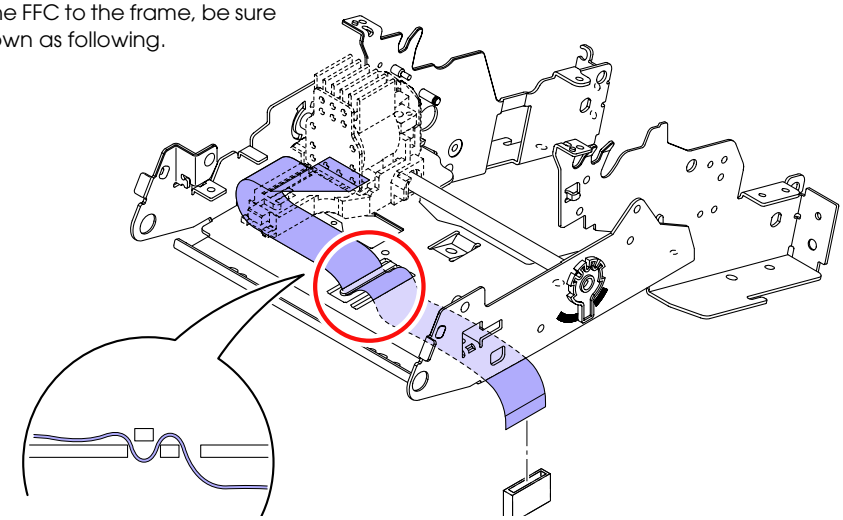


Method for Attaching the Carriage Belt



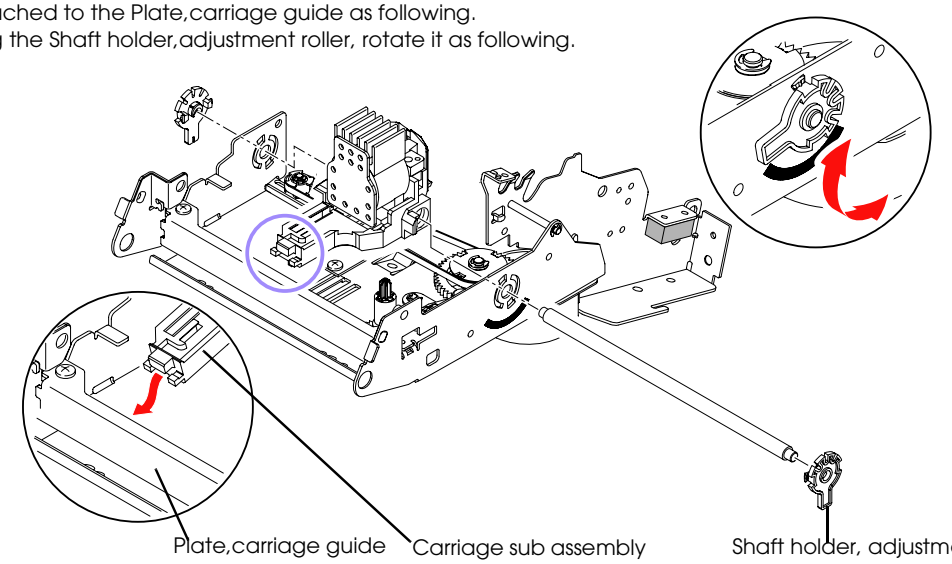
The method of Attaching the Head FFC

When attaching the FFC to the frame, be sure that the FFC is thrown as following.



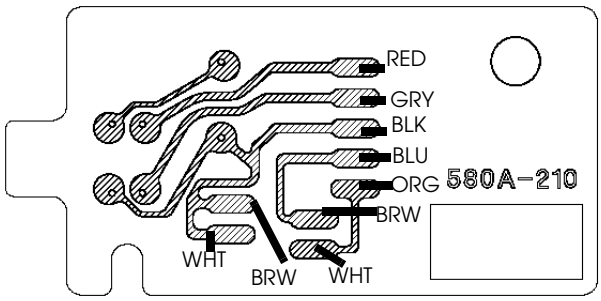
Method for Attaching the Carriage Sub Assembl

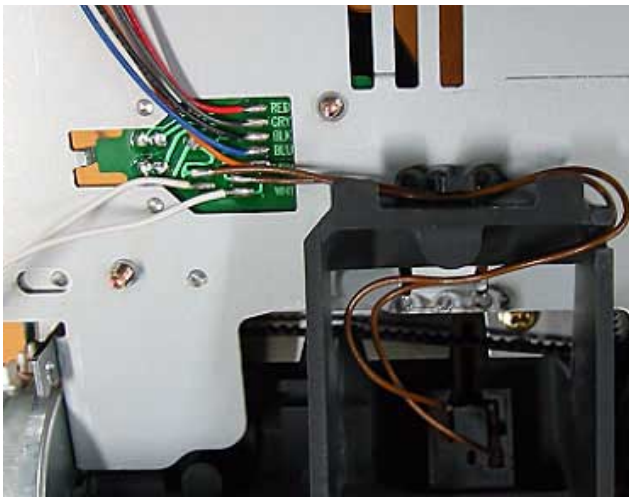
When assembling the carriage unit, be sure that the Carriage sub assembly is attached to the Plate,carriage guide as following.
When removing the Shaft holder,adjustment roller, rotate it as following.



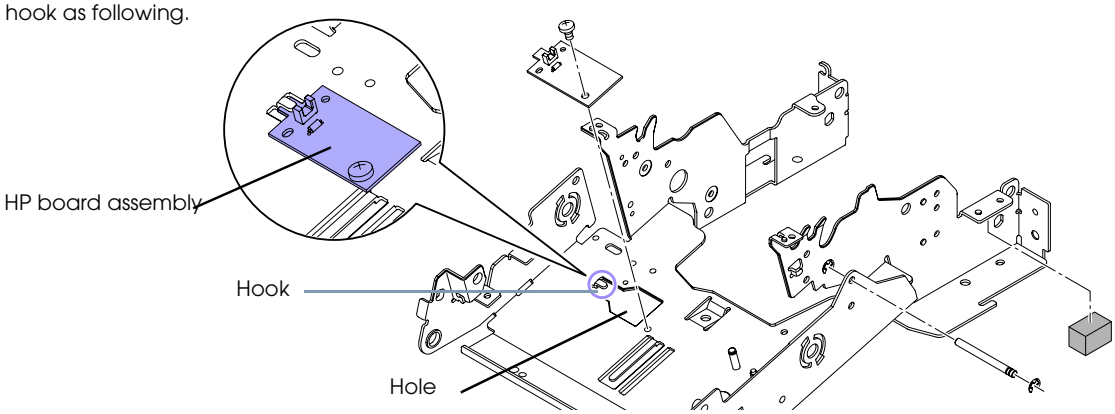
Method for Attaching the HP Board Assembly

When replacing the HP board assembly, be sure that the wires is tsoldering to the board as following.

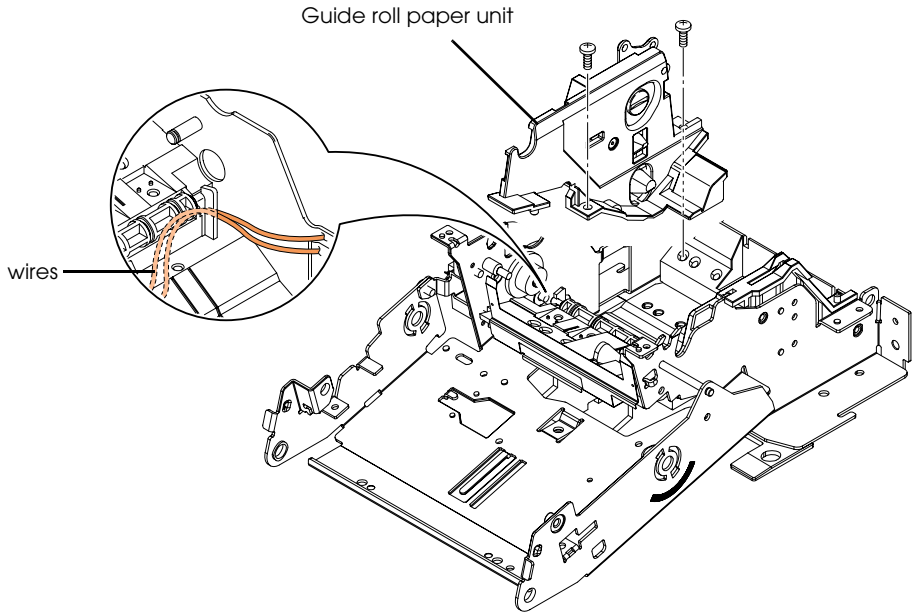




When attaching the HP board assembly, be sure that the wires is thrown to the hole, and attached the board to the hook as following.

