TOSHIBA

TOSHIBA Barcode Printer

B-EX6 SERIES

Maintenance Manual

Document No. **EO18-33031K**

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Toshiba Tec Corporation

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CAUTION!

1. *This manual may not be copied in whole or in part without prior written permission of Toshiba Tec.*
2. *The contents of this manual may be changed without notification.*

1. UNPACKING

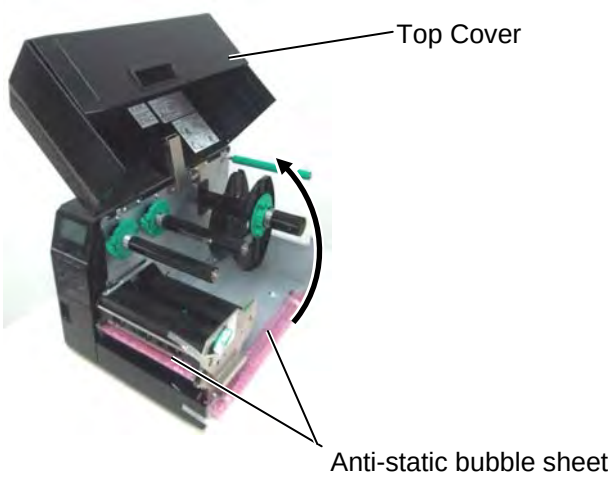
1.1 PROCEDURE

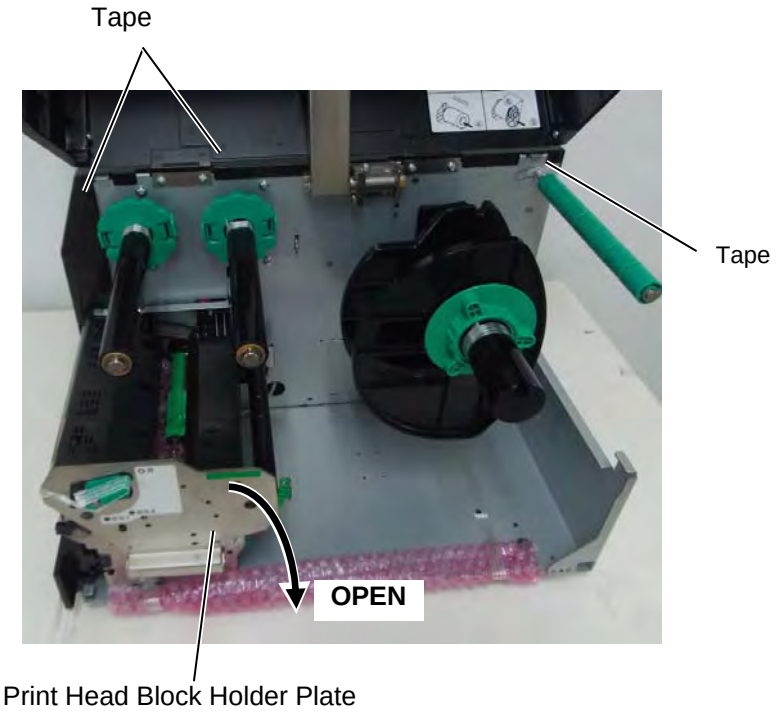
1) Open the carton.
2) Unpack the accessories and the front pad from the carton.

3) Unpack the pads and the printer from the carton.

4) Remove the four pieces of tape and the rear pad from the printer.

5) Open the top cover and remove the five pieces of tape and remove the bubble sheet cushion.





1.2 CHECKS

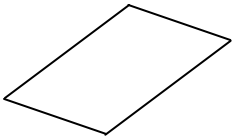
1) Check for damage or scratches on the printer.
2) Confirm that none of the accessories are missing. The parts below are provided as accessories.

☐ CD-ROM (1 pc.)

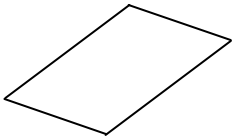
<Contents>
- Bar code printer application (BarTender Ultra Lite)
- Windows Driver
- Owner's Manual
- Specifications (Programming, Key operation, etc.)
- Product information (Catalogue)

☐ Carton

Safety precautions



Quick installation manual



NOTES: *Keep the carton and pads for later transport.*

2. PRINTER INSTALLATION

1) Place the printer on the level surface.
2) Keep the slit free or the printer will be overheated. Also keep enough space for replacing and maintenance works while the top cover is opened.

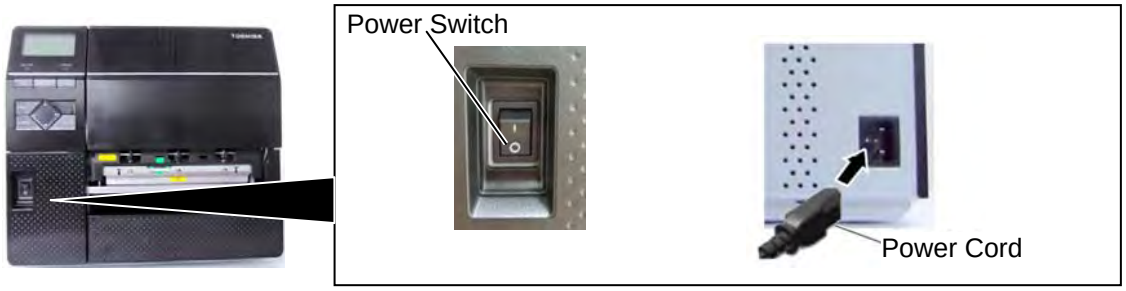
Side panel

Top Cover

3. NOTE FOR OPTIONAL EQUIPMENT INSTALLATION /MAJOR UNIT REPLACEMENT/MAINTENANCE

WARNING!

1. *Turn the power off and disconnect the power cord before replacing the main parts.*



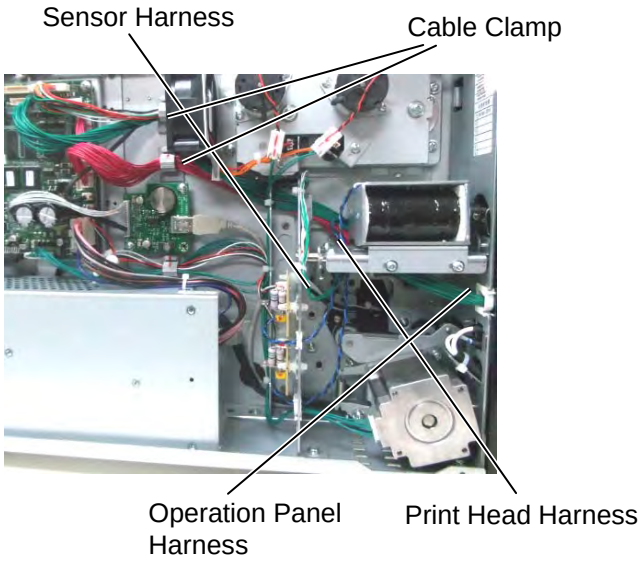
2. *Never perform disassembling, assembling, and cleaning just after printing. Doing so may cause you to be injured by the print head and the inner parts of the printer being hot.*

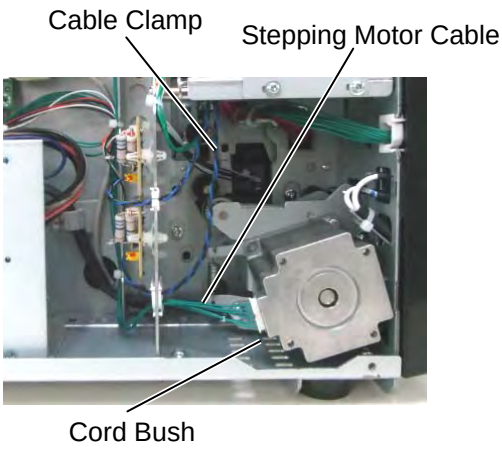
3. *When cleaning the cutter, be careful not to be injured by the cutter blade.*

4. *Be careful not to pinch your fingers or hands with the covers.*

CAUTION!

1. *Fix the harnesses and the cord bushes with the cable clamp. Failure to do this may cause the covers to catch them.*

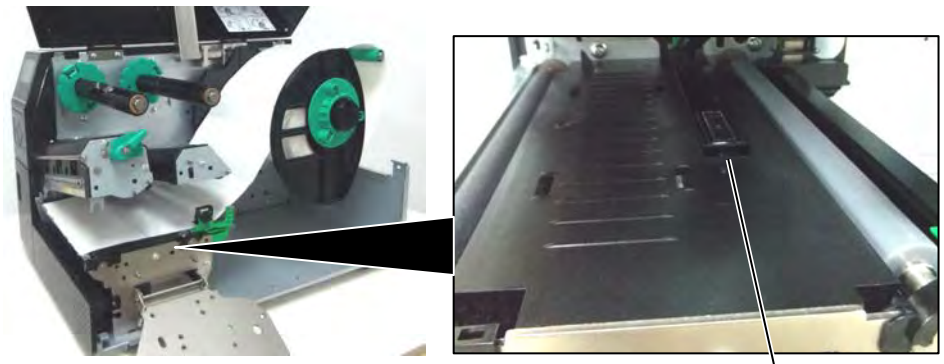




continued

2. *Do not remove the screws below. Doing so will require the printer block position adjustment with the jig.*

3. *Be careful not to damage the sensor window. If so, the sensor cannot detect the feed gap or the black mark correctly, causing improper printing.*



4. *When replacing parts or performing maintenance on the printer, be careful not to damage the print head with a hard object like a watch or a ring.*

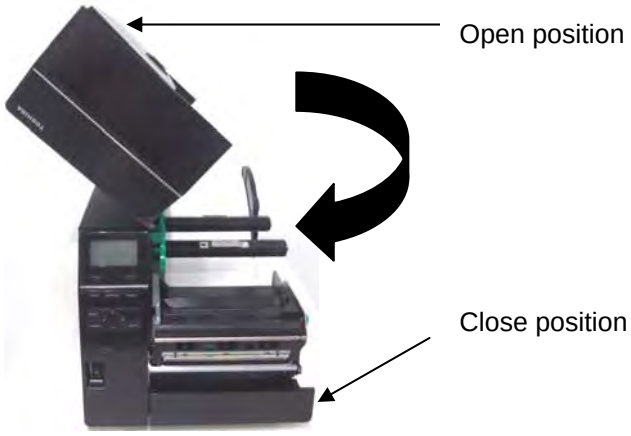
Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.

Care must be taken not to allow a metal object like a ring to touch the print head edge.

Since the print head element can be easily damaged by shock, please treat it carefully by not hitting a hard object against it.

3.1 OPENING/CLOSING THE TOP COVER

When opening the top cover, fully open the top cover to the open position.
When closing, gently close it to the close position.

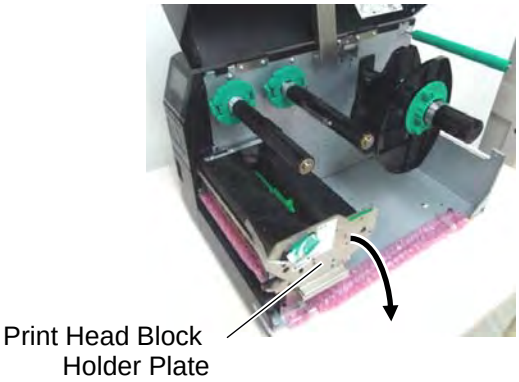


3.2 REMOVING THE SIDE PANEL (L)

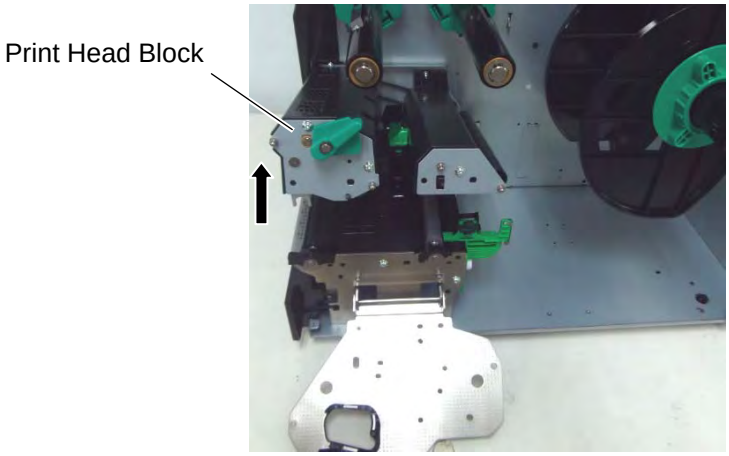
Remove the three M3x6 screws from the side panel (L). Move the side panel (L) to the back and push up it to remove.

3.3 OPENING/CLOSING THE PRINTER BLOCK

1) Open the top cover.
2) Turn the head lever counterclockwise to **FREE** position.
3) Open the print head block holder plate.



4) Raise the print head block until it stops.



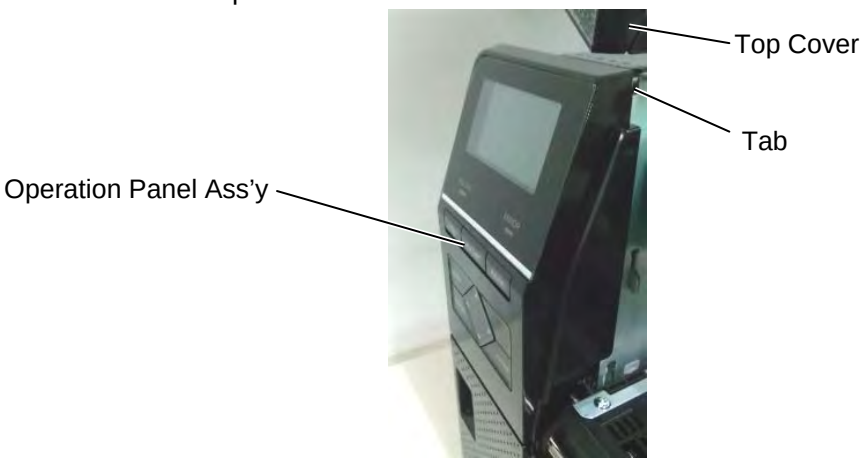
NOTE: *DO NOT excessively push down the print head block to close it. Dosing so may cause a failure of the print head block or damage to the print head.*

3.4 REMOVING THE OPERATION PANEL

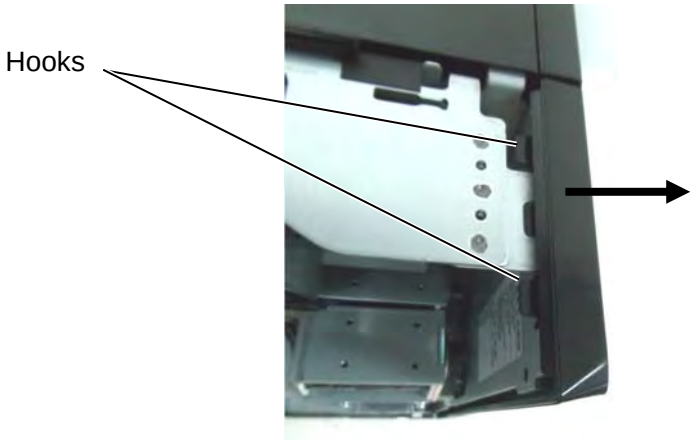
1) Open the top cover. (Refer to section 3.1.)

2) Remove the side panel (L) from the printer. (Refer to section 3.2.)

3) Fully open the top cover, otherwise the operation panel ass'y is stuck on the tab and cannot be removed from the printer.

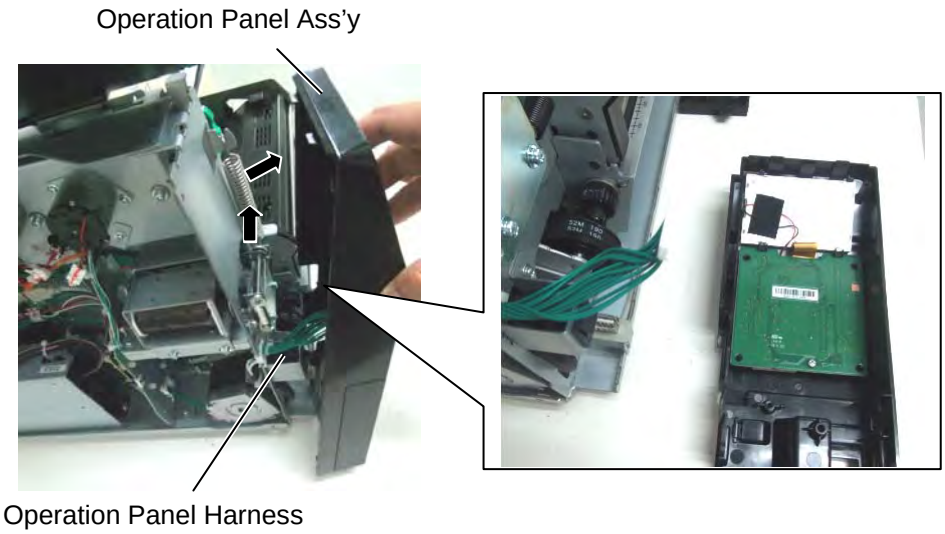


4) Push the operation panel ass'y out through the top hooks direction.



5) Lift the operation panel ass'y to release the bottom hook, and then remove the operation panel ass'y by moving it forward.

6) Disconnect the operation panel harness from the operation panel ass'y.



4. INSTALLATION PROCEDURE FOR OPTIONAL EQUIPMENT

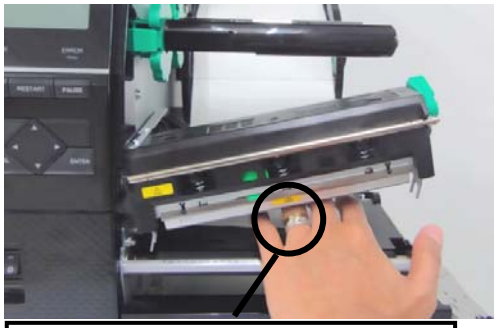
WARNING!

1. *Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.*
   - *Manual instructions must be followed when installing option kits or adding cables to avoid system failures and to insure proper performance and operation.*
2. *Make sure to unplug the power cord before installing the optional equipment.*
3. *Be careful not to pinch your fingers or hands with the covers.*
4. *The print head and stepping motor becomes very hot immediately after printing. Do not touch the print head, stepping motor and around it right after printing, or you may get burned.*
5. *When opening the top cover, it must be fully opened. Failure to do this may cause the top cover to close under its own weight, resulting in an injury.*

CAUTION!

When replacing parts or performing maintenance on the printer, be careful not to damage the print head with a hard object like a watch or a ring.

Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.



Care must be taken not to allow a metal object like a ring to touch the print head edge.

Since the print head element can be easily damaged by shock, please treat it carefully by not hitting a hard object against it.

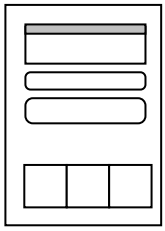
The following optional kits are provided for this printer.

- B-EX206-QM-R: Disc cutter
- B-EX700-WLAN2-QM-R: Wireless LAN I/F card
- B-EX906-H-QM-R: Peel-off
- B-EX700-IO-QM-R: Expansion I/O card
- B-EX700-CEN-QM-R: Parallel I/F card
- B-EX700-RS-QM-R: Serial I/F card
- B-EX706-RFID-U4-R: UHF RFID kit for JP
- B-EX706-RFID-U4-US-R: UHF RFID kit for US
- B-EX706-RFID-U4-AU-R: UHF RFID kit for AU
- B-EX706-RFID-U4-EU-R: UHF RFID kit for EU
- B-EX906-FF-QM-R: Fanfold paper guide
- B-EX206-R-QM-S: 4” rotary cutter

In this section, installation procedures for these optional equipments are described.

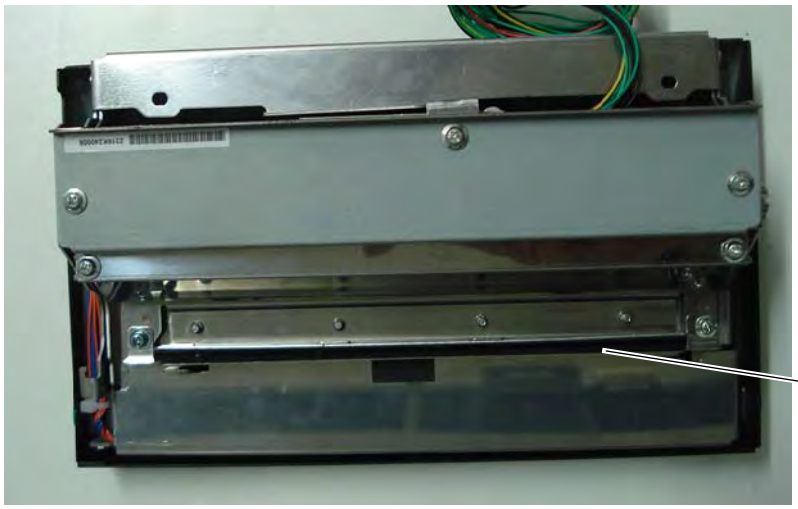
4.1 DISC CUTTER (B-EX206-QM-R)

All the following parts are supplied with the kit. Make sure you have all items shown below.

Cutter Unit (1 pc.) 	Paper Guide for B-EX6T3(1pc.) 	Inspection Paper (4pcs) 
Cord bush (1 pc.) 	M-4x6 Screw (2 pcs.) 	ST-3x6 Screw (1 pc.) 
Cable Clamp (1 pc.) 	Installation Manual (1 copy) 	

Difference between Type 1 and Type 3 cutters:

The B-EX206 disc cutter module is basically the same except for the Paper Guide used for Type 1 and Type 3. To attach to Type 3, the parts shown in P4 need to be changed in advance.



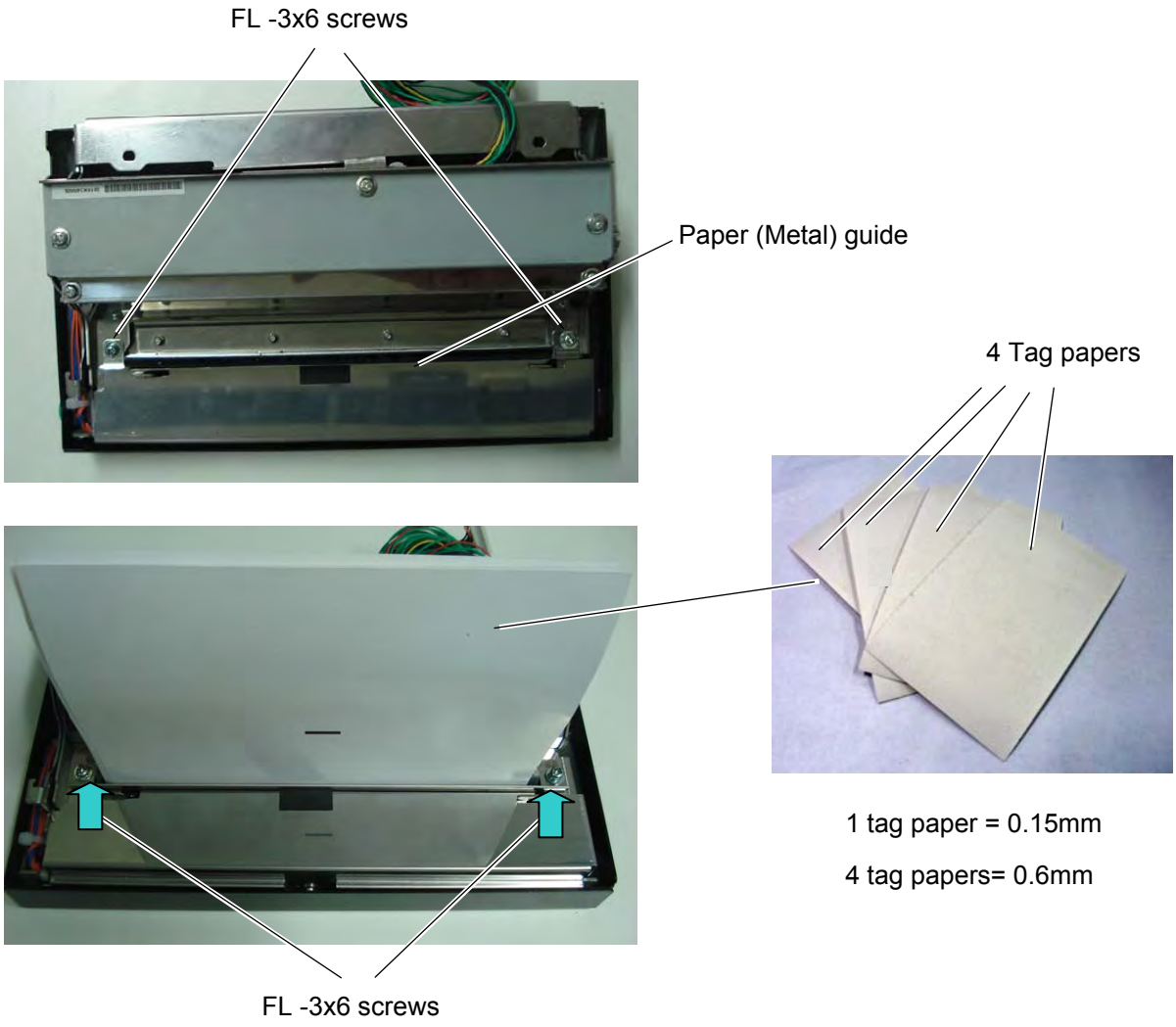
Type 1 Paper Guide

Type 3 Paper Guide

Adjustment Method for B-EX6 TYPE3

Before installing the disk cutter unit for B-EX6 Type3, exchanging of Paper Guide and adjustment has to be made to set the clearance of the cutter.

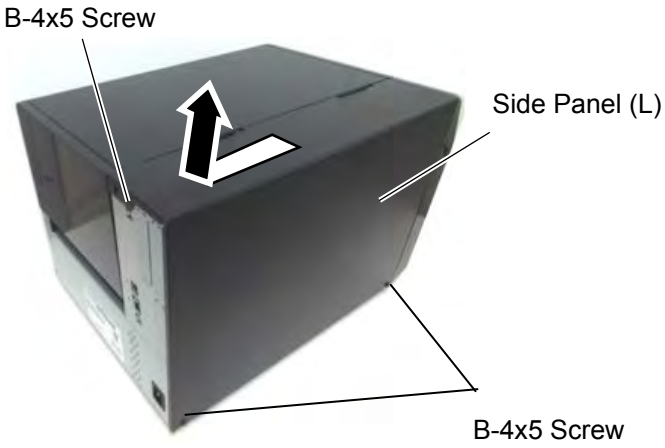
1. Loosen the two FL -3 x 6 screws holding the metal guide.
2. A Paper Guide is exchanged for Paper guide of Type3.
3. Prepare four sheets of Tag paper and insert them between the guides.



4. Press both sides of the Paper Guide against the 4 tag papers.
5. Tightened the SAME FL -3 x 6 screws after proper checking and adjustment is confirmed.
6. Perform a test cut to check for a proper operation. Repeat the procedure, if necessary.

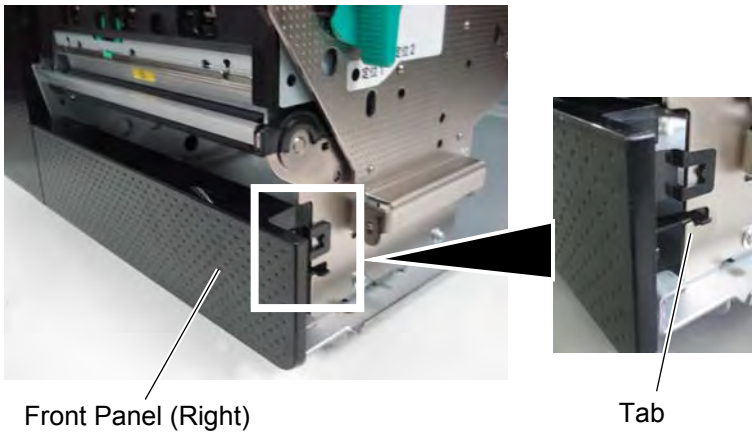
4.1.1 Removing the Covers

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

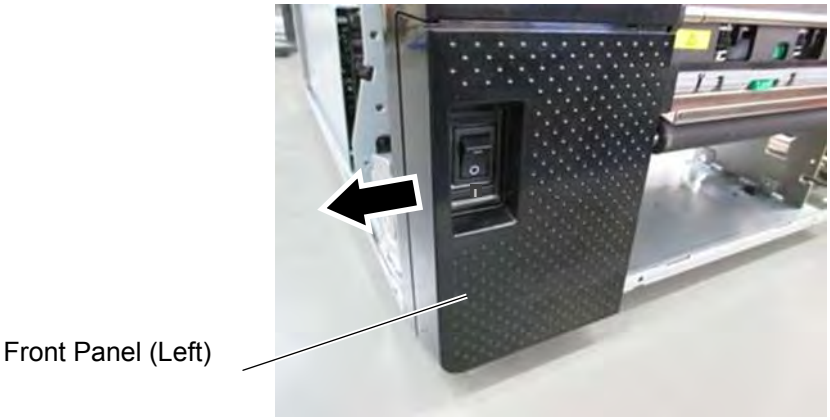


4. Fully open the Top Cover.

5. Release the tab on the right end by pushing it, then remove the Front Panel (Right).

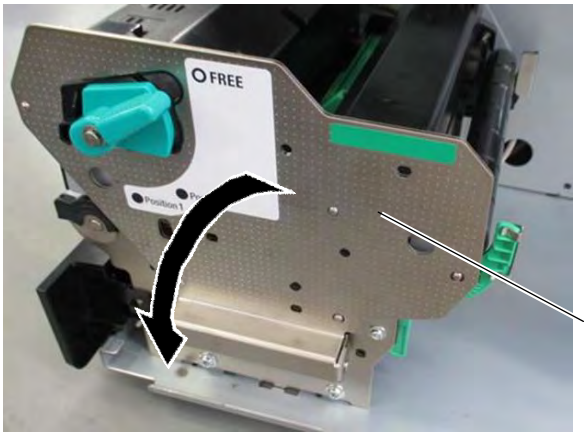


6. Remove the Front Panel (Left).

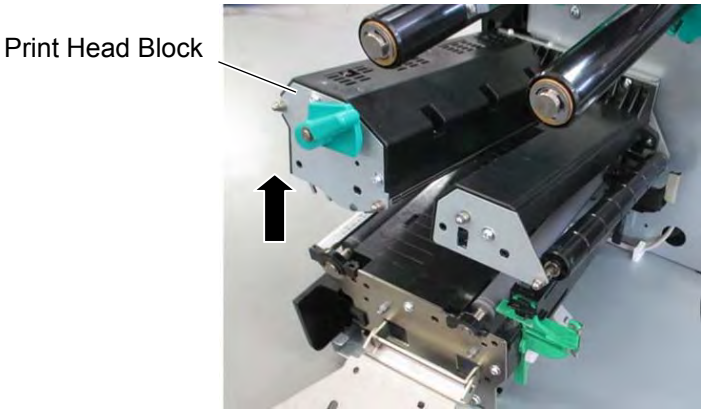


4.1.2 Mounting the Cutter Unit

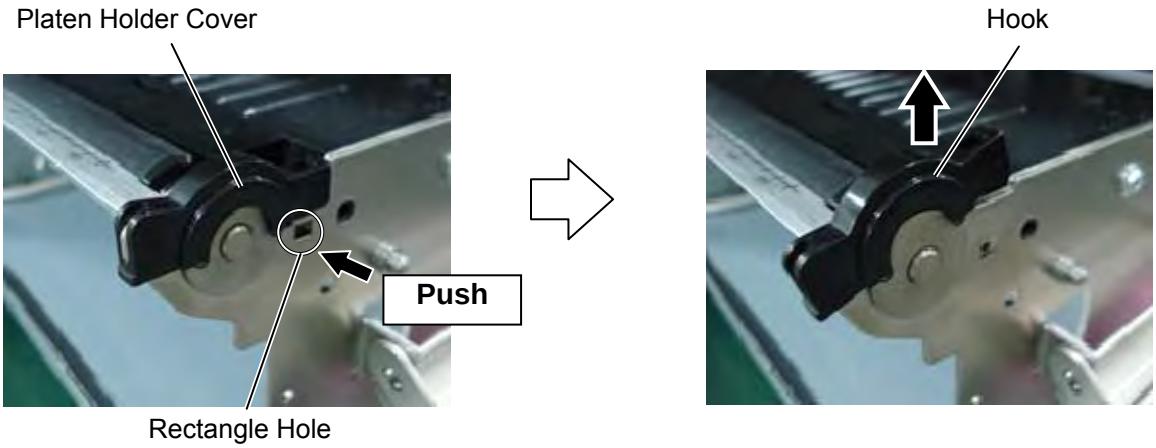
1. Turn the Head Lever to **FREE** position and open the Print Head Block Holder Plate..



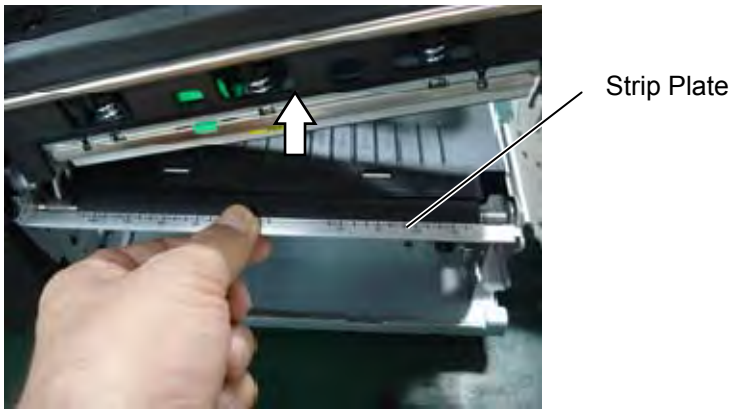
2. Open the Print Head Block.



3. Push the hook through the rectangle hole with a tool with a fine tip to remove the Platen Holder Cover.



4. Remove the Strip Plate.



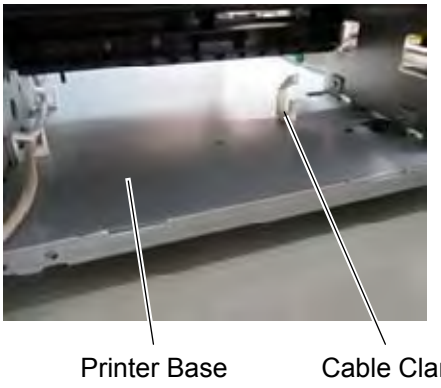
5. Restore the Platen Holder Cover.

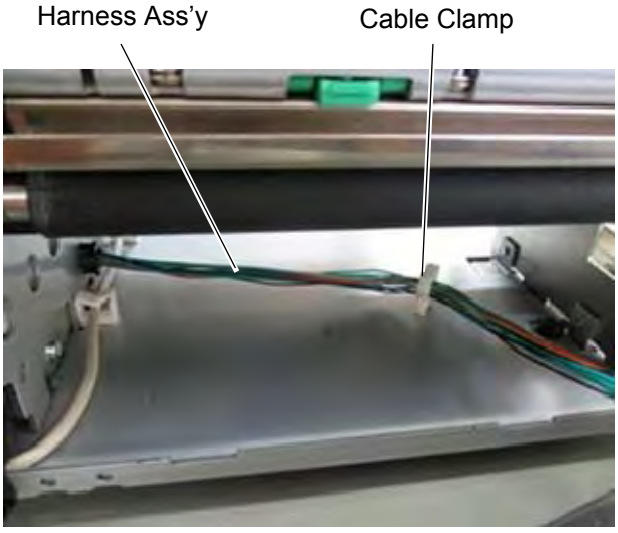
***NOTE**: The strip plate is not used. Keep it safe for future use.*

6. Remove 2 screws and Cutter Cover

7. Put the Cord Bush onto the Harness Ass'y in the orientation as shown below.

8. Attach the Cable Clamp to the printer base.
   Fasten the Harness Ass'y with the Cable Clamp.

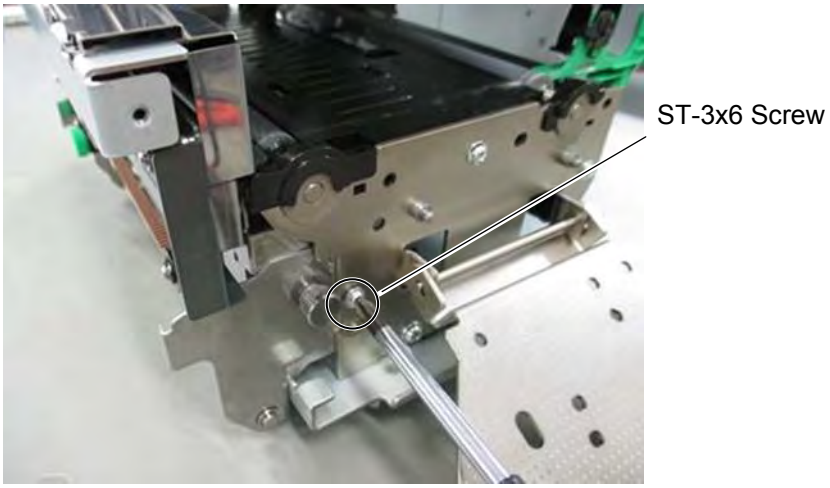




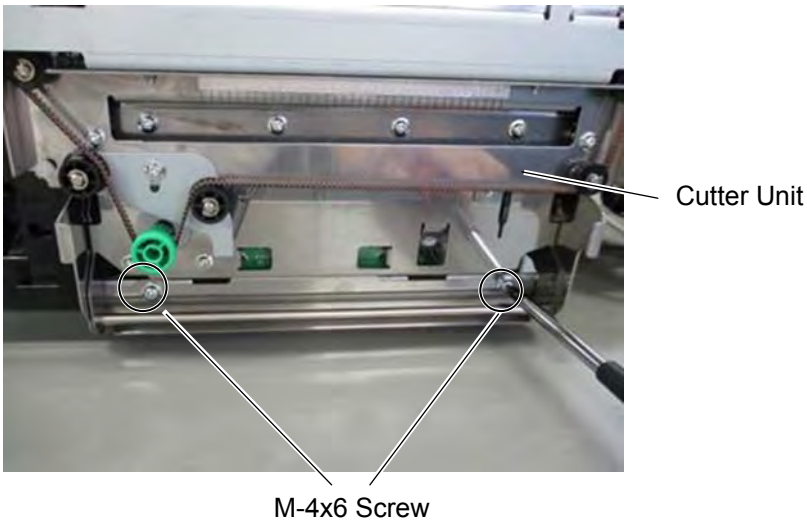
***NOTE**: Make sure the wires will not touch or obstruct any moving parts.*

9. Place the hook at the left side of the Cutter Unit on the cut in the printer main frame.

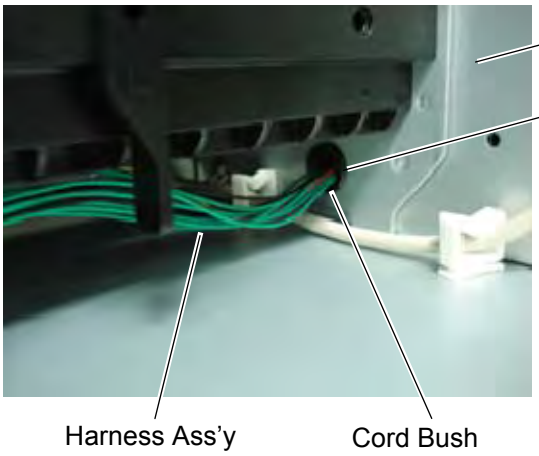
10. Secure the right side of the Cutter Unit with the ST-3x6 screw.