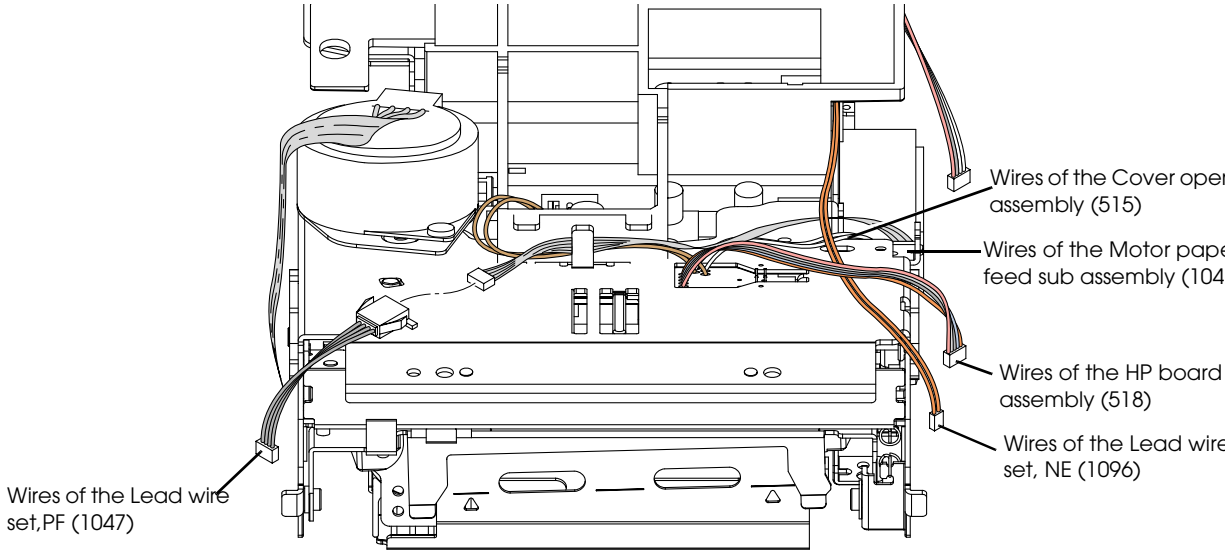


Method for Attaching the Roll Paper GUide Unit

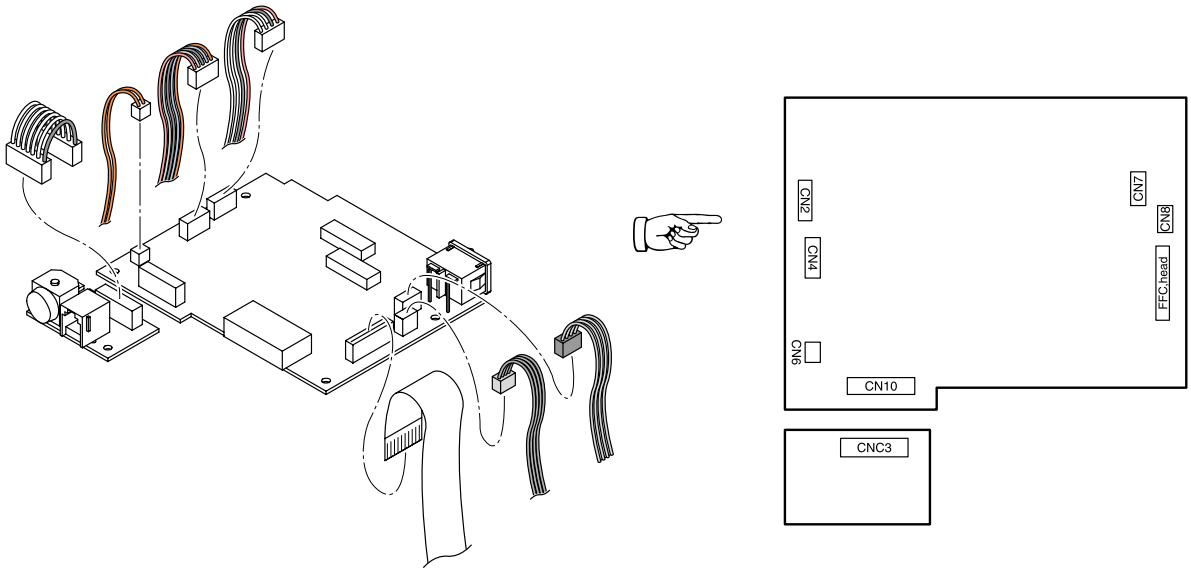


Method for Leading Each Cable

The below illustration indicates the cable leading.

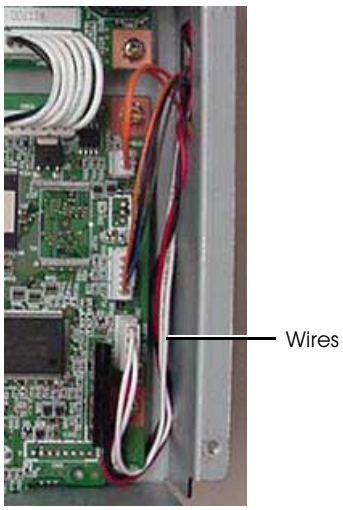


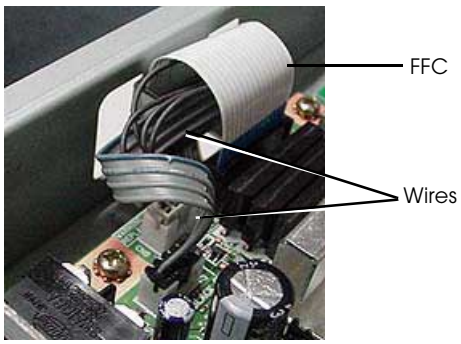
Method for Attachng Each Cable to the Main Circuit Board



CN2: Connecting the cable of the Auto cutter unit (113)
CN4: Connecting the cable of the Hp board assembly (518)
CN6: Connecting the cable of the Lead wire set, NE (1096)
CN7: Connecting the cable of the Motor,carriage sub assembly (1(
CN8: Connecting the cable of the Lead wire set,PF (1047)
CN10: Connecting to CNC3 with cable.

When connecting the cables on the Main circuit board, *Be sure that a slack wires are leading as following.*



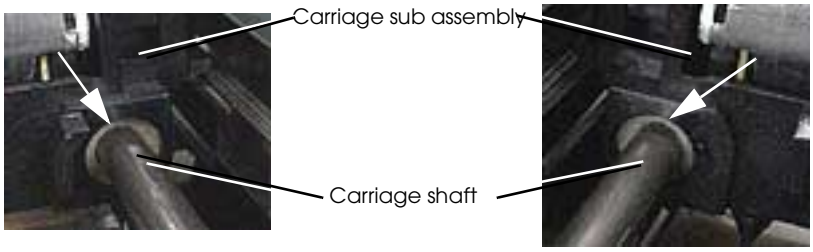


Reference of Lubrication

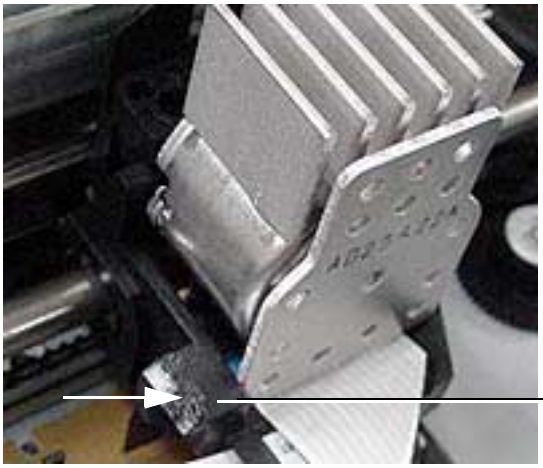
Method for Lubrication

Some points of lubrication is indicated in below. See Chapter 4 about the other points.

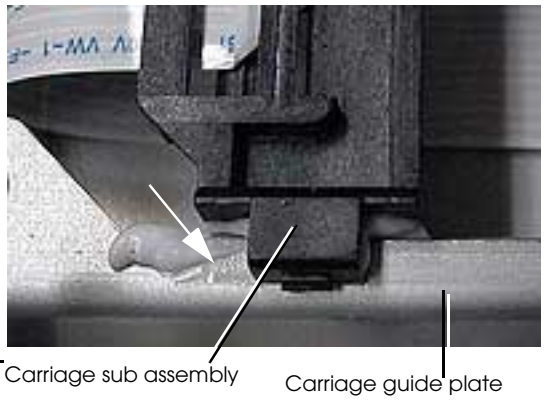
Lubricate to the contact points between the carriage shaft and carriage



Lubricate to the point of the carriage sub assembly with G-36.

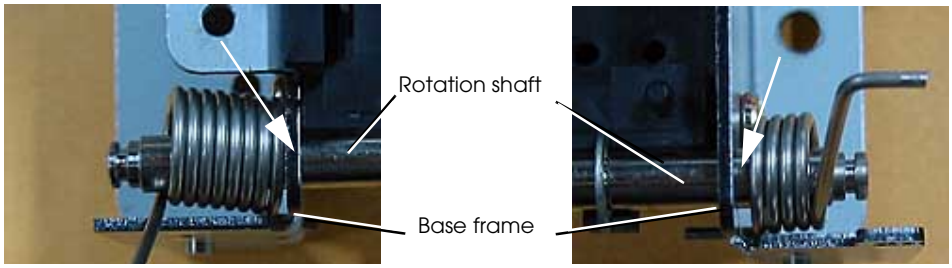


Lubricate to the point of the carriage guide plate with G-36.



Lubricate to the switching points of the carriage guide plate sub assembly (ribbon switch lever) with G-36.

Lubricate to the point of contact between the rotation shaft and base frame (2 points) with G-36.

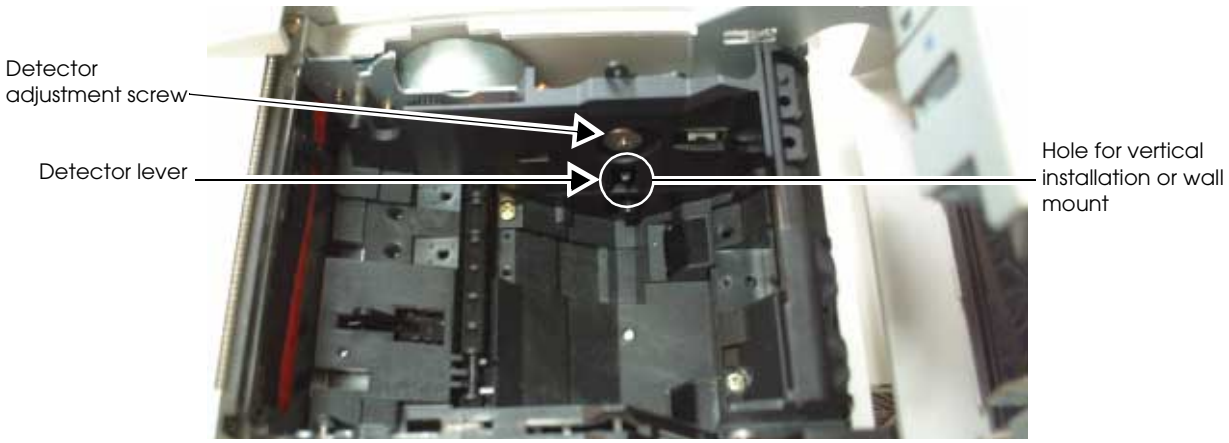


Chapter 5
Adjustment and Setting

Setting the Installation Position for the Roll Paper Near-End Detector

This printer allows you to change the installation position for the roll paper near-end detector using the following procedure.