11. Secure the bottom of the Cutter Unit with the two M-4x6 screws.

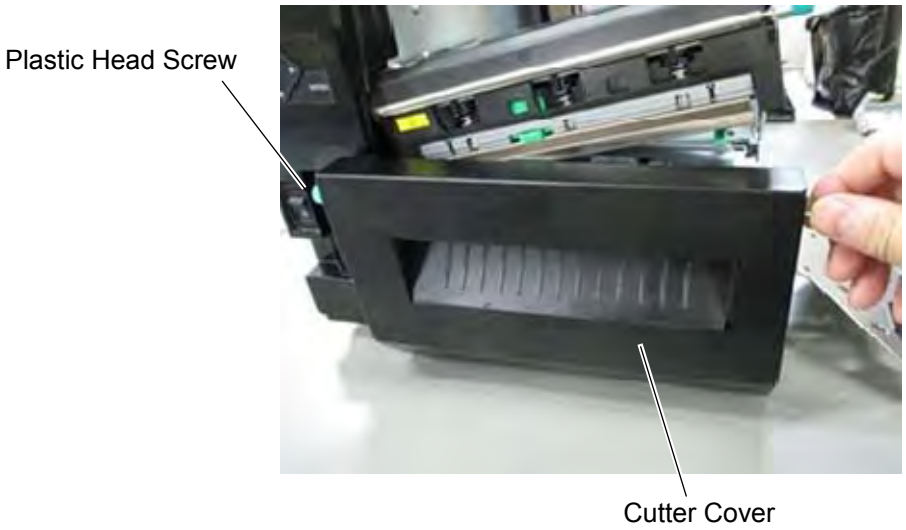


12. Insert the connector of the Harness Ass'y into the hole in the Main Frame, then fit the Cord Bush into the hole.



***NOTE**: Make sure the wires will not touch or obstruct any moving parts.*

13. Attach the Cutter Cover to the Cutter Unit with the Plastic Head Screws.

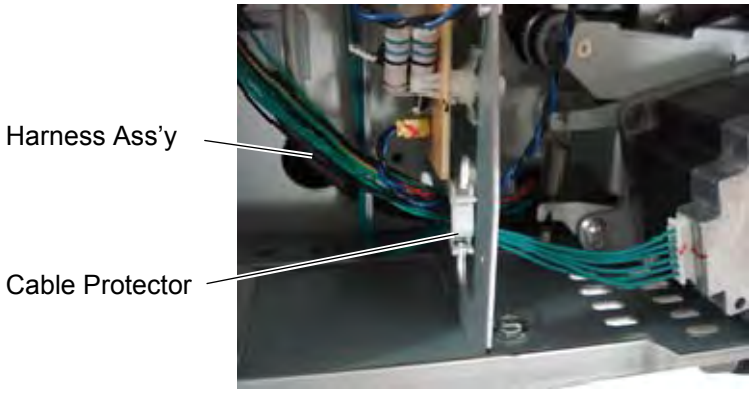


14. Close the Print Head Block and Print Head Block Holder Plate.

***NOTE:** DO NOT excessively push down the print head block to close it. Doing so may cause a failure of the print head block or damage to the print head.*

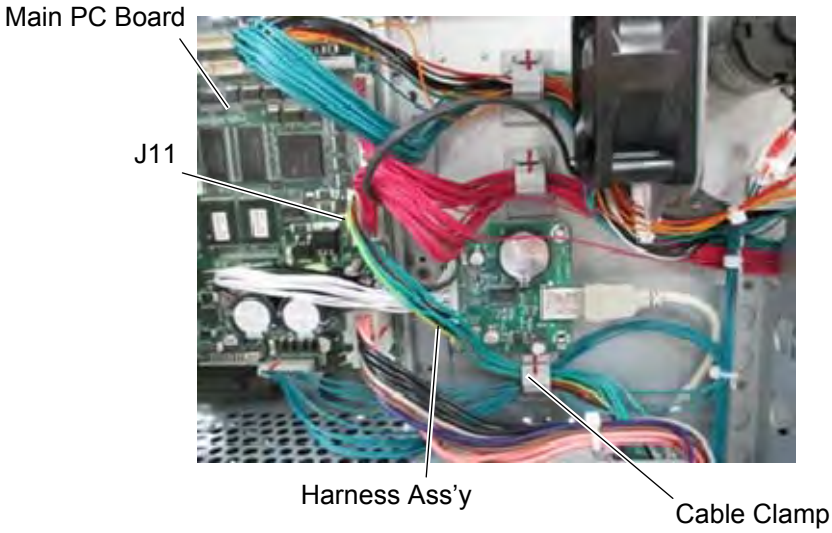
4.1.3 Wiring of the Harness Ass'y

1. Pass the Harness Ass'y through the Cable Protector.



2. Fasten the Harness Ass'y with the Cable Clamp.

3. Connect the Harness Ass'y to J11 on the Main PC board.



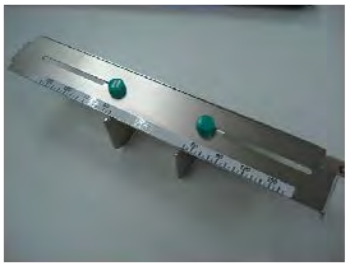
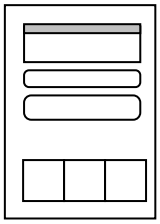
4. Re-install the Side Panel (L) and close the Top Cover.

5. Refer to the Service Manual for the parameter settings and check the cutter operation.

4.2 FANFOLD PAPER GUIDE MODULE (B-EX906-FF-QM-R)

B-EX906-FF-QM-R is an optional fanfold paper guide module for the B-EX6T Series.

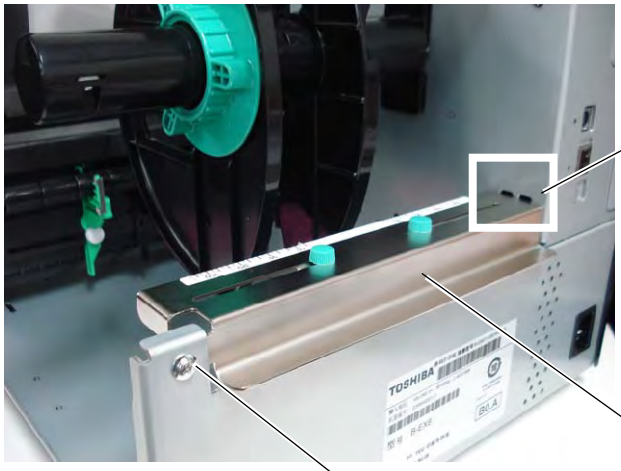
All the following parts are supplied with the kit. Make sure you have all items shown below.

Fanfold Paper Guide (rear) (1 pc.)	M-4x6 Screw (1 pc.)	Installation Manual (1 copy)
		

4.2.1 Removing the Covers

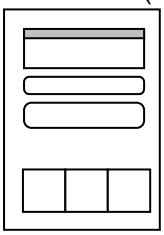
1. Turn the printer power off and disconnect the Power Cord.
2. Open the top cover.

3. Secure the fanfold paper guide (rear) with the M-4x6 screw.



4.3 PEEL-OFF MODULE (B-EX906-H-QM-R)

All the following parts are supplied with the kit. Make sure you have all items shown below.

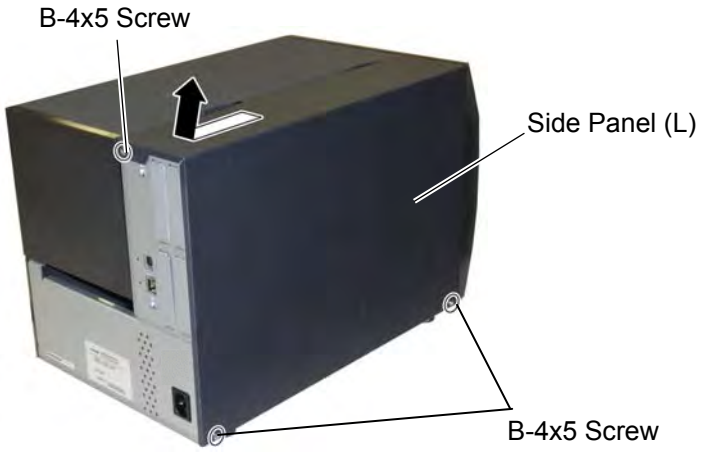
Rewinder Ass'y (1 pc.) 	Core Shaft Support (1pc.) 	Bush (1 pc.) 
Strip Sensor (TR) (1 pc.) 	Strip Sensor (LED) (1 pc.) 	Cable Clamp (2 pcs.) 
Installation Manual (1 copy) 	• M-4x4 Screw (2 pcs.) • ST-3x6 Screw (6 pcs.) • PT-3x6 Screw (2 pcs.)	

NOTE:

1. *This module cannot be used together with the B-EX206-QM-R disc cutter.*
2. *When the peel-off module is used together with an RFID module, be sure to install the RFID module prior to this module.*

4.3.1 Removing the Covers

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

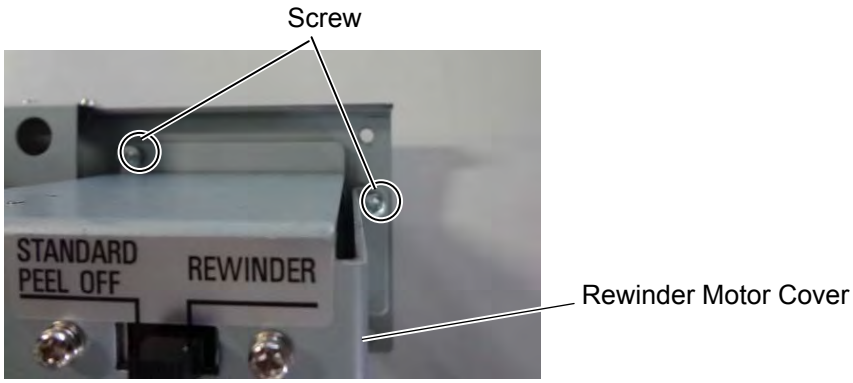


4. Fully open the Top Cover.

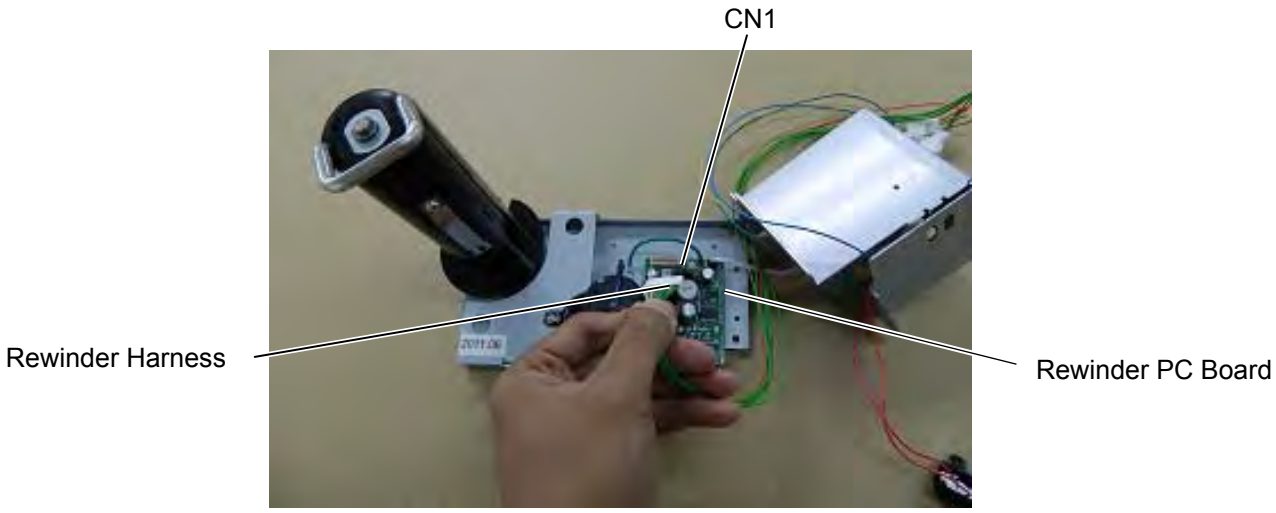
5. Release the tab on the right end by pushing it, then remove the Front Panel.

4.3.2 Installing the Rewinder Ass'y

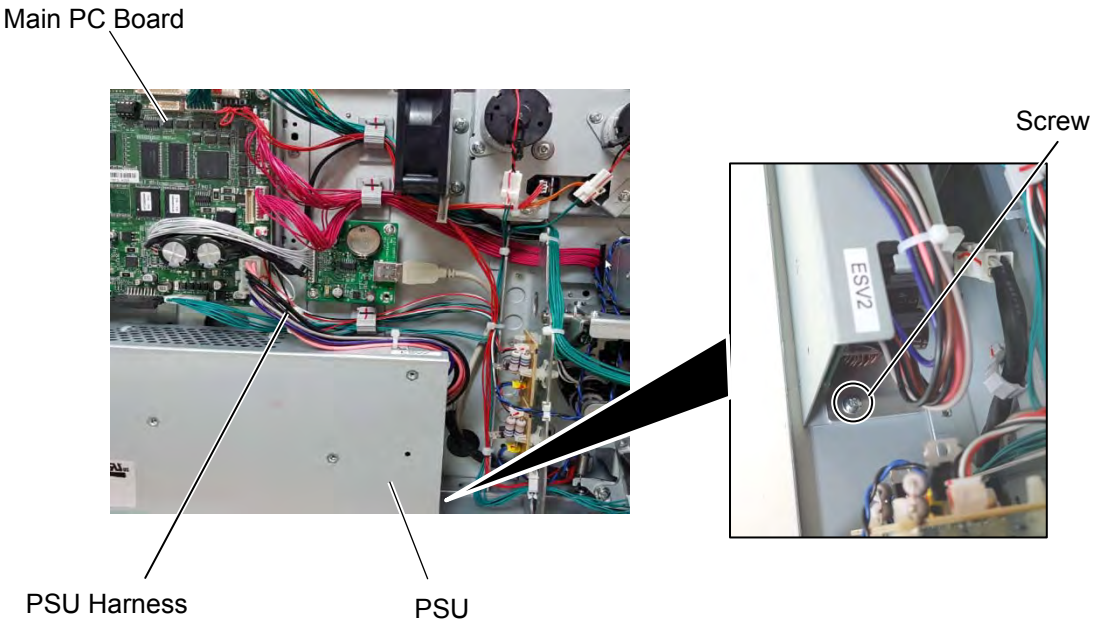
1. Detach the Rewinder Motor Cover by removing the two screws.



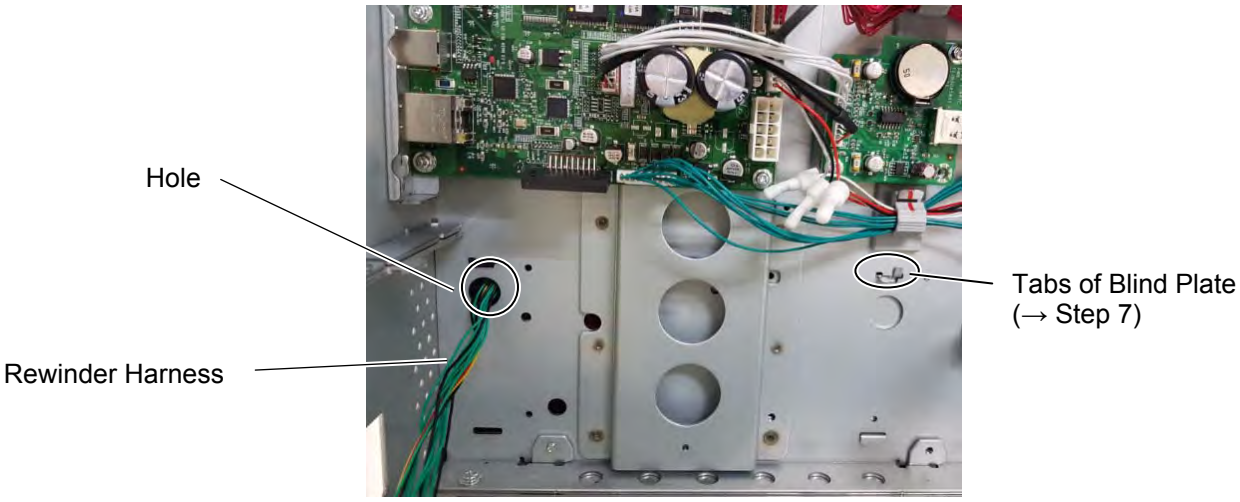
2. Disconnect the Rewinder Harness from CN1 on the Rewinder PC Board.



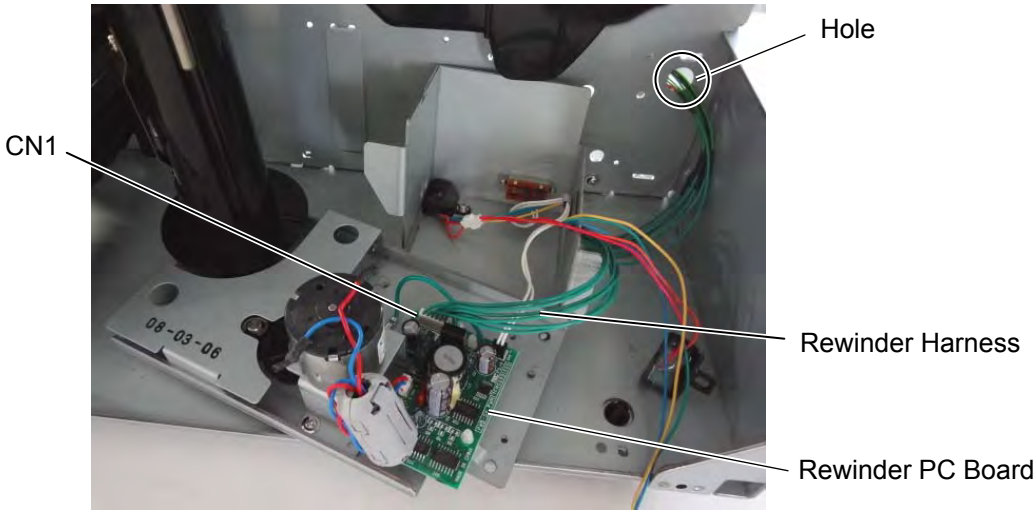
3. Disconnect the PSU Harness from the MAIN PC board and remove the screw to detach the PSU.



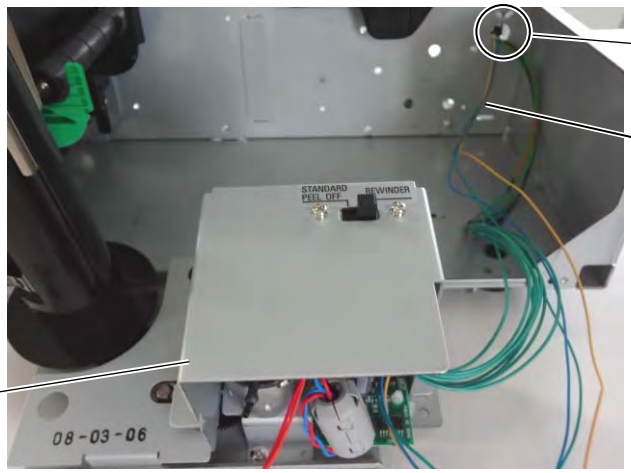
4. Insert the connector of Rewinder Harness, disconnected from the Rewinder PC Board in Step 2, into the hole in the main frame.



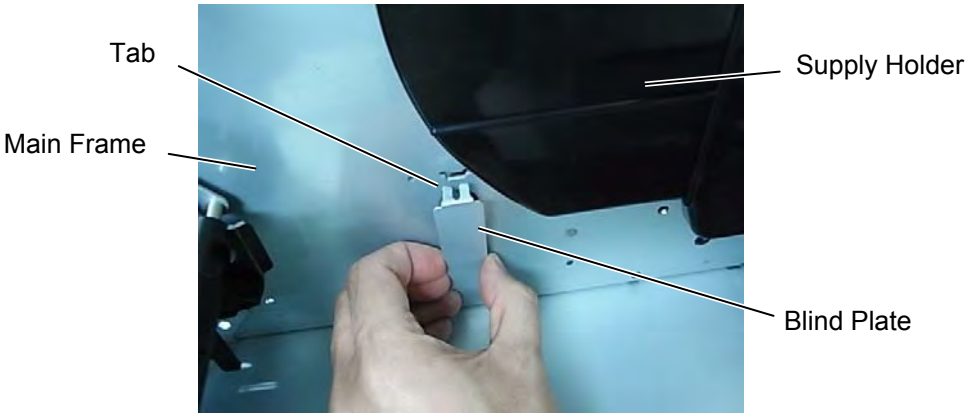
5. Pull out the Rewinder Harness from the opposite side, and re-connect it to CN1 on the Rewinder PC Board.



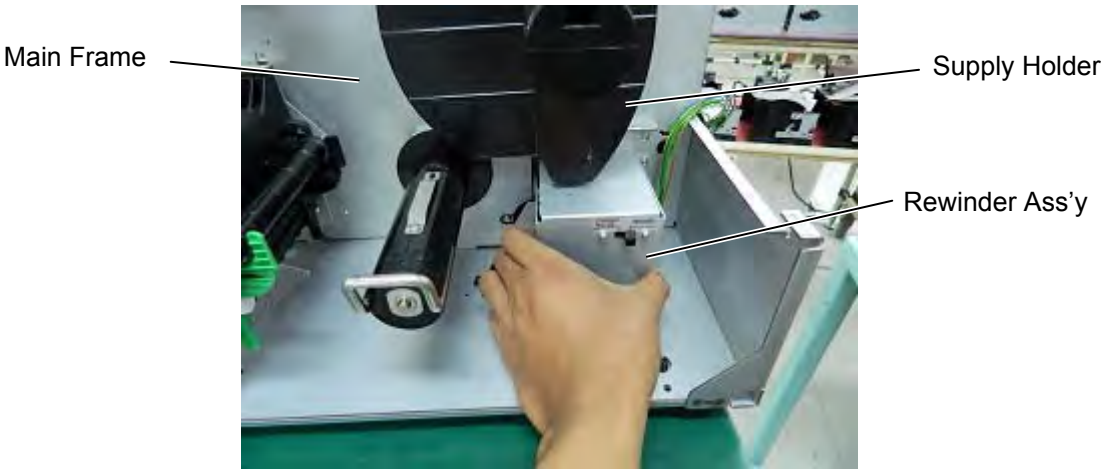
6. Re-attach the Rewinder Motor Cover with the two screws, and pass the Rewind Full Sensor Harness to the other side of the Main Frame through the hole.



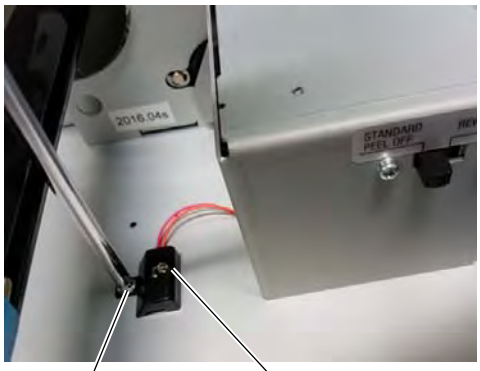
7. From the MAIN PC board side, unfold the tabs of the Blind Plate (See Step 4), then pull and remove the Blind Plate.



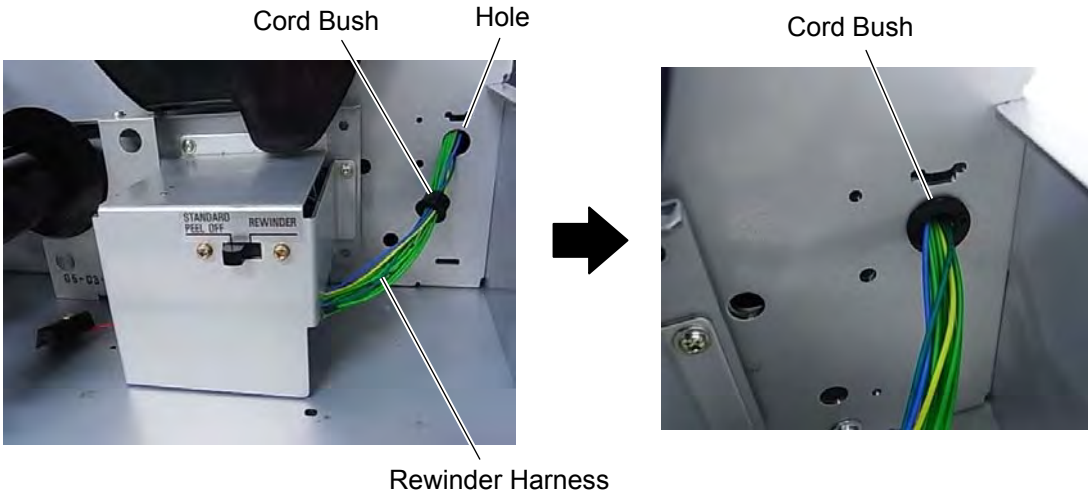
8. Tilt the Rewinder Ass'y forward to avoid the Supply Holder, and put it against the main frame, as shown below.



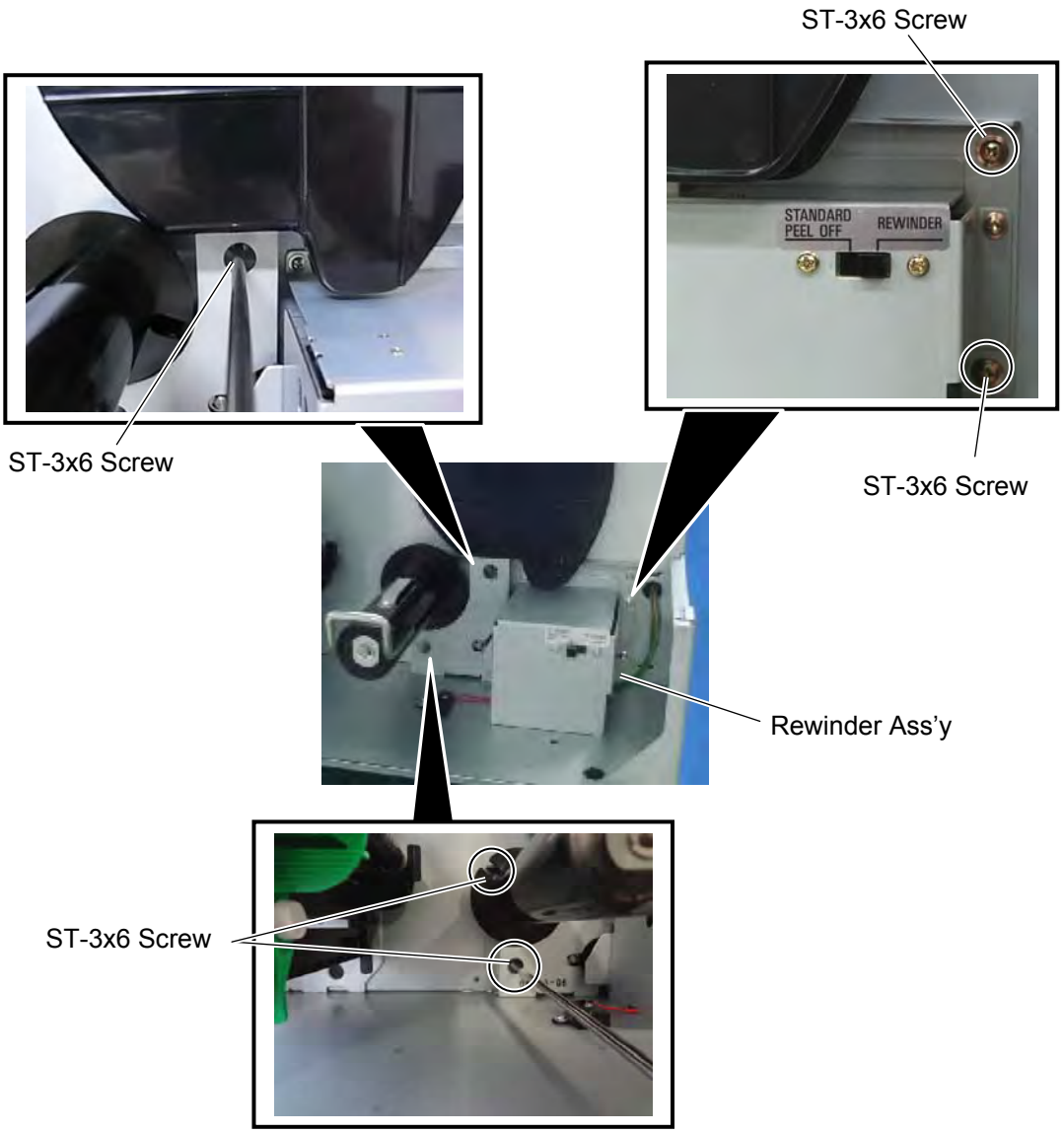
9. Align the dowel on the bottom of the Rewind Full Sensor with the dowel hole in the base. Secure the Rewind Full Sensor to the printer base with the ST-3x6 screw.



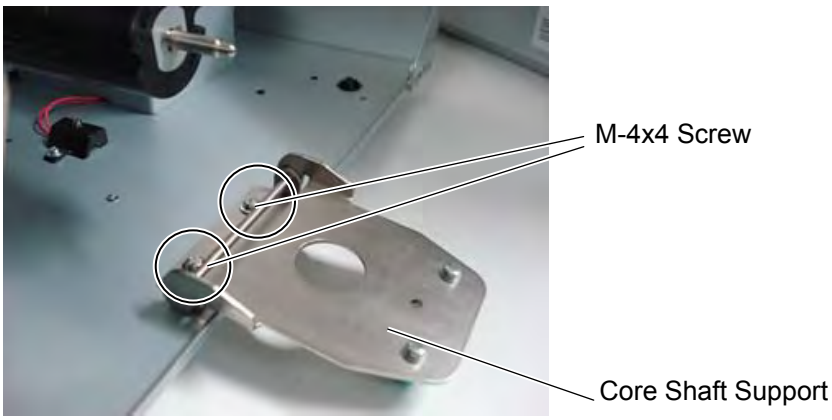
10. Fit the Cord Bush to the Rewinder Harness and Rewind Full Sensor Harness together, in the orientation shown below. Then fit the Cord Bush into the hole.



11. Align the screw holes in the Rewinder Ass'y with those in the printer main frame, and secure the Rewinder Ass'y with the five ST-3x6 screws.

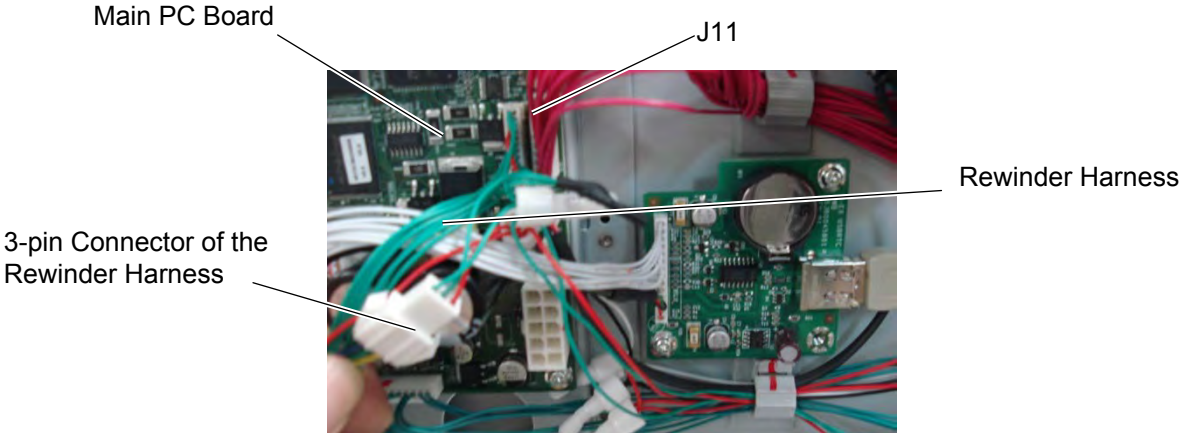


12. Align the screw holes in the Core Shaft Support with those in the printer base frame, and secure the Core Shaft Support with the five M-4x4 screws.

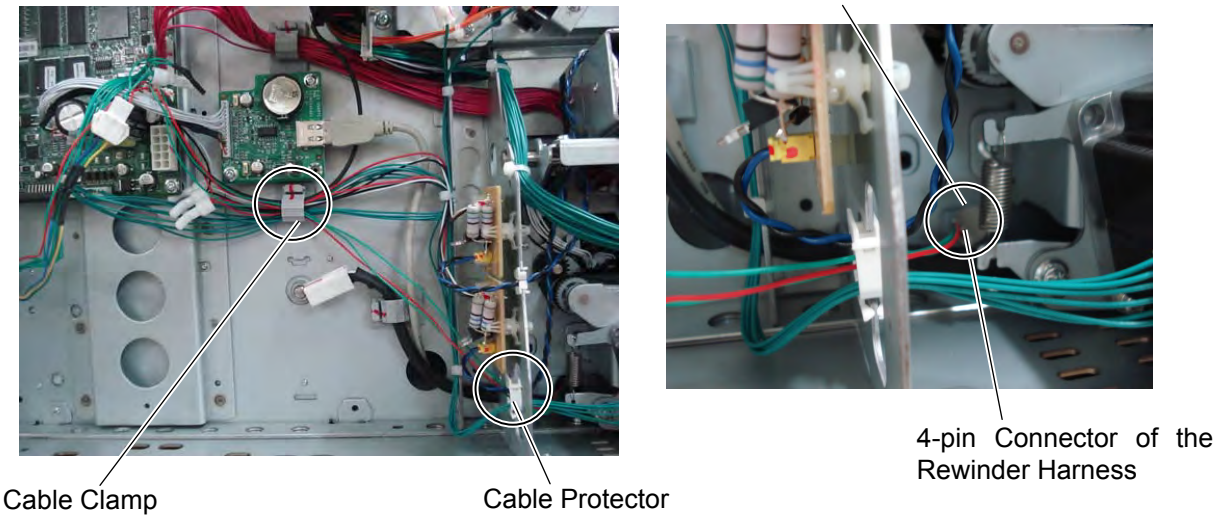


13. Connect the Rewinder Harness to J11 on the Main PC board

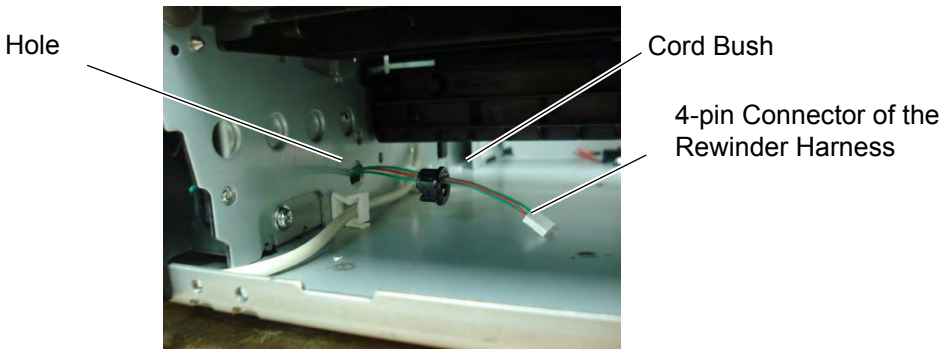
14. Connect the Rewind Full Sensor Harness to the 3-pin connector of the Rewinder Harness.



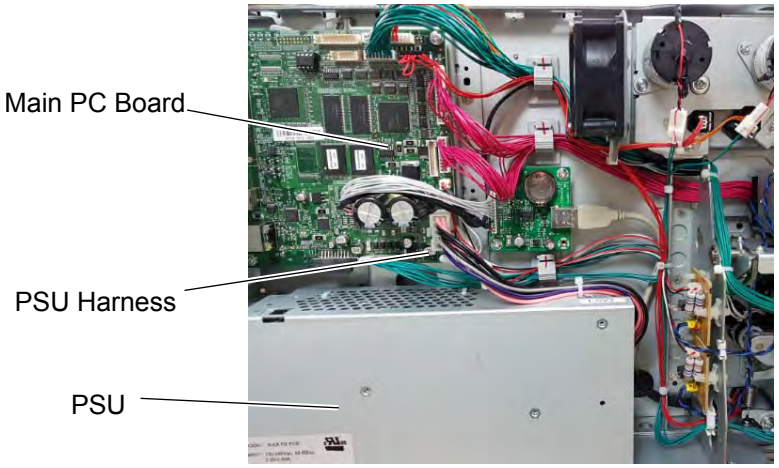
15. Fasten the harness of the 4-pin Connector of the Rewinder Harness with Cable Clamp and Cable Protector. And then insert the 4-pin Connector of the Rewinder Harness into the hole of the main frame.



16. Fit the Cord Bush to the 4-pin Connector of the Rewinder Harness, in the orientation shown below. Then fit the Cord Bush into the hole.

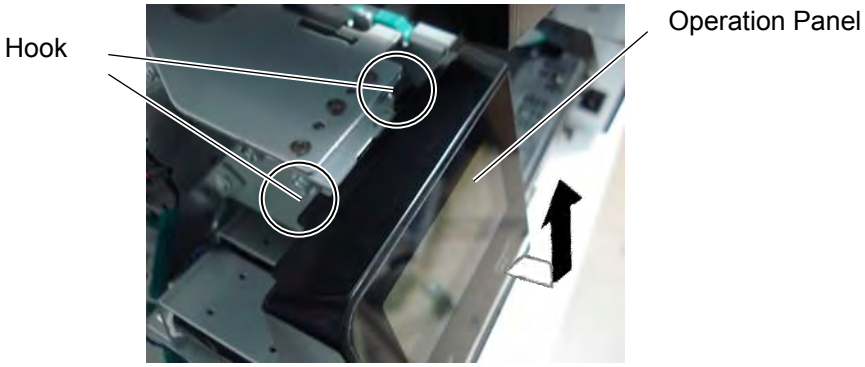


17. Re-install the PSU in the reverse order of removal.

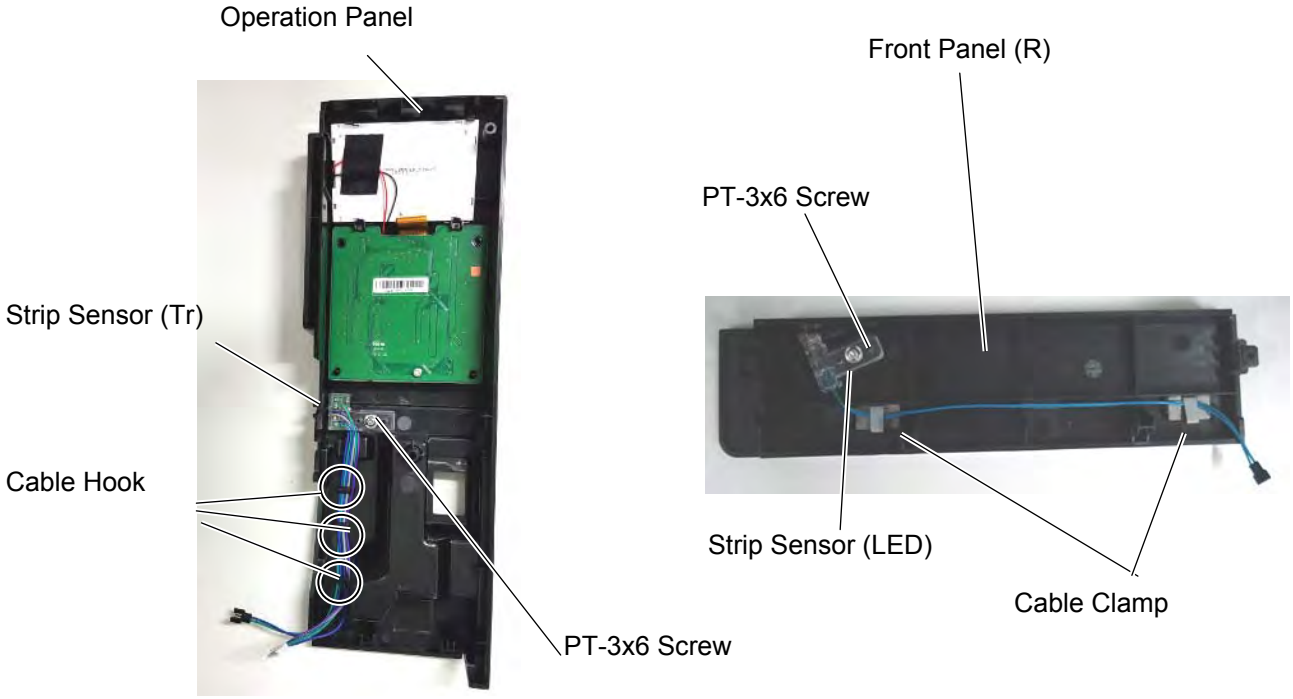


4.3.3 Installing the Strip Sensors

1. Release the hook on the top of Operation Panel by pushing it up, and then Detach the Operation Panel.



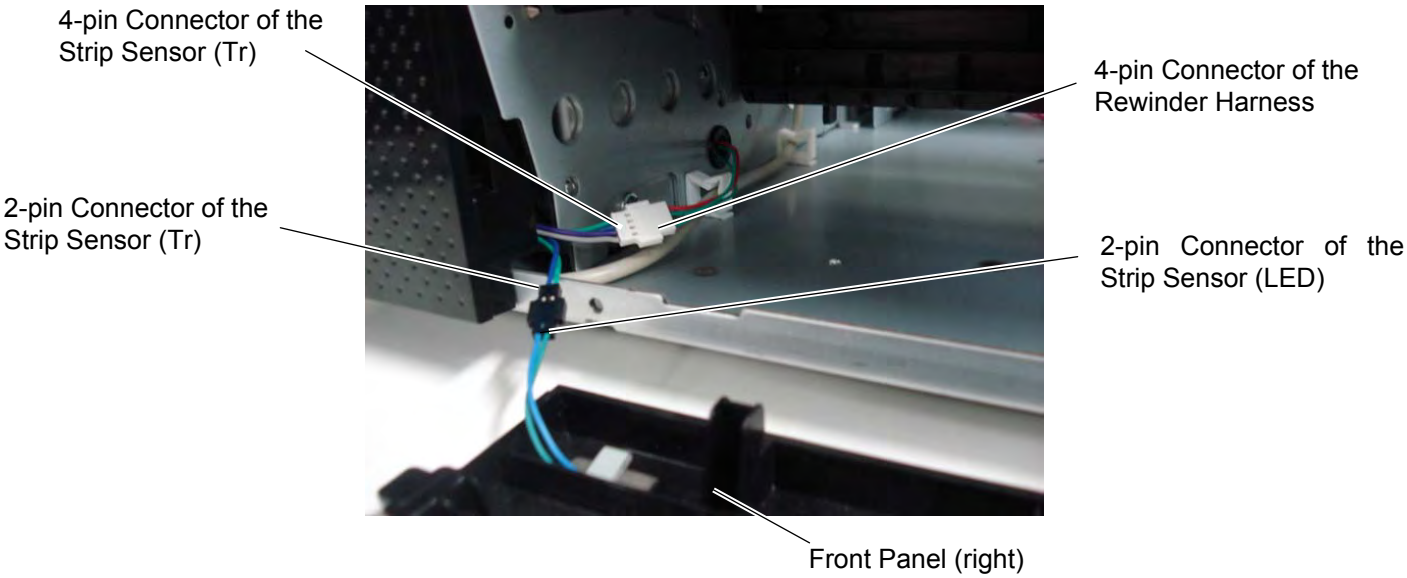
2. Secure the strip sensor (LED) to the Front Panel and strip sensor (Tr) to the Operation Panel with the PT-3x6 screws. Then place the connected harnesses along the hook or clamp in the back side of the Panel.



3. Fit the Operation Panel to the printer.

4. Connect the harnesses of the Strip Sensor (LED) and Strip Sensor (Tr) with the black connectors.

5. Connect the Strip Sensor (Tr) and the 4-pin connector of the Rewinder Harness.

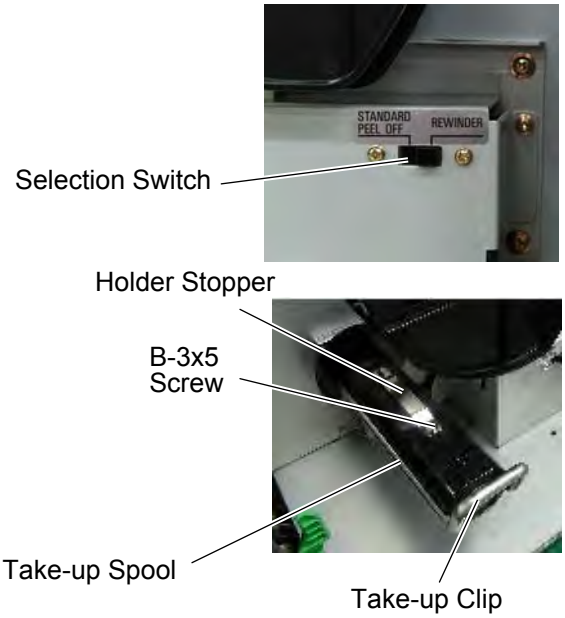


NOTE: *Make sure the wires will not touch or obstruct any moving parts.*

6. Fit the Front Panel (Right) to the printer.

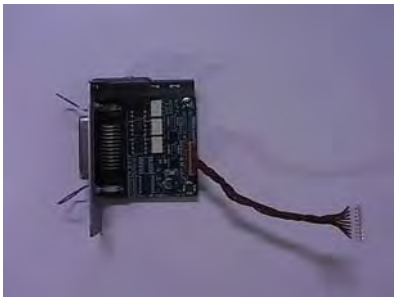
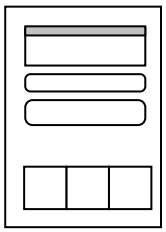
7. Re-install the Side Panel (L).

NOTE:
The backing paper can be wound directly onto the Take-up Spool or a paper core. When using the Take-up Spool, detach the holder stopper by removing the B-3x5 screw. Otherwise, it may be difficult to pull out the wound backing paper roll. When using a paper core, put the core on the Take-up Spool with the Holder Stopper on it, and attach the top edge of the backing paper to the core with adhesive tape. The Take-up clip is not necessary.

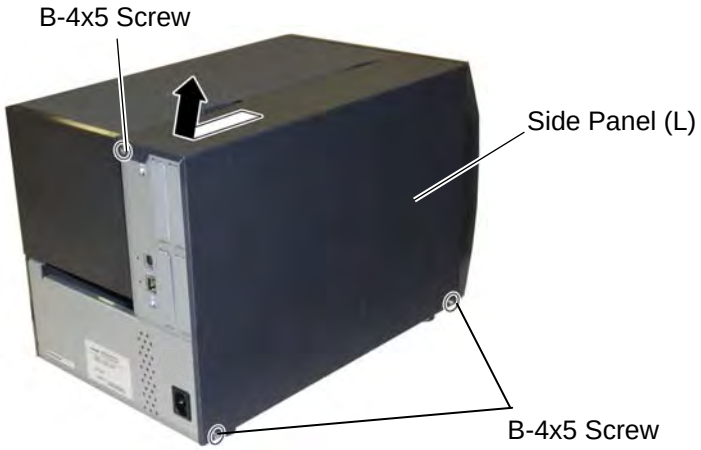


4.4 EXPANSION I/O INTERFACE BOARD (B-EX700-IO-QM-R)

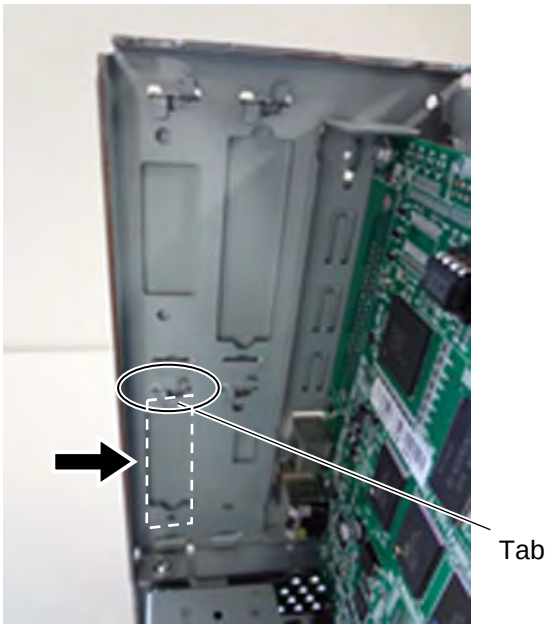
All the following parts are supplied with the kit. Make sure you have all items shown below.

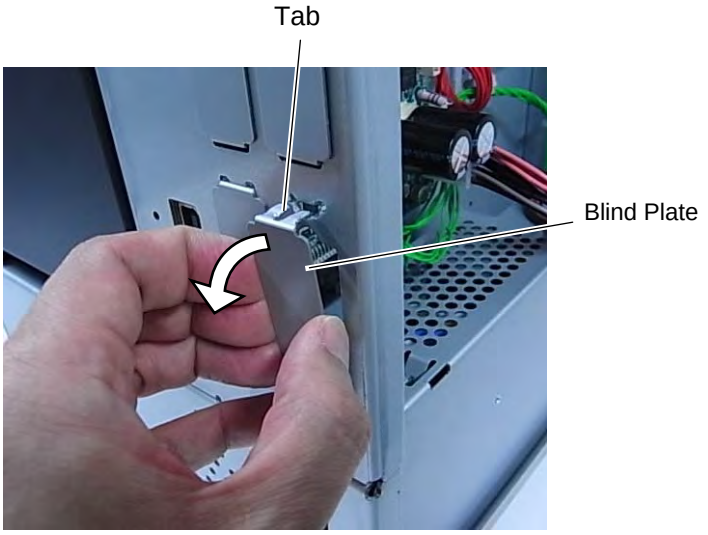
Expansion I/O Board	M-3x6 Screw (2 pc.)	Installation Manual (1 copy)
		

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

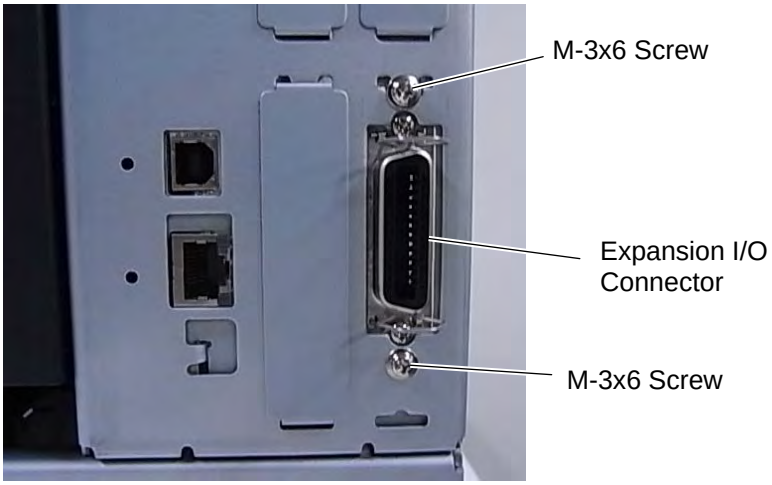


4. Unfold the upper tabs of the Blind Plate indicated by the arrow, then pull and remove the Blind Plate from the printer back.

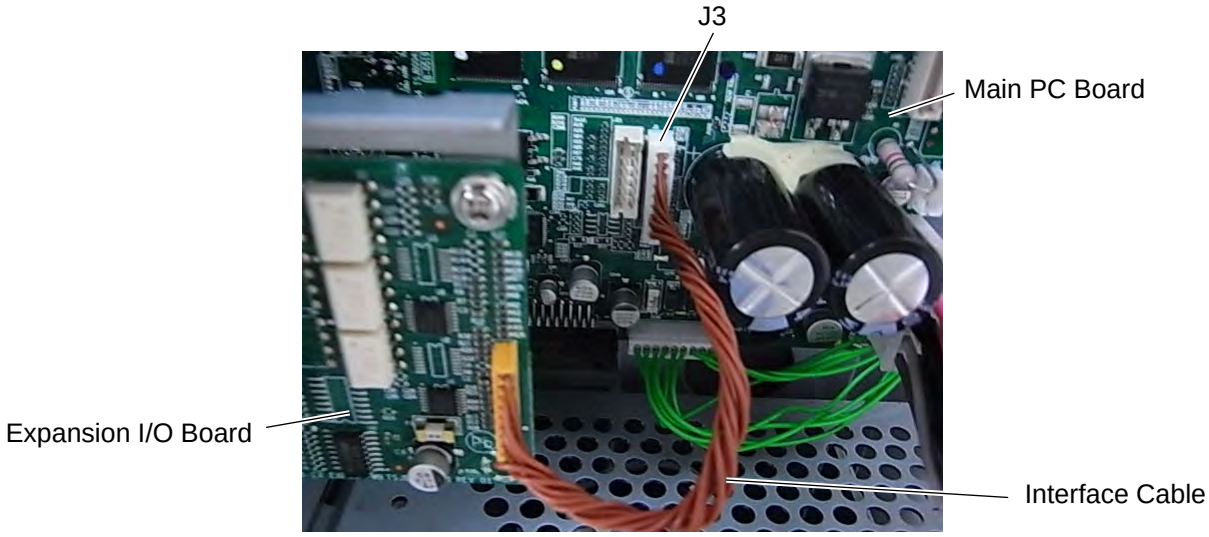




5. Fit the Expansion I/O Connector of the Expansion I/O Board into the slot from the inside, and secure it with the two M-3x6 screws from the outside, as shown below.



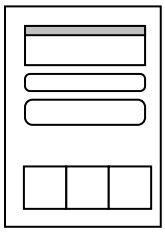
6. Connect the Interface Cable to J3 on the Main PC Board.



7. Re-install the Side Panel (L).
8. Refer to Section 5.9.5 EXP. I/O to select the operating mode.
9. Perform a loop back test to confirm the expansion I/O board functions properly.

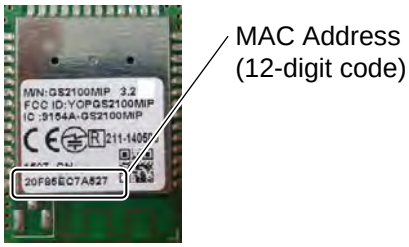
4.5 WIRELESS LAN BOARD (B-EX700-WLAN2-QM-R)

The following parts are supplied with the kit. Make sure you have all items shown below.

Wireless LAN Board (1 pc.) 	Antenna Cover (1 pc.) 	M-3x6 Screw (4 pcs.) 
Installation Manual (1 copy) 	FCC ID Sticker (1 pc.) FCC ID : Y0PG2100MP IC ID : 9154A-GS2100MP	

NOTES:

1. *MAC address of the Wireless LAN module will be necessary when setting the MAC address filtering function of an access point. As it is printed on the WLAN card, write it down on the Installation Manual before mounting the covers so that an end user can know the MAC address.*



2. *Be careful not to hit or damage the antenna when installing this kit. A damaged antenna may affect the performance.*

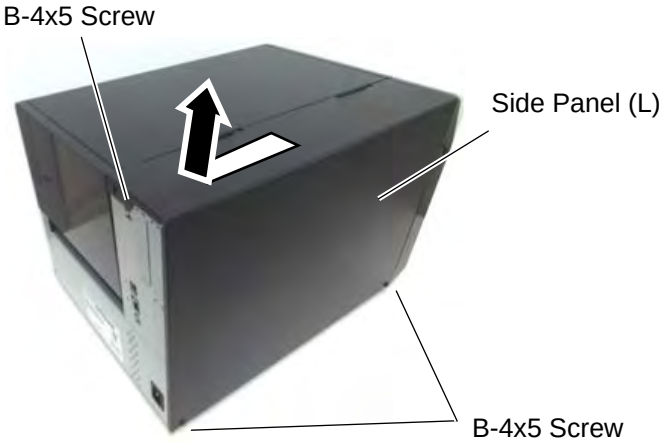
3. *This module cannot be used together with the B-EX700-RS-QM-R Serial Interface Board*

Country Code

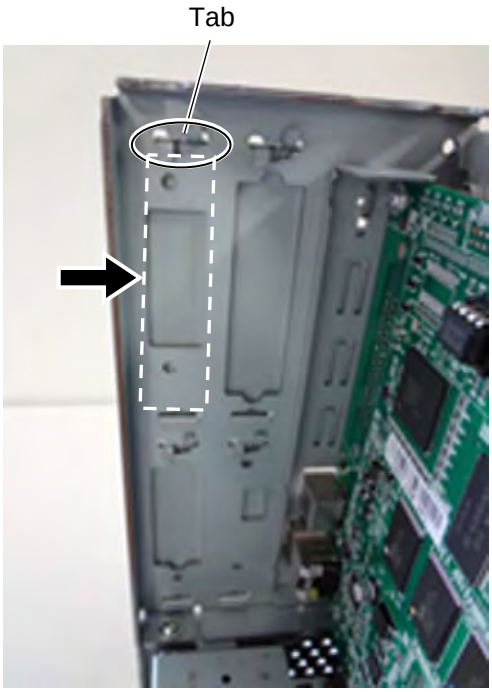
As available frequency bands are different from country to country, a proper country code must be set before installing the wireless LAN board on a user's printer. Use of a wireless LAN module with a wrong country code could violate each country's Laws and Regulations for Radio Equipment, and violators could be subject to penalties.

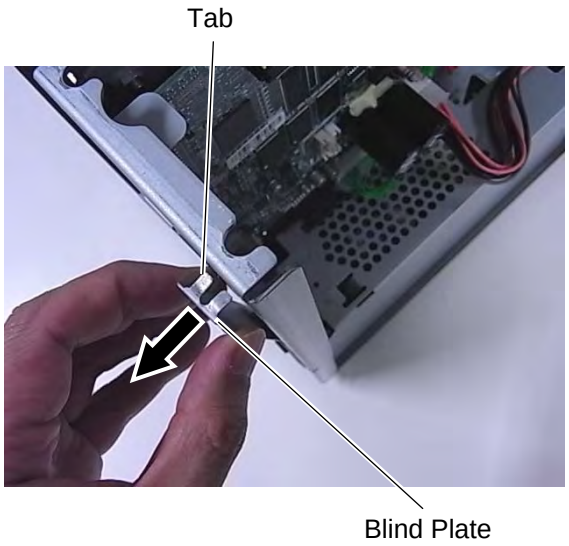
For the country code setting, please ask TOSHIBA TEC local subsidiaries.

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

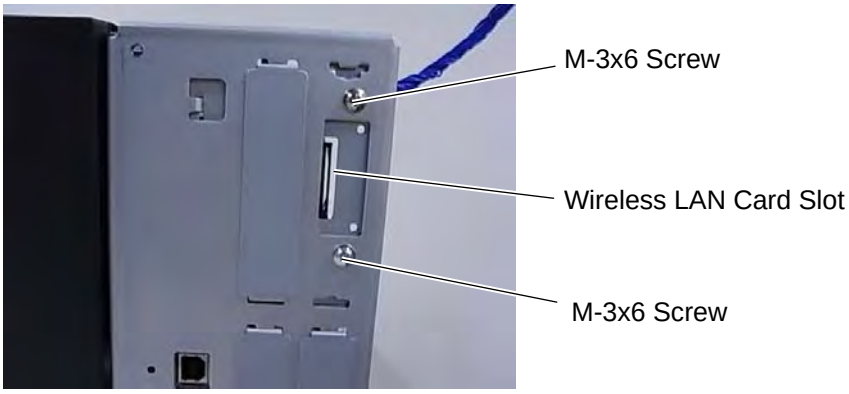


4. Unfold the upper tabs of the Blind Plate indicated by the arrow, then pull and remove the Blind Plate from the printer back.

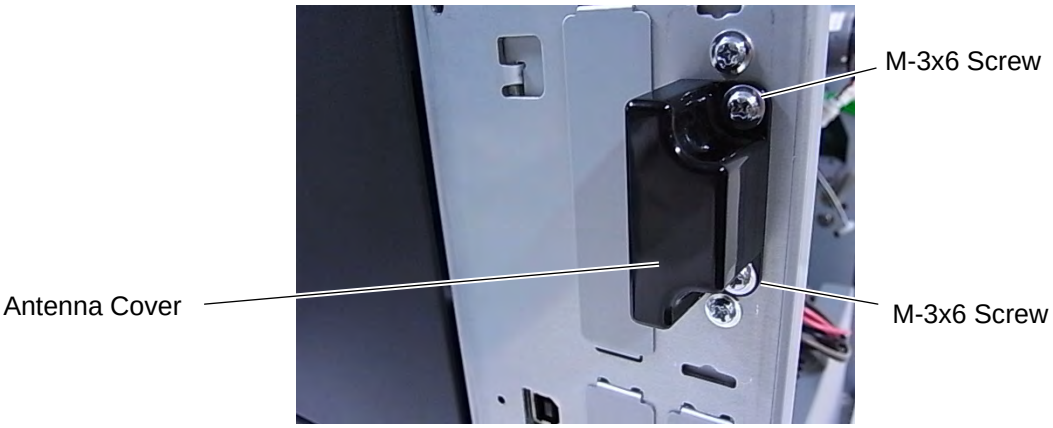




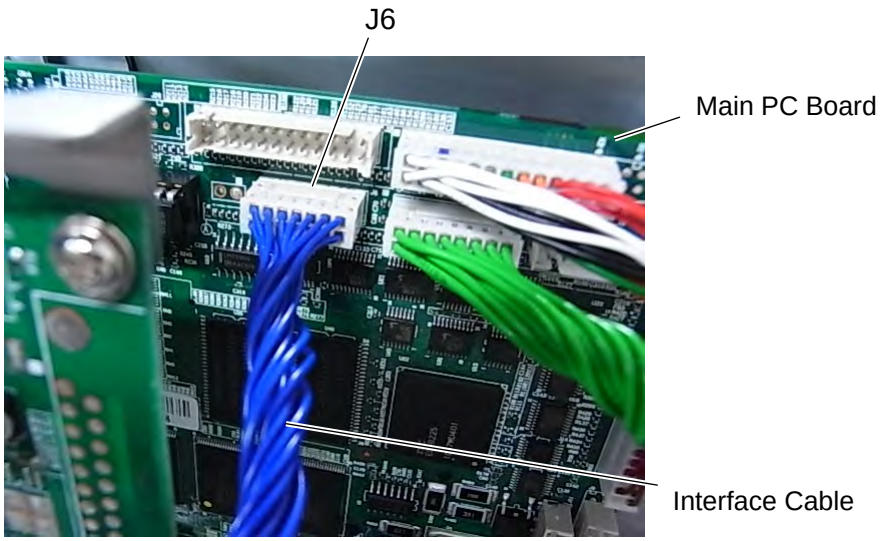
5. Fit the Wireless LAN card slot into the slot from the inside, and secure it with the two M-3x6 screws from the outside, as shown below.



6. Attach the Antenna Cover to the printer back with the two M-3x6 screws, as shown below.



7. Connect the Interface Cable to J6 on the Main PC board.



8. Re-install the Side Panel (L).

9. Attach the FCC ID Sticker to any available space of the printer back.

10. Refer to Section 5.9.1 LAN/WLAN in 5.9 INTERFACE for the interface parameter settings.

<<Caution when installing Wireless LAN Interface option>>

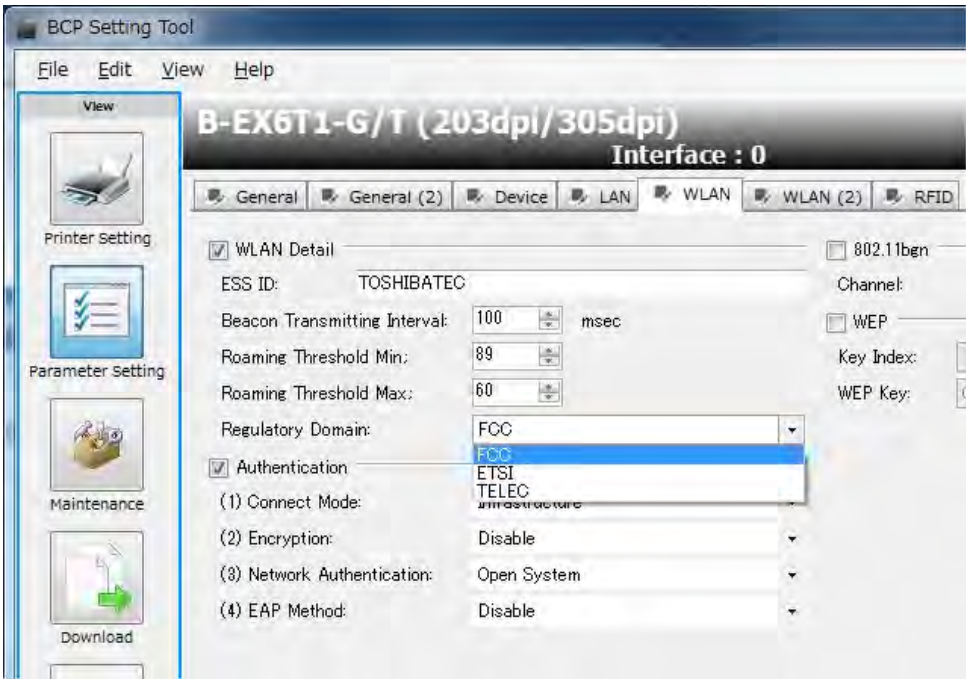
Please pay attention to the following two items when installing the wireless LAN interface option B-EX700-WLAN2-QM-R to the B-EX6T1 series or B-EX6T3 series.

(1) The B-EX700-WLAN2-QM-R will automatically start updating the firmware of the wireless LAN automatically at the first startup.

Therefore, the printer display will be blank for a while. The time spent on upgrading is about 30 seconds. After upgrading, it starts normally.

This firmware version upgrade operation is only the first time when installing the WLAN 2 board. It will not be updated at the next printer startup.

(2) When the B-EX700-WLAN2-QM-R is started for the first time, the set value of the destination (Regulatory Domain) is registered as "FCC".



When using a printer outside the "FCC" area, please perform the following key operation and activate the "Regulatory Domain" field.

Key Operation: **[CTRL] + [ALT] + [SHIFT] + [P]**

GS2100M module cannot be specified the country code, but the Channel range can be selected by selecting FCC/ETSI/TELEC

* FCC (Federal Communications Commission): Supported Channel range is 1 to 11.
* ETSI (European Telecommunications Standards Institute): Supported Channel range is 1 to 13.
* TELEC (Telecom Engineering Center): Supported Channel range is 1 to 14.

Country codes corresponding to each regulatory domain

Regulatory Domain	Country Code	Country Name	Regulatory Domain	Country Code	Country Name
FCC	CAN	CANADA	ETSI	IRA	IRELAND
	MEX	MEXICO		ISL	ICELAND
	TPE	TAIWAN		ITA	ITALY
	USA	UNITED STATES		KOR	KOREA, REPUBLIC OF
ETSI	AUS	AUSTRALIA		LAT	LATVIA
	AUT	AUSTRIA		LIE	LIECHTENSTEIN
	BEL	BELGIUM		LTU	LITHUANIA
	BUL	BULGARIA		LUX	LUXEMBOURG
	CHN	CHINA		MLT	MALTA
	CYP	CYPRUS		NED	NETHERLANDS
	CZE	CZECH REPUBLIC		NOR	NORWAY
	DEN	DENMARK		NZL	NEW ZEALAND
	ESP	SPAIN		POL	POLAND
	EST	ESTONIA		POR	PORTUGAL
	FIN	FINLAND		ROU	ROMANIA
	FRA	FRANCE		RSA	SOUTH AFRICA
	GBR	UNITED KINGDOM		SLO	SLOVENIA
	GER	GERMANY		SUI	SWITZERLAND
	GRE	GREECE		SVK	SLOVAKIA
	HKG	HONG KONG		SWE	SWEDEN
	HUN	HUNGARY	TELEC	JPN	JAPAN

CE Compliance (for EU only)

This product complies with the requirements of EMC, Low Voltage and R&TTE Directives including their amendments.

Precautions for Handling of Wireless Communication Devices

Wireless LAN Module: GS2100MIP

For Europe

This device was tested and certified by Notified Body.
Hereby, Toshiba TEC Corporation, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
This equipment uses the radio frequency band which has not been harmonized throughout all EU and EFTA countries, and can be used in the following countries.
Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Hungary, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Norway, Liechtenstein, Iceland, Switzerland

For USA

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received , including interference that may cause undesired operation.
Changes or modification not expressly approved by manufacturer for compliance could void the user's authority to operate the equipment.

For Canada

Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference , including interference that may cause undesired operation of the device.

For Taiwan

Caution

根據低功率電波輻射性電機管理辦法

For safety

Do not use this product in locations where use may be forbidden, for example, in an aeroplane or a hospital. If you do not know the forbidden areas, please refer to and follow the airline company or medical institution guidelines.
Otherwise, flight instrument or medical equipment may be affected, causing a serious accident.
This product may affect the operation of some implanted cardiac pacemakers and other medically implanted equipment. Pace maker patients should be aware that the use of this product very close to a pacemaker might cause the device to malfunction.
If you have any reason to suspect that interference is taking place, immediately turn off the product and contact your TOSHIBA TEC sales agent.
Do not disassemble, modify, or repair the product.
Doing so may cause injury. Also, modification is against the Laws and Regulations for Radio Equipment. Please ask your TOSHIBA TEC sales agent for repair.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1)

this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In accordance with 47 CFR Part15.407 (e) U-NII devices operating in 5.15-5.25GHz frequency bands are restricted to indoor operations only.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65. This equipment should be installed and operated with at least 20cm and more between the radiator and person's body (excluding extremities: hands, wrists, feet and legs).

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

For safety

Do not use this product in locations where use may be forbidden, for example, in an aeroplane or a hospital. If you do not know the forbidden areas, please refer to and follow the airline company or medical institution guidelines.
Flight instrument or medical equipment may be affected, causing a serious accident.

Since this product uses extremely low power compared with mobile phones, it cannot possibly interfere the pacemakers and defibrillators. However, if the use of this product should be likely to have affected the pacemaker or defibrillator, immediately stop using the product and contact your TOSHIBA TEC sales agent.
Do not disassemble, modify, or repair the product. Doing so may cause injury. Also, modification is against the Laws and Regulations for Radio Equipment. Please ask your TOSHIBA TEC sales agent for repair.

Precaution in use

This product communicates with other devices by radio. Depending on the installation location, orientation, environment, etc., its communication performance may deteriorate or devices installed near by may be affected.

Keep away from a microwave.

Communication performance may deteriorate or a communication error may occur due to the radio emitted from a microwave.

Since the wireless LAN use the same radio frequency band, each radio wave may interfere with each other when they are used at the same time, causing a deterioration of communication performance or a disconnection of network. If there is any problem with connection, please stop using wireless LAN.

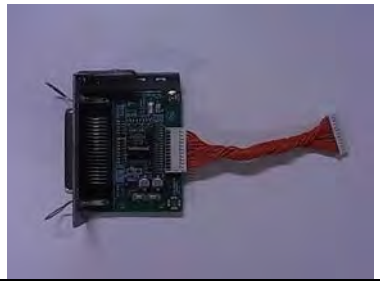
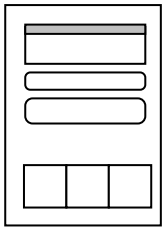
Do not use the product on a metal table or near a metal object.
Communication performance may be deteriorated.

TEC Wireless LAN Board Specification

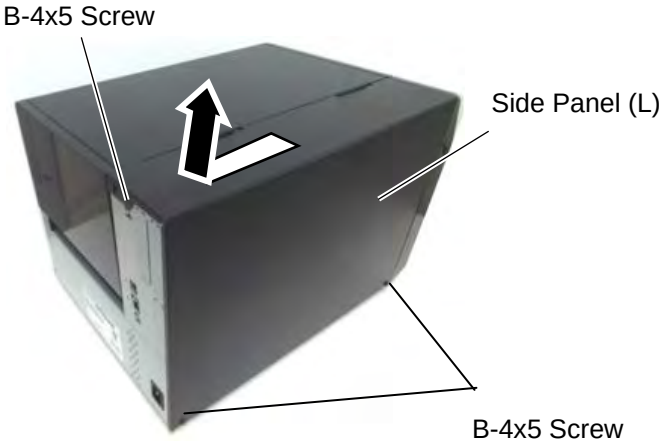
Built-in IEEE802 Part 11b/g/n (802.11b/g/n)
Operating temperature: -40 to 85°C (No condensation)
Dimensions: 18.0 mm (W) x 25.0 mm (H) x 2.5 mm (D)

4.6 PARALLEL INTERFACE BOARD (B-EX700-CEN-QM-R)

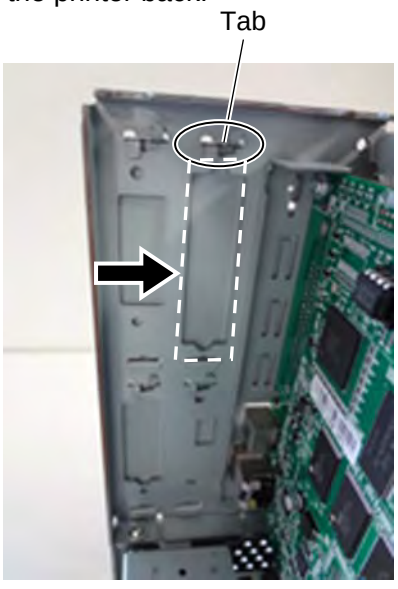
The following parts are supplied with the kit. Make sure you have all items shown below.

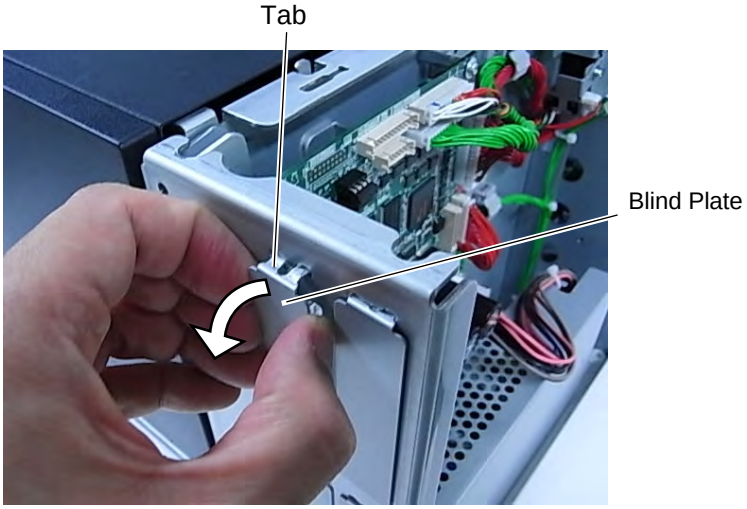
Parallel Interface Board (1 pc.)	M-3x6 Screw (2 pcs.)	Installation Manual (1 copy)
		

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

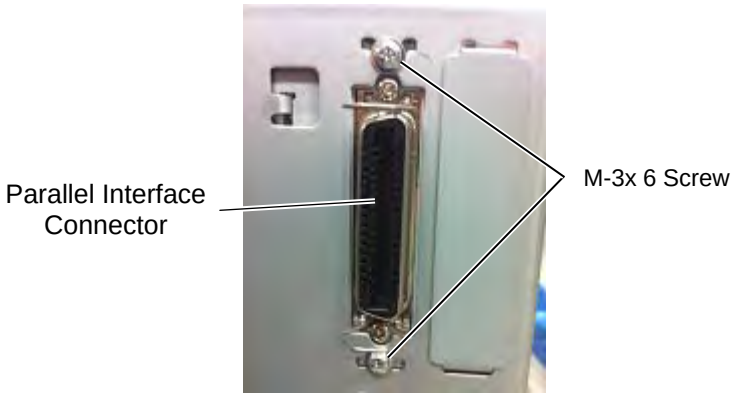


4. Unfold the upper tabs of the blind plate indicated by the arrow, then pull and remove the blind plate from the printer back.

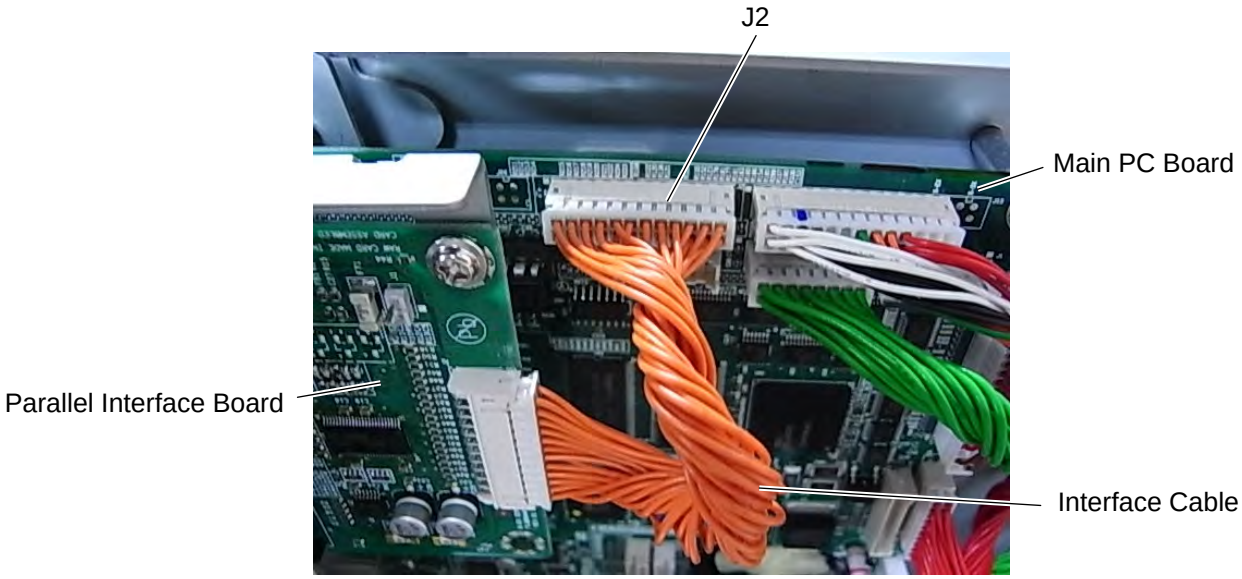




5. Fit the parallel interface connector of the parallel interface board into the slot from the inside, and secure it with the two M-3x6 screws from the outside, as shown below.



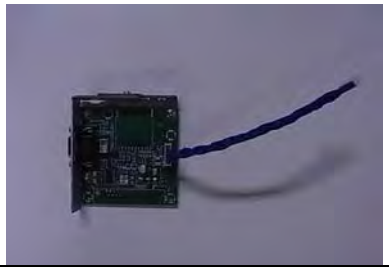
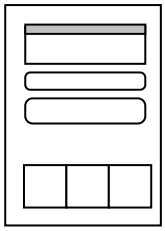
6. Connect the interface cable to J2 on the Main PC board.



7. Re-install the Side panel (L).
8. Refer to Section 5.9.4 CENTRONICS in 5.9 INTERFACE for the interface parameter settings.

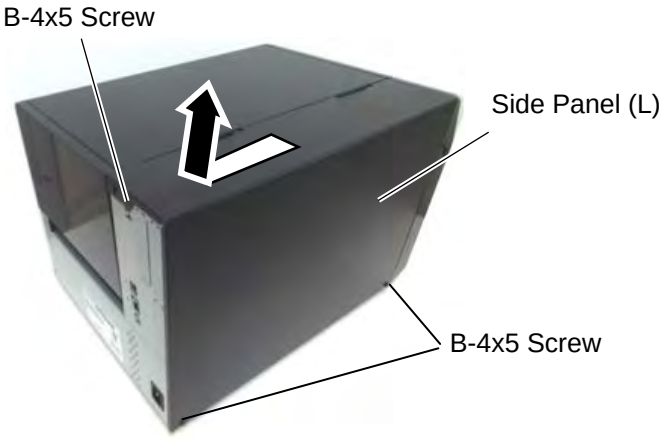
4.7 SERIAL INTERFACE BOARD (B-EX700-RS-QM-R)

The following parts are supplied with the kit. Make sure you have all items shown below.

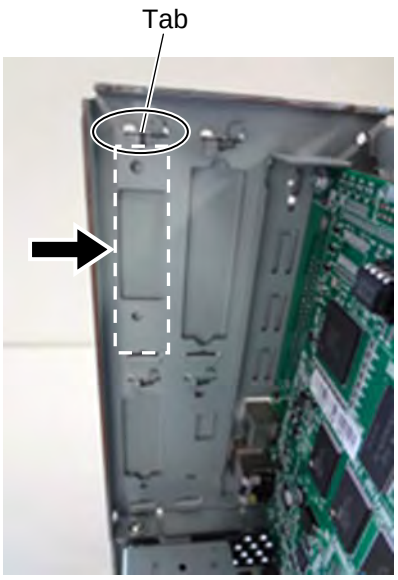
Parallel Interface Board (1 pc.)	M-3x6 Screw (2 pcs.)	Installation Manual (1 copy)
		

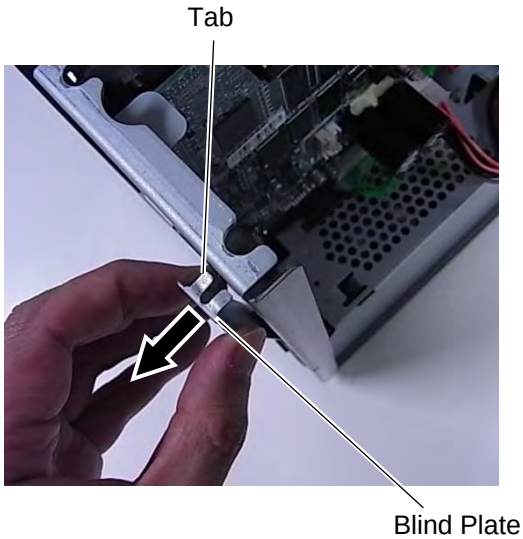
NOTE: *This module cannot be used together with the B-EX700-WLAN-QM-R wireless LAN board.*

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

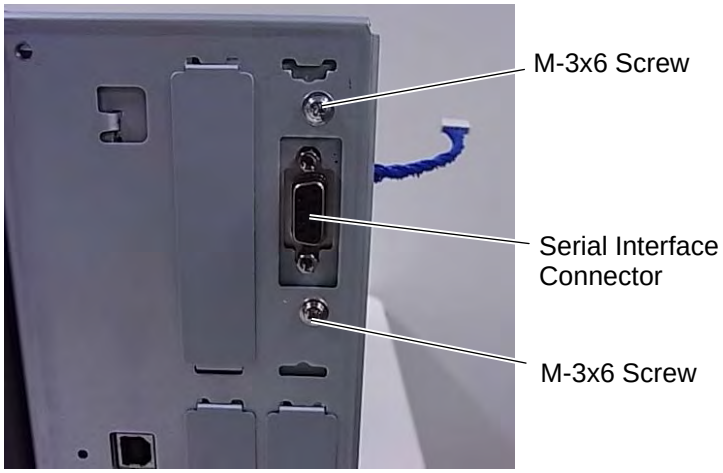


4. Unfold the upper and lower tabs of the Blind Plate indicated by the arrow, then pull and remove the Blind Plate from the printer back.

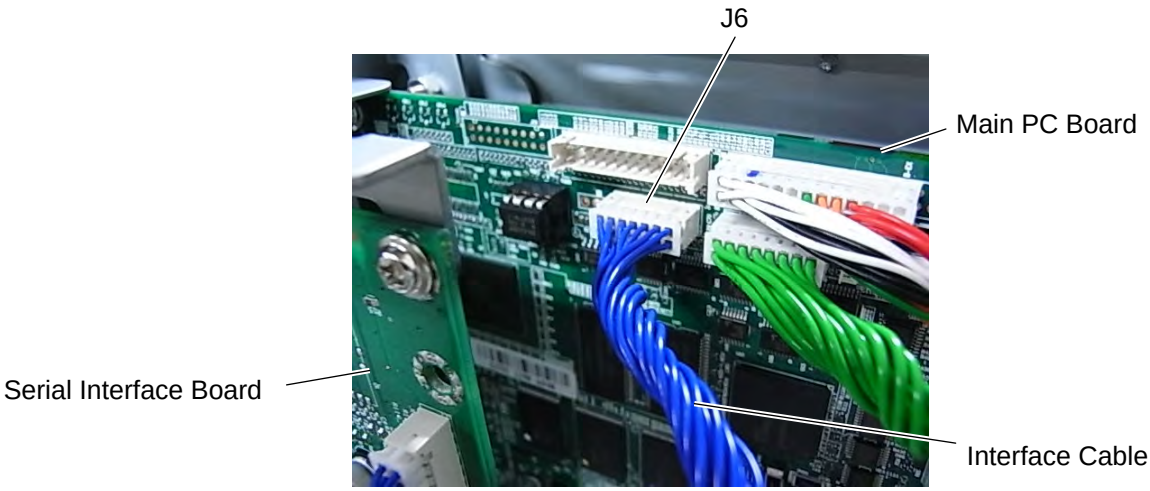




5. Fit the Serial Connector of the Serial Interface Board into the slot from the inside, and secure it with the two M-3x6 screws from the outside, as shown below.



6. Connect the interface cable to J6 on the Main PC board.



7. Re-install the Side panel (L).
8. Refer to Section 5.9.3 RS-232C in 5.9 INTERFACE for the interface parameter settings.

4.8 UHF RFID KIT (B-EX706-RFID-U4-US/EU/AU-R)

The B-EX706-RFID-U4-US/EU/AU-R is exclusively for the B-EX6T1-GS12/TS12-QM-R.
This RFID kit complies with radio laws of all applicable countries.
As this product is a wireless communication device, please be sure to read the following precautions carefully.

WARNING!