1. Loosen the detector adjustment screw with a coin or similar tool. Turn the screw at least 3 or 4 times.
2. Push the detector lever in until it touches the back of the hole.
3. While pushing the detector lever, turn the tab until the lever clicks into place in the desired hole.



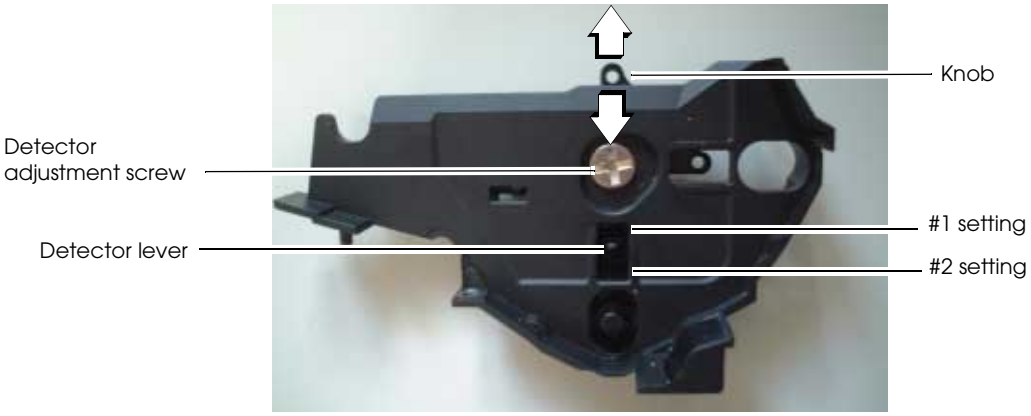
4. Secure the detector adjustment screw.
5. Make sure the detector lever moves smoothly.

Adjusting the Detecting Point of the Roll Paper Near-End Detector

Below are two reasons for the roll paper to require an NE detector adjustment.

- ❑ To adjust the location of detection for the diameter of the roll paper core.
- ❑ To adjust the amount of remaining paper.

1. Open the roll paper cover, and remove the paper roll.
2. Loosen the detector adjustment screw with a coin or similar tool.
3. Adjust the detector by sliding the rever in the direction shown below.



4. Tighten the detector adjustment screw.
5. Check to be sure that the detecting lever moves freely.
6. Replace the paper roll.

Setting the Paper Roll Width

The TM-U220 accommodates 76 mm {3"},69.5 mm {2.74"},57.5 mm {2.26"} wide paper rolls with no adjustments. For the each wide rolls, use the roll paper spacer included with the printer.

Note:

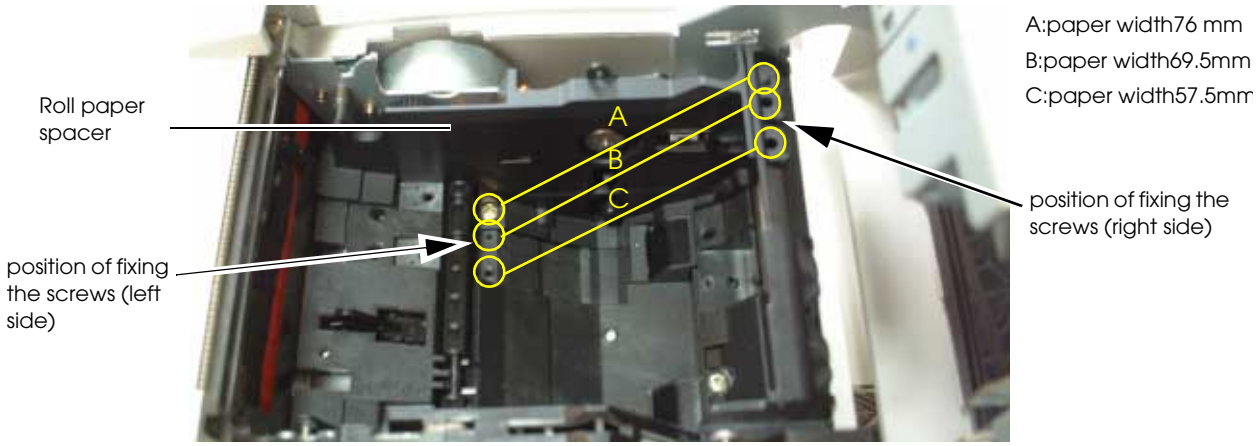
- ❏ *The default paper width setting value saved in NV memory is 76 mm. So if the customer does not use 76 mm width paper, return the printer only after setting it to the customer's value using the appropriate method for each printer function below.*

  Use the TM Service & Support Utility (See page 2-5.)

  Use the Memory Switch Setup Mode (See page 5-12.)

- ❏ *For printer models with a paper near-end detector, be careful not to pinch the near-end detector lead wires between the roll paper spacer and the roll paper holder, and be sure to push the lead wires inside, so that the paper-end detector lead wires do not contact the motor gear.*

1. Open the paper roll cover.
2. When you want to set the each wide roll paper, on the spacer shown in the illustration below.



3. Push the roll paper spacer on the appropriate width (See figure above.)
4. Tighten the spacer with 2 screws included with the spacer. (See figure above.)

Setting the autocutter

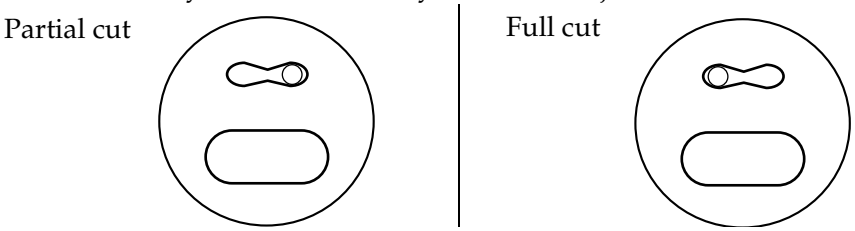
The autocutter action on the TM-U220 can be either “partial cut“ or “full cut.“ The procedure to change from one to the other is described below.

Note:
If the cutting type is changed from partial cut to full cut after the printer has been used, the printer may not be reliable because the wear-out level of the cutter blade differs.

1. Make sure the power supply is disconnected.
2. Open the roll paper cover, and remove it. (See page 4-16.)
3. Loosen the screw as indicated in following figure.

4. Lift the top of the cutter unit upward towards you and remove from the dowel.

5. When you select partial cut (default), you have to adjust the dowel to the right, as shown. When you select full cut, you have to adjust the dowel to left as shown.



6. Tighten the two screws.
7. Set again the roll paper cover, and set the shaft which is taken out in step 2.

Note:
❑ *Execute the self test to confirm the cutter action. (See page 2-2.)*

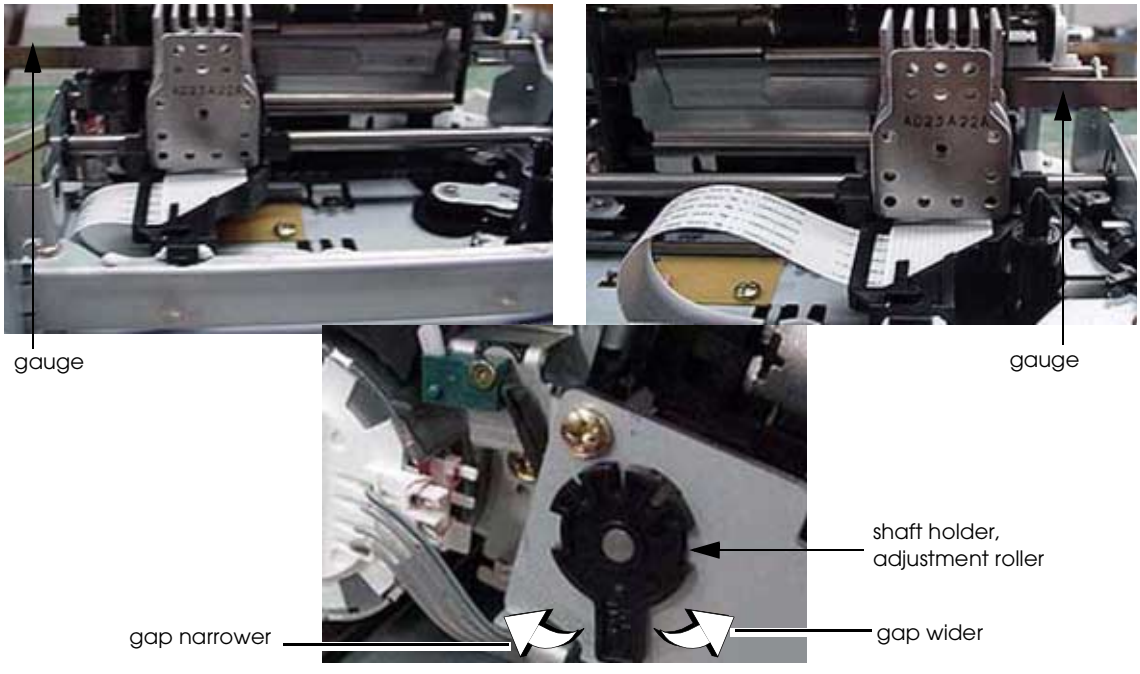
Platen Gap Adjustment

Adjust the platen gap on the completed TM-U220 printer unit. Use the following steps to adjust the platen gap for the printer.Adjust the printer's platen gap when you have performed any one of the following.

Disassembly Items Requiring Platen Gap Adjustment of the Printer
❑ When you have replaced or removed the platen assembly.
❑ When you loosened the screws fastening the carriage unit.
❑ When you replaced or removed the print head.