1. *Do not use a printer embedded with this product near medical equipment. Radio wave emitted from this product may affect the operation of medical equipment, such as an implanted cardiac pacemaker and implantable cardioverter-defibrillator.*
   If a use of this product should be likely to have affected medical equipment, immediately turn off the product and contact your TOSHIBA TEC sales agent.
   Keep a printer embedded with this product at least 23cm away from a person with an implanted cardiac pacemaker or implantable cardioverter-defibrillator.
2. *Do not export a printer embedded with this product to the countries or areas where a use of this product is not allowed, without permission. Doing so is against the law, and you may be punished.*
   When exporting this product, check the laws and regulations of a destination country and take necessary procedures.
3. *Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.*
   - *Manual instructions must be followed when installing option kits or adding cables to avoid system failures and to insure proper performance and operation.*
   - *Failure to follow manual instructions or any unauthorized modifications, substitution or change to this product will void the limited product warranty.*
4. *Turn the power OFF and disconnect the power cord before installing the RFID module.*
5. *Be careful not to pinch your fingers or hands with the covers.*
6. *The print head and stepping motor becomes very hot immediately after printing. Do not touch the print head, stepping motor and around it right after printing, or you may get burned.*
7. *When opening the top cover, it must be fully opened. Failure to do this may cause the top cover to close under its own weight, resulting in an injury.*

APPLICABLE MODEL

(1) This optional device is intended for the following models:

B-EX6T Series

Be careful not to install this product in any other models than above.

(2) The countries where the use of this device is allowed are as follows:

Model Name	Frequency Band	Applicable Countries
B-EX706-RFID-U4-US-R	UHF 902.75-927.25MHz	USA
	UHF 920.9-923.3MHz	Korea
	UHF 920.625-924.375MHz	China
B-EX706-RFID-U4-EU-R	UHF 869.85MHz	EU+EFTA
B-EX706-RFID-U4-AU-R	UHF 918 – 926MHz	AU

PACKING LIST

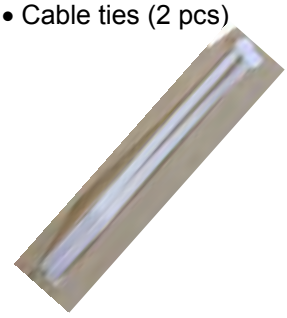
All the following parts are supplied with the kit. Make sure you have all items shown below.
If any part is missing, please contact your TOSHIBA TEC sales agent.

- RFID Module

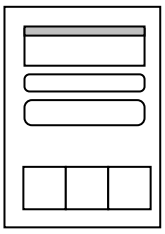
- PT-3x6 screw （1pc）

- Bush (1 pc)

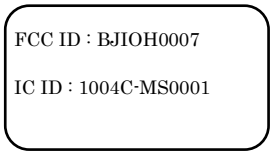
- Cable ties (2 pcs)



- Installation Manual (1 copy)



- FCC ID Sticker (1 pc) for U4-US-R only



- Shield label

There are three types depending on the antenna mounting position

F

C

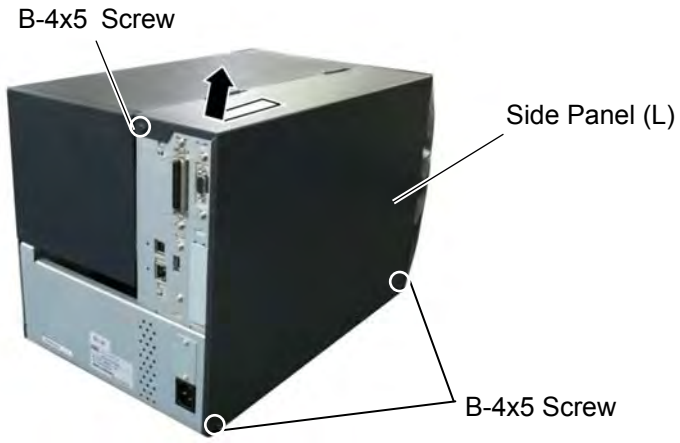
R

- RFID media guide

- RFID module harness

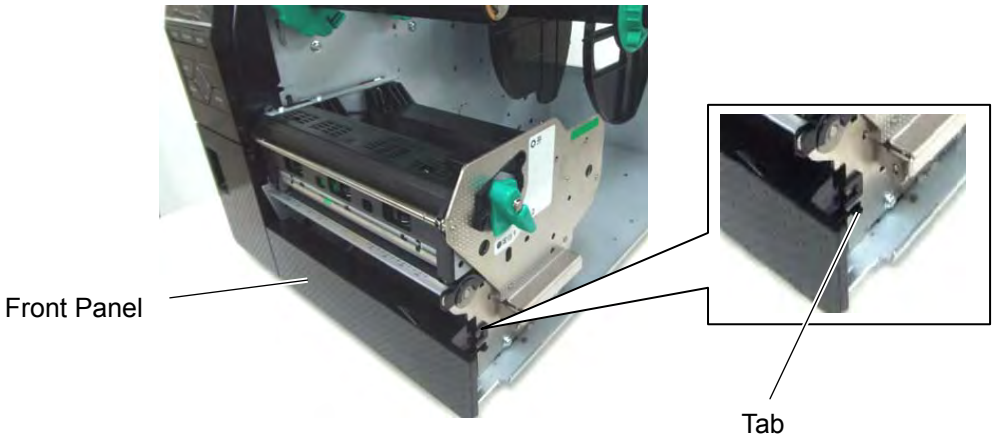
4.8.1 Removing the Covers

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.



4. Fully open the Top Cover.

5. Release the tab on the right end by pushing it, then remove the Front Panel.



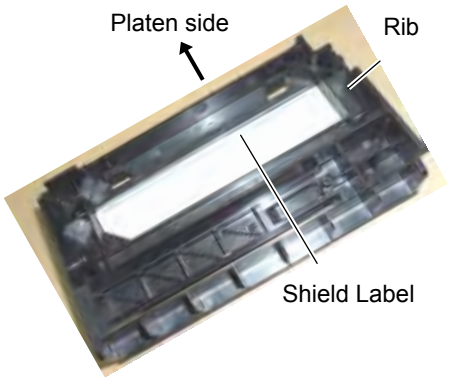
4.8.2 Mounting of the RFID Module

By RF label to be used, shield label (F/C/R), antenna position (front/middle/rear), different combinations of the mounting of the shielding plate (Y/N). Please follow the combination described in "RFID label recommended setting sheet".

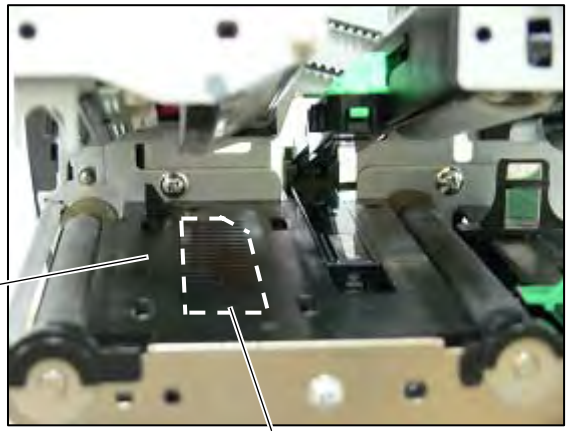
1. Attach the selected Shield Label to the bottom of the Platen Holder Block.

Guide of Attachment Position
Attach the Shield Label along the rib.

<When viewed from the bottom>



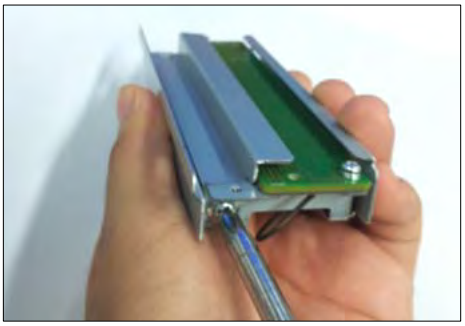
Actual view



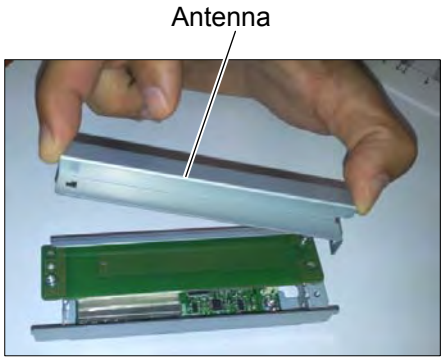
Platen Holder Block

CAUTION!
DO NOT DISASSEMBLE the Platen Holder Block.
Doing so will change the adjustment.

2. Disconnect the shielding plate from the RFID module.

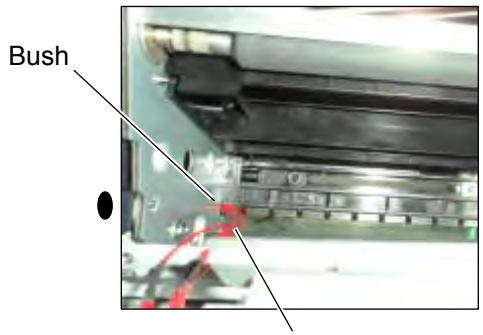


1. Remove the screws that secure the antenna shield.



2. Remove the screw holding the antenna shield

3. Fit the Bush in the round hole of the main frame, and pass through it the black connector of the red interface cable that is connected to the RFID.

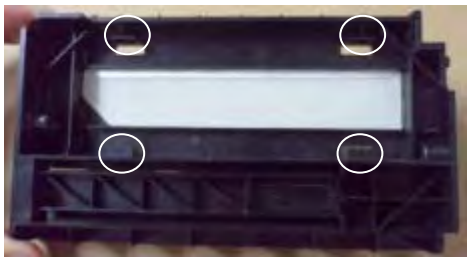


4. Fit the RFID module to the bottom of the Platen Holder Block as shown below.

Guide of Attachment Position

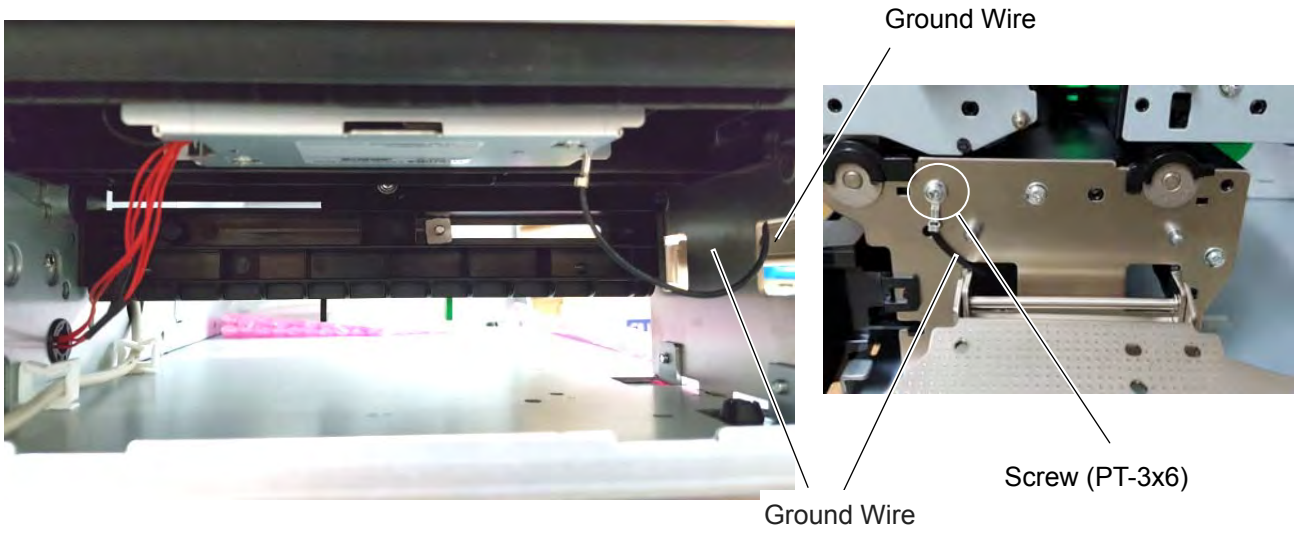
<When viewed from the bottom>

Attach the RFID module to the 4 alignment slots enclosed in circles.

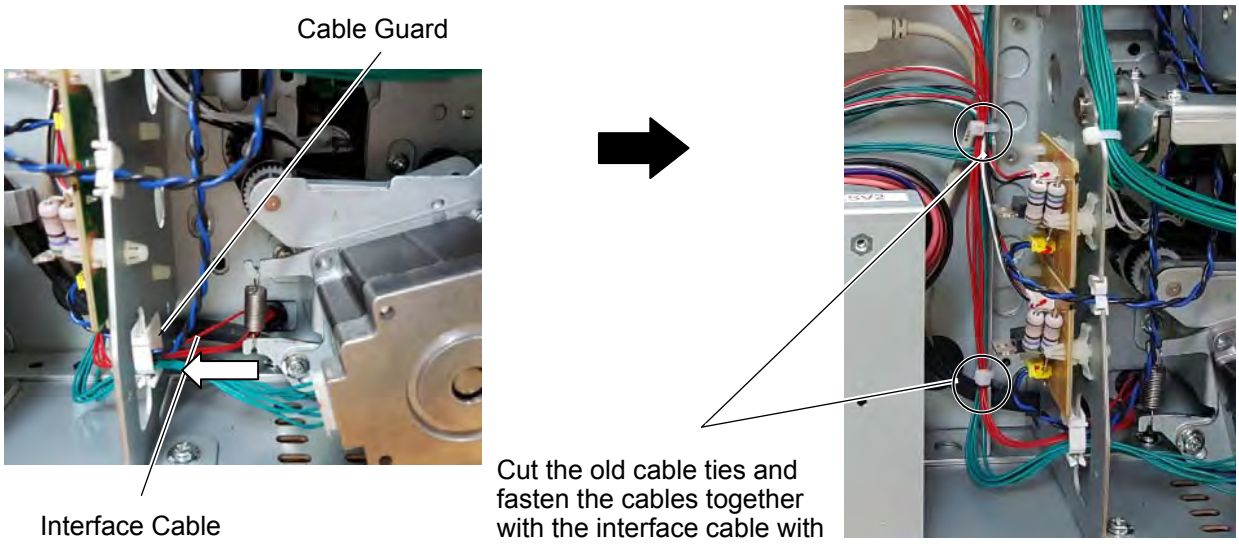


Platen Holder Block

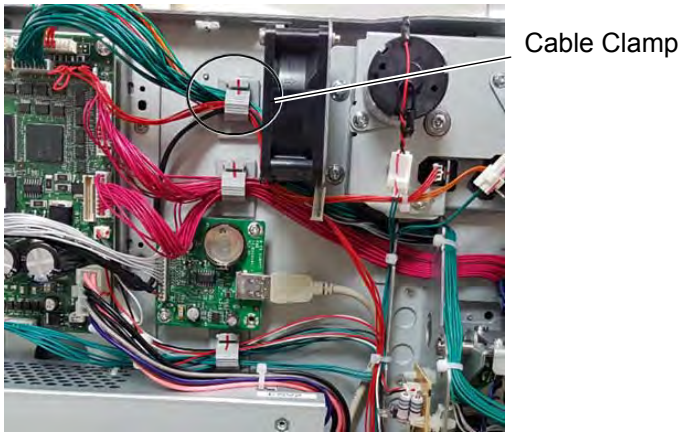
5. Pass the ground wire through the hole in the sheet metal as shown in the photo, and secure it with screws (PT-3x6).



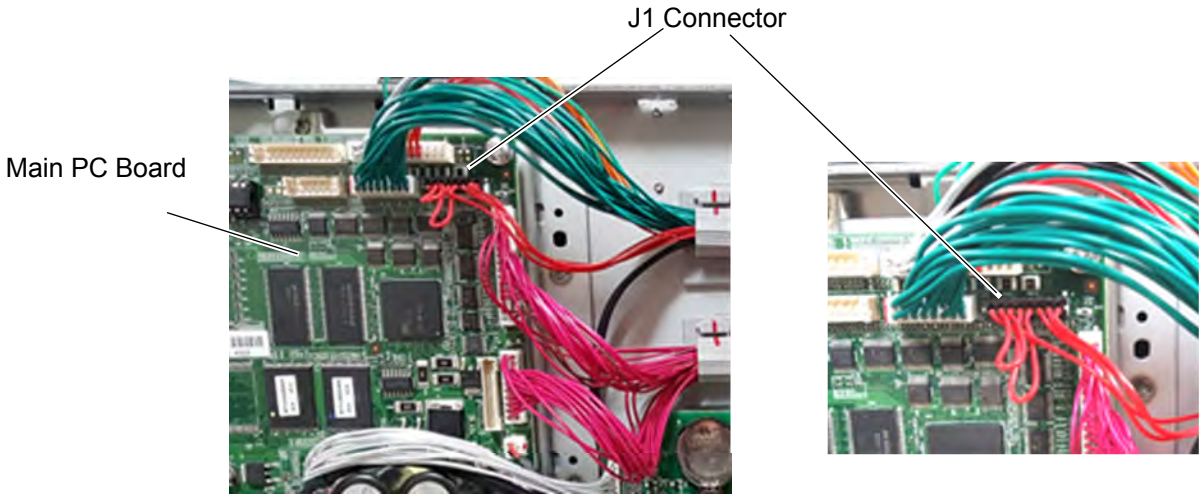
6. Pull out the interface cable from the opposite side, and pass it through the opening.



7. Arrange the cables properly and secure it on the cable clamp as shown below.



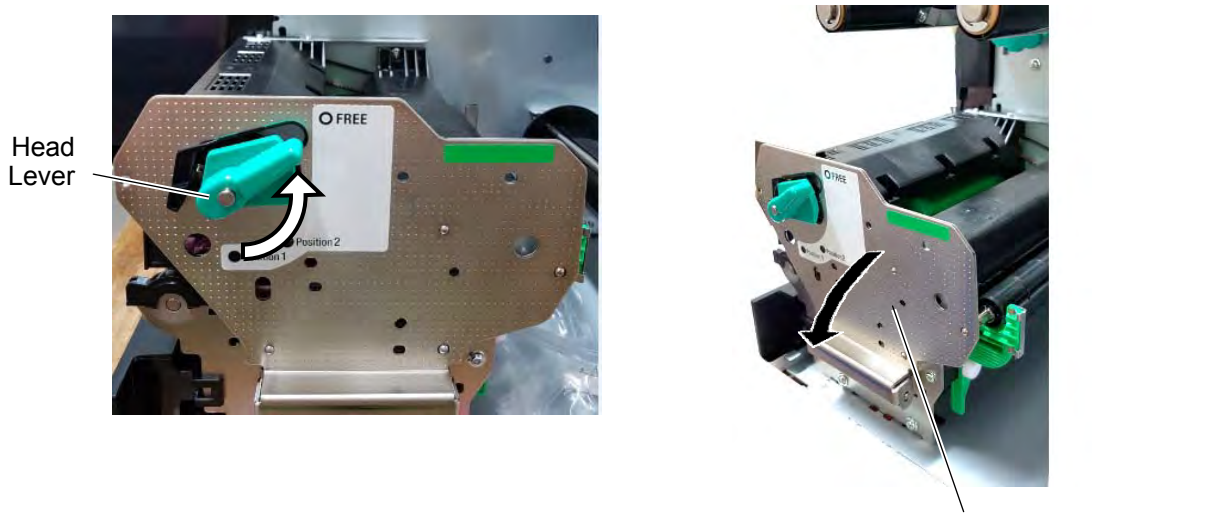
8. Connect the RFID Module to J1 on the Main PC Board with the Interface Cable.



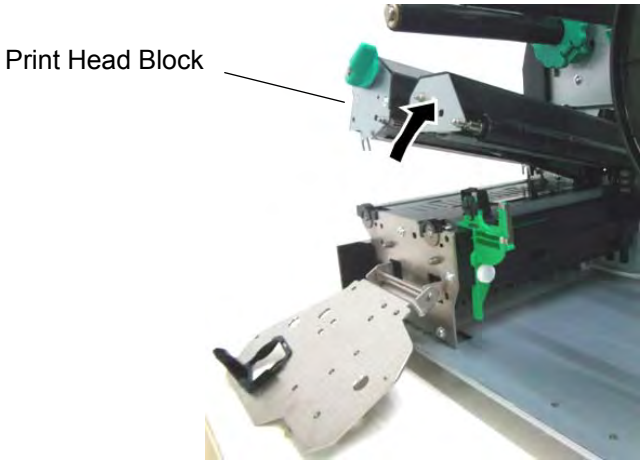
4.8.3 Attaching the Paper Guide

RFID paper guide is not required when using the RFID module with the cutter/peel-off option.

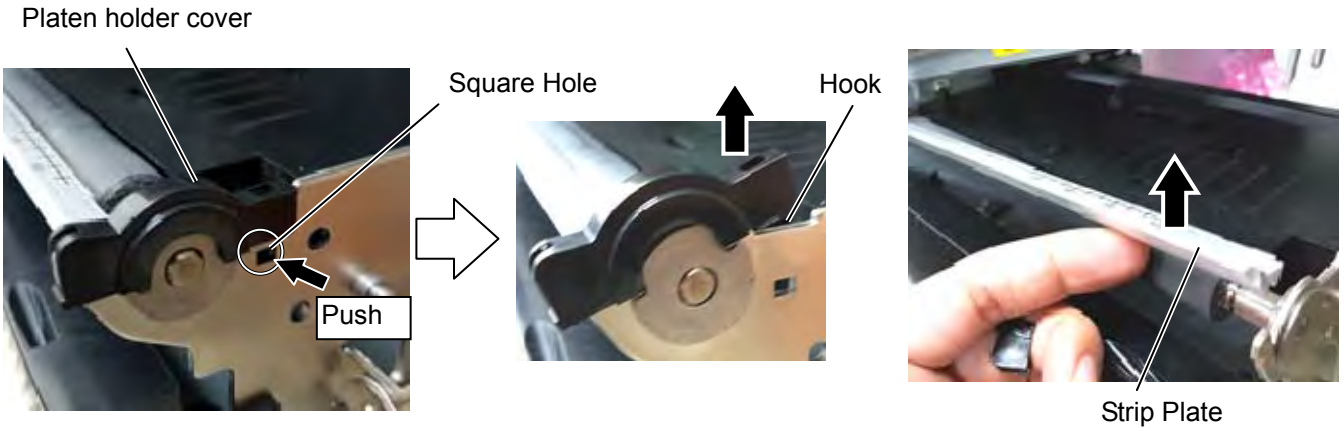
1. Turn the Head Lever to **FREE** position and gently put down to the side the Print Head Block Holder Plate.



2. Open the Print Head Block.

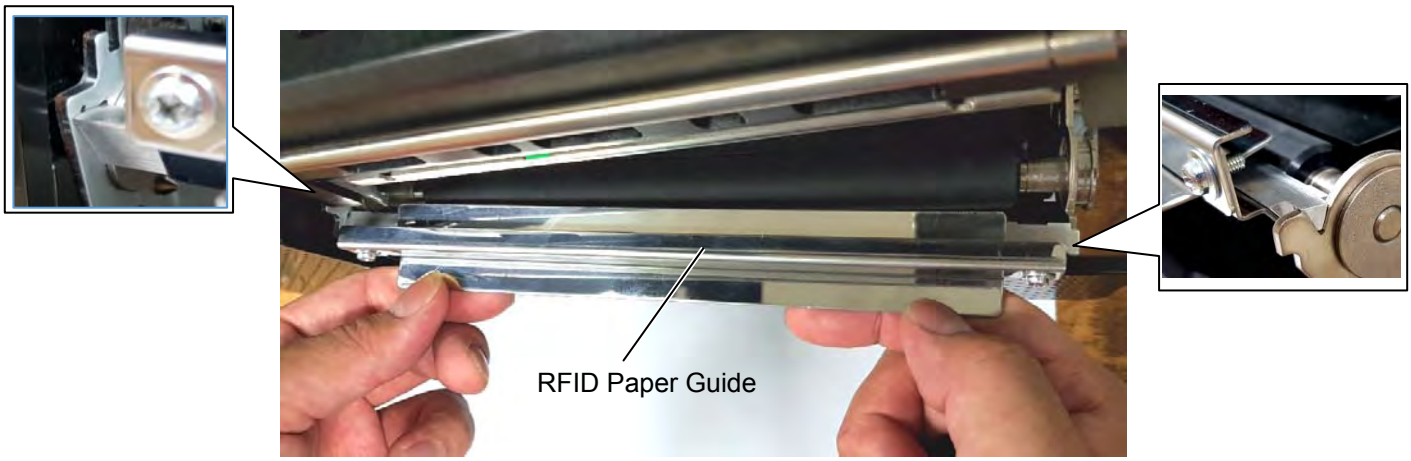


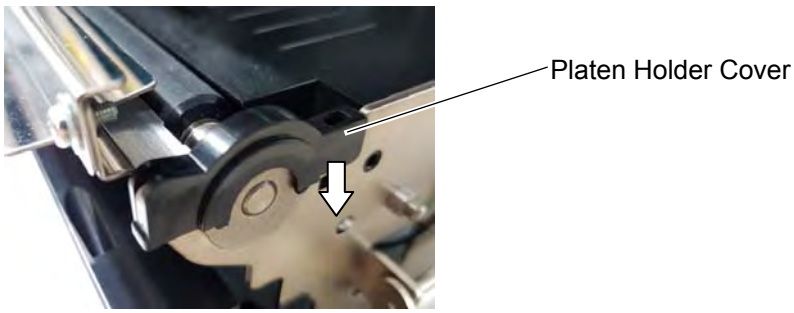
3. To release the hook, Insert the tip of a thin tool into the square hole, remove the platen holder cover and remove the Strip plate.



4. Install the RFID paper guide and return the platen holder cover to the original position.

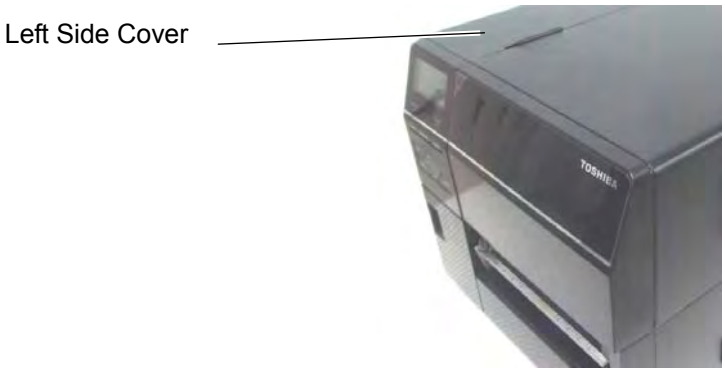
***NOTE**: Since the release plate will not be used, please keep it in a safe place.*



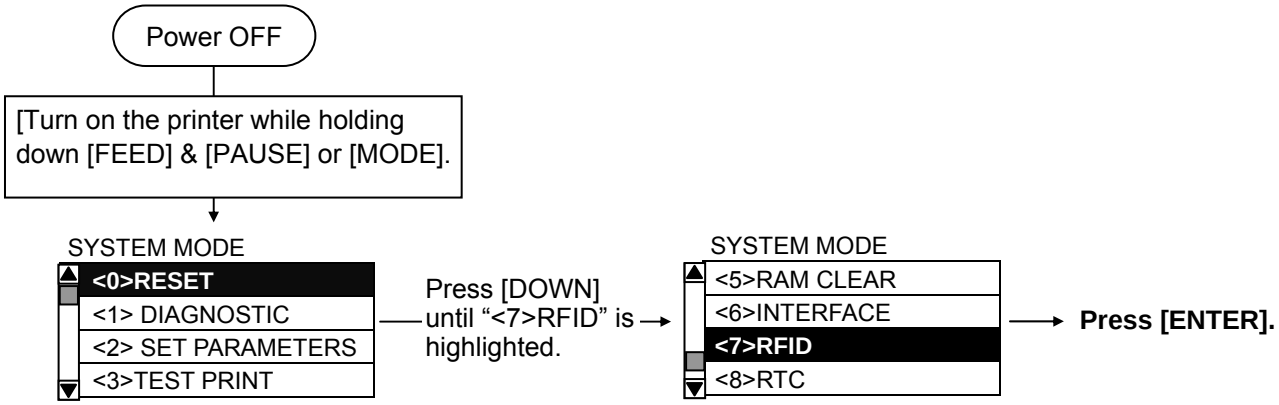


4.8.4 RFID Operation Check

1. Mount the Left Side Cover in a reverse order of removal. Be careful not to pinch the cables.



2. Plug the Power cord into the electrical outlet and turn ON the printer. Enter the RFID Set-up Menu in the System Mode.



3. In the module configuration, press the [ENTER] key to select the "UHF band (U2 / U4)".

4. Set the country code to [EU].

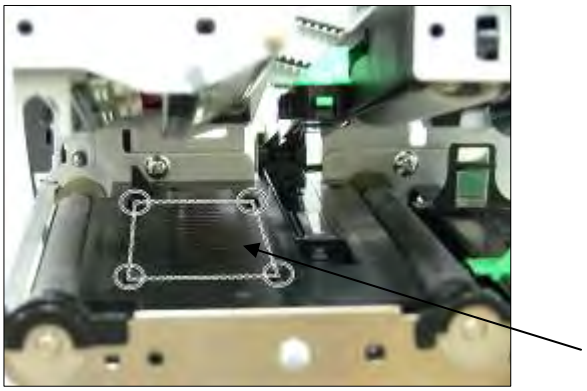
Module	
TYPE	U2/U4
COUNTRY	Need to be set
Change by [ENTER] key	

Press the [ENTER] Key.
Enter PASSWORD(RFID) and 1048, then save by pressing the [ENTER] key.
Confirm the COUNTRY CODE is set to [EU] and press the [ENTER] key.

5. Turn off the printer power and back to on again. Enter the system mode.

6. Under the module setting, select [EPC C1 Gen2] as the Tag Type and press the [ENTER] key.

7. Place a test tag (RFID tag) on the area indicated in the following photo, and perform a read test.



Select [TEST] and press the [ENTER] key.
Select [ID READ] and press the [ENTER] key.
Execute an ID READ test. The read ID appears on the display.

ID READ
Tag 1/1 Performance 9 00010203 04050607 08090A0B 0C0D0E0F

(Display)

That's all for the installation of the RFID module.

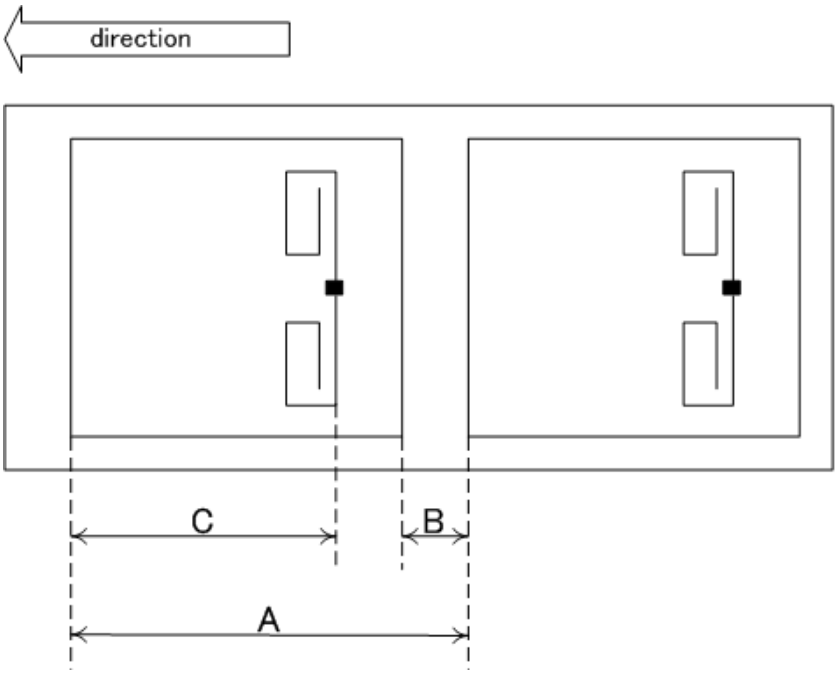
Please proceed to the RFID setting.

4.8.5 Reference Information: Antenna and shield label indication of the mounting position

4.8.5.1 Guidelines for the antenna position and shield label selection media specification confirmation

1. Confirm below your media specification.

A. Media pitch
B. Gap length
C. RFID chip position distance from front edge of the paper



2. Guidelines for the antenna position selection

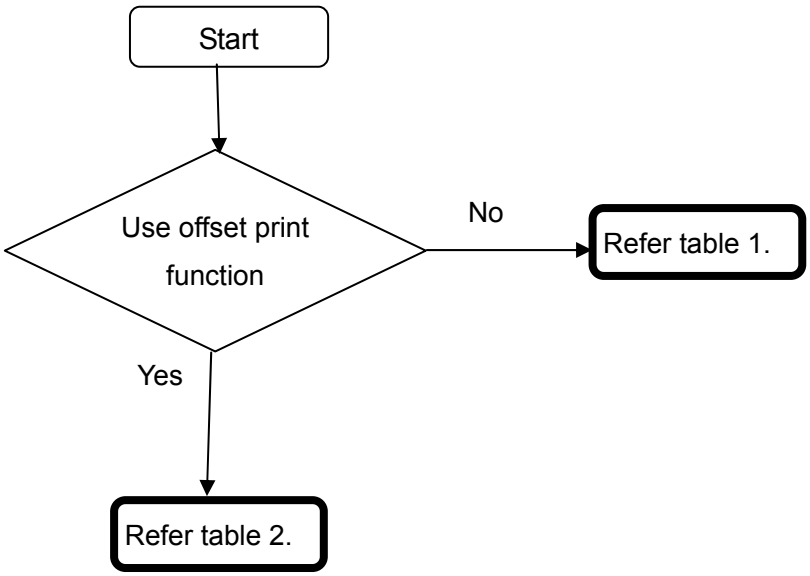


Table 1 (Normal print)

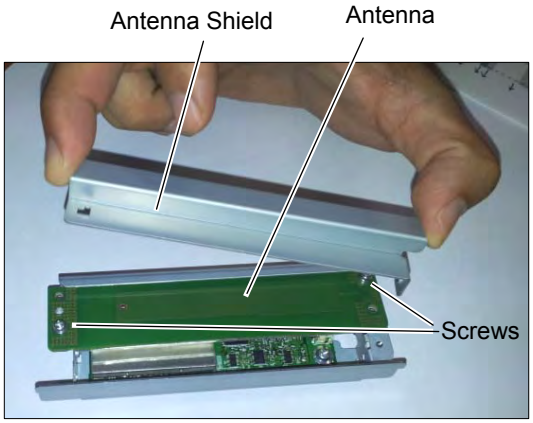
A (mm)	C (mm)	Antenna	Shield Label	Shielding plate
10 to 20	10 to 18	Front	F	Required
over 20	10 to 34	Front	F	Disabled
	34 to 41	Center	C	Disabled
	over 41	Rear	R	Disabled

Table 2 (Offset print)

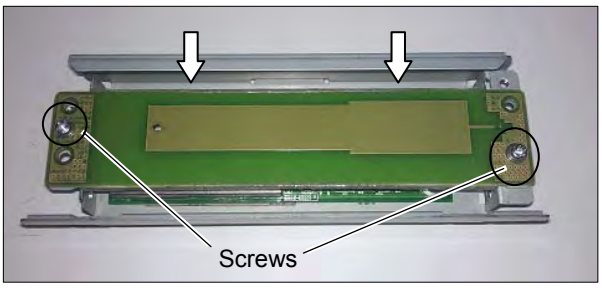
A (mm)	A+C (mm)	Antenna	Shield Label	Shielding plate
10 to 20	10 to 34	Front	F	Required
	34 to 38	Center	C	Disabled
over 20	20 to 34	Front	F	Disabled
	34 to 41	Center	C	Disabled
	over 41	Rear	R	Disabled

- Offset printing Characteristics is the mode of execution of writing for one piece back word tag from the printing Tag and it should be effective for plural RFID tag is printing continuously.
- When this function is enabled, the back feed to write data is unnecessary and the throughput should be improved, due to the one piece back word Tag from printing label should be just on the RFID Antenna when the around 20mm pitch tag is used.
- Offset printing function is available, when the @003 command (Writing before RFID ISSUE feed length setting command)

Antenna position: Center
Shielding plate: Not required

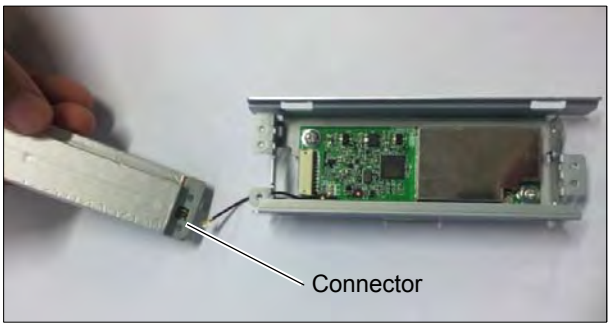


1. Remove the antenna shield as per Step 1 to 2 of Front Position (Antenna Shield Disable), and remove 2 screws as shown.

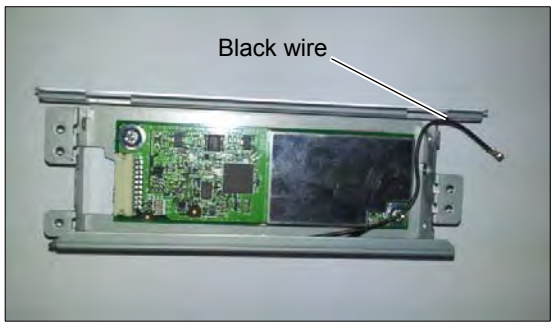


2. Move the antenna in the middle position and observe proper alignment as shown in the figure above. Attach the two screws back with the new antenna position.

Antenna position: Rear
Shielding plate: Not required

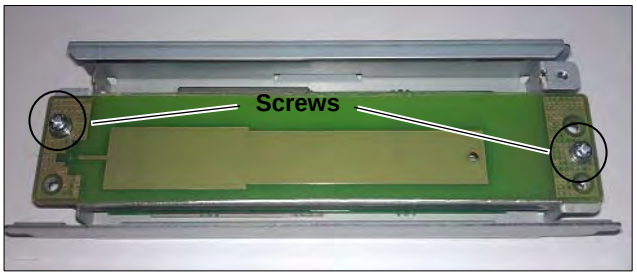


1. After the antenna shield and antenna screws have been removed, detach the connector of the PCB from the antenna.



2. Reroute the black wire to the other side as shown in the figure above.

3. Re- connect the black wire to the antenna as shown in figure above.

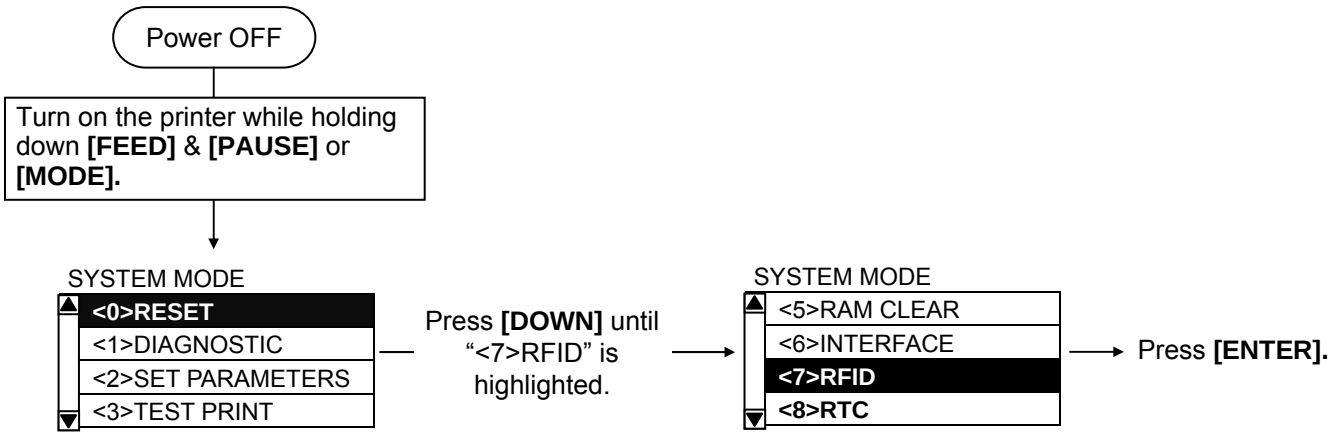


4. Attach the antenna and secure with 2 screws, the proper alignment shown in the figure above.

4.8.6 RFID Module Settings

After installing the RFID Module on the printer, configure the RFID module settings in the printer system mode.

■ How to enter the System Mode



■ Contents of the RFID Menu

Menu	Sub menu	Parameter
RFID	TEST	ID READ
	MODULE	MODULE TYPE
		COUNTRY
		TAG
		RF CHANNEL
	RETRY	RETRY POSITION
		RETRY LABELS
		READ RETRY
		WRITE RETRY
	UHF SETTING	POWER LEVEL
		Q VALUE
		AGC THRESHOLD
		WRITE AGC THRESHOLD
		WRITE RETRY MIN AGC
	OTHER	TAG CHECK
		MULTI WRITE

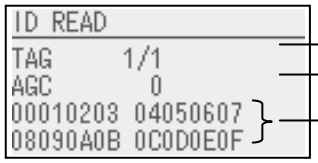
■ Key functions in the system mode

Key	Function
[MODE]	Returns to the mode menu screen.
[CANCEL] or [FEED]+[RESTAR]	Returns to the upper hierarchy.
[ENTER] or [PAUSE]	Displays a next screen.
	Saves the setting and returns to the upper hierarchy.
[UP] or [RESTART]	Moves the cursor upward.
	Increases a value.
[DOWN] or [FEED]	Moves the cursor downward.
	Decreases a value.
[LEFT]	Moves the cursor to the left.
[RIGHT]	Moves the cursor to the right.

4.8.6.1 TEST

(1) ID READ

The printer enters the read test mode, and a read test is performed each time the **[ENTER]** key is pressed. When the data of a tag can be read, it is displayed on the LCD.



(Example)

The number tag is being read./The total number of tags read
AGC value of the read tag
U4: EPC code in the EPC area is displayed in hex. value, up to 32 digits on 2 lines
H1: Tag ID

- Only the tags selected for the RFID tag type can be read.
- The RFID tag type shall be selected before the read test is started.
- When the read test failed, the following message is displayed on the LCD:

Error message	Description
MODULE TYPE ERROR	RFID module type has been set to NONE or a communication cannot be established.
COUNTRY CONFIG ERROR	Country code has not been set.
READ ERROR Confirm Setting or Set other Tag	The type of the tag to be read and one selected by the RFID tag type selection do not match.
NOT AVAILABLE	Not supported.
NO RESPONSE	No response from the tag
READ TIMEOUT Set a RF-Tag on Ant.	Timeout
UNKNOWN ERROR	Other errors

- In the case of 32 digits or more data, only the first 32 digits are displayed. When data is less than 32 digits, the vacant digits will be filled with spaces
- If more than one tag is read at one time, especially when short-pitch tags are used, pressing the **[UP]** or **[DOWN]** key shows the other tags' data.

4.8.6.2 MODULE

(1) MODULE TYPE

- NONE: No RFID module is installed.
- H1: not supported
- H2: not supported
- U2/U4: B-EX706-RFID-U4-US/EU/AU-R
- U4 module preinstall model (B-EX6T1-GS18/TS18-CN-R)

***NOTE**: This setting will become effective after the printer power is turned off, and back to on.*

(2) COUNTRY

The country code of the currently installed module is displayed.
If the module type is set to other than "U2", "INVALID" is displayed.

It is possible to change the country setting when the module type is set to "U2" and the actually installed module type is U4-US or U4-EU. However, this menu is password-protected because changing the country setting causes the output frequency to change.

B-EX706-RFID-U4-EU-R	EU0 (Europe) or IN0 (India Use of IN0 is prohibited.))
B-EX706-RFID-U4-US-R	US (North America), AU (Australia), KR2 (Korea) CN2 (China), Use of CN2, US and AU are prohibited.

(3) TAG

- NONE
- EPC C1 Gen2

(4) RF CHANNEL

- AUTO
- 2CH
- 3CH
- 4CH
- 5CH
- 6CH
- 7CH
- 8CH

Set the channel to be used for writing data onto RFID tags.
When a channel is chosen from 2CH to 8CH, that channel will be continuously used.

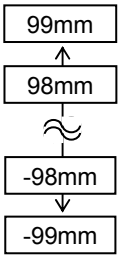
When the channel is set to AUTO, an available channel is searched in the following order.

AUTO: 2CH → 8CH → 6CH → 4CH → 3CH → 7CH → 5CH → 2CH

Though this setting is applicable to all models, it works effectively only for the B-EX706-RFID-U4-R (UHF for Japan).

4.8.6.3 RETRY

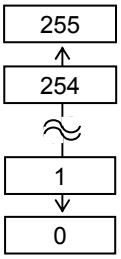
(1) ADJ RETRY POSITION



If writing data on a tag failed, the printer feeds the RFID tag forward or backward for specified length, in order to retry data write. When “0” is set for this parameter, this function and a retry are not performed.

Only the value of –3mm or less or +3mm or more becomes effective.

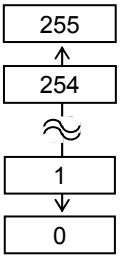
(2) ISSUE RETRY LABELS



Set a maximum number of retries to issue an RFID tag.
When issuing an RFID tag failed, the printer prints the error pattern, and retries to issue the tag for up to specified number of times. If the printer does not succeed even after having retried for the max. times, the printer stops, resulting in an error.

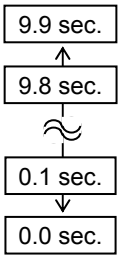
(3) READ RETRY

● **The number of times a tag read is retried**



Set a maximum number of retries to read an RFID tag.
The printer retries to read the data in an RFID tag for up to specified number of times. If the timeout period expired before the max. number retries have been done, the printer stops the retries at the time.
Whenever the printer writes data onto an RFID tag, the tag is read first. The max. number of retries set by this parameter becomes also effective in this pre-read.

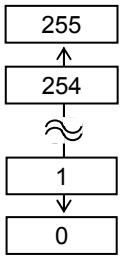
● **Read retry timeout**



Set the timeout period during which RFID tag read retries are allowed, with the **[UP]** or **[DOWN]** key. If the printer has retried for the max. number of times within the RFID read retry timeout, the printer stops the retries at the time.
Whenever the printer writes data onto an RFID tag, the tag is read first. The read retry timeout set by this parameter becomes also effective in this pre-read.

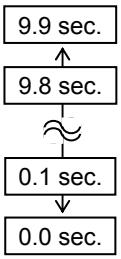
(4) WRITE RETRY

● **The number of times a tag write is retried**



Set a maximum number of retries to write data onto an RFID tag.
The printer retries to write data onto an RFID tag for up to specified number of times. If the timeout period expired before the max. number of retries have been done, the printer stops the retries at the time.

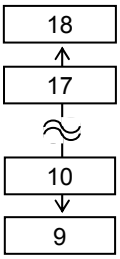
● **Write retry timeout**



Set the timeout period during which RFID tag write retries are allowed, with the **[UP]** or **[DOWN]** key.
If the printer has retried for the max. number of times within the RFID write retry timeout, the printer stops the retries at the time.

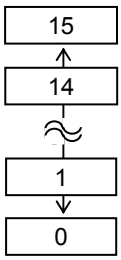
4.8.7 UHF SETTING

(1) POWER LEVEL



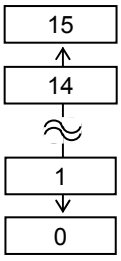
When the value is “9”, the power is the weakest, and when “18”, the power is the strongest. The factory default setting is “18”. The optimum value differs depending on the tag types. Usually, it is not necessary to change this value but changing the value may be able to increase the number of successful read/write times.

(2) Q VALUE



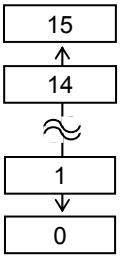
In the case multiple RFID tags are read at the same time, this menu is useful to pinpoint a target tag.
Set the Q value to “1” or greater (2 is recommended.) with the **[UP]** or **[DOWN]** key. Q value “0” causes the tags to interfere with each other and disables proper data write.
When the Q value is set, set an AGC threshold for data write and an AGC threshold lower limit for retry, also. Setting all these values enable writing data to a tag placed just above the antenna.
The factory default is 0.

(3) AGC THRESHOLD



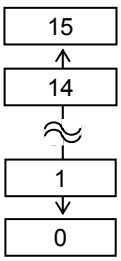
When the obtained gain of an RFID tag is lower than the AGC threshold, the tag is considered as an error tag even if a data write succeeds.
When the AGC threshold is set to “0”, all tags are writable.
When set to “8”, for example, only tags with the AGC threshold level of 9 or greater are writable. The optimum value is different depending on the tag types. The factory default is 0.
If default value fails then try it with the recommended value of 9.

(4) WRITE AGC THRESHOLD



When the Q value is set to 1 or greater, the AGC threshold for data write becomes effective.
When the obtained gain of an RFID tag is lower than the AGC thresholdfor data write, data write is not performed. In other words, setting an AGC threshold for data write enables writing data only to a tag placed just above the antenna.
The optimum value differs depending on the tag type.
If default value fails then try it with the recommended value of 9.

(5) WRITE RETRY MIN AGC



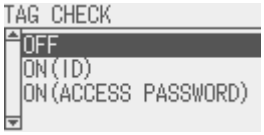
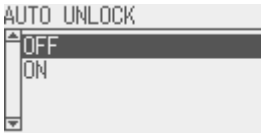
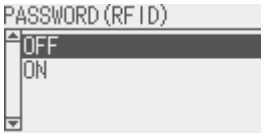
When the Q value is set to 1 or greater, the AGC threshold lower limit for retry becomes effective.
When there are tags of which AGC values fall within the range between the AGC threshold for data write and the lower limit, the printer retries data write for a tag with the highest AGC value among those tags. When printer retries data write, that value is then used as an AGC threshold.
The optimum value differs depending on the tag type.
If default value fails then try it with the recommended value of 8.
Value should be same or 1 smaller value with Write AGC threshold

4.8.8 OTHER

(1) TAG CHECK

- OFF Error tag detection is not performed. Though a tag is read before writing data on it, data is always written on the tag whatever data is set as the header data.
- ON (ID) Error tag detection is performed. A tag (EPC area for GEN2 tags) is read before writing data on it and data is written on the tag only when the header data is “A5A5”.
- ON (ACCESS PASSWORD) Error tag detection is performed only for Gen2 tags. The access password area of a tag is read before writing data on it. Only when the data read matches the access password setting data, the data is written on the tag.

To prevent unauthorized changes of the setting, a password to protect the error tag detection setting can be programmed.

1		When the TAG CHECK parameter is set to “ON (ACCESS PASSWORD)”, an entry of the password is requested. ***NOTE**: Since “ON (ACCESS PASSWORD)” has been selected as factory default, a 4-digit password entry will be requested when you access this menu for the first time.* Enter the default password (0000) or a 4-digit password programmed in step 6.
2		When the password matches, TAG CHECK parameter setting screen appears. Selecting “OFF” or “ON(ID)” disables password setting, and the screen returns to the upper hierarchy. If the entered password does not match, an error message is displayed and the screen returns to the upper hierarchy menu.
3		When “ON (ACCESS PASSWORD)” is selected for TAG CHECK, the password entry is requested. Enter the 8-digit access password.
4		Choose whether or not to enable the auto unlock function. When “ON” is selected, locked tags are automatically unlocked by the access password and data write is enabled.
5		Choose whether or not to set the password to protect the error tag detection setting. Selecting “OFF” causes this menu to end, and the screen returns to the upper hierarchy menu.
6		When “ON” is selected, the password can be programmed. Enter a 4-digit password. **NOTICE**: Please do not forget the programmed password as it will be required for an access to the TAG CHECK menu afterward. Take a note of the password, if necessary.

(2) MULTI WRITE

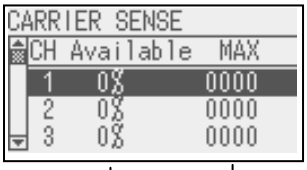
- OFF
- ON

Gen2-compatible Hibiki tag (HITACHI) has a function which reduces the time to write data on the RFID chips. This is called “Multi-word write”. Use of this function enables a speed-up of the data write operation. However, this function is unique to the Hibiki tag, and not usable with the other Gen2-compatible chips. The factory default is set to OFF (disabled).

(3) CARRIER SENSE

The printer enters the carrier sense mode, and performs a carrier sense. Environmental radio wave of each channel is picked up for about 30 times during 5 seconds. (This function is enabled only for the B-EX700-RFID-U2-R.)

(Example)



Value of the maximum radio wave picked up
The larger the value is, the stronger radio wave source exists nearby.
“0011” is the maximum value.

The availability of the channel which is determined by performing approx. 30 carrier senses. Thus, 100%” means that this channel is not used by any other devices.

Channel number

- The display can be scrolled up or down, from Channel 1 (1CH) to channel 9 (9CH), by using the [UP] or [DOWN] key.
- Pressing the [ENTER] key causes the printer to perform a carrier sense again. To quit a carrier sense, press the [CANCEL] key.
- When the RFID module type is set to “NONE” or a communication cannot be established, a message, “NO RFID MODULE”, is displayed.
- When the RFID module type is set to other than U2, a message, “NOT AVAILABLE” is displayed.
- When the RFID module type is set to U2 but effective data cannot be obtained, a message, “NO RESPONSE” is displayed.
- If the RFID module’s country setting is not specified (user-inaccessible setting), an “RFID CONFIG ERR” error message is displayed.

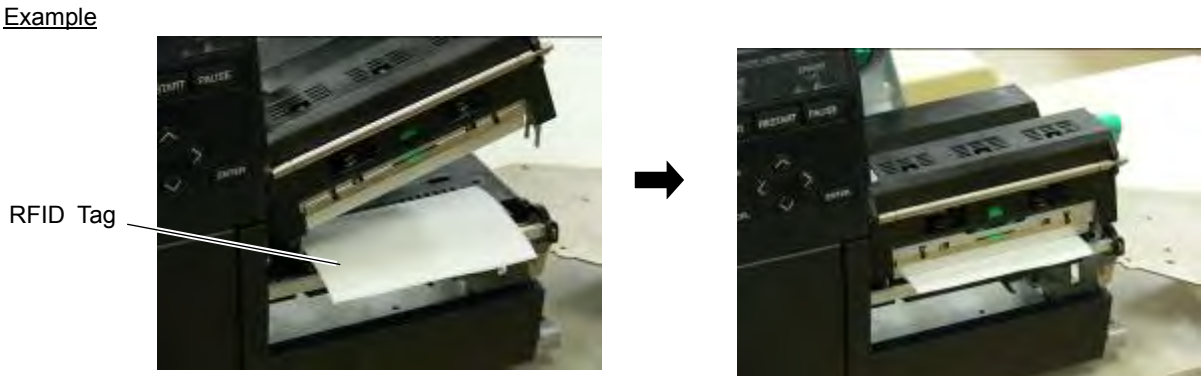
4.8.9 AGC THRESHOLD SETTING

The B-EX706-RFID-U4-EU-R chooses a tag to write data on according to a radio intensity of RFID tags (AGC value).
An AGC threshold value has been set to 0 (00h) as factory default, but it may be necessary to change this value according to the tag type to be used.
When the factory default threshold value is not proper for the tag type used, follow the procedure below to configure the following settings.
As the changes are stored in the internal memory, they are retained after the printer power is turned off and on again. When the tag type is changed or data write cannot be operated properly, perform the setting again.

Step 1. Load an RFID tag embedded media in the printer.
Step 2. Follow the procedure below to measure the radio intensity of the tags.

1) Place the media so that an RFID tag (IC chip) is positioned above the Antenna, and close the Top Cover.
   NOTE: *If an RFID tag is not positioned above the Antenna while the Print Head is at a print start position, use @003 command to adjust the media position so that an RFID tag is positioned above the Antenna. For detail of the command, refer to the External Equipment Interface Specification (Printer Command Manual).*
2) Start the printer in the system mode and perform a read test to measure the AGC value.
   To measure the AGC value, place only one RFID tag on the Antenna.

Example



(1) Turn the printer on while holding down the **[MODE]** key.
(2) Press the **[DOWN]** key until “<10>RFID” is highlighted.
(3) Press the **[ENTER]** key.
(4) Choose “UHF SETTING”, and press the **[ENTER]** key.
(5) Choose “Q VALUE”, and press the **[ENTER]** key.
(6) Set “2” with **[UP]** or **[DOWN]** key, then press the **[ENTER]** key.
(7) Turn off the printer.

(8) Turn the printer on while holding down the **[MODE]** key.
(9) Press the **[DOWN]** key until “<10>RFID” is highlighted.
(10) Press the **[ENTER]** key.
(11) Choose “TEST”, and press the **[ENTER]** key.
(12) Choose “ID READ”, and press the **[ENTER]** key.
(13) Press the **[ENTER]** key to read the tag data.
(14) Read data is displayed. Write down the AGC value.
(15) Press the **[CANCEL]** key to return to the <10>RFID.

ID READ
TAG 1/1
AGC 9
00010203 04050607
08090A0B 0C0D0E0F

(Example)

3) Set an AGC threshold of data write.
Set a value which is lower than the AGC value by 1 or 2, taking variation of RFID tags in performance into consideration.

(1) Choose “UHF SETTING”, and press the **[ENTER]** key.
(2) Choose “WRITE AGC THRESHOLD”, and press the **[ENTER]** key.
(3) Set a threshold value with **[UP]** or **[DOWN]** key, then press the **[ENTER]** key.
When the measured AGC was 9, for example, set “8” (a value lower than the measured AGC by 1 or 2.)
(4) Choose “WRITE RETRY MIN AGC”, and press the **[ENTER]** key.
(5) Set a lower limit with the **[UP]** or **[DOWN]** key.
Usually, set the same value with the AGC threshold for data write (WRITE AGC THRESHOLD).
In the case of this example, set “8” and press the **[ENTER]** key.
(6) AGC threshold setting is completed.

Reference: Recommended setting for RFID tag and Label (Example)

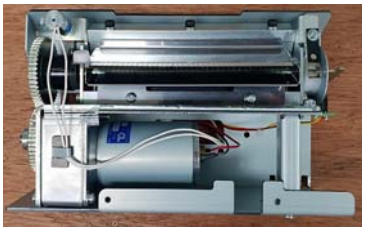
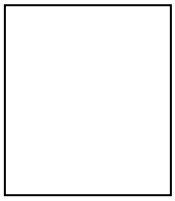
B-EX6T1, Recommended setting for RFID Tag and Label

	Answer date	5/Sep/2016		
Basic Information	Dealer/SI	XXXXXXXX	End User	YYYYY
	Label	Manufacturer ZZZZ	Label Size	W 80mm X L 60mm Gap 5 mm
	Antenna Position		(F) / C / R	
	Kinds of sealed label		(F) / C / R	
	Antenna sealed sheet		(Need) / No need	
Printer setting	Retry	The adjustment for reprinting	+3mm	
		The number of re print	3	
		Reading try	5 times 4.0s	
		Writing try	5 times 2.0s	
	UHF	Output level	13	
		Q value	2	
		Tag performance judgment	10	
		The performance threshold for writing	10	
		The performance threshold for writing(Lower limit)	10	
Application setting	Writing position(@0003)			
Remarks				

These values need to be set in the SYSTEM mode. RFID setting.
(Caution)
These values are different depending on the tag used.

4.9 4" ROTARY CUTTER (B-EX206-R-QM-S)

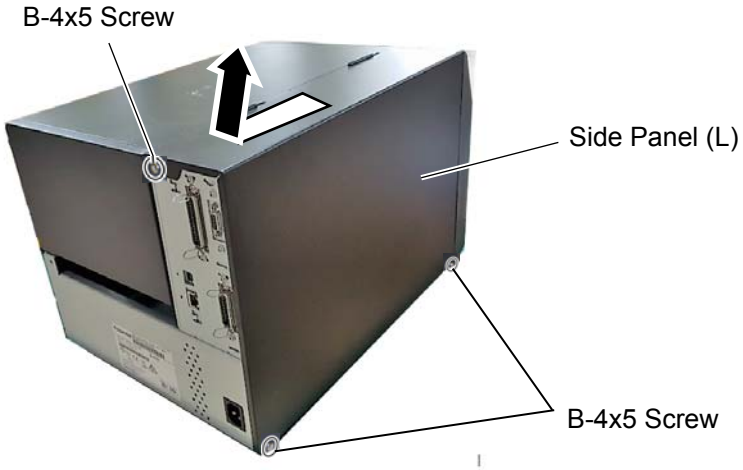
All the following parts are supplied with the kit. Make sure you have all items shown below.

Cutter Unit (1 pc.) 	Cutter Cover (1 pc.) 	Cutter Drive Unit (1 pc.) 
• Harness Ass'y (1 pc.) • M-4x8 Screw (5 pcs.) • M-4x6 Screw (2 pcs.) • Bracket (1 pc.) 	Cord Bush (1 pc.) 	Installation Manual (1 copy) 

NOTE: *This module cannot be used together with the B-EX906-H-QM-S strip module or B-EX206-QM-R disc cutter.*
When this cutter is used together with an RFID module, be sure to install the RFID module prior to the cutter.

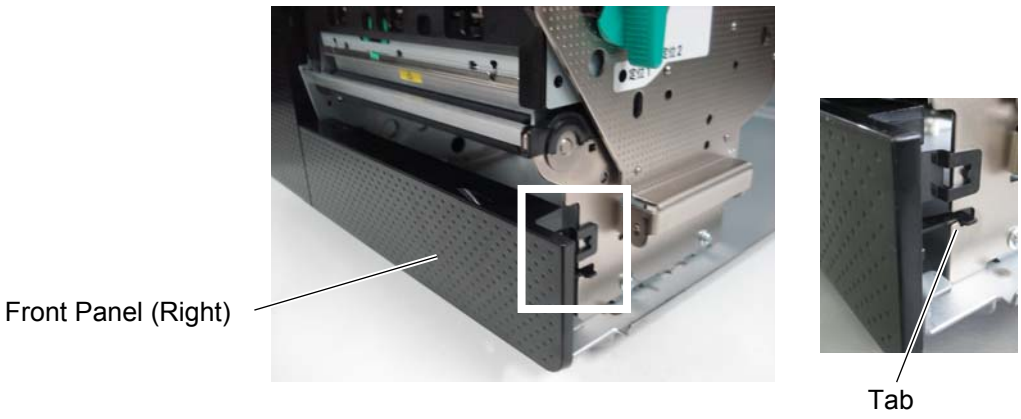
4.9.1 Removing the Covers and Strip plate

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.

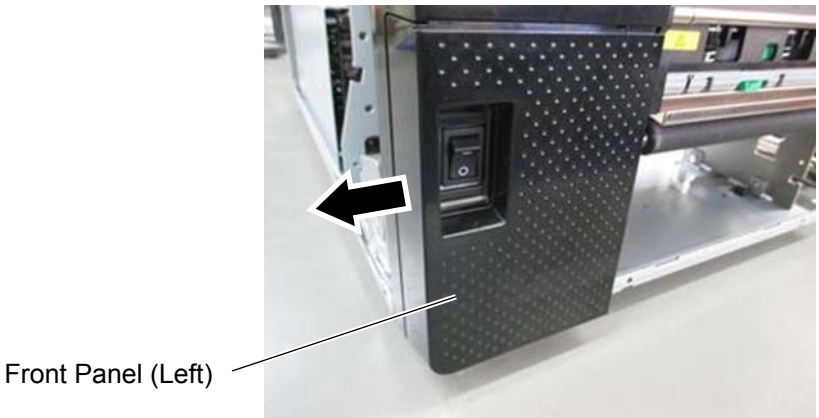


4. Fully open the Top Cover.

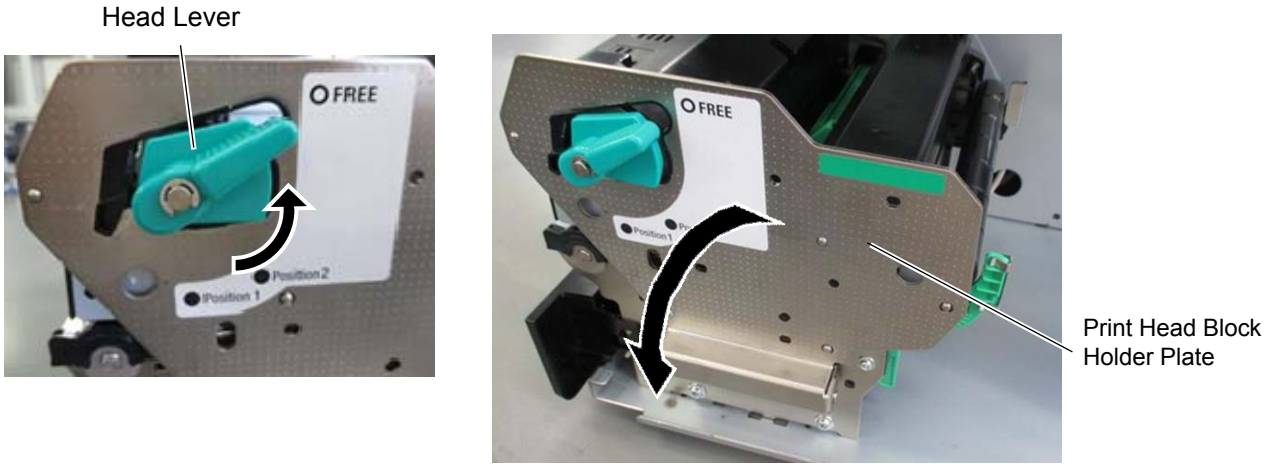
5. Release the tab on the right end by pushing it, then remove the Front Panel (Right).



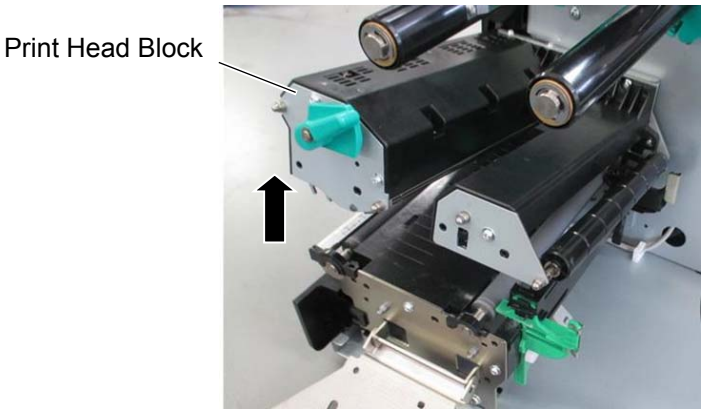
6. Remove the Front Panel (Left).



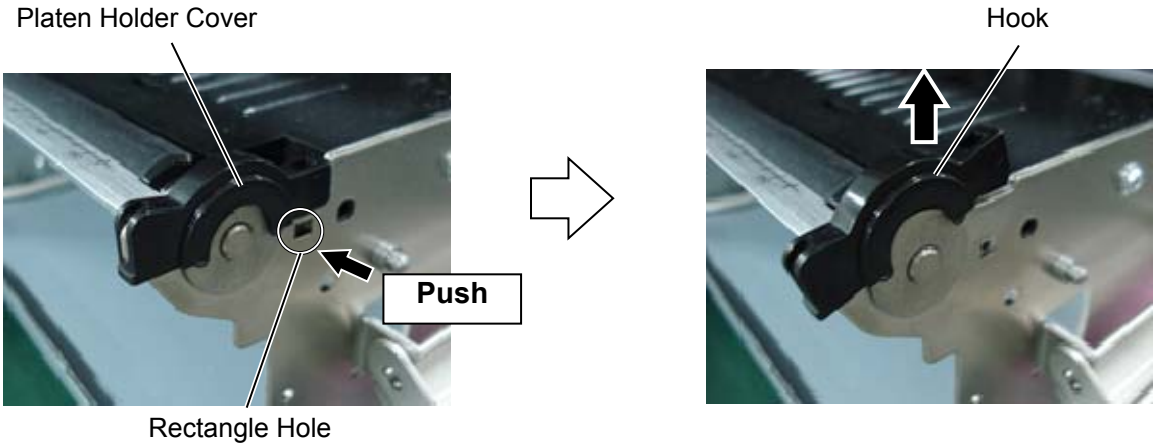
7. Turn the Head Lever to **FREE** position and open the Print Head Block Holder Plate.



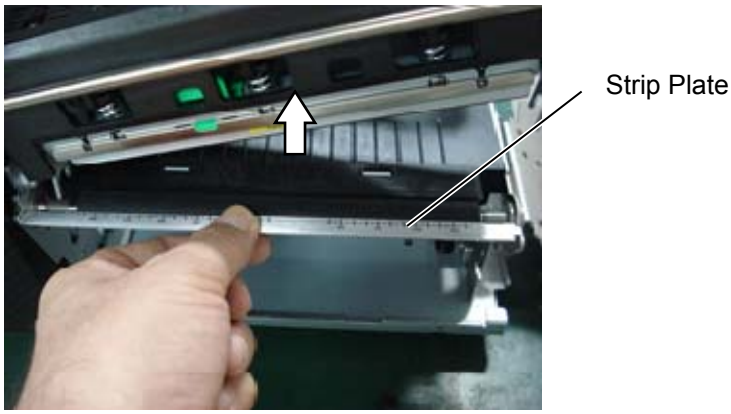
8. Open the Print Head Block.



9. Push the hook through the rectangle hole with a tool with a fine tip to remove the Platen Holder Cover.

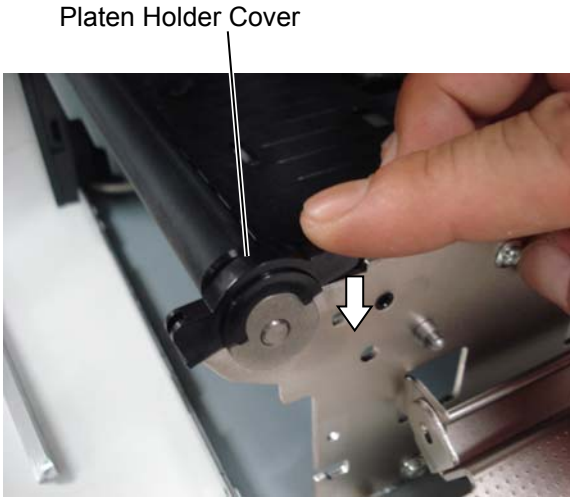


10. Remove the Strip Plate.



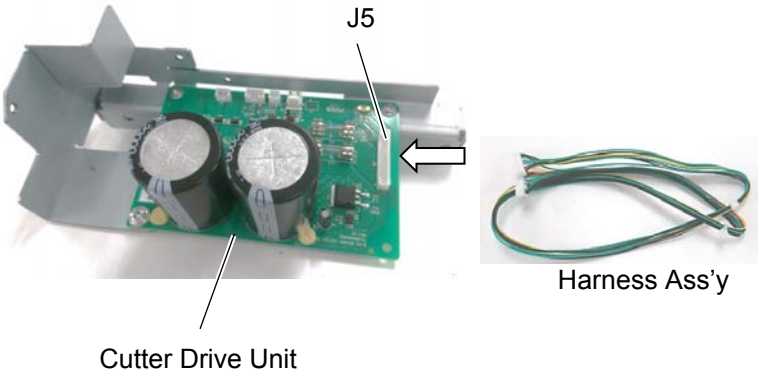
11. Restore the Platen Holder Cover.

***NOTE**: The strip plate is not used. Keep it safe for future use.*

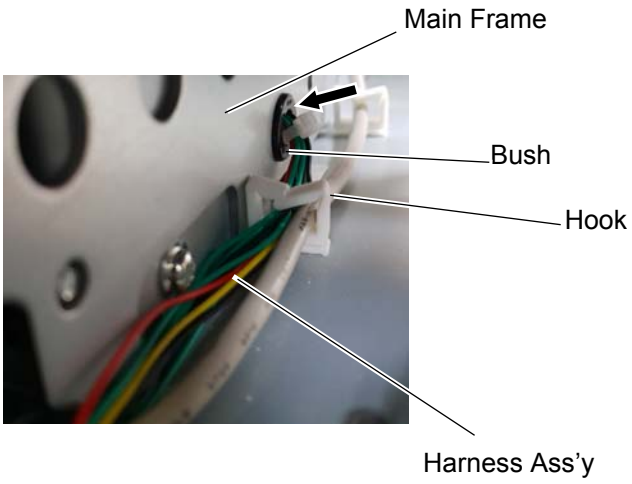


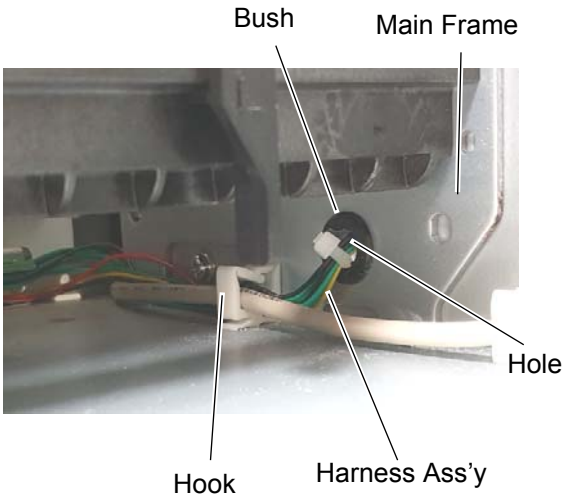
4.9.2 Mounting the Cutter Drive Unit

1. Put the Cord Bush onto the Harness Ass'y.
2. Connect the Harness Ass'y to J5 on the Cutter Driver Unit.



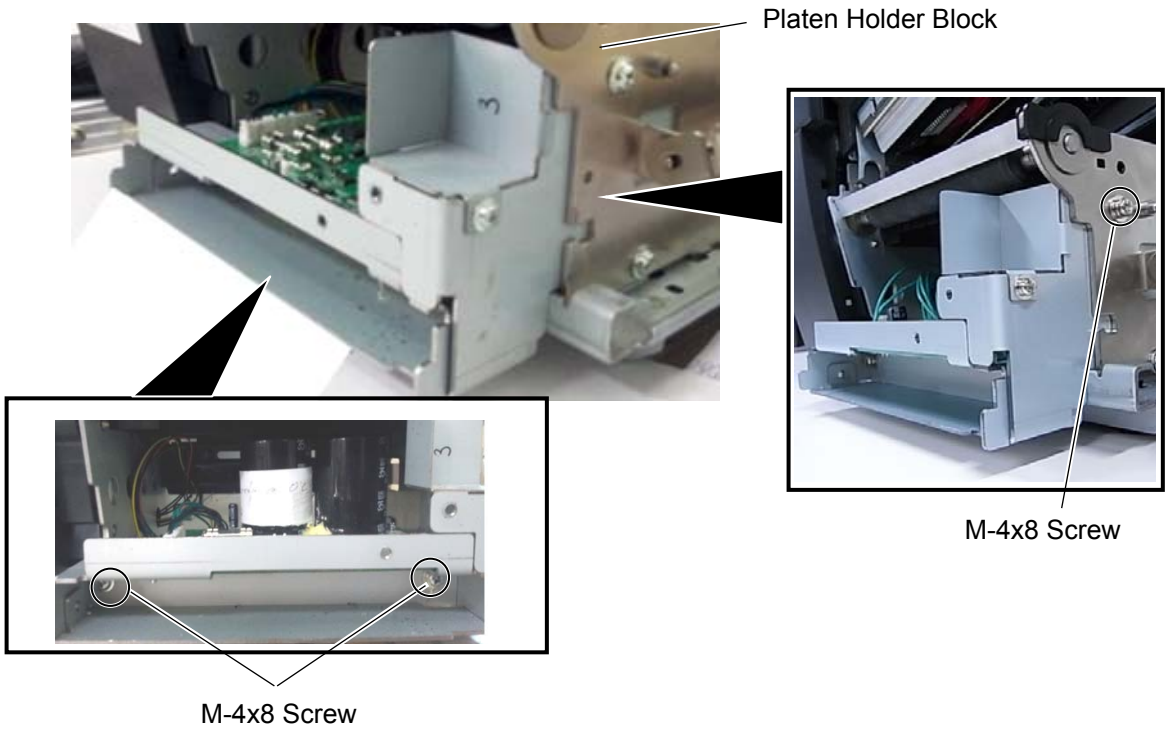
3. Insert the connector of the Harness Ass'y into the hole in the Main Frame, then fit the Cord Bush which was put onto the Harness Ass'y in Step 1 into the hole. Be sure to route the harness inside the hook.





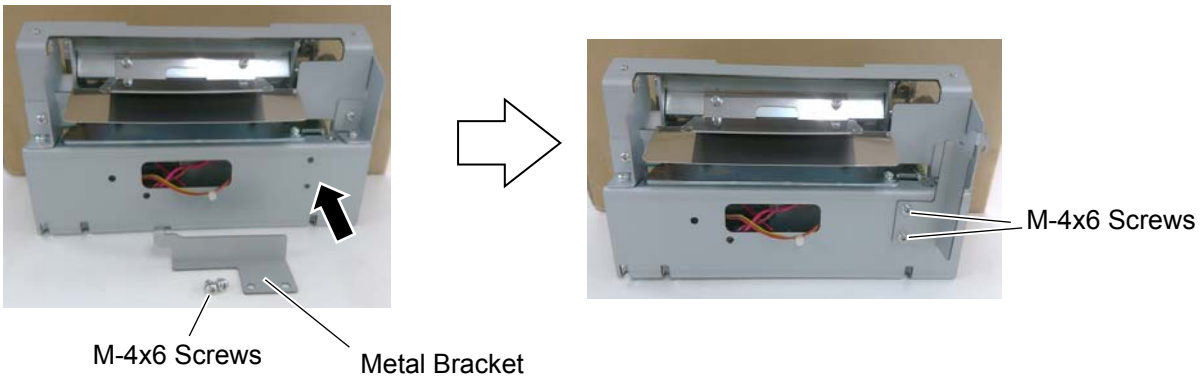
***NOTE**: Make sure the wires will not touch or obstruct any moving parts.*

4. Place the Cutter Drive Unit under the Platen Holder Block and secure it with the three M-4x8 screws.

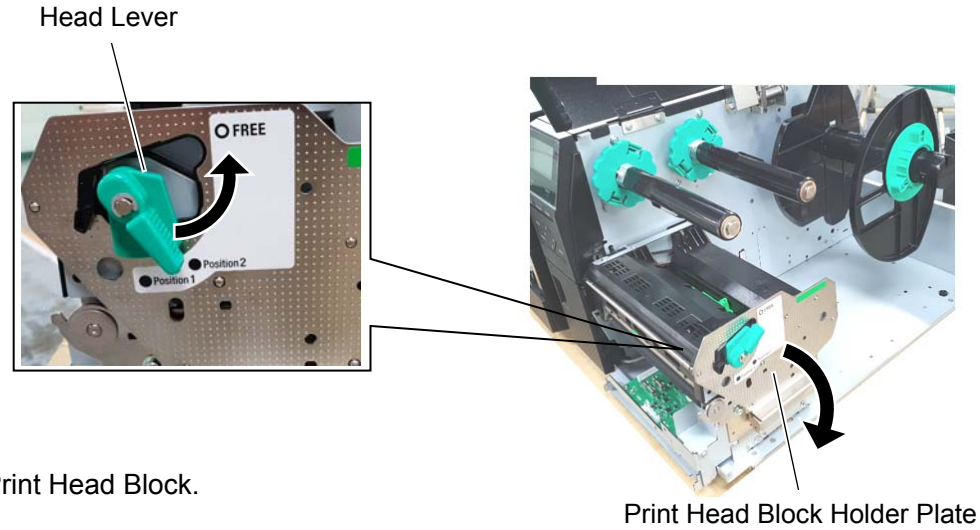


4.9.3 Attaching the Cutter Unit

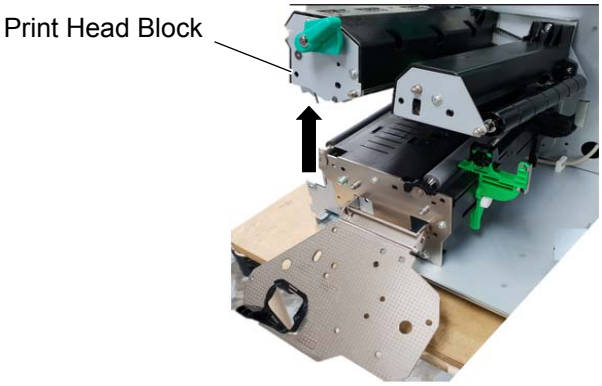
1. Attach the metal bracket to the back of the cutter using the 2 M-4X6 screws.



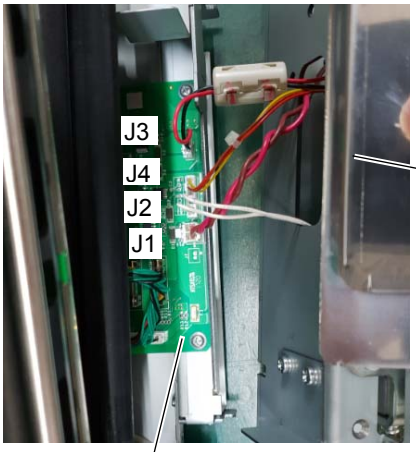
2. Turn the Head Lever to **FREE** position and open the Print Head Block Holder Plate.



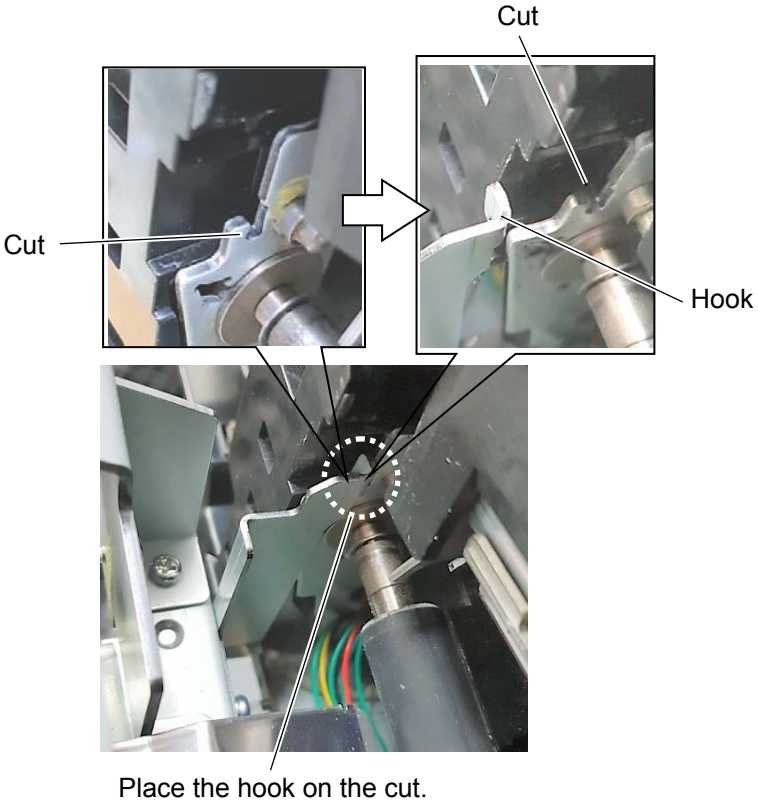
3. Open the Print Head Block.