Note:
Do not use the once removed shaft holder, adjustment roller again.Also perform platen gap adjustment by the standard of "Falling with 0.45 mm thickness gauge, no fall with 0.55 mm thichness gauge".

1. Open the frame, platen rotation and tighten the shaft holder, adjustment roller firmly.
2. Hold up the frame, platen rotation and make sure the shaft holder, adjustment roller is tightened firmly on the both sides.
3. Move the printing head unit to the left, insert the gauge from the left side, and adjust the gap while rotating the shaft holder, adjustment.
4. Move the printing head unit to the right, insert the gauge from the right side, and adjust the gap while rotating the shaft holder, adjustment.
5. Move the printing head unit to the left, insert the gauge from the left side, and check the gap. When it does not meet the standard, adjust gap while rotating the shaft holder, adjustment.
6. Move the printing head unit to the right, insert the gauge from the right side, and check the gap. When it does not meet the standard, adjust the gap while rotating the shaft holder, adjustment.



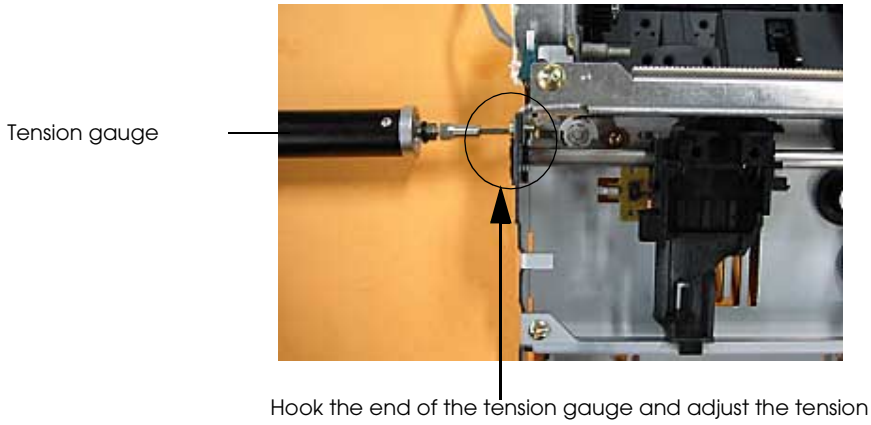
Carriage Belt Tension Adjustment

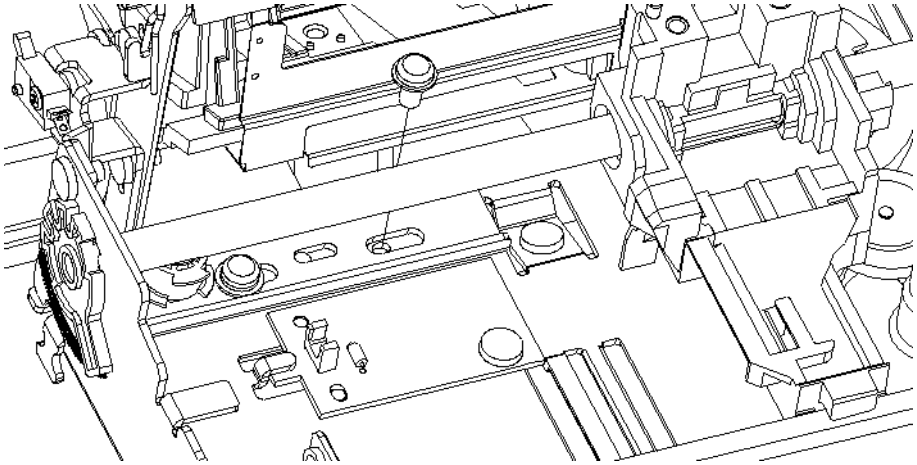
1. Loosen the screw of the plate, belt tension assembly, hook the end of the tension gauge to the hole of the plate, belt tension assembly, adjust the tension properly, and tighten with the screw.

2. Check the belt tension.

Note:
Make sure the plate, belt tension is stable when loosening the screw tightening the plate, belt tension while pulling the carriage belt with the tension gauge by 7.35N.

3. Tighten the plate, belt tension assembly with the screw





Adjust various setting

This printer is able to be adjusted for the items below:

- ❑ DIP switch (communication condition, busy condition, print column, receive buffer capacity, etc...)
- ❑ Memory switch (serial communication conditions, roll paper width, cover open status handling, etc...)
- ❑ Roll paper width (76mm / 69.5mm / 59.5mm) Adjusting the spacer & memory switch
- ❑ Position of roll paper near end detector

The current settings can be confirmed by a self-test. (See page 2-2.)

Note:
When you use serial interface model with 1200bps, 2400bps, or 19200bps, you have to adjust DIP switch "Serial interface selection" function and Memory switch "Serial comminucation conditon".

When you adjust the items, we recommend to confirm the new setting is enable or disable. The confirming is performed by self-test. (See page 2-2.)

How to Confirm Current Settings

You can use a self-test to confirm the current settings. (See page 2-2.)

Adjusting the DIP Switches

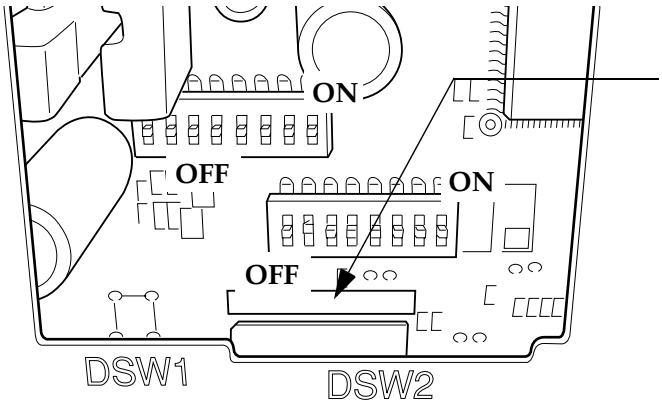
The printer has two sets of DIP switches. The function of the DIP switches is different for each interface model.

If you need to change settings, follow the steps below to make your changes:

⚠ CAUTION:

Turn off the power while removing the DIP switch cover to prevent an electric short, which can damage the printer.

Use a crosshead screwdriver to remove the screw holding the DIP switch cover.



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.

Note:

The functions of the switches of are shown in the following sections. (The default setting is indicated with color net.)

The DIP switch function of US is little different from the STD.

When the letters are STD

Serial model

(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

(DIP Switch 2)

SW	Function	On	Off
1	Print column selection	42/35	40/33
2	Reserved (Auto cutter enable/ disable)	Type A, B Fixed to On	Type D Fixed to Off
3	Reserved	-	Fixed to Off
4	Serial interface selection	Memory switch	DIP switch
5	Reserved	-	Fixed to Off
6	Reserved	-	Fixed to Off
7	Pin 6 reset signal	Used	Not used
8	Pin 25 reset signal	Used	Not used

Parallel / USB / Ethernet model (Except serial)

(DIP Switch 1)

SW	Function	On	Off
1	Auto line feed	Enabled	Disabled
2	Receive buffer capacity	40 bytes	4 KB
3~7	Reserved	-	Fixed to Off
8	BUSY condition	Receive buffer full	Receive buffer full or Offline

(DIP Switch 2)

SW	Function	On	Off
1	Print column selection	42/35	40/33
2	Reserved (Auto cutter enable/ disable)	Type A, B Fixed to On	Type D Fixed to Off
3~7	Reserved	-	Fixed to Off
8	Pin 31 reset signal	Used	Not used

Note:

See the next page for "When the letters are US."

See "Notes for DIP switch 2-1" on page 5-9 about the DIP SW 2-1 setting.

When you use serial interface model with 1200bps, 2400bps, or 19200bps, you have to adjust DIP switch "Serial interface selection" function and Memory switch "Serial comminucation conditon".

When the letters are US

Serial model

(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

(DIP Switch 2)

SW	Function	On	Off
1	Print column	42/35	40/33
2	Reserved (Auto cutter enable/ disable)	Type B Fixed to On	Type D Fixed to Off
3	Pin 6 reset signal	Used	Not used
4	Pin 25 reset signal	Used	Not used
5	Reserved	-	Fixed to Off
6	Reserved	-	Fixed to Off
7	Reserved	-	Fixed to Off
8	Serial interface selection	Memory switch	DIP switch

Parallel / USB / Ethernet model (Except serial)

(DIP Switch 1)

SW	Function	On	Off
1	Auto line feed	Enabled	Disabled
2	Receive buffer capacity	40 bytes	4 KB
3	Reserved	-	Fixed to Off
4~7	Reserved	-	Fixed to Off
8	BUSY condition	Receive buffer full	Receive buffer full or Offline

(DIP Switch 2)

SW	Function	On	Off
1	Print column selection	42/35	40/33
2	Reserved (Auto cutter enable/ disable)	Type B Fixed to On	Type D Fixed to Off
3	Reserved	-	Fixed to Off
4	Pin 31 reset signal	Used	Not used
5~8	Reserved	-	Fixed to Off

Note:

See the previous page for "When the letters are STD."

See the page 5-9 about the DIP SW 2-1 setting.

Notes for DIP switch 2-1

The DIP switch 2-1 is define the print column as following table.

Paper width	Character font	DIP switch 2-1 status	
		ON	OFF
76 mm	Font A (9 x 9)	35	33
	Font B (7 x 9)	42	40
69.5 mm	Font A (9 x 9)	32	30
	Font B (7 x 9)	40	36
57.5 mm	Font A (9 x 9)	27	25
	Font B (7 x 9)	33	30

Unit: cpl (Character per line)

Memory Switches

This printer has "Memory switch" set which is software switches. Memory switch set has "Msw 2," "Msw 8," "Customize value," "Serial communication condition."

"Memory switch setting utility" can change the Memory switch set to ON or OFF as shown in the table below (default: all OFF):

Note:

The Memory swich is available to be changed by the method as following.