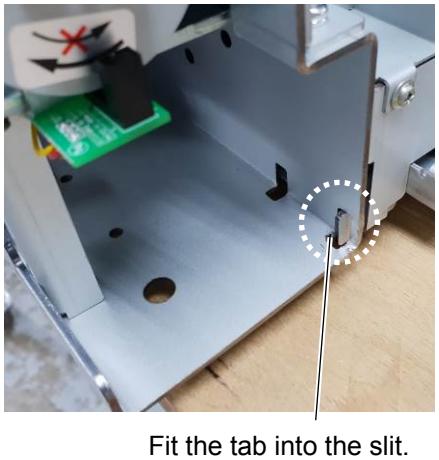


4. Connect the four harnesses of the Cutter Unit to J1, J2, J3, and J4 on the Cutter Drive Unit.

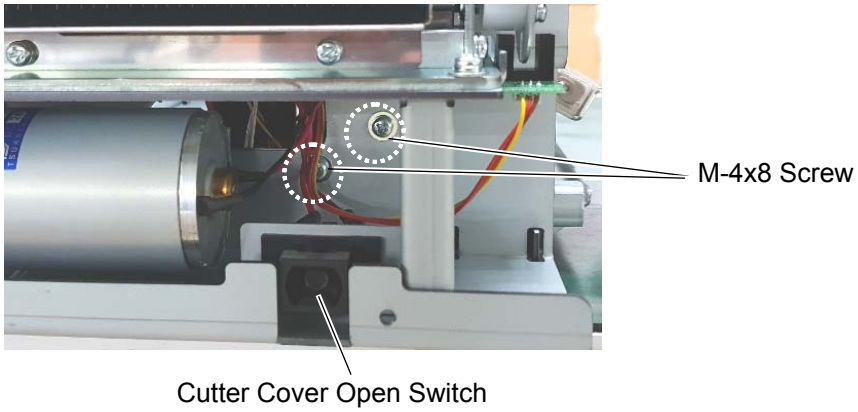


5. Place the hook at the left side of the Cutter Unit on the cut in the printer main frame.
   Fit the tab of the Cutter Drive Unit into the slit in the Cutter Unit.



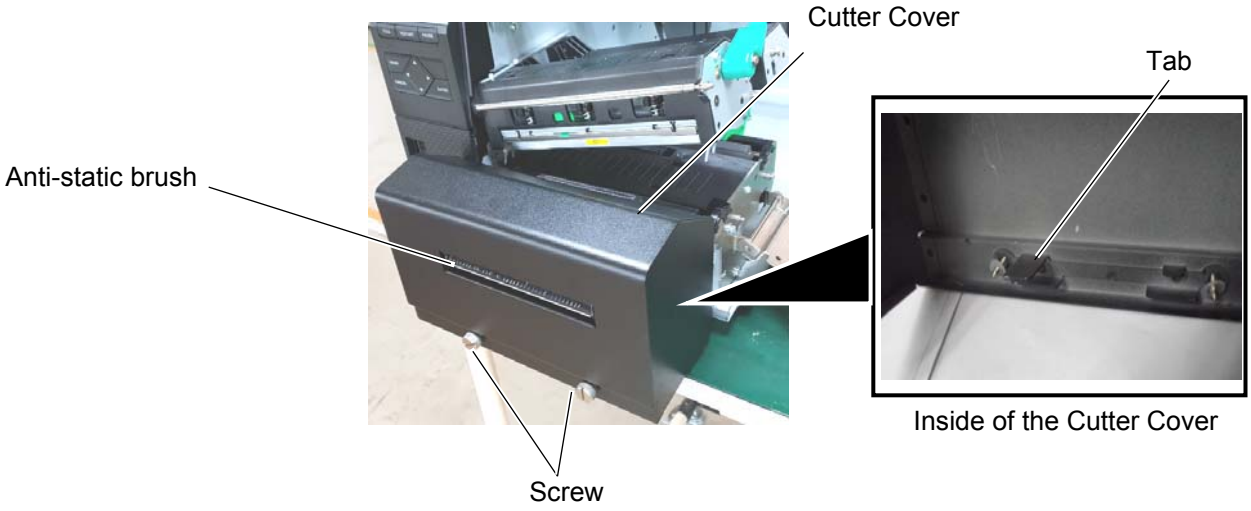


6. Secure the Cutter Unit with the M-4x8 screws.



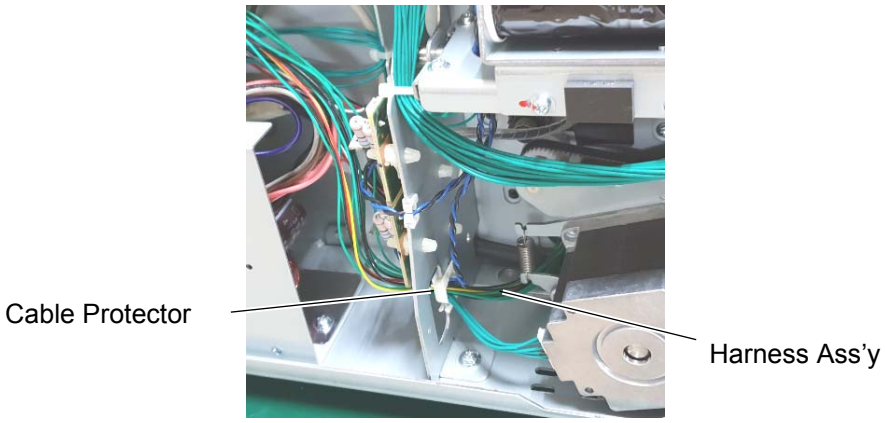
7. Attach the Cutter Cover to the Cutter Unit with the two screws so that the tab of the Cutter Cover turns on the Cutter Cover Open Switch.

NOTES: *1. Be careful not to pinch the cutter harness by the cutter cover.*
2. Make sure that the anti-static brush is protruding from the media outlet.

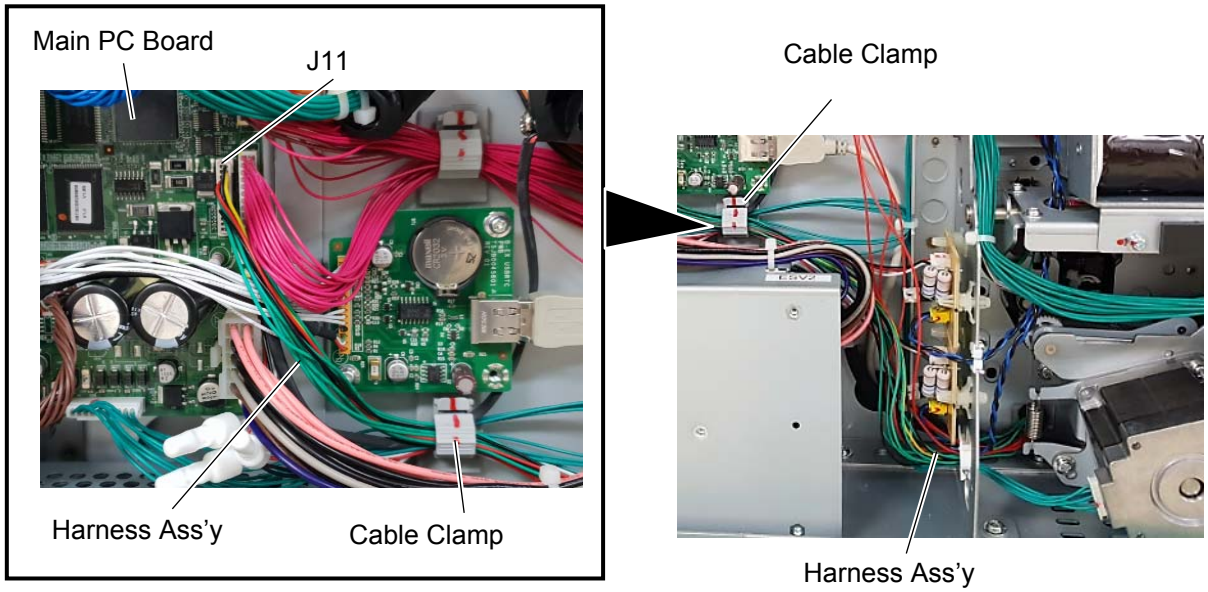


4.9.4 Wiring of the Harness Ass'y

1. Pass the Harness Ass'y through the Cable Protector.



2. Fasten the Harness Ass'y with the Cable Clamp.
3. Connect the Harness Ass'y to J11 on the Main PC board.



NOTE: *Wind the Harness Ass'y around the cable clamp if the harness is too long.*

4. Close the Print Head Block and Ribbon Shaft Holder Plate.

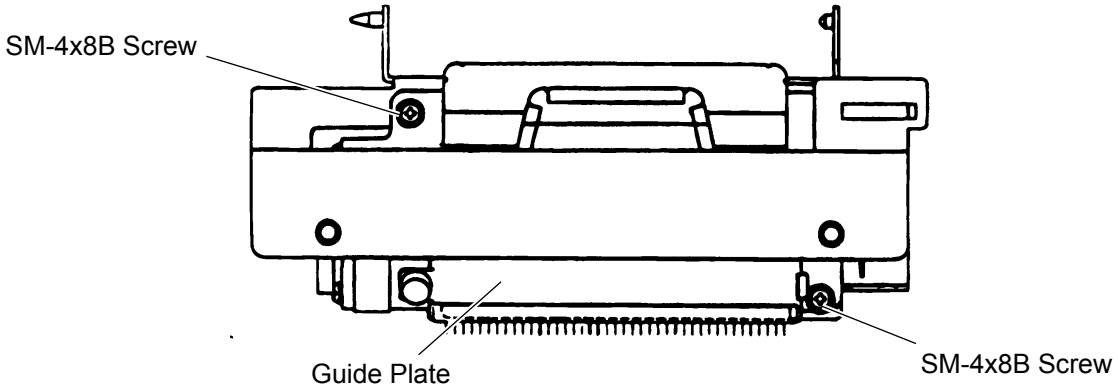
NOTE: *DO NOT excessively push down the print head block to close it. Doing so may cause a failure of the print head block or damage to the print head.*

5. Re-install the Side Panel (L) and close the Top Cover.
6. Refer to the Service Manual for the parameter settings and check the cutter operation.

9.4.5 Cut Angle Adjustment

When the cutter cuts media obliquely, adjust the cut angle using the following procedure.

1. Loosen the two SM-4 x8B screws.
2. Move the guide plate back or forth so that the cutter is perpendicular to the media. Tighten the same SM-4x8B screws.



<As viewed from the top of the cutter unit>

3. Perform a test cut to check for a proper operation. Repeat the procedure, if necessary.

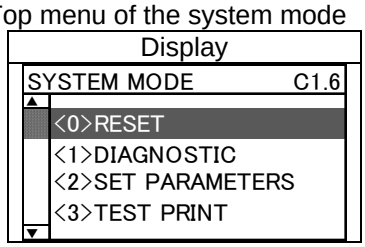
5. SYSTEM MODE

5.1 OUTLINE OF THE SYSTEM MODE

1. The printer enters the system mode with the following operations.
   - While the printer power is off, perform either of the following operations:
     - Turn on the printer while holding down the [FEED] and [PAUSE] key at the same time.
     - Turn on the printer while holding down the [MODE] key.
   - While the printer is online, perform the following operation:
     - Hold down the [MODE] and [ENTER] keys at the same time for more than 3 seconds.
2. The system mode is intended for performing self-test and various parameter settings.
3. When the top menu is displayed, the main firmware version is shown on the right side of the title.
4. The language displayed on the LCD is Japanese when “Japanese” is selected for the LCD language parameter, and English when a language other than “Japanese” is selected. (See <14>LCD PANEL.)
5. The key operations for the system mode are described below.

Top menu of the system mode

Display



Top menu list

English
<0>RESET
<1>DIAG.
<2>SET PARAMETERS
<3>TEST PRINT
<4>SENSOR
<5>RAM CLEAR
<6>INTERFACE
<7>RFID
<8>RTC
<9>USB MEMORY
<10>FOR FACTORY
<11>BASIC
<12>EMULATION MODE
<13>XML
<14>LCD PANEL
<15>PASSWORD

Outline of the top menu

<0>RESET	Restart the printer.
<1>DIAGNOSTIC	Perform self diagnosis, print out the result, check for the print head broken elements.
<2>SET PARAMETERS	Set the parameters for printer functions
<3>TEST PRINT	Test print quality by printing slant lines, characters and barcodes.
<4>SENSOR	Display the ambient temaprature and print head temparature, and adjust each level of the media sensors.
<5>RAM CLEAR	Clear the maintenance counter and parameter settings.
<6>INTERFACE	Set the interface parameters such as network, USB, RS232C and parallel.
<7>RFID	Set the RFID-related parameters.
<8>RTC	Set the date & time of the real time clock and choose a real time renewal timing.
<9>USB MEMORY	Copy data (including firmware) to/from USB memory.
<10>FACTORY TEST	Adjust the printer before shipment.
<11>BASIC	Set the functions of the BASIC program to be downloaded to the printer.
<12>EMULATION MODE	Same as BASIC function.
<13>XML	Set XML functions.
<14>LCD PANEL	Select a language for the display, choose the items to be displayed, and adjust the contrast.

5.2 REFLECTING THE SYSTEM MODE SETTINGS TO THE PRINTER

The settings configured in the system mode or user system mode is saved in the printer at the following timings.

- Periodic saving at 20-msec. interval
- When Reset menu in the system mode or user system mode is performed

The changes in the settings, with a partial exception, take effect at a power on time or after a reset.

5.3 RESET

Reset the printer.

Contents of RESET menu

Menu item
<0>RESET

5.4 DIAGNOSTIC

Contents of the DIAG. menu

Menu item
<1>DIAGNOSTIC
MAINTENANCE COUNTER
AUTO DIAGNOSTIC
HEAD CHECK

5.4.1 MAINTENANCE COUNTER

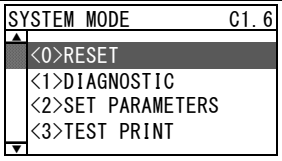
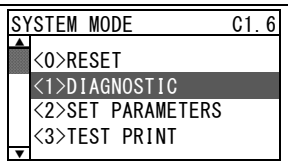
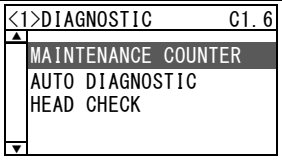
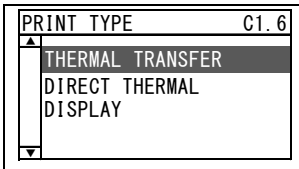
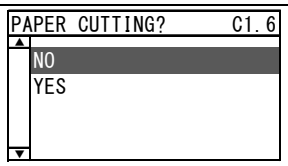
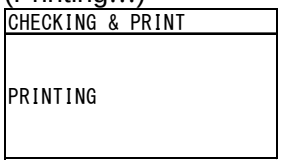
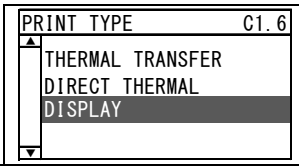
The following table shows the menu structure from the top menu of the system mode to MAINTENANCE COUNTER.

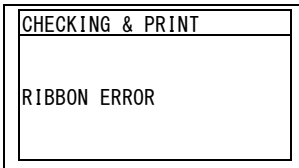
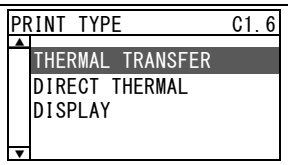
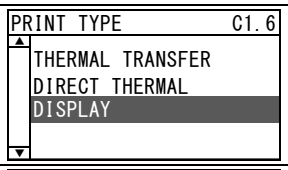
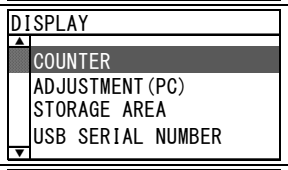
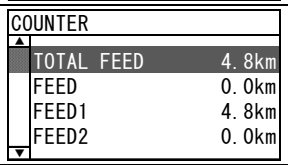
Menu item
<1>DIAGNOSTIC
MAINTENANCE COUNTER
THERMAL TRANSFER
NO
YES
DIRECT THERMAL
NO
YES
DISPLAY

***NOTES**:*

1. *The MAINTENANCE COUNTER enables selecting whether to print or display the self-diag. test result (maintenance counter data and parameter settings). When THERMAL TRANSFER or DIRECT THERMAL is selected, the test result is printed. When DISPLAY is selected, the test result is displayed on the LCD.*
2. *When an error occurs while printing, the error message is displayed, the ERROR LED turns on, and the ONLINE LED turns off. Though the error can be cleared by pressing the [ENTER], [CANCEL] or [MODE] key, the printer does not reprint the label automatically.*

3. Menu operation example

	Display	Procedure
1		1. Turn off the printer. 2. Turn on the printer while holding down [FEED] and [PAUSE] keys at the same time. 3. The top menu of the SYSTEM MODE is displayed.
2		1. Select <1>DIAGNOSTIC. 2. Press the [ENTER] key. 3. Submenus of <1>DIAGNOSTIC are displayed.
3		1. Select MAINTENANCE COUNTER. 2. Press the [ENTER] key. 3. PRINT TYPE menu is displayed.
4	When THERMAL TRANSFER or DIRECT THERMAL is selected: Note: When DISPLAY is selected, go to step 5.	
4-1		1. Select either THERMAL TRANSFER or DIRECT THERMAL. 2. Press the [ENTER] key. 3. PAPER CUTTING? Menu is displayed.
4-2	 (Printing…) 	1. Select YES or NO. 2. Press the [ENTER] key. 3. The maintenance counter data and parameter settings are printed. 4. “PRINTING” is displayed. ***Note**: A print sample is provided in Section 5.4.1.1 Counter Parameter Print Contents.*
4-3	When the printing is completed. (Normal end)	
		1. When the printing is completed, PRINT TYPE menu is displayed again.

4-4	When an error occurred during printing	
		The printer displays the error message, and stops. The ERROR LED turns on and the ONLINE LED turns off. 1. Press the [ENTER] or [CANCEL] key. 2. PRINT TYPE menu is displayed. Note: When the [MODE] key is pressed, the top menu of the SYSTEM MODE is displayed
		The printer recovers from the error, the ERROR LED turns off and the ONLINE LED turns on. Note that the printer does not reprint the label automatically.
5.	In the case DISPLAY is selected:	
5-1		1. Select DISPLAY. 2. Press the [ENTER] key. 3. DISPLAY menu is displayed.
5-2		1. Select an item to be displayed. 2. Press the [ENTER] key. 3. The data of the selected item is displayed.
5-3		For details of the Maintenance counter data, refer to Section 5.4.1.1 Counter Parameter Print Contents.

5.4.1.1 Counter Parameter Print Contents

```
<< COUNTER >>
TOTAL FEED          3.7km          [QM]
FEED                2.4km
FEED1               1.3km
FEED2               0.0km
FEED3               0.0km
FEED4               0.0km
PRINT               2.4km
PRINT1              1.3km
PRINT2              0.0km
PRINT3              0.0km
PRINT4              0.0km
CUT                 0
HEAD U/D            0
RIBBON              0h
SOLENOID            0h
232C ERR            0
SYSTEM ERR          0
POWER FAIL          0
<< ADJUST >>
[PC]                                [KEY]
FEED          +0.0mm                FEED          +0.0mm
CUT           +0.0mm                CUT           +0.0mm
BACK          +0.0mm                BACK          +0.0mm
TONE(T)       +0step                TONE(T)       +0step
TONE(D)       +0step                TONE(D)       +0step
(RIBBON TORQU NORM)
RBN(FW)       +0                    RBN(FW)       +0
RBN(BK)       +0                    RBN(BK)       +0
(RIBBON TORQU LOW)
RBN(FW)       +0                    RBN(FW)       +0
RBN(BK)       +0                    RBN(BK)       +0
X ADJ.        +0.0mm
THRESHOLD(R) 0.0V
THRESHOLD(T) 0.0V
<< PARAMETER SETTINGS >>
MEDIA LOAD                          [STD]
MOVE TO TEAROFF                     [ON] +0.0mm  [MODE1]
HEAD UP CUT/RWD.                    [OFF]
RIBBON SAVE                         [OFF:TAG]
PRE PEEL OFF                        [OFF]
BACK FEED SPEED                     [STD]
CALIBRATION                         [OFF]
CODE PAGE                           [PC-850]  [0]
CTRL CODE                           [AUTO]
PEEL OFF STATUS                     [ON]
USB I/F STATUS                      [OFF]
FEED KEY                            [FEED]
KANJI                               [TYPE1:Windows]
EURO CODE                           [B0]
AUTO HEADD CHK                      [OFF]
WEB PRINTER                         [OFF]
RIBBON NEAR END                     [OFF]
EX.I/O MODE                         [TTEC Standard]
PAPER/RBN END                       [Stop immediately]
MAXI CODE SPEC.                     [TYPE1: Compatible]
XML                                 [STD]
THRESHOLD SEL(R)                    [MANUAL SET]
THRESHOLD SEL(T)                    [MANUAL SET]
ENERGY TYPE(T)                      [Generic] *1
ENERGY TYPE(D)                      [NORM:Normal] *1
POWER SAVE TIME                     [ 15min]
RIBBON TORQUE                       [Normal]
BASIC                               [OFF]
BASIC TRACE                         [OFF]
<< PANEL >>
LANGUAGE                            [ENGLISH]
MODEL NAME                          [ON]
PRINTED COUNTER                     [ON]
IP ADDRESS                          [ON]
CONTRAST                            [40]
SYSTEM PASSWORD                     [OFF]
<< STORAGE AREA >>
TTF AREA                            [  0KB]
EXT CHR AREA                        [  0KB]
BASIC AREA                          [  0KB]
PC SAVE AREA                        [  0KB]
```

```
<< USB >>
SERIAL NUMBER                       [DISABLE]
                                    [XXXXXXXXXXXX]
<< RS-232C >>
BAUD RATE                           [9600]
DATA LENGTH                         [8]
STOP BIT                            [1]
PARITY                              [EVEN]
CONTROL                             [XON+READY AUTO]
<< CENTRO >>
ACK/BUSY                            [Rising edge]
INPUT PRIME                         [ON]
PLUG & PLAY                         [OFF]
<< LAN/WLAN >>
LAN/WLAN                            [AUTO]
SNMP                                [ON]
IP ADDRESS                          [192.168.010.020]
v6L[fe80::280:91ff:fe88:ea8                ]
v6G[                               ]
SUBNET MASK                         [000.000.000.000]
GATEWAY ADDRESS                     [255.255.255.000]
SOCKET PORT                         [OFF] [08000]
DHCP                                [OFF]
DHCP CLIENT ID                      [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFFFFFFFFFFFFFF]
                                    [FFFFFFFF]
DHCP HOST NAME                      [ABCDEFGHIJKLMNOPQRST]
                                    [UVWXYZ123456]
CONNECTION MODE                     [AP MODE]
ESS ID                              [                ]
                                    [          ]
ENCRYPTION                          [OFF]
WPA MODE                            [OFF]
AUTHENTICATION                      [OPEN SYSTEM]
802.1X SUPPLICANT                   [OFF]
DEFAULT KEY                         EY[1]
802.11bgn CHANNEL                   [ 1]
LPR                                 [OFF]
<< RFID >>
MODULE TYPE                         [NONE]
TAG TYPE                            [NONE]
RF CHANNEL                          [AUTO]
RETRY POSITION                      [+00mm]
RETRY LABELS                        [  3labels]
READ RETRY                          [  5times] [4.0sec]
WRITE RETRY                         [  5times] [4.0sec]
POWER LEVEL                         [  0]
Q VALUE                             [  0]
AGC THRESHOLD                       [  0]
WRITE AGC                           [  0]
RETRY MIN AGC                       [  0]
TAG CHECK                           [PASSWORD] [ON]  [ON]
MULTI WRITE                         [OFF]
CALIB. MODE                         [OFF]
CALIB. AGC                          [  0]
CALIB. POSITION                     [+000.0mm]
ANTENNA POSITION                    [FRONT]
SUCCEEDED TAGS                      9999999
VOID PRINT TAGS                     9999999
<< RTC >>
BATTERY CHECK                       [ON]
RENEWAL                             [start of JOB]
```

*1: If “CN” is selected for the parameter clear destination, the ENERGY TYPE parameter is not displayed on the menu and unable to be set in the system mode and user system mode. However, the initial value (See Section 5.8.3 PARAMETER CLEAR.) will be set after a parameter clear, so it is printed on the maintenance counter/parameter settings print label.

Print condition:

Label length		490 mm to 530 mm (length varies on the model)
Print method		User setting
Sensor type		None
Speed	203 dpi: B-EX6T1/T3-G	5 ips
	305 dpi: B-EX6T1/T3-T	5 ips
Print count		1
Issue mode		User setting
Others		No rewinder motor activated

<< COUNTER >>

Item	Description
	Range
	Counting condition

TOTAL FEED	[Description] Total label distance covered (cannot be cleared)
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counted when the media feed motor is driven to feed or print the media. (Reverse feed is also counted.) When the power is turned off, the media distance of 50.0 cm or less may be rounded down when backed up.
FEED	[Description] Label distance covered
	[Range] 0.0 to 3200.0 km
	[Counting condition] Counted when the media feed motor is driven to feed or print the media. (Reverse feed is also counted.) When the power is turned off, the media distance of 50.0 cm or less may be rounded down when backed up.
FEED1 to FEED4	[Description] History of last 4 label distances
	[Range] 0.0 to 3200.0 km
	[Counting condition] When the maintenance counter is RAM-cleared, the label distance covered is saved as FEED 1. At this time, data which were saved in FEED 1, FEED 2 and FEED 3 are re-saved as FEED 2, FEED 3, and FEED 4, respectively.
PRINT	[Description] Print distance
	[Range] 0.0 to 200.0 km
	[Counting condition] Counted while printing. (Reverse feed is not counted.) B-EX6T1-G: When the power is turned off, the print distance of 8.2 m or less is rounded down when backed up. B-EX6T1-T: When the power is turned off, the print distance of 5.6 m or less is rounded down when backed up.
PRINT1 to PRINT4	[Description] History of last 4 print distances
	[Range] 0.0 to 3200.0 km
	[Counting condition] When the maintenance counter is RAM-cleared, the print distance is saved as PRINT 1. At this time, data which were saved in PRINT 1, PRINT 2 and PRINT 3 are re-saved as PRINT 2, PRINT 3, and PRINT 4, respectively.

CUT	[Description] Cut count
	[Range] 0 to 1000000
	[Counting condition] Every cut operation is counted. The cut count is saved every 4 cut operations.
HEAD U/D	[Description] Head up/down count
	[Range] 0 to 2000000
	[Counting condition] The number of times the print head moves up and down with the solenoid for ribbon save is counted. (A set of up and down is counted as one.) The head up/down count is saved every 4 head up/down operations.
RIBBON	[Description] Ribbon motor drive time
	[Range] 0 to 2000 hours
	[Counting condition] Counted when the ribbon motor is driven while media feed or printing. (Reverse feed is also counted.) When the power is turned off, drive time of 10 seconds or less is rounded down when backed up.
SOLENOID	[Description] Head-up solenoid drive time
	[Range] 0 to 1000 hours
	[Counting condition] Counted when the ribbon save operation is performed. When the power is turned off, drive time of 10 seconds or less is rounded down when backed up.
232C ERR	[Description] The number of times an RS-232C hardware error occurred
	[Range] 0 to 255
	[Counting condition] Counted when a parity error, overrun error or framing error occurs.
SYSTEM ERR	[Description] The number of times a system error occurred
	[Range] 0 to 15
	[Counting condition] Counted when a system error occurs.
POWER FAIL	[Description] The number of times a momentary power interruption occurred
	[Range] 0 to 15
	[Counting condition] Counted when a momentary power interruption occurs.

<< ADJUST >>

Item	Description	Remarks
[PC]/[KEY]		
FEED	Feed amount fine adjustment	-50.0mm to +50.0mm
CUT	Cut position (or strip position) fine adjustment	-50.0mm to +50.0mm
BACK	Reverse feed amount fine adjustment	-9.9mm to +9.9mm
TONE (T)	Print density fine adjustment (Thermal transfer print mode)	-20 to +20 step
TONE (D)	Print density fine adjustment (Direct thermal print mode)	-20 to +20 step
RIBBON TORQUE NORM		
RBN (FW)	Ribbon motor drive voltage fine adjustment (Ribbon take-up side)	-15 to +10 step
RBN (BK)	Ribbon motor drive voltage fine adjustment (Ribbon supply side)	-15 to +10 step
RIBBON TORQUE LOW		
RBN (FW)	Ribbon motor drive voltage fine adjustment (Ribbon take-up side)	-15 to +10 step
RBN (BK)	Ribbon motor drive voltage fine adjustment (Ribbon supply side)	-15 to +10 step
X ADJ.	X-coordinate fine adjustment	-99.5mm to +99.5mm

THRESHOLD<R>	Threshold fine adjustment for reflective sensor	0.0V to 4.0V
THRESHOLD<T>	Threshold fine adjustment for transmissive sensor	0.0V to 4.0V

<< PARAMETER SETTINGS >>

Item
Description
Value to be printed

MEDIA LOAD [ ]
[Description] Media feed to the print start position
[Values to be printed] OFF: Disabled. STD: Feeds the detected gap/mark to the print start position. ECO: Feeds a gap/mark positioned between the print head and the media sensor, if any, to the print start position. ECO+Backfeed: Back feed follows the above ECO printer behavior.
MOVE TO TEAROFF [1] [2] [3]
[Description 1] Auto feed to the cut/strip position after printing
[Value to be printed 1] OFF: Disabled. ON: Enabled. The following media stop position fine adjustment value is also printed.
[Description 2] Media stop position fine adjustment value Note: Printed only when the “Auto feed to the cut/strip position after printing” is set to ON.
[Value to be printed 2] -5.0mm to+5.0mm
[Description 3] Feed mode
[Value to be printed 3] MODE1: Feeds the media for 16.5 mm. MODE2: Feeds the media backward for 6 mm, then feeds it forward for 3 mm. (Only when the cut mode, thermal transfer, and feed gap sensor are selected.) In other conditions, the printer feeds the media for 16.75 mm. MODE3: Feeds the media for 34.0 mm. This is an exclusive specification for issuing RFID media.
HEAD UP CUT/RWD [ ]
[Description] Whether to enable the head-up function during cut issue or use the Rewinder
[Values to be printed] OFF: The head-up function is disabled during cut issue or the rewinder is not used. ON: The head-up function is enabled during cut issue or the rewinder is used.
RIBBON SAVE [ ]
[Description] Whether to use the ribbon saving module
[Values to be printed] OFF: Not used. ON:TAG: The ribbon saving module is used.(Head lever position: “TAG”) ON:LABEL: The ribbon saving module is used. (Head lever position: “LABEL”) *For B-EX6T1, only Position1 is available to use since there is no distinguish between Tag position and Label position.
PRE PEEL OFF [ ]

[Description] Whether to enable the pre-peel-off function

[Values to be printed]
OFF: Enabled.
ON: Disabled.

BACK FEED SPEED [ ]

[Description] Reverse feed speed

[Values to be printed]
STD: 3 ips
LOW: 2 ips

CALIBRATION [ ]

[Description] Automatic calibration

[Values to be printed]
OFF: Disabled.
ON TRANS.: Auto calibration is performed with transmissive sensor.
ON REFL.: Auto calibration is performed with reflective sensor.
ON ALL: Auto calibration is performed with both sensors.
ON TRAS+BF: Auto calibration is performed with transmissive sensor, then the media is reversely fed.
ON REFL+BF: Auto calibration is performed with reflective sensor, then the media is reversely fed.
ON ALL+BF: Auto calibration is performed with both sensors, then the media is reversely fed.

CODE PAGE [1] [2]

[Description 1] Character code selection

[Value to be printed 1]
PC-850
PC-852
PC-857
PC-8
PC-851
PC-855
PC-1250
PC-1251
PC-1252
PC-1253
PC-1254
PC-1257
LATIN9
Arabic
PC-866
UTF-8

[Description 2] Character “0” selection

[Values to be printed]
0: with slash
Ø: without slash

CTRL CODE [ ]

[Description] Control code type

[Values to be printed]
AUTO: Automatic selection
{,|,}: {,|,} method
ESC,LF,NL: ESC,LF,NL method
MANUAL: Any code (Described in hex. code)

PEEL OFF STATUS [ ]

	[Description] Whether to send a peel-off wait status to the host
	[Values to be printed] OFF: Not sent. ON: sent.
USB I/F STATUS [ ]	
	[Description] Whether to send a response to the host via USB
	[Values to be printed] OFF: Not sent. ON: Sent.
FEED KEY [ ]	
	[Description] Function of the [FEED] key
	[Values to be printed] FEED: The printer feeds one label. PRINT: The printer prints data in the image buffer on one label.
KANJI CODE [ ]	
	[Description] Kanji code type
	[Values to be printed] TYPE1: Windows: WINDOWS codes TYPE2: Original: Original codes
EURO CODE [ ]	
	[Description] Euro code setting
	[Values to be printed] 20 to FF (Hex. code)
AUTO HEAD CHK [ ]	
	[Description] Whether to perform automatic print head check
	[Values to be printed] OFF: Not performed. ON: Performed.
WEB PRINTER [ ]	
	[Description] Whether to use the printer as a web printer
	[Values to be printed] OFF: Not used. ON INTERNAL: Used. (Internal memory is used.) ON EXTERNAL: Used (External memory is used.)
RIBBON NEAR END [ ]	
	[Description] Ribbon near end detection
	[Values to be printed] OFF: Disabled. 30m: Ribbon near end status is detected when the remaining ribbon length is approximately 30 m. 70m: Ribbon near end status is detected when the remaining ribbon length is approximately 70 m.
EX. I/O MODE [ ]	
	[Description] Expansion I/O operation mode
	[Values to be printed] TTEC Standard: Standard mode Inline: In-line mode
PAPER/RBN END [ ]	
	[Description] Printer behavior at label/ribbon end
	[Values to be printed] Stop immediately: When a label/ribbon end status is detected, the printer stops immediately. Complete current: When a label/ribbon end status is detected, the printer prints the current label as far as possible, and then stops.

MAXICODE SPEC. [ ]

[Description] Maxicode specification

[Values to be printed]

TYPE1: Compatible:	Compatible with the current version
TYPE2: Special Spec:	Special specification

XML [ ]

[Description] XML data printing

[Values to be printed]

OFF:	Disabled.
STD:	Standard specification
ORACLE:	Specification for Oracle
SAP:	Specification for SAP
STD EXTERNAL:	Standard specification (External memory is used.)
ORACLE EXTERNAL:	Specification for Oracle (External memory is used.)
SAP EXTERNAL:	Specification for SAP (External memory is used.)

THRESHOLD SEL(R) [ ]

[Description] Threshold value for the reflective sensor

[Values to be printed]

MANUAL SET:	Manually set value is used.
COMMAND SET:	Command specified value is used.

THRESHOLD SEL(T) [ ]

[Description] Threshold value for the transmissive sensor

[Values to be printed]

MANUAL SET:	Manually set value is used.
COMMAND SET:	Command specified value is used.

ENERGY TYPE (T) [ ]

[Description] Energy level applied to the print head in thermal transfer mode

[Values to be printed]

Generic:	General-purpose
rsv1: (Reserved1):	Reserved
rsv2: (Reserved2):	Reserved
rsv3: (Reserved3):	Reserved
rsv4: (Reserved4):	Reserved
rsv5: (Reserved5):	Reserved
rsv6: (Reserved6):	Reserved
rsv7: (Reserved7):	Reserved
rsv8: (Reserved8):	Reserved
rsv9: (Reserved9):	Reserved

ENERGY TYPE (D) [ ]

[Description] Energy level applied to the print head in thermal direct mode

[Values to be printed]

NORM: Normal:	Standard
rsv1: (Reserved1):	Reserved
rsv2: (Reserved2):	Reserved
rsv3: (Reserved3):	Reserved
rsv4: (Reserved4):	Reserved
rsv5: (Reserved5):	Reserved
rsv6: (Reserved6):	Reserved
rsv7: (Reserved7):	Reserved
rsv8: (Reserved8):	Reserved

rsv9: (Reserved9): Reserved
Note: If “CN” is selected for the parameter clear destination, the ENERGY TYPE parameter is not displayed on the menu and unable to be set in the system mode and user system mode. However, the initial value will be set after a RAM clear, so it is printed on the maintenance counter/parameter settings print label.

POWER SAVE TIME [ ]
[Description] Length of time until the printer enters sleep mode
[Values to be printed] 1 min. to 240 min.

RIBBON TORQUE [ ]
[Description] Ribbon take-up torque
[Values to be printed] Normal: Standard Low: Low

BASIC [ ]
[Description] Basic interpreter setting
[Values to be printed] OFF: Basic interpreter is disabled. ON: Basic interpreter is enabled.

BASIC TRACE [ ]
[Description] Basic interpreter trace setting
[Values to be printed] OFF: Trace is disabled. ON: Trace is enabled.

<< PANEL >>

LANGUAGE [ ]
[Description] Selection of a language for displaying LCD messages
[Values to be printed] ENGLISH: English GERMAN: German FRANCH: French DUTCH: Dutch SPANISH: Spanish JAPANESE: Japanese ITALIAN: Italian PORTUGUESE: Portuguese Si.CHINESE: Simplified Chinese KOREAN: Korean TURKISH: Turkish POLISH: Polish

MODEL NAME [ ]
[Description] Whether to display the model name
[Values to be printed] OFF: Hidden. ON: Displayed.

PRINTED COUNTER [ ]
[Description] Whether to display the number of labels printed
[Values to be printed] OFF: Hidden.

ON: Displayed.
IP ADDRESS [ ]
[Description] Whether to display IP address
[Values to be printed] OFF: Hidden. ON: Displayed.
CONTRAST [ ]
[Description] LCD contrast
[Values to be printed] 24 to 50
SYSTEM PASSWORD [ ]
[Description] System mode password setting
[Values to be printed] OFF: Disabled. ON Enabled.

<< STORAGE AREA >>

TTF AREA [ ]
[Description] TrueType Font storage area size
[Values to be printed] 0KB to 3072KB
EXT CHR AREA [ ]
[Description] External character storage area size
[Values to be printed] 0KB to 3072KB
BASIC AREA [ ]
[Description] Basic file storage area size
[Values to be printed] 0KB to 3072KB
PC SAVE AREA [ ]
[Description] PC command storage area size
[Values to be printed] 0KB to 3072KB

<< USB >>

SERIAL NUMBER [1] [2]
[Description 1] Whether to enable USB serial number
[Values to be printed] DISABLE: Disabled. ENABLE: Enabled.
[Description 2] USB serial number

<< RS-232C >>

BAUD RATE [ ]
[Description] Baud rate
[Values to be printed]

2400: 2400bps 4800: 4800bps 9600: 9600bps 19200: 19200bps 38400: 38400bps 115200: 115200bps
DATA LENGTH [ ]
[Description] Data length
[Values to be printed] 8: 8 bits 7: 7 bits
STOP BIT [ ]
[Description] Stop bit length
[Values to be printed] 1: 1 bit 2: 2 bits
PARITY [ ]
[Description] Parity
[Values to be printed] NONE: None EVEN: Even ODD: Odd
CONTROL [ ]
[Description] Transmission control method
[Values to be printed] XON+READY AUTO: XON/XOFF+ READY/BUSY(DTR) mode (XON output when the power is on, XOFF output when the power is off) XON/XOFF AUTO: XON/XOFF mode (XON output when the power is on, XOFF output when the power is off) READY/BUSY RTS: RTS mode (No XON output when the power is on, no XOFF output when the power is off) XON/XOFF: XON/XOFF mode (No XON output when the power is on, no XOFF output when the power is off) READY/BUSY: READY/BUSY(DTR) (No XON output when the power is on, no XOFF output when the power is off)

<< CENTRO >>

ACK/BUSY [ ]
[Description] Centronics ACK/BUSY timing
[Values to be printed] Rising edge: A rise of ACK signal and a release of BUSY occur at the same time. Trailing edge: A fall of ACK signal and a release of BUSY occur at the same time.
INPUT PRIME [ ]
[Description] Reset process when the nInit signal is ON
[Values to be printed] OFF: Reset is not performed.

ON: Reset is performed.
PLUG & PLAY [ ]
[Description] Plug-and-play operation
[Values to be printed] OFF: Plug-and-play is disabled. ON: Plug-and-play is enabled.

<< LAN/WLAN >>

LAN/WLAN [ ]
[Description] LAN type
[Values to be printed] OFF: Disabled. AUTO: Automatically selected. (When the wireless LAN module is installed, the wired LAN is disabled.) LAN: Wired LAN WLAN: Wireless LAN
SNMP [ ]
[Description] Whether to enable SNMP
[Values to be printed] OFF: Disabled. ON: Enabled.
IP ADDRESS [ ]
[Description] Printer IP address
[Values to be printed] xxx.xxx.xxx.xxx
v6 L [ ]
[Description] IPv6 Link local address
[Values to be printed] xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
v6 G [ ]
[Description] IPv6Global address
[Values to be printed] xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
SUBNET MASK [ ]
[Description] Subnet mask
[Values to be printed] xxx.xxx.xxx.xxx
GATEWAY ADDRESS [ ]
[Description] Gateway IP address
[Values to be printed] xxx.xxx.xxx.xxx
SOCKET PORT [1] [2]
[Description 1] Socket communication
[Values to be printed 1] OFF: Disabled. ON: Enabled.
[Description 2] Socket communication port number

	[Values to be printed 2] 00000 to 65535
DHCP [ ]	
	[Description] DHCP setting
	[Values to be printed] OFF: DHCP is disabled. ON: DHCP is enabled.
DHCP CLIENT ID [ ]	
	[Description] DHCP client ID setting (Hex.)
	[Values to be printed] Max. 64 characters
DHCP HOST NAME [ ]	
	[Description] DHCP host name (ASCII)
	[Values to be printed] Max. 32 characters
CONNECTION MODE [ ]	
	[Description] Wireless LAN: Connection setting
	[Values to be printed] AP MODE INFRASTRUCTURE
ESS ID [ ]	
	[Description] Wireless LAN: ESS ID
	[Values to be printed] Max. 32 characters
ENCRYPTION [ ]	
	[Description] Wireless LAN: Encryption key setting
	[Values to be printed] OFF Note: This parameter is set by using the Printer Setting Tool. WEP40
WPA MODE [ ]	
	[Description] Wireless LAN: WPA setting
	[Values to be printed] OFF Note: This parameter is set by using the Printer Setting Tool. WPA-Personal WPA2-Personal WPA-Enterprise WPA2-Enterprise
AUTHENTICATION [ ]	
	[Description] Wireless LAN: Authentication method
	[Values to be printed] OPEN Note: This parameter is set by using the Printer Setting Tool. SHARED
802.1X SUPPLICANT [ ]	
	[Description] Wireless LAN: Authentication method
	[Values to be printed]

	OFF Note: This parameter is set by using the Printer Setting Tool. EAP-TLS EAP-TTLS EAP-FAST MSCHAPV2 EAP-FAST GTC PEAP MSCHAPV2 PEAP MSCHAPV2(w/o Cert) PEAP GTC PEAP GTC(w/o Cert)
DEFAULT KEY [ ]	
	[Description] Wireless LAN: Encryption key for sending
	[Values to be printed] 1 to 4
802.11bgn CHANNEL [ ]	
	[Description] Wireless LAN: 11b connection channel setting
	[Values to be printed] 1 to 14
LPR [ ]	
	[Description] Whether to enable LPR
	[Values to be printed] OFF: Disabled. ON: Enabled.