- *Memory switch setting utility*
- *Memory switch setup mode (there are limitation for available to change them)*

Some Memory switch setting is available to be changed by "Memory switch setup mode. page 5-12

Settings of the memory switch are stored in the NV memory; therefore, even if the printer is turned off, the settings are maintained. Excessive use of this function may destroy the NV memory. As a guideline, do not use this function more than 10 times a day.

Memory Switch 2

SW	Function	On	Off
1	Reseved	-	Fixed to Off
2	Reseved	-	Fixed to Off
3	Selection of the character code system of the Simplified Chinese	GB2312	GB18030
4 ~ 8	Reseved	-	Fixed to Off

Note:

Msw 2-3:

The memory switch Msw 2-3 affects for Simplified Chinese model only.

Memory Switch 8

SW	Function	On	Off
1 ~ 4	Reseved	-	Fixed to Off
5	Selection of the cover open status	Cover open	Paper end
6	Reseved	-	Fixed to Off
7	Condition to release the BUSY in the receive buffer	Remaining 138 bytes	Remaining 256 bytes
8	Printer cover open during operation	Errors that can possibly recover	Errors that automatically recover

Note:

Msw 8-5:

When Off is selected, a bit of the "roll paper end sensor" in each status that is transmitted from the printer is changed every time the roll paper cover is open or closed. When On is selected, a bit of the "roll paper cover open / close" in each status that is transmitted from the printer is changed every time the roll paper cover is open or closed.

Msw 8-8:

When Off is selected, a bit of the "automatic recoverable error" in each status that is transmitted from the printer is changed every time the roll paper cover is open. When On is selected, a bit of the "mechanical error" in each status that is transmitted from the printer is changed every time the roll paper cover is open.

The setting of Msw 8-5 and 8-8 can be set by "Memory switch setup mode." See page 5-12.

Customize value

Function	Selectable value	
Roll paper width	57.5 mm	69.5 mm
	76 mm (default value)	--

Note:

These setting can be set by "Memory switch setup mode." (See page 5-12.)

Also when adjusting the roll paepr width, See page 5-3.

Serial communication

Function	Selectable value	
baud rate	1200 bps	2400 bps
	4800 bps	9600 bps
	19200 bps	--
Parity	None	Odd
	Even	--
Handshake	DSR/DTR	XON/XOFF
Data length	7 bit	8 bit

Note:

There are two method which are DIP switch and Memory switch by using the service utility to change the serial communication conditions frim the default. DIP SW2 selects which is effective DIP switch or Memoery switch.

Also these setting can be set by "Memory switch setup mode" indicated below.

Memory Switch Setup Mode

The following items are specified in the memory switch setup mode:

- ❏ Basic Serial communication condition (Serial communication)
- ❏ Receive buffer full release condition (Msw 8-7)
- ❏ Roll paper width (Customize value)
- ❏ Cover open status (Msw 8-5)

Note:
All new settings will be lost if the power supply is turned off during the memory switch setup mode. Be sure to follow the proper procedure, and turn the power off at the correct time.

Starting the memory switch setup mode

Use the following procedure to start the memory switch setup mode.

1. Open the roll paper cover.
2. Turn the power on while pressing the paper FEED button.
3. Press the FEED button twice while POWER, ERROR, and PAPER OUT LED are lighting.
4. Close the cover. The printer prints the enabled settings of the memory switches and instructions.
5. Follow the instructions to process the switch setup.

Note:
In the memory switch setup, the paper out LED may flashing. The flashing time indicates "The times of FEED button is pressed before the roll paper cover is close.

Ending memory switch setting mode

Once the setting is performed, the contents of the setting are stored. Then the printer initializes. When initialization is finished, the printer returns to normal operating mode.

Selecting individual settings

- ❏ Basic serial interface setting

To select transmission conditions, first choose "Serial interface settings"; then select "Data length, handshake, or parity."

Press the FEED button the number of times required to select the desired "Serial interface settings" used for transmission conditions.

Press FEED button	Setting selected
0 ~ 3 times:	No change
4 times:	19200 bps
5 times:	9600 bps
6 times:	4800 bps
7 times:	2400 bps
8 times:	1200 bps
9 or more times:	No change

bps: Indicates the number of transmitted bits per second (bps).

❑ Data length, handshake, or parity

Press the FEED button the number of times required to select the desired "Data length, handshake, or parity" setting used for transmission conditions.

Press FEED button	Setting selected		
	Data Length	Handshake	Parity
0 times:	No change		
1 time:	8 bits	DTR/DSR control	No parity
2 times:			Even
3 times:			Odd
4 times:		XON/XOFF control	No parity
5 times:			Even
6 times:			Odd
7 times:	7 bits	DTR/DSR control	No parity
8 times:			Even
9 times:			Odd
10 times:		XON/XOFF control	No parity
11 times:			Even
12 times:			Odd
13 or more times:	No change		

❑ Receive buffer full release condition

Press the FEED button the number of times required to select the desired receive buffer full release condition setting.

Press FEED button	Selecting paper width
0 times:	No change
1 time:	256 bytes remain (Msw 8-7: Off)
2 times:	138 bytes remain (Msw 8-7: On)
3 or more times:	No change

❑ Paper width setting

Press the FEED button the number of times required to select the desired roll paper width setting (Customize value.)

Press FEED button	Selecting paper width
0 times:	No change
1 time:	76 mm
2 times:	69.5 mm
3 times:	58.5 mm
4 or more times:	No change

Note:
See "Setting the Paper Roll Width" on page 5-3 also to adjust roll paepr width.

❑ Cover open status

Press the FEED button the number of times required to select the desired the mapping of cover open status setting.

Press FEED button	Selecting paper width
0 times:	No change
1 time:	Paper out (Msw 8-8: OFF)
2 times:	Cover open (Msw 8-8: ON)
3 or more times:	No change

Chapter 6
Preparation For Shipment

Follow the below item before sending the printer back to the customer.

Inspection and Maintenance

Perform inspection and maintenance procedures described below properly to allow this unit to operate for the years of trouble-free operation for which it is designed.

Maintenance Procedures

The inspection procedures described in the below teble.

Periodic inspection

Checkpoints	Standards	Remedies
Dust, paper particles, or dirt on and in the printer	No dust, paper particles, or dirt should be allowed to build up on or in the printer.	Clean the printer thoroughly with a vacuum cleaner.
	No small pieces of paper should be left in the paper path.	Remove any pieces of paper from the paper path.
Lubrication	See the explanations in this chapter.	Lubricate the points witten in the diagrams.
Operation check	When each printer component is checked, no abnormalities should be found.	Check the printer following "Repair Guide" in Chapter 2.
Shape of the springs	No spring should be bent or deformed.	Replace any deformed springs.
Ribbon cassette	The ribbon cassette should be properly installed in the printer.	See "Instaling orReplacing the Ribbon Cassette" in this chapter.

Cleaning

How to Clean the Case's

⚠ WARNING:

To avoid electric shock, be sure to disconnect the power cord from the electrical outlet.

Use a dry cloth to wipe away dirt. If the dirt proves difficult to remove, slightly moisten the cloth with water or a mild detergent solution.

⚠ CAUTION:

Never clean the case with disinfectant, bleach, alcohol, benzene, thinner, chlorine, or ketone; otherwise the dirt may become difficult to remove. Also, they may cause the case to discolor, dissolve, or deform.

Removing dirt paper chips and dust from inside the printer

Wipe off stains with a clean, dry cloth. If the stains do not wipe off, use a neutral detergent.

⚠ CAUTION:

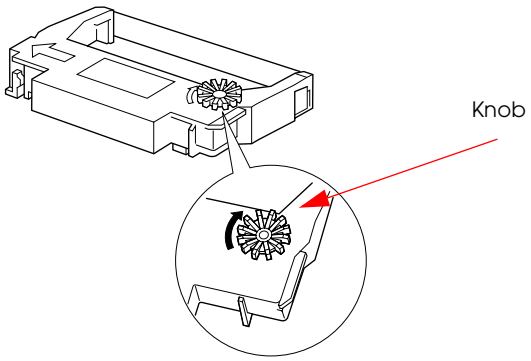
Check the amount of lubrication in each cleaned area and lubricate as needed. See "Lubricants" below.

See the explanations contained the diagrams in chapter 4 about the lubrication points.

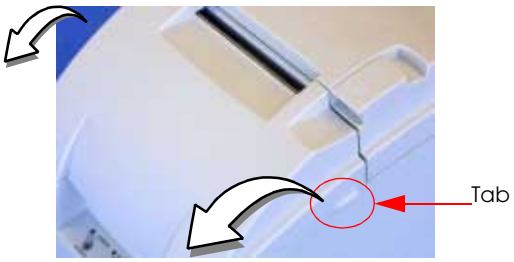
Installing or Replacing the Ribbon Cassette

EPSON recommends the use of genuine EPSON ribbon cassettes. Ribbon cassettes not manufactured by EPSON may cause damage to your printer that is not covered by EPSON's warranties.

To install the ribbon cassette for the first time or to replace a used ribbon, follow the steps below:



1. Unpack the ribbon cassette and turn the knob in the direction shown to take up any slack.



2. Open the ribbon cassette cover of the printer, using the tabs on each side of the cover.

3. Remove the old ribbon, if there is one.
4. Insert the new ribbon cassette as shown 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.

5. Close the ribbon cassette cover of the printer.

Appendix-A
Parts List

Reference Number List

Table A-1 Parts list by reference number

Ref.#	Name in service manual	Name in price list	Qty.	Supplied as a part?	Note
102	Power switch cover	Cover,power switch	1	Yes	
103	Shield tube M-T88	Shield tube M-T88	2	Yes	
104	Manual cutter screw	Screw,manual cutter	1	Yes	
105	Switch screw1	Screw,switch,1	1	Yes	
106	Caution seal C	Seal,caution,C	1	Yes	
107	Logo plate	Logo plate	2	Yes	
108	Top case	Case,top	1	Yes	
109	Ribbon cover	Cover,ribbon	1	Yes	
110	Control panel	Switch panel	1	Yes	
111	Operation label B	Label,operation,B	1	Yes	
112	Rubber foot	Rubber foot	2	Yes	
113	Autocutter unit	Auto cutter unit	1	Yes	
114	Cutter frame assembly	Frame, cutter assembly	1	Yes	
115	Cutter cover assembly	Cover, cutter assembly	1	No	
117	Cutter motor sub assembly	Motor, cutter sub assembly	1	Yes	
118	Guard tube C	Guard tube,C	1	Yes	
119	Roll paper cover assembly	Cover,roll paper assembly	1	Yes	
120	Mechanism assembly	Mechanism assembly	1	Yes	
121	Micro switch	Micro switch	1	Yes	
122	I/F circuit board unit	I/F circuit board unit	1	Yes	
123	Sub circuit board unit	Sub circuit board unit	1	Yes	
124	AC adapter	AC adapter	1	Yes	
125	AC cable, USA	AC cable, USA	1	Yes	
126	Front sheet	sheet, front	1	Yes	
141	Rubber foot B	Rubber foot, B	2	Yes	
201	Main circuit board unit	Main circuit board unit	2	Yes	
501	Manual cutter screw	Screw,manual cutter	2	Yes	
502	Switch screw 1	Screw,switch,1	1	Yes	
503	Print head unit	Print head unit	1	Yes	
504	Platen release lever	Lever,platen release	1	Yes	

Table A-1 Parts list by reference number

Ref.#	Name in service manual	Name in price list	Qty.	Supplied as a part?	Note
505	Belt drive pulley	Pulley,belt drive	2	Yes	
506	Adjustment roller shaft holder	Shaft holder,adjustment roller	1	Yes	
507	Carriage belt	Carriage belt	1	Yes	
508	Roll paper plate holder	Holder roll paper plate	1	Yes	
509	Paper feed middle gear	Gear,paper feed middle	1	Yes	
510	Paper feed middle gear B	Gear,paper feed middle, B	1	Yes	
511	Paper feed roller plate B	Plate,paper feed roller,B	1	Yes	
512	Ribbon middle gear	Gear,ribbon middle	1	Yes	
513	Fixed blade	Fixed blade	1	Yes	
513*	Manual cutter	Manual cutter	1	Yes	(Type D)
514	Paper end assembly	Paper end assembly	1	Yes	
515	Cover open assembly	Cover open assembly	1	Yes	
516	Ribbon take-up gear sub assembly	Gear, ribbon take-up sub assembly	1	Yes	
517	Ribbon drive plate sub assembly	Plate,ribbon drive sub assembly	1	Yes	
518	HP board assembly	HP board assembly	1	Yes	
519	Ribbon frame assembly	Frame,ribbon assembly	1	Yes	
520	Operation label C	Label,operation,C	1	Yes	
521	Head FFC	FFC,head	1	Yes	
522	Platen assembly1	Platen assembly,1	1	Yes	
1001	Cover open lever shaft	Shaft,lever open	1	No	
1002	Window RP	Window,rp	1	No	
1003	Open lever	Lever,open	1	No	
1004	Bottom plate	Plate,bottom	1	No	
1005	Platen rotation frame 1 unit	Frame,platen rotation,1 unit	1	No	
1006	Rotation spring R	Spring,rotation,R	1	No	
1007	Rotation spring L	Spring,rotation,L	1	No	
1008	Rotation spring R,AD	Spring,rotation,R,AD	1	No	
1009	Rotation shaft	Shaft,rotation	1	No	
1010	Roll paper holder	Holder,roll paper	1	No	
1011	Base frame	Frame,base	1	No	
1012	Platen rotation frame 1	Frame,platen rotation,1	1	No	
1013	Fixed blade holder assembly	Holder,fixed blade assembly	1	No	
1014	Paper hold spring	Spring,paper hold	1	No	
1015	Paper hold roller	Roller,paper hold	2	No	
1016	Fixed blade spring	Spring,fixed blade	1	No	
1017	Fixed blade holder	Holder,fixed blade	1	No	

Table A-1 Parts list by reference number

Ref.#	Name in service manual	Name in price list	Qty.	Supplied as a part?	Note
1018	Cover open plate	Plate,cover open	1	No	
1019	Paper guide plate D	Plate,paper guide,D	1	No	(Type D)
1020	Manual cutter holder assembly	Holder,manual cutter assembly	1	No	(Type D)
1021	Manual cutter holder	Holder,manual cutter	1	No	(Type D)
1022	Ribbon frame spring	Spring,ribbon frame	1	No	
1023	Ribbon frame shaft L	Shaft,ribbon frame,L	1	No	
1024	Ribbon frame	Frame,ribbon	1	No	
1025	Carriage sub assembly	Carriage sub assembly	1	No	
1026	Carriage guide plate sub assembly	Plate,carriage guide sub assembly	1	No	
1027	Carriage shaft	Shaft,carriage	1	No	
1028	Carriage motor plate sub assembly	Plate,carriage motor sub assembly	1	No	
1029	Belt tension pulley	Pulley,belt tension	1	No	
1030	Carriage guide plate	Plate,carriage guide	1	No	
1031	Ribbon switch lever	Lever,ribbon switch	1	No	
1032	Belt pulley shaft	Shaft,belt pulley	1	No	
1033	Belt tension plate	Plate belt tension	1	No	
1034	Carriage motor sub assembly	Motor,carriage sub assembly	1	No	
1035	Ribbon take-up gear shaft	Shaft,ribbon take-up gear	1	No	
1036	Ribbon middle gear shaft	Shaft,ribbon middle gear	1	No	
1037	Roll paper guide unit	Guide,roll paper unit	1	No	
1038	Roll paper guide	Guide,roll paper	1	No	
1039	Micro switch	Micro switch	1	No	
1040	Detector adjustment screw	Detector adjustment screw	1	No	
1041	NE detector assembly	N.E.detector assembly	1	No	
1042	NE detector holder	Holder,N.E.detector	1	No	
1043	NE detector lever	Lever,N.E.detector	1	No	
1044	Roll paper holder assembly	Holder roll paper assembly	1	No	
1045	Paper guide roller	Roller,paper guide	1	No	
1046	Paper feed motor sub assembly	Motor paper feed sub assembly	1	No	
1047	PF lead wire set	Lead wire set,PF	1	No	
1048	Paper reduction shaft1	Shaft,paper reduction,1	1	No	
1049	Platen fixing shaft R	Shaft,platen fix,R	1	No	
1050	Frame rotation spacer	Spacer,frame rotation	1	No	
1051	Paper feed roller plate B	Plate,paper feed roller,B	1	No	
1052	Cover open lever	Lever,cover open	1	No	

Table A-1 Parts list by reference number

Ref.#	Name in service manual	Name in price list	Qty.	Supplied as a part?	Note
1053	Platen frame	Frame,platen	1	No	
1054	Platen shaft	Shaft,platen	1	No	
1055	Platen release plate	Plate,platen release	1	No	
1056	Platen release spring	Spring,platen release	1	No	
1057	Gear plate D sub assembly	Plate,gear,D sub assembly	1	No	
1058	Paper feed reduction gear 2	Gear,paper feed reduction,2	1	No	
1059	Paper feed reduction shaft 2	Shaft,paper feed reduction,2	1	No	
1060	Paper feed middle shaft	Shaft,paper feed middle	1	No	
1061	Bottom holding plate BM	Holding plate,bm,bottom	1	No	
1069	S Push N,3,F / Zn	S Push N,3,F / Zn	1	No	
1070	Plain washer	Plane washer	1	No	
1071	Cutter cover sub assembly	Cover, cutter sub assembly	1	No	
1072	Drive gear sub assembly	Gear, drive sub assembly	1	No	
1073	Insulator plate assembly	Plate,insulator assembly	1	No	
1074	Platen	Platen	1	No	
1075	Paper feed roller	Paper feed roller	1	No	
1076	Platen assembly1	Platen assembly,1	1	No	
1077	Belt tension plate assembly	Plate belt tension assembly	1	No	
1078	Carriage	Carriage	1	No	
1079	Base frame sub unit	Frame,base sub unit	1	No	
1080	Micro switch	Micro switch	1	No	
1081	Ferrite core	Ferrite core	1	No	
1082	Double adhesive tape	Double adhesive tape	1	No	
1083	Platen base	Base platen	1	No	
1084	Roll paper cover BA	Cover,roll paper,BA	1	No	
1085	Bottom assembly frame	Frame,bottom assembly	1	No	
1086	Belt tension plate sub assembly	Plate belt tension sub assembly	1	No	
1088	Ribbon take-up spring	Spring,ribbon take-up	1	No	
1089	FFC protection tape	Tape,FFC protect	1	No	
1090	AC lead wire set	Lead wire set,AC	1	No	
1091	Micro switch	Micro switch	1	No	
1092	Hook spring C	Spring,hook,C	1	No	
1093	Paper feed reduction gear 1	Gear,paper feed reduction,1	1	No	
1094	Drive gear	Gear drive	1	No	
1095	IC cover	IC Cover	1	No	
1096	NE lead wire set	Lead wire set, NE	1	No	
1097	Ribbon release spring	Spring,ribbon release	1	No	