<< RFID >>

MODULE TYPE [ ]	
	[Description] RFID module type
	[Values to be printed] NONE: No RFID kit is installed. U4: B-EX706-RFID-U4-EU/US/AU-R, B-EX7060-RFID-U4-R
TAG TYPE [ ]	
	[Description] RFID tag type
	[Values to be printed] NONE I-Code Tag-it C220 ISO15693 C210 C240 C320 EPC C1 Gen2
RF CHANNEL [ ]	
	[Description] RFID channel setting
	[Values to be printed] AUTO 2CH

3CH 4CH 5CH 6CH 7CH 8CH
RETRY POSITION [ ]
[Description] Feed amount to retry data write
[Values to be printed] -99MM to +99MM
RETRY LABELS [ ]
[Description] The number of RFID labels to be issued for retry
[Values to be printed] 0 to 255 labels
READ RETRY [ ]
[Description 1] The number of times tag read is retried
[Values to be printed 1] 0 to 255 times
[Description 2] Timeout for tag read retry
[Values to be printed 2] 0 to 9.9 sec.
WRITE RETRY [ ]
[Description 1] The number of times tag write is retried
[Values to be printed 1] 0 to 255 times
[Description 2] Timeout for tag write retry
[Values to be printed 2] 0 to 9.9 sec.
POWER LEVEL [ ]
[Description] Radio output level
[Values to be printed] 0 to 18: B-EX706-RFID-U4-EU/US/AU-R, B-EX7060-RFID-U4-R
Q VALUE [ ]
[Description] RFID module Q value
[Values to be printed] 0 to 15
AGC THRESHOLD [ ]
[Description] AGC threshold setting
[Values to be printed] 0 to 15
WRITE AGC [ ]
[Description] AGC threshold for data write
[Values to be printed] 0 to 15
RETRY MIN AGC [ ]
[Description] AGC threshold lower limit for retry

	[Values to be printed] 0 to 15
TAG CHECK [1] [2] [3]	
	[Description 1] Error tag detection
	[Values to be printed 1] OFF: Error tag detection is not performed. EPCCODE: Error tag detection is performed. ID area data is read before data write to check for error. PASSWORD: Error tag detection is performed. Access password area is read before data write to check for error. Note: This value is valid only for GEN2 tags.
	[Description 2] Password setting to protect error tag detection Note: Only when “ON (ACCESS PASSWORD)” is selected for TAG CHECK
	[Values to be printed 2] OFF: Disabled. ON: Enabled.
	[Description 3] Auto unlock function Note: Only when “ON (ACCESS PASSWORD)” is selected for TAG CHECK
	[Values to be printed 3] OFF: Disabled. ON: Enabled.
MULTI WRITE [ ]	
	[Description] Hibiki tag multi-word write
	[Values to be printed] OFF: Disabled. ON: Enabled.
CALIB. MODE [ ]	
	[Description] RFID calibration function
	[Values to be printed] OFF: Disabled. ON: Enabled.
CALIB. AGC [ ]	
	[Description] Optimum AGC value obtained through RFID calibration
	[Values to be printed] 0 to 15
CALIB. POSITION [ ]	
	[Description] Distance to the optimum read/write position obtained through RFID calibration
	[Values to be printed] -999.9mm to +999.9mm
ANTENNA POSITION [ ]	
	[Description] Combinational position of the RF antenna and the wave director
	[Values to be printed] FRONT: Front CENTER: Center REAR: Rear
SUCCEEDED TAGS	

	[Description] The number of times data write succeeded
	[Values to be printed] 0 to 9999999
VOID PRINT TAGS	
	[Description] The number of times data write failed
	[Values to be printed] 0 to 9999999

<< RTC >>

BATTERY CHECK [ ]	
	[Description] Battery check
	[Values to be printed] OFF: Disabled. ON: Enabled.
RENEWAL [ ]	
	[Description] Time update timing
	[Values to be printed] start of JOB: Every batch every PAGE: Every page

5.4.2 AUTO DIAGNOSTICS

The procedure for printing the self-diagnosis result is mostly the same as that for the maintenance counter/parameter setting data described in Section 5.4.1 MAINTENANCE COUNTER.
The following table shows the menu structure from top menu of the system mode to AUTO DIAGNOSTIC.

The menu structure of AUTO DIAGNOSTIC

Menu item
<1>DIAGNOSTIC
AUTO DIAGNOSTIC
THERMAL TRANSFER
NO YES
DIRECT THERMAL
NO YES
DISPLAY

***NOTE**:*
When an error occurs while printing, the error message is displayed, the ERROR LED turns on, and the ONLINE LED turns off. Though the error can be cleared by pressing the [ENTER], [CANCEL] or [MODE] key, the printer does not reprint the label automatically.

5.4.2.1 Auto Self Diag. Print Printout

```
PROGRAM B-EX6T1-T
  MAIN     XXXXXXXXX K1.0 :F100
  BOOT     XXXXXXXXX C1.0B :0000
  WMON     XXXXXXXXX V1.0 :6100
FONT         AE00
KANJI        NONE    :0000
             NONE    :0000
EEPROM       256B
SDRAM        32MB
 SENSOR1     00000000,00000111
SENSOR2      [H]23 ° C [A]22 ° C
             [R]4.2V [T]2.5V [E]0.6V
 PE LV.      [R]1.8V [T]2.5V
 M THRE.     [R]1.8V [T]2.5V
 HEAD        [RANK]7       305DPI
 LAN MAC     11-22-33-44-55-66
EXP.I/O      NG
EX.232C      NG
SIO          NG(0111)
RFID         OK  #00RV972  (EU0) R01
WLAN         OK Ver1.1.3
MAC          00-11-22-33-44-55
RTC          NG
 USB MEMORY NG
 BASIC M Z-EX4T1—M13 V1.3:02DC
 BASIC S Z-EX4T1—S11 V1.1:BF1E
```

***NOTE**:*
"°" (degree) of "xx°C" may not be printed correctly, depend on the type of code page.

Print condition:

Label length		120 mm
Print method		User setting
Sensor type		None
Speed	(203 dpi) B-EX6T1/T3-G	5 ips
	(305 dpi) B-EX6T1/T3-T	5 ips
Issuing number		1
Issuing mode		User setting
Others		Rewinder motor not activated.

5.4.3 HEAD CHECK

The following table shows the menu structure from the top menu of the system mode to HEAD CHECK.

The menu structure of HEAD CHECK

Menu item
<1>DIAGNOSTIC
HEAD CHECK

Types of message during head check	
While checking	HEAD CHECK CHECKING
Normal end	HEAD CHECK NORMAL END
When broken dots are detected At this time, the ONLINE LED turns off and the ERROR LED turns on.	HEAD CHECK HEAD ERROR 16 /832 dots

5.5 SET PARAMETERS

Contents of the SET PARAMETERS menu

Menu item	
<2>SET PARAMETERS	
	MEDIA LOAD
	FEED KEY
	MOVE TO TEAROFF
	FW/BK ACT.
	RIBBON SAVE
	HEAD UP CUT/RWD
	PRE PEEL OFF
	BACK FEED SPEED
	AUTO HEAD CHECK
	RIBBON NEAR END
	PAPER/RBN END
	CALIBRATE
	POWER SAVE TIME
	CODE PAGE
	ZERO FONT
	CTRL CODE
	PEEL OFF STATUS
	KANJI CODE
	EURO CODE
	MAXICODE SPEC
	FEED ADJ.
	CUT ADJ.
	BACK ADJ.
	X ADJUST
	HEAT ENERGY TYPE
	TONE ADJ.<T>
	TONE ADJ.<D>
	RIBBON TORQUE
	FRONT RIBBON MOTOR
	REAR RIBBON MOTOR
	RIBBON WINDING

5.5.1 MEDIA LOAD

- OFF Media loading function is disabled. (Same as a feed by press the [FEED] key)
- STD When the [FEED] key is pressed after the printer is turned on, reset by a batch reset command, or the print head is closed, the printer feeds the media to detect the next gap/black mark. When the gap/black mark is detected, the printer feeds the media for the distance from the sensor to the print start position.
- ECO When the [FEED] key is pressed after the printer is reset by a batch reset command or the print head is closed, the printer feeds the media to detect the next gap/black mark. When the gap/black mark is detected, the printer feeds the media, which is positioned nearest from the print head, to the print start position. At this time, the feed length is calculated based on the stored media pitch.
- ECO+Backfeed After performing above-mentioned ECO, the printer feeds the media backward for the label pitch length while raising the print head if the following conditions are satisfied.

***NOTES**: 1. This function is enabled only when the sensor type is set to other than "None".*

2. Conditions for enabling ECO + Backfeed

Hardware	Optional ribbon saving module (solenoid) is installed.
Parameter	RIBBON SAVE parameter is set to TAG or LABEL.
Operation	Media pitch falls between 20mm and 100mm. The previous issue mode was Batch. (The issue mode is not reset by a power off or a printer reset.)
Caution	Even if the hardware requirement is not satisfied (i.e. the optional ribbon saving module is not installed), the printer feeds the media backward when the other requirements are satisfied. However, this operation is not guaranteed as it is outside of the specification.

3. In the case the printer cannot detect a gap/black mark while feeding the media, an error occurs on the following condition. Regarding an error during a feed, refer to the External Equipment Interface Specification for the B-EX series, Section 7 Error Processing.

OFF	When the relation between the stored media pitch (A) and the media pitch detected by the sensor (B) does not satisfy the following formula, it will be an error: $(A) \times 50\% \leq (B) \leq (A) \times 150\%$
STD ECO ECO + Backfeed	When a gap/black mark is not detected while feeding 1500-mm media, it will be an error.

5.5.2 FEED KEY

- FEED Feeds one label.
- PRINT Prints data in the image buffer on one label.

5.5.3 MOVE TO TEAROFF

- OFF Disables the auto feed to the cut/strip position after printing.
- ON Enables the auto feed to the cut/strip position after printing.

5.5.3.1 MOVE TO TEAROFF POS.

When the "MOVE TO TEAROFF" parameter is set to ON, the feed amount can be fine adjusted.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+5.0	-5.0	0.1	Decimal	Exist	1	1	None	mm

***NOTE**: Feed amount setting*

- *+ (Plus) Increases the forward feed amount.*
- *- (Minus) Decreases the forward feed amount.*

***NOTES**:*

1. *If the pitch of the media used for the previous issue was less than 20mm, the auto feed to the cut/strip position after printing will not be activated regardless of the parameter setting.*
   ** In the case labels with the different pitch (less than 20mm and 20mm or longer) are alternately placed in one label roll, the forward feed is not activated for the labels with the pitch of less than 20mm. Therefore it stays at the print stop position without being fed backward. Before the next label with the pitch of 20mm or larger is printed, however, it is automatically fed backward along with the previously printed label. This may cause the print data to be printed on the previous label.*
2. *The media will stay at the forwarded position even if the power is turned off/on, the printer is reset, or the print head is opened/closed.*

5.5.4 FW/BK ACT.

- MODE1: Normal: The printer waits for a next issue after media is forwarded 16.5-mm.
- MODE2: SHORT CUT LAB: When the thermal transfer method and cut issue are selected, the printer feeds 6-mm media backward, then waits for next issue with media forwarded 3-mm.
- MODE3: for RFID: The printer waits for a next issued after media is forwarded 34.0-mm (to prevent RFID media jam.)

***NOTES**:*

1. *When MODE2 is selected and the printer starts printing (feed) from the forwarded position, it feeds the media for 3 mm from this position and temporarily stops. The feed speed for this 3-mm distance to the home position is the max. speed that can be accelerated from the previous speed (See the following). After the temporary stop, the printer prints or feeds the media at the specified speed.*
   203-dpi model: 5 ips
   305-dpi model: 5 ips

** Except for the multi-step acceleration area for short-pitch labels, the print speed will be accelerated up to the specified speed when the media has not been forwarded.*

2. *When MODE3 is selected and the RBN SAVE parameter is set to "LABEL" or "TAG", the printer will raise the print head while the auto feed to the cut/strip position is performed.*
   If labels with the pitch of 57.2mm or less are used, they may peel off from the backing paper. Therefore, it is required to select "LABEL" or "TAG" for the RBN SAVE parameter. The speed of the auto feed is fixed to 3 ips.

5.5.5 RIBBON SAVE.

- OFF The ribbon saving module is not used.
- TAG POSITION The ribbon saving module is used.(Head lever position: "TAG")
- LABEL POSITION The ribbon saving module is used.(Head lever position: "LABEL")

***NOTES**:*

1. *If this parameter is set to "TAG POSITION" or "LABEL POSITION" without the ribbon saving module installed, the ribbon slacks and a print failure occurs. Caution required when setting this parameter.*
2. *For B-EX6T1, only Position1 is available to use since there is no distinguish between Tag position and Label position.*

5.5.6 HEAD UP CUT/RWD.

- OFF The head-up function is disabled during cut issue or the rewinder is not used.
- ON The head-up function is enabled during cut issue or the rewinder is used.

***NOTES**:*

1. *Whether or not to activate the head up action in the cut issue or to use the Rewinder in the batch or strip issue is selected.*
2. *When this parameter is set to ON, the head-up function is enabled in the cut issue mode and the built-in rewinder is usable in the batch issue mode, respectively.*

5.5.7 PRE PEEL OFF

- OFF Disables pre peel off.
- ON Enables pre peel off.

***NOTES**:*

1. *Pre peel off is automatically enabled when the print speed is set to 10 ips or faster for the strip issue. (For the print speed of less than 10 ips, the pre peel off is enabled only when this parameter is set to ON.) However, the print speed may be corrected depending on the EX I/O parameter setting as follows.*
   - *EXI/O: TYPE 1 (Standard)*
     203-dpi model: 10 ips
     305-dpi model: 8 ips
   - *EX I/O: TYPE 2 (Inline)*
     Specified speed
2. *The pre peel off speed is the min. forward feed speed (3 ips).*

5.5.8 BACK FEED SPEED

- STD 3 ips
- LOW 2 ips

5.5.9 AUTO HEAD CHECK

- OFF Disables the auto print head check.
- ON Enables the auto print head check.

5.5.10 RIBBON NEAR END

- OFF Ribbon near end is not detected.
- 30m Ribbon near end is detected when the remaining ribbon is 30-m long (Equivalent to ribbon diameter of 38 mm)
- 70m Ribbon near end is detected when the remaining ribbon is 70-m long (Equivalent to ribbon diameter of 43 mm)

***NOTE**: Since a detected remaining ribbon length has some margin of error, use the specified length as a guide.*

5.5.11 PAPER/RBN END

- Stop immediately When a label end or ribbon end status is detected, the printer stops immediately.
- Complete current When a label end or ribbon end status is detected, the printer prints the current label as far as possible, then stops.

NOTES:

1. *Stop immediately:*
   When a label end or ribbon end is detected in the middle of printing, printing is immediately stopped. When the printing is restarted, first the initial feed is performed, then the printer starts printing from the unfinished label.

2. *Complete current:*
   The "Complete current" is valid only when the ribbon save function is set to OFF. Even when the ribbon save function is enabled, the behavior of the "Stop immediately" will be automatically performed regardless of the setting. The printer behavior of the "Complete current" at the detection of label end and ribbon end is as follows.

   (1) Label end detection

   • Printer behavior
   When a label end is detected in the middle of printing, the printer completes the half-finished printing and stops when the next label is at the home position, displaying the error message.
   ** Printing of the half-finished label is completed.*

   • LCD message
   "NO PAPER"

   • The remaining number of labels
   [Specified number of labels] − [The number of finished labels at the time of printing stop (including the half-finished label)]
   If a label end is detected while the last one of the specified number of labels is printed, the remaining number of labels on the LCD will be blank.

   • Printer behavior at restart
   When the printing is restarted, first the initial feed is performed, then the printer starts printing from the next label. In case the label end was detected while the last one of the specified number of labels was printed, only the initial feed is performed, and if the status response has been set to ON, an issue end status is sent after a feed end status.

   <Example>

   Specified number of labels = 5, A label end is detected while the 3rd label is printed.

   Printing: 1st label … Finished (*)

   Printing: 2nd label ... Finished (*)

   Printing: 3rd label … After an error is detected, printing of this label is completed. Finished (*)

   Stop with error … "NO PAPER" is displayed on the LCD.

   Initial feed … Restart

   Printing: 4th label … Finished (*)

   Printing: 5th label … Finished (*)

   (*) Completely printed labels: 1st to 5th labels

   (2) Ribbon end detection: In the case unfinished label length is 30 mm or more

   • Printer behavior
   The printer prints for 20 mm and stops printing with error.
   ** Printing of the half-finished label is not completed.*

   • LCD message
   "NO RIBBON"

• The remaining number of labels

[Specified number of labels] − [The number of finished labels at the time of printing stop] - 1

If a ribbon end is detected while the last one of the specified number of labels is printed, the remaining number of labels on the LCD will be blank.

• Printer behavior at restart

When the printing is restarted, first the initial feed is performed, then the printer starts printing from the next label. In case the ribbon end was detected while the last one of the specified number of labels was printed, only the initial feed is performed.

<Example>

Specified number of labels = 5, A ribbon end is detected while the 3rd label is printed. Unfinished label length is 30 mm or more

Printing: 1st label … Finished (*)

Printing: 2nd label ... Finished (*)

Printing: 3rd label … After an error is detected, the 3rd label is printed for the length of 20 mm and the printing stops.

Stop with error … "NO RIBBON" is displayed on the LCD.

Initial feed … Restart

Printing: 4th label … Finished (*)

Printing: 5th label … Finished (*)

(*) Completely printed labels: 1st, 2nd, 4th and 5th labels

(3) Ribbon end detection: In the case unfinished label length is less than 30 mm

• Printer behavior

When a label end is detected in the middle of printing, the printer completes the half-finished printing and stops when the next label is at the home position, displaying the error message.

** Printing of the half-finished label is completed.*

• LCD message

"NO RIBBON"

• The remaining number labels

[Specified number of labels] − [The number of finished labels at the time of printing stop (including the half-finished label)]

If a ribbon end is detected while the last one of the specified number of labels is printed, the remaining number of labels on the LCD will be blank.

• Printer behavior at restart

When the printing is restarted, first the initial feed is performed, then the printer starts printing from the next label. In case the label end was detected while the last one of the specified number of labels was printed, only the initial feed is performed, and if the status response has been set to ON, an issue end status is sent after a feed end status.

<Example>

Specified number of labels = 5, A ribbon end is detected while the 3rd label is printed. Unfinished label length is less than 30 mm

Printing: 1st label … Finished (*)

Printing: 2nd label ... Finished (*)

Printing: 3rd label … After an error is detected, printing is completed. Finished (*)

Stop with error … "NO RIBBON" is displayed on the LCD.

Initial feed … Restart

Printing: 4th label … Finished (*)

Printing: 5th label … Finished (*)

(*) Completely printed labels: 1st to 5th labels

5.5.12 CALIBRATE

- OFF: Auto calibration is not performed.
- ON TRANSMISSIVE: Auto calibration is performed with transmissive sensor.
- ON REFLECTIVE Auto calibration is performed with reflective sensor.
- ON ALL: Auto calibration is performed with both sensors.
- ON TRANS+BackFeed: Auto calibration is performed with transmissive sensor, then the media is fed backward.
- ON REFL+BackFeed: Auto calibration is performed with reflective sensor, then the media is fed backward.
- ON ALL+BackFeed: Auto calibration is performed with both sensors, then the media is fed backward.

***NOTES**:*

1. *When this parameter is enabled, an automatic calibration starts at an open/close of the print head and when power is on.*
2. *When this parameter is enabled, the media length, effective print length, sensor type and whether the ribbon is used or not, will be specified with commands, as handled as follows.*

<table>
<tr><th colspan="2"></th><th>Printer behavior after automatic calibration is performed</th></tr>
<tr><td colspan="2">Whether the ribbon is used or not</td><td>The values obtained through the calibration will take effect until next calibration is performed or the printer power is turned off. (Settings specified by commands are ignored.)</td></tr>
<tr><td colspan="2">Sensor type</td><td>The values obtained through the calibration will take effect after the calibration is completed. Afterward, the sensor specified by a command is ignored.</td></tr>
<tr><td rowspan="3">Media</td><td>Media pitch</td><td rowspan="3">After the automatic calibration is performed, the values obtained through the calibration will take effect until next calibration is performed or the printer power is turned off. (Settings specified by commands are ignored.)</td></tr>
<tr><td>Effective print length</td></tr>
<tr><td>Gap length</td></tr>
</table>

3. *When the auto calibration with reflective sensor is selected, the lowest voltage detected by the reflective sensor is considered as a black mark level. And, the sum of this voltage and the threshold fine adjustment value will be stored as a threshold.*

4. *When the auto calibration with transmissive sensor is selected, the highest voltage detected by the transmissive sensor is considered as a gap level. After subtracting the threshold fine adjustment value from this voltage, the result will be stored as a threshold.*

5. *When "ON ALL" is selected, the highest voltage detected by transmissive sensor or the lowest voltage detected by the refrective sensor is considered as a gap level. After subtracting the threshold fine adjustment value for each sensor from this voltage, the result will be stored as a threshold.*

6. *The printer feeds about 160 mm long media to detect a black mark/gap and determine the threshold. When the printer has detected more than one black marks/gaps during this 160-mm media feed, the printer measures the media pitch and stops the automatic calibration 1 mm short of the bottom of a black mark or gap.*

7. If the second black mark/gap is not found under the above conditions, the printer continues media feed for up to 500.0 mm to find the second black mark/gap. If it still cannot be detected, the printer will stop, as a paper jam.

8. This function supports the media pitch of 10.0 mm to 150.0 mm.

9. When the cutter is installed and a previous issue mode was cut mode, the media is cut and ejected after an automatic calibration completes.

10. While the automatic calibration is in operation, labels do not stop at the strip position even in strip or special strip mode.

11. When a label end occurs during an automatic calibration, the printer stops, resulting in an error. Closing the print head after loading a new label can clear the error and resume the automatic calibration.

12. During an automatic calibration, the ribbon motors are rotated. Even if the ribbon is not loaded, no ribbon error occurs. However, the print condition will be automatically changed to "No ribbon" after the calibration ends.

13. When "ON TRANS+BackFeed", "ON REFL+BackFeed" or "ON ALL+BackFeed" is selected and if the following conditions are satisfied, the printer feeds the media backward for the media pitch length while lifting the print head.

Hardware	Optional ribbon saving module (solenoid) is installed.
Parameter setting	RIBBON SAVE parameter is set to TAG or LABEL.
Operating condition	Media pitch falls between 20mm and 100mm. The previous issue mode was Batch without cut. (The issue mode and the cut interval are not reset by a power off or a printer reset.)
Remarks	Even if the hardware requirement is not satisfied (i.e. the optional ribbon saving module is not installed), the printer feeds the media backward when the other requirements are satisfied. However, this operation is not guaranteed as it is outside of the specification.

14. The feed speed during the automatic calibration is 3 ips.

15. The print head must not be opened during automatic calibration as the subsequent printer operation is not guaranteed. If the print head is opened, turn off the power and back to on.

16. During an automatic calibration, the ribbon save is not performed even if setting is enabled.

5.5.13 POWER SAVE TIME

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
240	1	1	Decimal	None	3	0	None	Min.

5.5.14 CODE PAGE

- PC-850
- PC-852
- PC-857
- PC-8
- PC-851
- PC-855
- PC-1250
- PC-1251
- PC-1252
- PC-1253
- PC-1254
- PC-1257
- LATIN9
- Arabic
- PC-866
- UTF-8

5.5.15 ZERO FONT

- 0 Without slash
- Ø With slash

***NOTE**: The following fonts do not support zero with slash. Therefore, even if a zero with slash is selected, a zero without slash is used.*

[Bit map fonts]
OCR-A, OCR-B, GOTHIC725 Black, Japanese Kanji, Chinese

[Outline fonts]
Price fonts 1, 2, and 3, DUTCH801 Bold, BRUSH738 Regular, GOTHIC725 Black, TrueTypeFont

5.5.16 CTRL CODE

- AUTO
- {,|,}
- ESC,LF,NUL
- MANUAL

5.5.16.1 MANUAL

- CODE1
- CODE2
- CODE3

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
0xFF	0x00	1	Hex	None	2	0	None	h

5.5.17 PEEL OFF STATUS

- ・OFF Disabled
- ・ON Enabled

5.5.18 KANJI CODE

- ・TYPE1:Windows: Windows code
- ・TYPE2:Original: Original code

5.5.19 EURO CODE

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
0xFF	0x20	1	Hex.	None	2	0	None	h

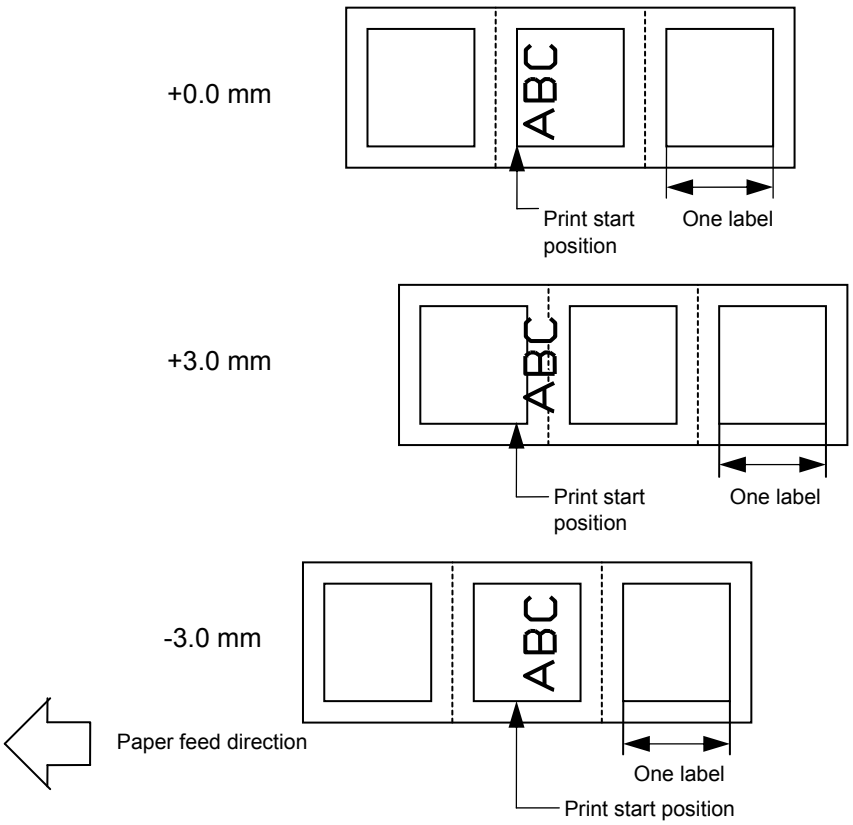
5.5.20 MAXICODE SPEC

- ・TYPE1:Compatible: Compatible with the current version
- ・TYPE2: Special Spec Special specification

***NOTE**: The mode specified by the command may be different from the actual mode, depending on the status of this parameter. Also, the data transmission method differs partly.*
For details, refer to the B-EX Series External Equipment Interface Specification.

5.5.21 FEED ADJ.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+50.0	-50.0	0.1	Decimal	Exist	2	1	None	mm

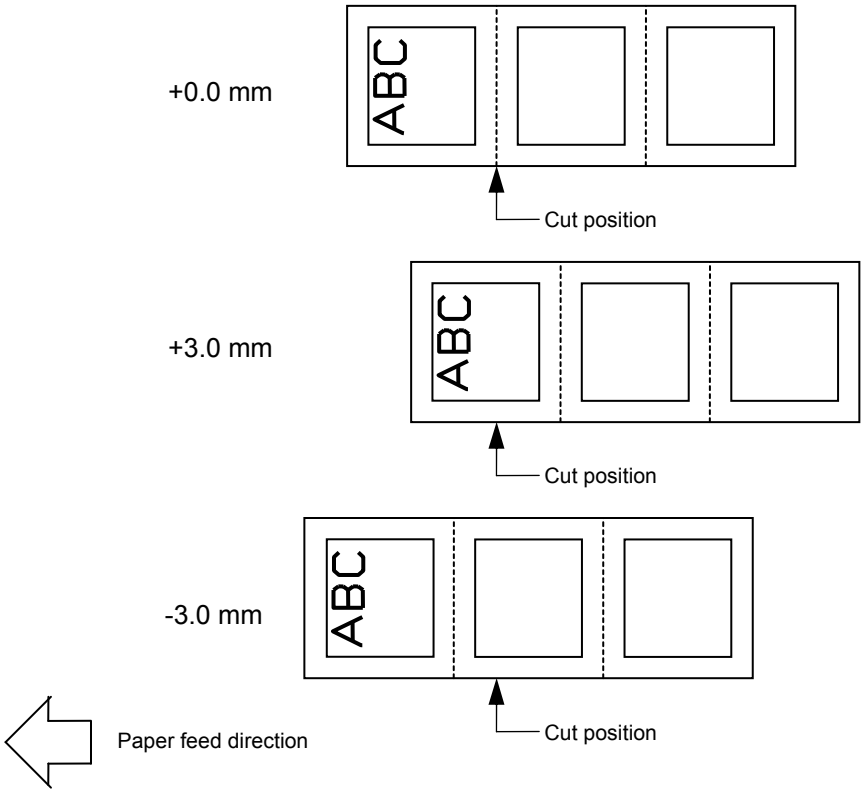


***NOTES**:*

1. *The feed amount fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±50.0mm.*
2. *A value which is equal to or larger than the media pitch (FEED ADJ. ≥ Media pitch) must not be set. If the set fine adjustment value causes the printer to feed the media backward from the print stop position to the next print start position, the printer operation is not guaranteed.*

5.5.22 CUT ADJ

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+50.0	-50.0	0.1	Decimal	Exist	2	1	None	mm



***NOTES**:*

1. *The cut position fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±50.0mm.*
2. *Solution for the problem with labels having label pitch of less than 25.5 mm when the disc cutter is used*
   The minimum label pitch of the label which can be cut in normal use is 25.5 mm. When a label having a label pitch of less than 25.5 mm is used (although it is out of specifications), the edge of the label is caught by the edge of the thermal head during a reverse feed to the home position after cutting a label gap. Therefore, the label may not be fed back to the proper home position. By performing either method below, the problem will be solved.

   [Method 1] Lift the head.

   When the following conditions are all met, the cut operation is performed as follows.

   Head lifted → Forward feed to the cut position → Head lowered → Cut →
   Head lifted → Reverse feed to the home position → Head lowered

   Conditions: Issue Command, Feed Command, and Eject Command received. Label pitch of 25.5 mm, cut performed, transmissive sensor designated, cut position fine adjustment of ±10.0 mm or less, and issue mode "C"

   ** The print head can be lifted/lowered only when the optional ribbon saving module is mounted and the ribbon saving function is set to ON with the parameter setting menu.*
   ** When the ribbon saving module is not installed, use Method 2 since the print head is not lifted/lowered.*
   ** If the bottom edge of the last label advances past the feed roller while the print head is lifted during label feed to cut, the sensor may not be able to detect an error even if the*

label cannot be fed any more.

** If the head-up solenoid temperature is high, the print head may not be lifted.*

[Method 2] Adjust the cut position fine adjustment value.

The cut position fine adjustment value can be calculated using the following method. If a calculated value does not work to feed the media backward to the proper home position, the cut position needs to be re-adjusted with another value.

Note: When this procedure is used, one or more printed labels are left between the print head and the cutter. Therefore, these labels need to be removed by an issue or a label feed.

(1) Cut position fine adjustment value calculation

$$\text{Cut position fine adjustment value} = \text{(Number of labels left between head and cutter)} \times \text{(Label pitch)}$$

$$= \left(\frac{32.8\ \text{mm}}{\text{Label pitch}} \right) \times \text{(Label pitch)}$$

* Any decimal remainders are rounded off.

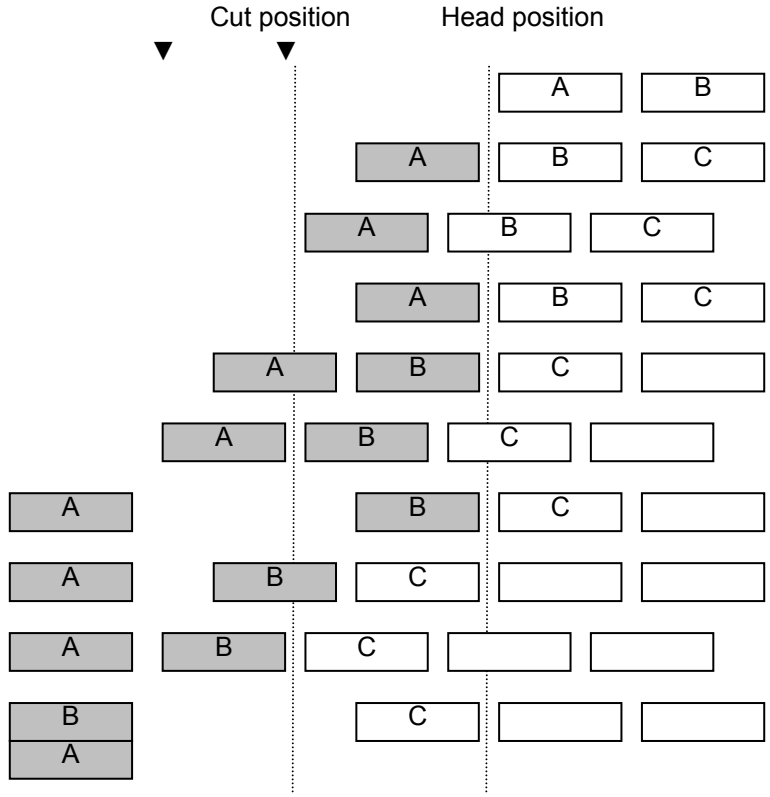
Ex) Label pitch: 30.0 mm

$$\text{Cut position fine adjustment value} = \left(\frac{32.8\ \text{mm}}{30.0\ \text{mm}} \right) \times (30.0\ \text{mm})$$

$$= 1 \times 30.0\ \text{mm}$$
$$= +30.0\ \text{mm}$$

(2) Operation example

Issue count: 2, Cut interval = 1



3. Procedure for label having less than the min. label pitch for each issue speed when the rotary cutter is used

When the following conditions are all met, the cut operation for the last label to be cut is performed as follows.

Forward feed to the cut position → Cut while feeding → Feed stops →
Head lifted → Reverse feed to the home position → Head lowered

Conditions: Issue Command, Feed Command, and Eject Command received. Label pitch: Less than the min. label pitch for each issue speed, cut performed, transmissive sensor designated, cut position fine adjustment of ±10.0 mm or less, and issue mode "C"

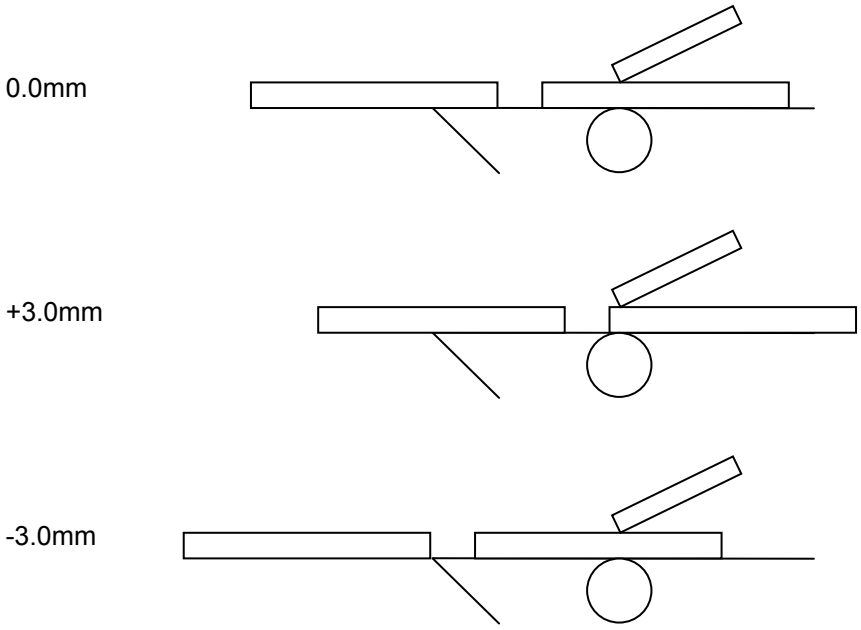
** For the Issue Command, this procedure is effective only when the next Issue Command is not received at the last label to be cut.*

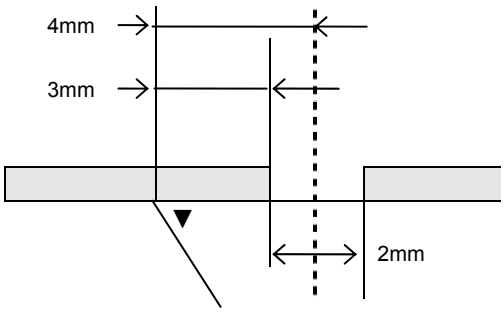
** The print head can be lifted/lowered only when the optional ribbon saving module is mounted and the ribbon saving function is set to ON with the parameter setting menu. When the ribbon saving module is not installed, the print head is not lifted or lowered.*

** If the bottom edge of the last label advances past the feed roller while the print head is lifted during label feed to cut, the sensor may not be able to detect an error even if the label cannot be fed any more.*

** If the head-up solenoid temperature is high, the print head may not be lifted.*

4. Strip position fine adjustment

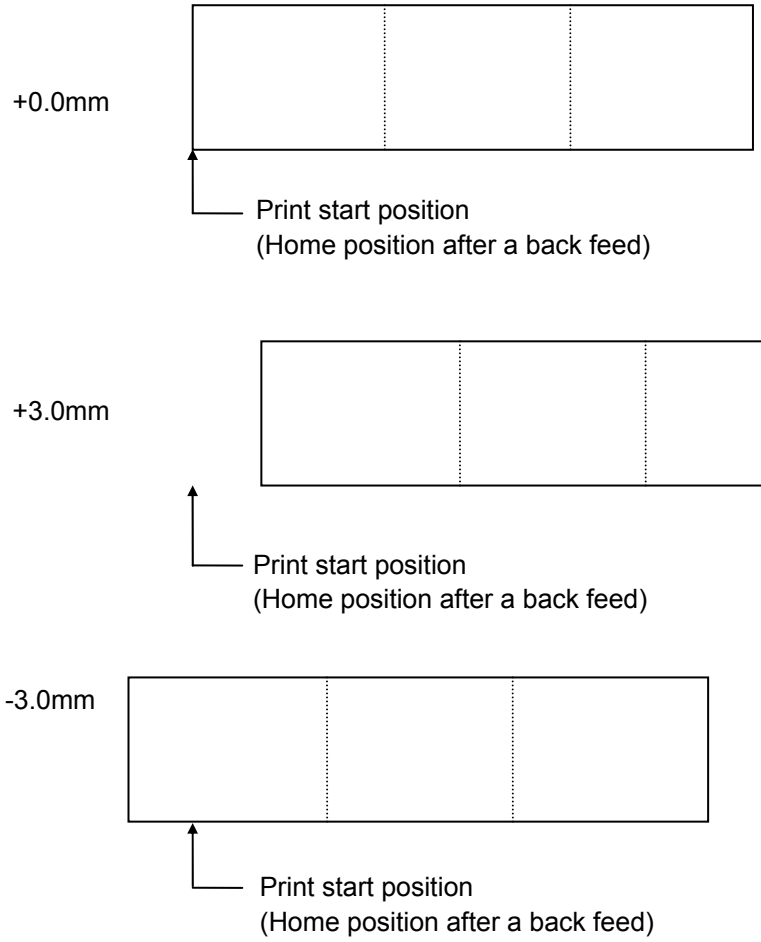




Printing in strip issue mode is stopped at the position where the distance from the middle point of the gap between labels to the end of the strip shaft is 4 mm, since the gap between labels is assumed to be 2 mm. When the print stop position is not proper due to a greater gap, the print stop position should be adjusted using the strip position fine adjust function.