Table A-1 Parts list by reference number

Ref.#	Name in service manual	Name in price list	Qty.	Supplied as a part?	Note
1098	Ribbon cassette connector cable	Ribbon cassette cable,connector	1	No	
1099	Ribbon cassette	Ribbon cassette	1	No	
1100	CBS-Tite screw,3X12,F/ZN	C.B.S-TITE SCREW,3X12,F/ZN	2	No	
1101	CBB-Tite screw,2X8,F/ZN	C.B.B-TITE SCREW,2X8,F/ZN	1	No	
1102	Ppaper hold roller shaft	Shaft, paper hold roller	1	No	
1103	E-ring 1.5	E-ring 1.5	1	No	
E01	E-ring 3	E-ring,3	8	Yes	
E02	E-ring 2.3	E-ring,2.3	3	Yes	
E03	E-ring 4	E-ring,4	2	Yes	
N01	Nut	Nut	1	Yes	
S01	CPS(O) screw,3X6 (S01)	C.P.S.(O) SCREW,3X6	8	Yes	
S02	CPSI-Tite,3X5,F/ZN (S02)	C.P.SITITE,3X5,F/ZN	6	Yes	
S03	CBS screw,3X6 (S03)	C.B.S. SCREW,3X6	7	Yes	
S04	CB screw,2X2.5,F/ZN (S04)	C.B. SCREW,2X2.5,F/ZN	1	Yes	
S05	CBP-Tite screw,3X8,F/ZN (S05)	C.B.P-TITE SCREW,3X8,F/ZN	5	Yes	
S06	Screw (P tight) (S06)	Screw (P tight)	1	Yes	
S07	CBP-Tite,3X10,F/ZN (S07)	C.B.P-TITE,3X10,F/ZN	2	Yes	
S08	CBP-Tite screw,3X6,F/ZN (S08)	C.B.P-TITE SCREW,3X6,F/ZN	3	Yes	
S09	CBS-Tite,3X4,F/ZN (S09)	C.B.S-TITE,3X4,F/ZN	5	Yes	
S10	CBS screw,3X6,F/ZN (S10)	C.B.S. SCREW,3X6,F/ZN	6	Yes	
S11	CBS-Tite,3X5,F/ZN (S11)	C.B.S- TITE,3X5,F/ZN	10	Yes	
S12	CPSPS screw (S12)	C.P.S.P.S. SCREW	2	Yes	
S13	CBS-Tite,3X4,F/ZN (S13)	C.B.S-TITE,3x4,F/ZN	1	Yes	
W02	Plain washer (W02)	Plane washer	1	Yes	

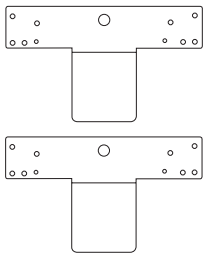
Appendix-B

Assembling and disassembling the Wall Hanging Bracket Set WH-10

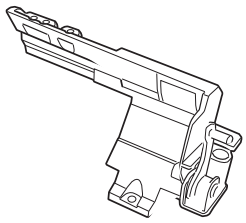
The WH-10 is an optional hanging bracket set for attaching the printer to a wall.

This chapter describes the disassembling and assembling of the parts composed the WH-10 and the setting when installing the WH-10 to the TM-U220.

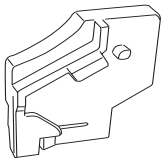
Component parts



brackets (2 pieces)

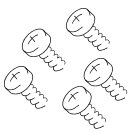


roll paper holder for hanging bracket for TM-U220



cam for TM-U220

screw (3×10) (1 piece) for TM-U220



screws (3×6) (5 pieces) for TM-U220
Note: 4 of the screws are used for attaching the brackets.

Assembling and disassembling the WH-10

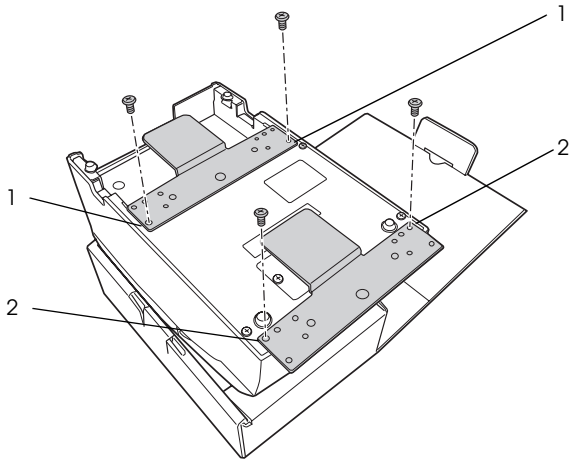
Removing the brackets

Remove four screws(3x6) fixing the hanger of the base.

Installing the brackets

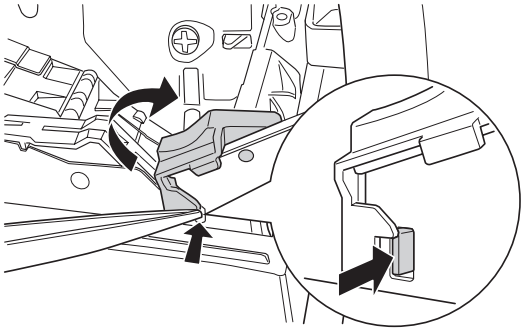
Four different sets of screw holes are found on each bracket. Each hole is identified by a number; be sure to use the holes indicated in the instructions.

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



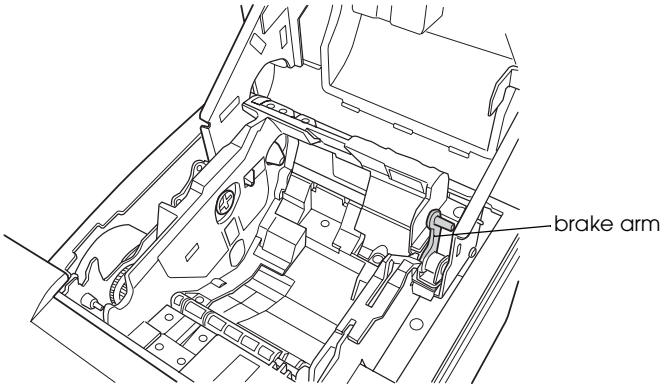
Removing the cam

1. Open the printer cover.
2. 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.



Attaching by the following procedure.

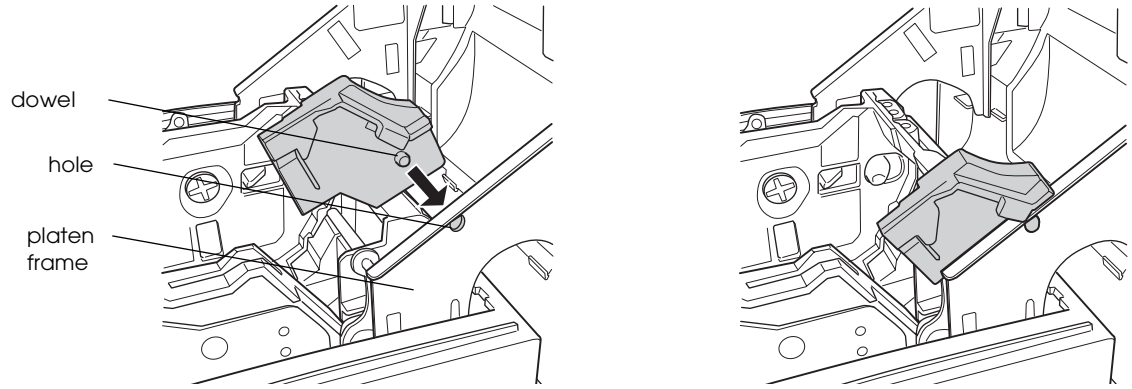
3. Check that the brake arm is up as shown in the illustration below.



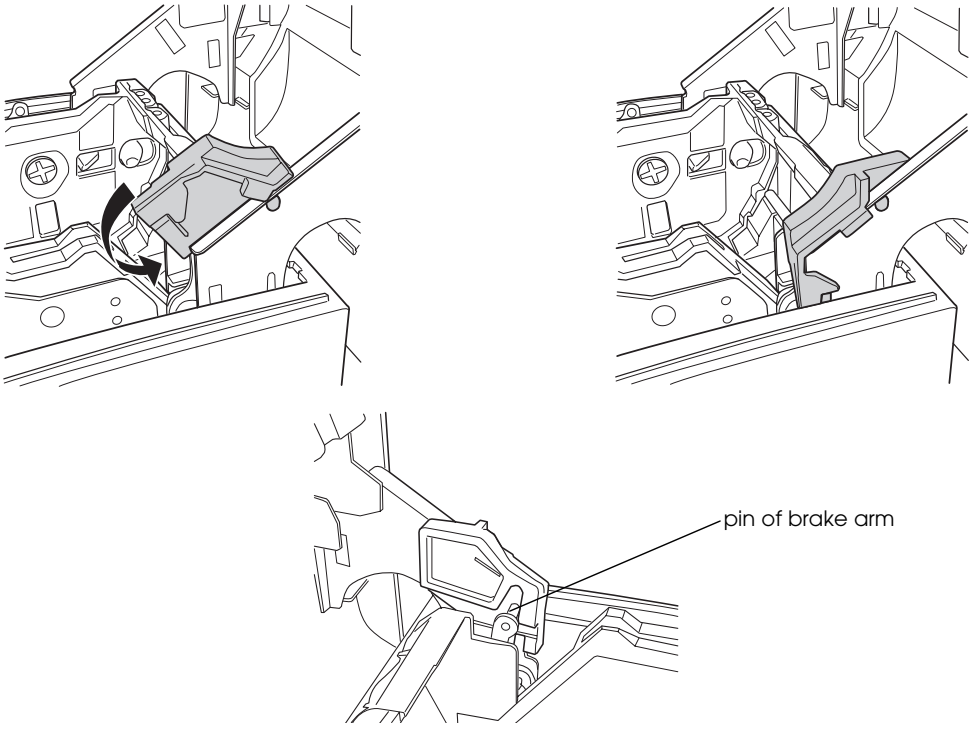
⚠ CAUTION:

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.

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

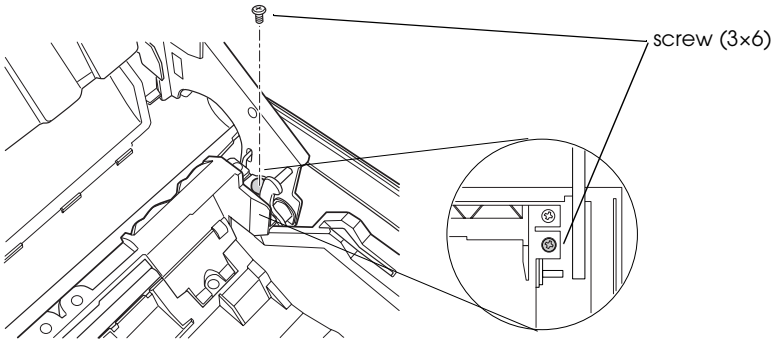


5. While you make sure the pin of the brake arm is in the groove on the inner side of the cam, rotate the cam along with the surface of the platen frame in the direction indicated by the arrow until it clicks into position.

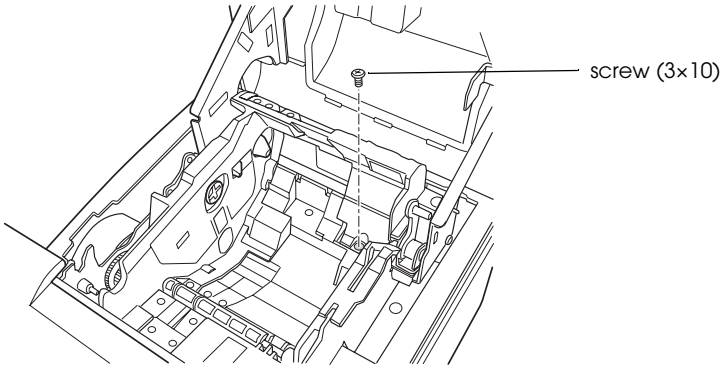


Removing the roll paper holder for hanging bracket

1. Open the printer cover.
2. Remove the cam. (See page B-2)
3. Remove the screw (3x10).



4. Remove the screw(3x6) and remove the roll paper holder for hanging bracket.



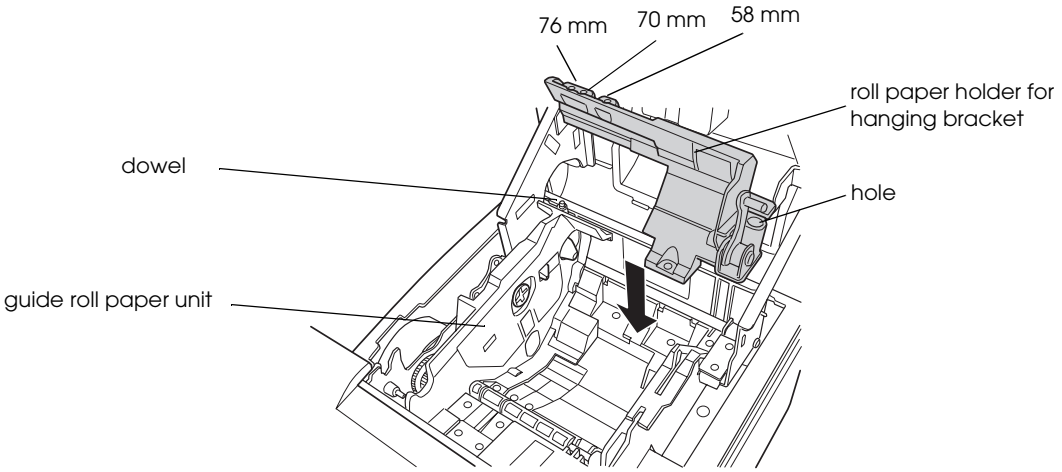
When attaching it, align the hole on the roll-paper holder for hanging bracket with the dowel on the roll paper guide.

For a model that needs a change of paper width, the hole to be used will be different to match your roll paper width.)

of the roll-paper hanging bracket holder to fit the dowel of the roll-paper guide.

When changing the paper width, the hole of the roll-paper hanging bracket holder is different by the paper width for using.

Putting the screw in the hole on the roll-paper holder for hanging bracket makes it easier for you to tighten the screw in the next step.

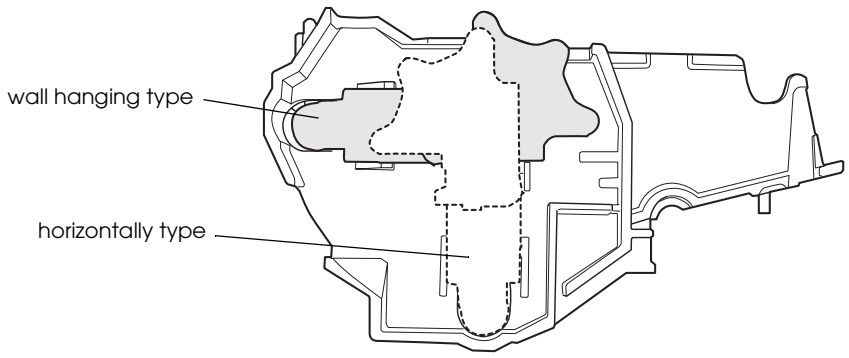


⚠ CAUTION:

When levelly using the TM-U220 removed the WH-10, change the roll-paper near-end detector position and the screw (3x10) to fix a roll-paper guide is need.

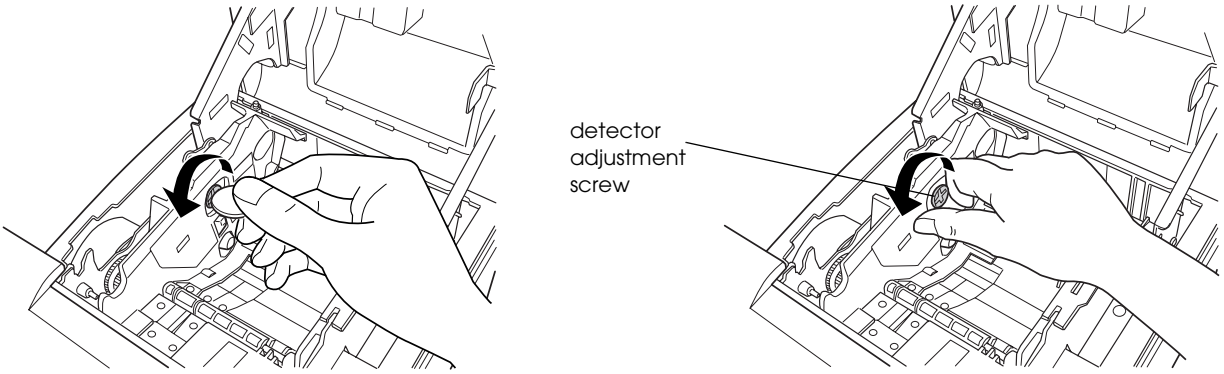
Setting for installing the WH-10

When installing the WH-10, the installation position of the roll-paper near-end detector must be changed.

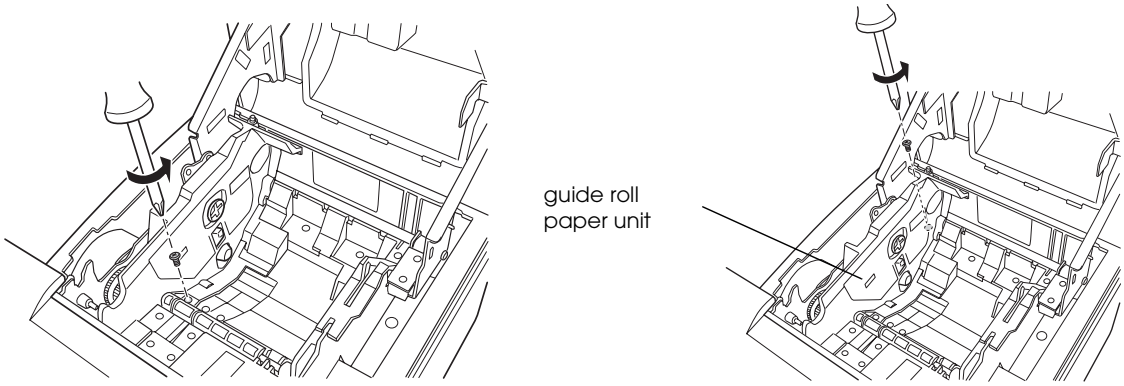


1. Open the roll paper cover.

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.



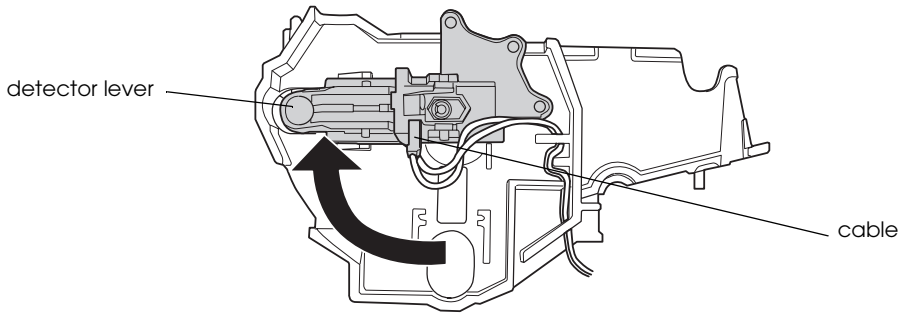
3. Remove the two screws of the roll paper guide.



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

   Note:

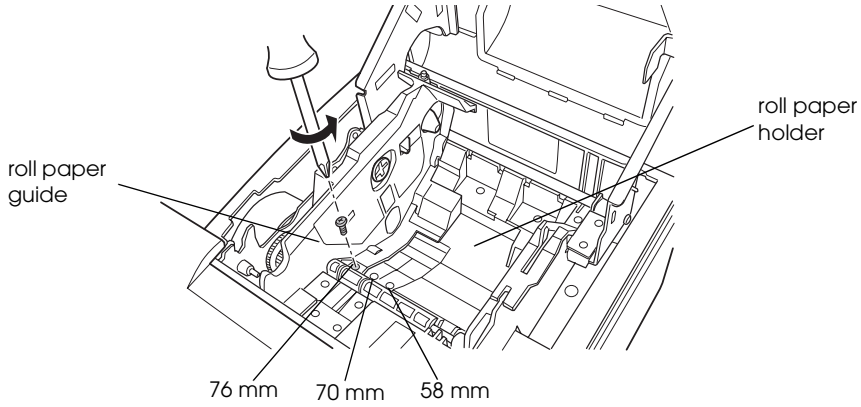
   After the direction of the detector lever is changed, be sure that the cable is connected to the connector firmly.



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.



7. Attach the roll-paper holder for hanging bracket. (See page B-4)
8. Attach the com. (See page B-2)

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