5.5.23 BACK ADJ.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+9.9	-9.9	0.1	Decimal	Exist	1	1	None	mm



NOTES:

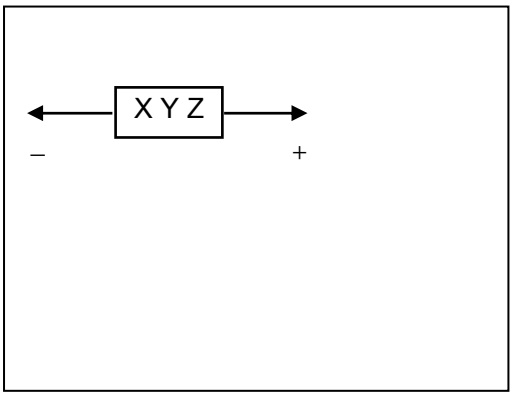
1. *The reverse feed amount fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±9.9mm.*
2. *There may be cases where a label is not returned to the home position depending on the print conditions, even if the media is fed backward for the same amount as the forward feed. For issuing media with the media sensor, if the label pitch is almost the same as the distance between the print head and the media sensor (75.5 mm), the media may not be returned to the home position when operations including a reverse feed (such as cut issues, strip issues, automatic forward feed) are performed. It may result in an error. To prevent this error from occurring, increase the reverse feed amount by performing the reverse feed amount fine adjustment in the + direction.*

5.5.24 X ADJUST

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+99.5	-99.5	0.1	Decimal	Exist	2	1	None	mm

NOTES:

1. *The X ADJUST parameter can fine adjust the print position in X-coordinate (horizontal direction). The fine adjustment shall be performed so that the print position falls within the effective print width. (The X coordinate fine adjustment in the negative (-) direction is effective until the print field reaches coordinate 0. The coordinate does not change any further even if the fine adjustment is continued in the negative direction.)*



2. *The X-coordinate fine adjustment value is not applied to self-diagnosis results printing (maintenance counter and parameter settings, and auto diagnosis).*
3. *The X-coordinate fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is ±99.5mm.*

5.5.25 HEAT ENERGY TYPE

- TRANS.(RIBBON)
- DIRECT THERMAL

NOTES:

1. *The HEAT ENERGY TYPE parameter is intended to make the printer perform appropriate printing for the supplies used (media such as label and tag, and ribbon). Use of a different supply from the setting may cause poor printing. For details, refer to the Supply Specification for the B-EX6T1 series.*
2. *If "CN" is selected for the parameter clear destination, this parameter is not displayed on the menu. Therefore, the initial value of this parameter cannot be changed. (The initial value is fixed. See Section 5.8.3 Parameter Clear.)*

5.5.25.1 TRANS. (RIBBON)

- SR1:AG2,AG4,AG6E
- SR2:RG2,FG2,SG2
- R1: AS1
- R2: RS1
- R3: (Resin3)
- Generic
- rsv1: (Reserved1)
- rsv2: (Reserved2)
- rsv3: (Reserved3)
- rsv4: (Reserved4)

***NOTE**: "Generic" is a setting for securing the print quality equivalent to that of the B-SX, but it is not effective at the print speed of 10 ips or faster. If 10 ips or faster print speed is specified, the printer operation is not guaranteed. For details, refer to the Supply Specification for the B-EX6T1 series.*

5.5.25.2 DIRECT

- NORM: Normal
- rsv1: (Reserved1)
- rsv2: (Reserved2)
- rsv3: (Reserved3)
- rsv4: (Reserved4)
- rsv5: (Reserved5)
- rsv6: (Reserved6)
- rsv7: (Reserved7)
- rsv8: (Reserved8)
- rsv9: (Reserved9)

***NOTE**: If "CN" is selected for the parameter clear destination, the ENERGY TYPE parameter is not displayed on the menu and unable to be set in the system mode and user system mode. However, the initial value will be set after a RAM clear, so it is printed on the maintenance counter/parameter settings print label.*

5.5.26 TONE ADJ. <T>

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+20	-20	1	Decimal	Exist	2	0	None	Step

***NOTES**:*

1. *Setting a value in the positive (+) direction, the print tone becomes darker. And, setting a value in the negative (-) direction, the print tone becomes lighter.*
   +20 ← (Darker) ← 0 → (Lighter) → -20
2. *The print tone fine adjustment value (thermal transfer) is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -20 to +20. If the value exceeds the print head rating, it is automatically corrected.*
3. *The factory default is +0step.*

5.5.27 TONE ADJ. <D>

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+20	-20	1	Decimal	Exist	2	0	None	Step

***NOTES**:*

1. *Setting a value in the positive (+) direction, the print tone becomes darker. And, setting a value in the negative (-) direction, the print tone becomes lighter.*
   +20 ← (Darker) ← 0 → (Lighter) → -20
2. *The print tone fine adjustment value (thermal transfer) is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -20 ~ +20. If the value exceeds the print head rating, it is automatically corrected.*
3. *The factory default is +0.*

5.5.28 RIBBON TORQUE

- Normal
- Low

5.5.29 FRONT RIBBON MOTOR

The menu structure of FRONT RIBBON MOTOR menu

Menu item
<2>SET PARAMETERS
FRONT RIBBON MOTOR
Normal Torque
Low Torque

5.5.29.1 Normal Torque

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-15	1	Decimal	Exist	2	0	None	Step

***NOTES**:*

1. *The fine adjustment value is not effective for the reverse rotation.*
2. *The fine adjustment value for the ribbon take-up motor is limited depending on the print speed.*

Print speed	5 ips or slower	8 ips or slower	10 ips or faster
Fine adjustment value	+10 to +6	+5 to +1	-0 to -15

3. *The ribbon motor torque fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -15 or +10.*

5.5.29.2 Low Torque

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-15	1	Decimal	Exist	2	0	None	Step

***NOTES**:*

1. *The fine adjustment value is not effective for the reverse rotation.*
2. *The fine adjustment value for the ribbon take-up motor is limited depending on the print speed.*

Print speed	5 ips or slower	8 ips or slower	10 ips or faster
Fine adjustment value	+10 to +6	+5 to +1	0 to -15

3. *The ribbon motor torque fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -15 or +10.*

5.5.30 REAR RIBBON MOTOR

The menu structure of REAR RIBBON MOTOR menu

Menu item
<2>SET PARAMETERS
REAR RIBBON MOTOR
Normal Torque
Low Torque

5.5.30.1 Normal Torque

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-15	1	Decimal	Exist	2	0	None	Step

***NOTES**:*
1. The fine adjustment value is not effective for the reverse rotation.
2. The fine adjustment value for the ribbon supply motor is applicable to every print speed.

Print speed	All print speeds
Fine adjustment value	-15 to +10

3. The ribbon motor torque fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -15 or +10.

5.5.30.2 Low Torque

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+10	-15	1	Decimal	Exist	2	0	None	Step

NOTES:
1. The fine adjustment value is not effective for the reverse rotation.
2. The fine adjustment value for the ribbon supply motor is applicable to every print speed.

Print speed	All print speeds
Fine adjustment value	-15 to +10

3. The ribbon motor torque fine adjustment value is the sum of the fine adjustment values set in the system mode (by key operation) and set by command (from the PC). The max. value is -15 or +10.

5.5.31 Ribbon Width

- NORM: Normal
- rsv1: (Reserved1)
- rsv2: (Reserved2)
- rsv3: (Reserved3)
- rsv4: (Reserved4)
- rsv5: (Reserved5)
- rsv6: (Reserved6)
- rsv7: (Reserved7)
- rsv8: (Reserved8)
- rsv9: (Reserved9)

5.6 TEST PRINT

Contents of TEST PRINT menu

Menu item
<3>TEST PRINT
PRINT CONDITION
SLANT LINE(3DOT)
CHARACTERS
BARCODE
NON-PRINTING
FACTORY TEST
AUTO PRINT(TRANS.)
AUTO PRINT(REFL.)

5.6.1 PRINT CONDITION

The menu structure of PRINT CONDITION

Menu item
<3>TEST PRINT
PRINT CONDITION
ISSUE COUNT
PRINT SPEED
SENSOR
PRINT TYPE
ISSUE TYPE
LABEL PITCH
PAPER FEED

***NOTES**:*

1. *Initial value for each parameter at a power on*
   - *ISSUE COUNT: 1*
   - *PRINT SPEED: 5 ips*
   - *SENSOR: TRANSMISSIVE*
   - *PRINT TYPE: THERMAL TRANSFER*
   - *ISSUE TYPE: NO CUT*
   - *LABEL PITCH: 76mm*
   - *PAPER FEED: FEED*
2. *Each fine adjustment value is effective for test print. However, the X-coordinate fine adjustment is excluded.*
3. *When an error occurs during a test print, an error message is displayed and printing is stopped. At this time, the error LED turns on and the online LED turns off.*
4. *The error is cleared by pressing the [CANCEL] key and [ENTER] key, and the display returns to the test print menu. At this time, the error LED turns off and the online LED turns on. Printing is not automatically resumed after the error is cleared.*
5. *The label size greater than the image buffer length cannot be designated. If it is designated, the printer prints data equivalent to the image buffer length then stops, or the printer stops because of an error.*
6. *When the transmissive sensor is selected, the gap between labels shall be 3 mm.*

5.6.1.1 ISSUE COUNT

- 1
- 3
- 5
- 10
- 50
- 100
- 500
- 1000
- 5000

5.6.1.2 PRINT SPEED

Selectable printer speed differs depending on the resolution.

Resolution / Print speed	203dpi	305dpi
3 ips	Supported	Supported
5 ips	Supported	Supported
8 ips	Supported	Supported
10 ips	Supported	Supported
12 ips	Supported	Supported

***NOTE**: When the peel-off issue mode is selected, the maximum speed is limited to 10 ips.*

5.6.1.3 SENSOR

- NONE
- TRANSMISSIVE
- REFLECTIVE
- MANUAL TRANS.
- MANUAL REFL.

5.6.1.4 PRINT TYPE

- THERMAL TRANSFER
- DIRECT THERMAL

5.6.1.5 ISSUE TYPE

- NO CUT
- WITH CUT
- PEEL OFF

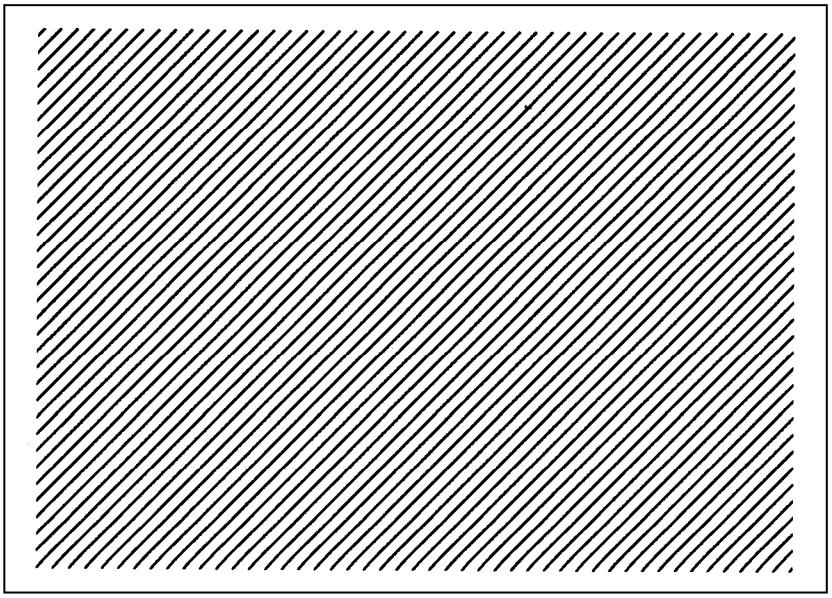
5.6.1.6 LABEL PITCH

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
999	5	1	Decimal	None	3	0	None	mm

5.6.1.7 PAPER FEED

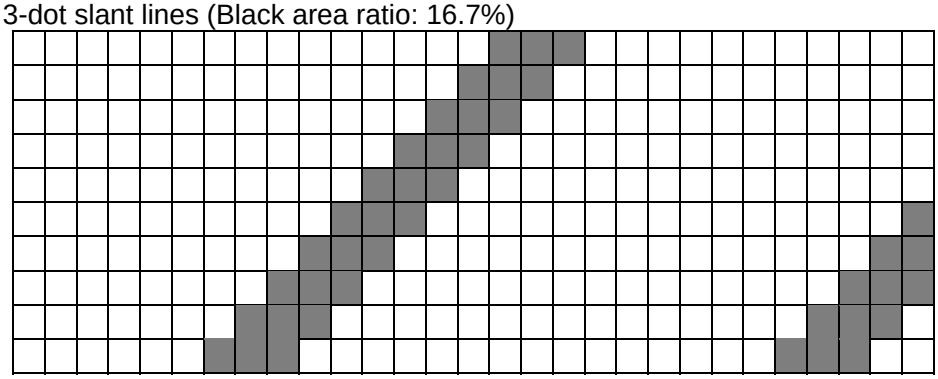
- NO FEED
- FEED

5.6.2 SLANT LINE (3DOT)



3-dot slant lines

Magnification of slant lines
3-dot slant lines (Black area ratio: 16.7%)



5.6.3 CHARACTERS

Gothic + Mincho

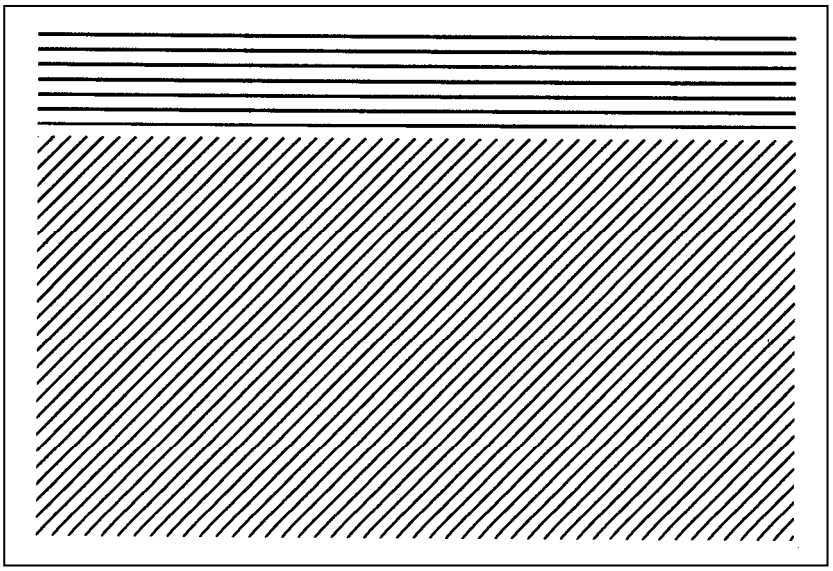
Gothic + Chinese

5.6.4 BARCODE

5.6.5 NON-PRINTING

The printer feed white paper.

5.6.6 FACTORY TEST



5.6.7 AUTO PRINT (TRANS.)

The factory test print is performed on the following conditions, therefore, the parameter settings and the print density fine adjustment value are ignored.
Key functions after printing of each test pattern are as follows.

- [ENTER] key (or its substitute key): Next printing is performed.
- [CANCEL] key (or its substitute key): The display returns to the menu.
- Other keys: Invalid

<Factory test print patterns and print conditions>

Print test pattern		1 blank label
		3-dot slant lines
		Barcode
		Characters
Issue count		5 labels each
Print speed	203 dpi	5 ips
	305 dpi	5 ips
Sensor type		Transmissive sensor
Print method		Thermal transfer
Issue mode		Batch issue
Label pitch		76 mm
Print density fine adjustment value		±0

5.6.8 AUTO PRINT (REFL.)

The factory test print is performed on the following conditions. Therefore, the parameter settings and the print density fine adjustment value are ignored.
Key functions after printing of each test pattern are as follows.

- [ENTER] key (or its substitute key): Next printing is performed.
- [CANCEL] key (or its substitute key): The display returns to the menu.
- Other keys: Invalid

<Factory test print patterns and print conditions>

Print test pattern		1 blank label
		3-dot slant lines
		Barcode
		Characters
Issue count		5 labels each
Print speed	203 dpi	5 ips
	305 dpi	5 ips
Sensor type		Reflective sensor
Print method		Thermal transfer
Issue mode		Batch issue
Label pitch		76 mm
Print density fine adjustment value		±0

5.7 SENSOR

Contents of SENSOR menu

Menu item
<4>SENSOR
TEMPERATURE
ADJUSTMENT
THRESHOLD SELECT
THRESHOLD LEVEL

5.7.1 TEMPERATURE

The ambient temperature and print head temperature are displayed.
Only when the temperature is below zero, the symbol of minus (-) is displayed.
The display is updated every 200 msec.
The range of each temperature is below.

Outer temperature	-20 to 100
Head temperature	-20 to 100

5.7.2 ADJUSTMENT

The menu structure of ADJUSTMENT menu

Menu item
<2>SET PARAMETERS
SENSOR
ADJUSTMENT
REFLECTIVE SENSOR
TRANSMISSIVE SENSOR
PAPER END LEVEL
RIBBON SENSOR

5.7.2.1 REFLECTIVE SENSOR

The sensor level of the reflective sensor is registered.
Place the tag paper to be used on the reflective sensor so that the sensor can detect a print (blank) area.
The display of the currently detected value is updated every 200 msec.
Hold down the [ENTER] key for 3 seconds or more.
When the registration of the “print area level” is completed, “Adjust Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on. The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Reflective sensor	0.0V to 5.0 V

5.7.2.2 TRANSMISSIVE SENSOR

The sensor level of the transmissive sensor is registered.
Remove some labels and place the backing paper so that the Transmissive sensor can detect it.
The display of the currently detected value is updated every 200 msec.
Hold down the [ENTER] key for 3 seconds or more.
When the registration of the “label gap level” is completed, “Adjust Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on. The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Transmissive sensor	0.0V to 5.0 V

5.7.2.3 PAPER END LEVEL

Paper end level of the transmissive sensor and the reflective sensor is registered.
Remove any media from the printer.
The display of the currently detected value is updated every 200 msec.
Hold down the [ENTER] key for 3 seconds or more.
When the registration of the “paper end level” is completed, “Adjustment Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on. The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Reflective sensor	0.0V to 5.0 V
Transmissive sensor	0.0V to 5.0 V

5.7.2.4 RIBBON SENSOR

Ribbon level is registered.
Set the ribbon so that the ribbon end sensor can detect a ribbon area.
The display of the currently detected value is updated every 200 msec.
Hold down the [ENTER] key for 3 seconds or more.
When the registration of the “ribbon level” is completed, “Adjust Complete” is displayed and an asterisk (*) is shown on the right side of the voltage.
If the registration failed due to sensor failure, “SENSOR ERROR” is displayed and the ERROR LED turns on. The ERROR LED turns off when the upper-level menu is displayed.
The setting range is as below.

Ribbon end sensor	0.0V to 5.0 V

5.7.3 THRESHOLD SELECT

・REFLECT Threshold value for the reflective sensor is selected.
・TRANS. Threshold value for the transmissive sensor is selected.

5.7.3.1 REFLECT

・MANUAL THRESHOLD Threshold set in the manual threshold setting mode is used.
・By COMMAND Threshold set by command is used.

5.7.3.2 TRANS.

・MANUAL THRESHOLD Threshold set in the manual threshold setting mode is used.
・By COMMAND Threshold set by command is used.

5.7.4 THRESHOLD LEVEL

The menu structure of THRESHOLD LEVEL menu

Menu item
<2>SET PARAMETERS
THRESHOLD LEVEL
REFLECT
TRANS.

5.7.4.1 REFLECT

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
4.0	0.0	0.1	Decimal	None	1	1	None	V

***NOTE**: If "0.0 V" is set, the value "0.0 V" is automatically corrected to the initial value "1.0 V".*

5.7.4.2 TRANS.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
4.0	0.0	0.1	Decimal	None	1	1	None	V

***NOTE**: If "0.0 V" is set, the value "0.0 V" is automatically corrected to the initial value "1.4 V".*

5.8 RAM CLEAR

Contents of RAM CLEAR menu

Menu item
<8>RAM CLEAR
NO RAM CLEAR
MAINTE.CNT CLEAR
PARAMETER CLEAR

5.8.1 NO RAM CLEAR

This option is provided for users who access this menu by mistake, and intended to exit from the RAM clear menu without performing any RAM clear.

5.8.2 MAINTE.CNT CLEAR

The following maintenance counter data is cleared.

- ALL COUNTER
- FEED
- PRINT
- CUT
- OTHER

***NOTES**:*

1. Maintenance counter data to be cleared and the initial values after maintenance counter clear

Maintenance counter item	Initial value	Parameter and cleared items				
		ALL COUNTER	FEED	PRINT	CUT	OTHER
① Label distance covered	0 km	Cleared	Cleared			
② Print distance	0 km	Cleared		Cleared		
③ Cut count	0	Cleared			Cleared	
④ Head up/down count	0	Cleared				Cleared
⑤ Ribbon motor drive time	0 hours	Cleared				Cleared
⑥ Head-up solenoid driver time	0 hours	Cleared				Cleared
⑦ RS-232C hardware error count	0	Cleared				Cleared
⑧ System error count	0	Cleared				Cleared
⑨ Momentary power interruption count	0	Cleared				Cleared

<Reference: Maintenance counter printout>

```
<< COUNTER >>
TOTAL FEED  4.8km                              [QM]
FEED        0.0km··· ①Label distance covered
FEED1       4.8km
FEED2       0.0km
FEED3       0.0km
FEED4       0.0km
PRINT       0.0km··· ②Print distance
PRINT1      4.5km
PRINT2      0.0km
PRINT3      0.0km
PRINT4      0.0km
CUT         0 ····· ③Cut count
HEAD U/D    0 ····· ④Head up/down count
RIBBON      0h ····· ⑤Ribbon motor drive time
SOLENOID    0h ····· ⑥Head-up solenoid driver time
232C ERR    0 ····· ⑦RS-232C hardware error count
SYSTEM ERR  0 ····· ⑧System error count
POWER FAIL  0 ····· ⑨Momentary power interruption count
```

2. LCD message while a maintenance counter clear is performed

	Display
While clearing	ALL COUNTER CLEAR. . .
After the maintenance counter clear is completed	ALL COUNTER COMPLETED Turn off the printer

3. After the maintenance counter clear is completed, turn off the printer when "COMPLETED. Turn off the printer" is displayed.

5.8.3 PARAMETER CLEAR

The parameter settings are cleared and reset to the initial values for each destination.
When the printer is started for the first time after a parameter clear, the initial setting wizard is started. This wizard enables setting the basic parameters (LCD language, use of the ribbon, media type, etc.) required for various settings.

5.7.4.3 Parameters to be Cleared

After the parameter settings are cleared, the initial values for a selected destination are set.

- QM TYPE
- JA TYPE
- CN TYPE

NOTES:

1. *The destination code printed on the upper right corner of the maintenance counter printout shows which destination was selected for the parameter clear.*

<Reference: Maintenance counter printout>

<< COUNTER >>
TOTAL FEED 4.8km [QM]
FEED 0.0km
FEED1 4.8km

2. *LCD message while a maintenance counter clear is performed*

	Display
While clearing	QM TYPE CLEAR. . .
After the parameter clear is completed	QM TYPE COMPLETED Turn off the printer

3. *Parameter settings to be cleared and the initial values set after parameter clear*

■ Settings printed on the maintenance counter/parameter setting data printout

<<ADJUST>>

Item	Description	Initial value
[PC] / [KEY]		
FEED	Feed amount fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
CUT	Cut position/Strip position fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
BACK	Reverse feed amount fine adjustment value	[PC] +0.0mm [KEY] +0.0mm
TONE(T)	Print tone fine adjustment value (Thermal transfer)	[PC] +0step [KEY] +0step
TONE(D)	Print tone fine adjustment value (Direct thermal)	[PC] +0step [KEY] +0step
RIBBON TORQUE NORM		
RBN(FW)	Ribbon motor drive voltage fine adjustment (Take-up side)	[PC] +0step [KEY] +0step
RBN(BK)	Ribbon motor drive voltage fine adjustment (Supply side)	[PC] +0step [KEY] +5step
RIBBON TORQUE LOW		
RBN(FW)	Ribbon motor drive voltage fine adjustment (Take-up side)	[PC] +0step [KEY] +0step
RBN(BK)	Ribbon motor drive voltage fine adjustment (Supply side)	[PC] +0step [KEY] +5step
RIBBON WIDTH	Ribbon width	“6
X ADJ.	X-coordinate fine adjustment value	+0.0mm
THRESHOLD(R)	Manual threshold fine adjustment for reflective sensor	1.0V

THRESHOLD(T)	Manual threshold fine adjustment for transmissive sensor	1.4V

<< PARAMETER SETTINGS>>

Item	Description		Initial value
MEDIA LOAD	Media feed to the print start position		OFF
MOVE TO TEAROFF	Auto feed to the cut/strip position after printing	QM TYPE CN TYPE	OFF
		JA TYPE	When the cutter installed: ON When cutter not installed: OFF
	Media stop position fine adjustment value		+0.0mm
	Feed mode	QM TYPE CN TYPE	MODE1
		JA TYPE	When the cutter installed: MODE2 When cutter not installed: MODE1
HEAD UP CUT/RWD	Whether to enable the head-up function during cut issue or use the Rewinder		OFF
RIBBON SAVE	Whether to enable the ribbon saving function	QM TYPE CN TYPE	OFF
		JA TYPE	TAG
PRE PEEL OFF	Whether to enable the pre-peel-off function		OFF
BACK FEED SPEED	Reverse feed speed		STD
CALIBRATION (Note)	Auto calibration		OFF
CODE PAGE	Character code selection		PC-850
	Character “0” selection		0 (without slash)
CTRL CODE	Control code type		AUTO
PEEL OFF STATUS	Whether to send a peel-off wait status to the host		OFF
USB I/F STATUS	Whether to return a response to the host via USB		OFF
FEED KEY	[FEED] key function		FEED
KANJI CODE	Kanji code type		TYPE1: Windows
EURO CODE	EURO code setting		B0 (0xb0)
AUTO HEAD CHK	Auto print head check		OFF
WEB PRINTER	Web printer function		OFF
RIBBON NEAR END	Ribbon near end detection		OFF
EX. I/O MODE	Expansion I/O operating mode		TTEC Standard
PAPER/RBN END	Printer behavior at label/ribbon end		Stop immediately
MAXICODE SPEC.	MaxiCode specification		TYPE1: Compatible
XML	XML data type to be printed		STD
THRESHOLD SEL (R)	Threshold value for reflective sensor		COMMAND SET
THRESHOLD SEL (T)	Threshold value for transmissive sensor		COMMAND SET
ENERGY TYPE (T)	Energy level applied to the print head in		Generic

	thermal transfer mode	
ENERGY TYPE (D)	Energy level applied to the print head in thermal direct mode	NORM: Normal
POWER SAVE TIME	Length of time until the printer enters sleep mode	15min
RIBBON TORQUE	Ribbon torque	Normal
BASIC	BASIC interpreter setting	OFF
BASIC TRACE	BASIC interpreter trace setting	OFF

***NOTE**: Though the setting value is reset to the initial value by clearing a parameter, the first online operation after clearing a parameter is based on the value set with the initial setting wizard.*

<< PANEL >>

Item	Description		Initial value
LANGUAGE	LCD message language	QM TYPE	ENGLISH
		JA TYPE	JAPANESE
		CN TYPE	Simplified CHINESE
MODEL NAME	Whether to display the model name		ON
PRINTED COUNTER	Whether to display the number of labels printed		ON
IP ADDRESS	Whether to display the IP address		ON
CONTRAST	Contrast of the LCD		40
SYSTEM PASSWORD	System mode password		Not cleared. * The password is not cleared, either.

<< STORAGE AREA >>

Item	Description	Initial value
TTF AREA	TrueTypeFont storage area size	Not cleared.
EXT CHR AREA	External characters storage area size	Not cleared.
BASIC AREA	BASIC file storage area size	Not cleared.
PC SAVE AREA	PC command storage area size	Not cleared.

<< USB >>

Item	Description	Initial value
SERIAL NUMBER	USB serial number	DISABLE

<< RS-232C >>

Item	Description		Initial value
BAUD RATE	Baud rate		9600bps
DATA LENGTH	Data length		8bits
STOP BIT	Stop bit length		1bit
PARITY	Parity	QM TYPE CN TYPE	NONE
		JA TYPE	EVEN

CONTROL	Transmission control method	XON+READY AUTO

<< CENTRO >>

Item	Description	Initial value
ACK/BUSY	ACK/BUSY timing	Rising edge
INPUT PRIME	Whether to reset the printer when the INIT signal is ON	ON
PLUG & PLAY	Plug and play	OFF

<< LAN/WLAN >>

Item	Description		Initial value
LAN/WLAN	Selection of LAN type		AUTO
SNMP	SNMP		ON
IP ADDRESS	Printer IP address		Not cleared.
SUBNET MASK	Subnet mask		Not cleared.
GATEWAY ADDRESS	Gateway address		Not cleared.
SOCKET PORT	Whether to enable socket communication	QM TYPE CN TYPE	Not cleared.
		JA TYPE	ON
DHCP	DHCP		ON
DHCP CLIENT ID	DHCP ID		Not cleared.
DHCP HOST NAME	DHCP host name		Not cleared.
CONNECTION MODE	WLAN: Communication mode		INFRASTRUCTURE
ESS ID	WLAN: ESS ID		TOSHIBATEC
ENCRYPTION	WLAN: Encryption		OFF
WPA MODE	WLAN: WPA		OFF
AUTHENTICATION	WLAN: Authentication method		OPEN
802.1X SUPPLICANT	WLAN: Authentication method		OFF
DEFAULT KEY	WLAN: Encryption key		1
802.11bgn CHANNEL	WLAN：AP Mode channel		1
LPR	Whether to enable LPR		ON

<< RFID >>

Item	Description	Initial value
MODULE TYPE	RFID module type	NONE
TAG TYPE	RFID tag type	NONE
RF CHANNEL	RFID channel setting	AUTO
RETRY POSITION	RFID adjustment for retry	+00mm
RETRY LABELS	Max. number of RFID issue retries	3 labels
READ RETRY	Max. number of RFID read retries	5 times
	RFID read retry timeout	4.0 sec.
WRITE RETRY	Max. number of RFID write retries	5 times
	RFID write retry timeout	2.0 sec.
POWER LEVEL	Radio intensity level	251
Q VALUE	RFID module Q value	0
AGC THRESHOLD	RFID AGC threshold setting	0

WRITE AGC	AGC threshold for data write	0
RETRY MIN AGC	AGC threshold lower limit for retry	0
TAG CHECK	RFID error tag detection	Not cleared
MULTI WRITE	Hibiki tag multi-word write	OFF
CALIB. MODE	RFID calibration mode	OFF
CALIB. AGC	Optimum AGC value obtained through RFID calibration	0
CALIB. POSITION	Distance to the optimum read/write position obtained through RFID calibration	+000.0mm
ANTENNA POSITION	Position of the RF antenna and the wave director	Not cleared.
SUCCEEDED TAGS	Number of times data write succeeded	Not cleared.
VOID PRINT TAGS	Number of times data write failed	Not cleared.

<< RTC >>

Item	Description	Initial value
BATTERY CHECK	Battery check	Not cleared.
RENEWAL	Time update timing	Not cleared.

■ Settings not printed on the maintenance counter/parameter setting data printout

System mode:

<12>Z-MODE

Item	Initial value
Z-MODE	OFF

User system mode:

<5>SHOW ISSUE COND.

Item	Initial value
Sensor (Note)	TRANSMISSIVE
Mode	BATCH
Print Speed	203 dpi: 5 ips 305 dpi: 5 ips
Ribbon (Note)	RBN w/o save
Direction	BOTTOM
Media pitch (Note)	203 dpi: 76.0mm 305 dpi: 76.0mm
Print length	203 dpi: 74.1mm 305 dpi: 74.2mm
Print width	203 dpi: 160.0mm 305 dpi: 160.0mm
Media width	Not cleared

***NOTE**: Though the setting value is reset to the initial value by a parameter clear, the first online operation after a parameter clear is performed based on the value set with the initial setting wizard.*

5.9 INTERFACE

■ **Outline of the INTERFACE menu**

In the INTERFACE mode, you can set the IP Address, Gateway Address, Subnet Mask, DHCP, and DHCP ID which are necessary for a network communication. Since each setting value is different depending on your operating environment.

Contents of INTERFACE menu

Menu item
<6>INTERFACE
LAN/WLAN
USB
RS-232C
CENTRONICS
EXP.I/O

5.9.1 LAN/WLAN

The menu structure of LAN/WLAN

Menu item
<6>INTERFACE
LAN/WLAN
LAN/WLAN
BASIC INFORMATION
IP ADDRESS
SUBNET MASK
GATEWAY ADDRESS
DHCP
DHCP CLIENT ID
DHCP HOST NAME
SOCKET PORT
PORT NUMBER
LPR
WLAN
SNMP
WEB PRINTER

5.9.1.1 LAN/WLAN

- OFF
- ON(AUTO) (When the wireless LAN module is installed, the wired LAN is disabled.)
- ON(LAN)
- ON(WLAN)

5.9.1.2 BASIC INFORMATION

The following network-related information is displayed.
- IP address
- Subnet mask
- Gateway address
- Socket port status
- Socket port number

5.9.1.3 IP ADDRESS

IP address is displayed and set.

5.9.1.4 SUBNET MASK

Subnet mask is displayed and set.

5.9.1.5 GATEWAY ADDRESS

Gateway address is displayed and set.

5.9.1.6 DHCP

Select whether to enable DHCP.
- OFF
- ON

5.9.1.7 DHCP CLIENT ID

Enter a DHCP client ID with Hex. code.
Setting range: 00 to 63 (64 bytes)

5.9.1.8 DHCP HOST NAME

Enter a DHCP host name with ASCII code.
Setting range: 00 to 31 (32 bytes)

5.9.1.9 SOCKET PORT

Select whether to enable the socket communication.
- OFF
- ON

5.9.1.10 PORT NUMBER

Socket port number is displayed and set.
Setting range: 00000 to 65535

5.9.1.11 LPR

Select whether to enable the LPR.
- OFF
- ON

5.9.1.12 WLAN

The menu structure of WLAN

Menu item
<6>INTERFACE
LAN/WLAN
WLAN
CONNECTION MODE
ESSID
WEP DEFAULT KEY
802.11bgn CHANNEL

5.9.1.12.1 CONNECTION MODE

- AP MODE
- INFRASTRUCTURE

***NOTE**: For the combinations of WLAN connection mode and authentication, refer to the Network Specification, Section 9.7 Parameter Setting.*

5.9.1.12.2 ESSID

Enter an ESSID with ASCII code.
Setting range: 00 to 31 (32 bytes)

5.9.1.12.3 WEP DEFAULT KEY

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
4	1	1	Decimal	None	1	0	None	None

5.9.1.12.4 802.11bgn CHANNEL

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
14	1	1	Decimal	None	2	0	None	None

5.9.1.13 SNMP

- OFF
- ON

5.9.1.14 WEB PRINTER

- OFF: Disables web printer function.
- ON(Internal Memory): Enables web printer function (using an internal memory).
- ON(External Memory): Enables web printer function (using an external memory).

5.9.2 USB

The menu structure of USB

Menu item
<6>INTERFACE
USB
USB SERIAL ID
USB I/F STATUS

5.9.2.1 USB SERIAL ID

- OFF
- ON

5.9.2.2 USB I/F STATUS

- OFF: No response is returned.
- ON: Returns a response to the host via USB.

***NOTES**:*

1. *Regardless of the setting of this parameter, the status indicating the end of issue is automatically returned.*
2. *Transmission of the commands related to the status is performed as follows.*
   1) WS, WB, or WN command
   - *In the case the USB and other interface cables are connected to the printer:*
     Whether a status is returned or not depends on the setting of this parameter.
     Example) When this parameter is set to ON and a WS or WB command is sent to the printer via LAN, the printer returns the status via both LAN and USB.
   - *In the case only the USB cable is connected to the printer:*
     A status will be returned regardless of the setting of this parameter.

   2) Status-related commands other than WS, WB and WN
   Whether a status is returned or not depends on the setting of this parameter.
   Example 1) When a command is sent via the interface other than USB, a status will not be returned regardless of the setting of this parameter.
   Example 2) When a command is sent via USB, whether a status is returned or not depends on the setting of this parameter.
   ** When this parameter is set to OFF, no status is returned via USB even if the USB cable is connected.*

5.9.3 RS-232C

The menu structure of RS-232C

Menu item
<6>INTERFACE
RS-232C
BAUD RATE
DATA LENGTH
STOP BIT
PARITY
CONTROL

5.9.3.1 BAUD RATE

- 2400 bps
- 2400 bps
- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps
- 115200 bps

5.9.3.2 DATA LENGTH

- 8 bits
- 7 bits

5.9.3.3 STOP BIT

- 1 bit
- 2 bits

5.9.3.4 PARITY

- NONE
- EVEN
- ODD

5.9.3.5 CONTROL

- XON+READY AUTO (Outputs XON at power on, XOFF at power off)
- XON+XOFF AUTO (Outputs XON at power on, XOFF at power off)
- READY/BUSY RTS (Outputs no XON/OFF at power on/off)
- XON+XOFF (Outputs no XON/OFF at power on/off)
- READY/BUSY (Outputs no XON/OFF at power on/off)

5.9.4 CENTRONICS

The menu structure of CENTRO.

Menu item		
<6>INTERFACE		
	CENTRONICS	
		ACK/BUSY
		INPUT PRIME
		PLUG & PLAY

5.9.4.1 ACK/BUSY

- Rising edge
- Trailing edge

5.9.4.2 INPUT PRIME

- OFF
- ON

5.9.4.3 PLUG & PLAY

- OFF
- ON

***NOTE**: Plug & play function of USB is always enabled regardless of this setting.*

5.9.5 EXP.I/O

- TTEC Standard
- Inline

5.10 RFID

Contents of RFID menu

Menu item
<7>RFID
TEST
MODULE
RETRY
UHF SETTING
OTHER
CARRIER SENSE

5.10.1 TEST

RFID tag data related to the test is read.

Menu item
<7>RFID
TEST
ID READ

5.10.1.1 ID READ

The printer enters the read test mode, and a read test is performed each time the [ENTER] key is pressed. When the data of a tag can be read, it is displayed on the LCD.

When the read test failed, the following message is displayed on the LCD.

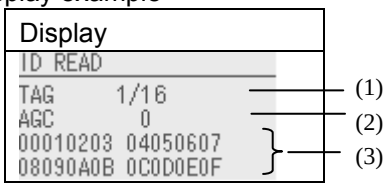
Error message	Error description
MODULE TYPE ERROR	RFID module type has been set to NONE or a communication cannot be established.
COUNTRY CONFIG ERROR	Country code has not been set.
READ ERROR Confirm Setting or set other Tag.	The type of the tag to be read and one selected by the RFID tag type selection do not match.
NOT AVAILABLE	Not supported.
NO RESPONSE	No response from the tag
READ TIMEOUT Set a RF-Tag on Ant.	Timeout
UNKNOWN ERROR	Other errors

***NOTE**:*

Only the tags selected for the RFID tag type can be read.

If the type of the tag to be read and one selected by the RFID tag type selection do not match, the read test results in an error. Therefore, RFID tag type shall be selected before the read test is started.

<Display example>



・The number of tag being read/The total number of tags read
(Mostly, only 1 tag is read.)
・For the UHF module, AGC value of the read tag is displayed with decimal number.
・Data displayed on the 3rd and 4th lines are expressed with hex. code. (16 digits x 2 lines = 32 digits)
The displayed data differs depending on the module type.

RFID module	Displayed data
B-EX706-RFID-U4-R B-EX706-RFID-U4-EU/US/AU-R	EPC code of EPC area

・In the case of 16 bytes or more data, only the first 16 bytes are displayed. When data is less than16 bytes, the vacant digits will be filled with spaces.
・If more than one tag is read at one time, especially when short-pitch tags are used, pressing the [UP] or [DOWN] key shows the other tags' data.

5.10.2 MODULE

The information related to the module setting is displayed.
The menu structure of MODLE

Menu item
<7>RFID
MODULE
MODULE TYPE
COUNTRY
TAG
RF CHANNEL

5.10.2.1 MODULE TYPE

・NONE No RFID module is installed.
・UHF band (U4) B-EX706-RFID-U4-R (Japan)
B-EX706-RFID-U4-EU-R (Europe)
B-EX706-RFID-U4-US-R (U.S.A)
B-EX706-RFID-U4-AU-R (Australia)

***NOTE**: This setting will become effective after the printer power is turned off, and back to on.*

5.10.2.2 COUNTRY

When the module type is set to “U4”, the country code of the currently installed module is displayed.
If the module type is set to other than “U4”, “INVALID” is displayed.
It is possible to change the country setting only when the module type is set to “U4” and the actually installed module is US or EU or AU. However, this menu is password-protected because changing the country setting causes the output frequency to change.

The following message is displayed depending on the module type setting, the mounted module type, and the module mount condition.

Module Type parameter	Module type and status		Message
NONE	No module installed.		NONE
U4	No module installed.		No RFID Module
	B-EX706-RFID-U4-R B-EX706-RFID-U4-EU-R B-EX706-RFID-U4-US-R B-EX706-RFID-U4-AU-R	No country setting	Need Setting for use [ENTER] for Setting

*1: Selectable country codes differ depending on the RFID module type. Multiple country codes may be displayed when setting a country code, but be sure to select the country where the RFID module is used. Setting a different country code is prohibited.

5.10.2.3 TAG

Selectable tag types vary according to the module setting.
The number in the table indicates the scroll line number.

	NONE	H1	H2	U2/U4
NONE	1	1	1	1
I-Code	2	2		
Tag-It	3	3		
C220	4	4		
ISO15693	5	5	2	
C210	6	6		
C240	7	7		
C320	8	8		
EPC C1 Gen2	9			2

5.10.2.4 RF CHANNEL

A channel used for RFID tag write is set.

- AUTO
- 2CH
- 3CH
- 4CH
- 5CH
- 6CH
- 7CH
- 8CH

NOTES:

1. *When a channel is chosen from 2CH to 8CH, that channel will be continuously used.*
2. *When the channel is set to AUTO, an available channel is searched in the following order: (2CH → 8CH → 6CH → 4CH → 3CH → 7CH → 5CH → 2CH)*
3. *The channel setting works effectively only for the B-EX706-RFID-U4-R(*).*
   **: The frequencies used for the B-EX706-RFID-U4-R are as follows.*

Channel	2CH	3CH	4CH	5CH	6CH	7CH	8CH
Frequency (MHz)	921.0	921.2	921.4	921.6	921.8	922.0	922.2

5.10.3 RETRY

The parameters related to retry are set.
The menu structure of RETRY menu

Menu item
<7>RFID
RETRY
RETRY POSITION
RETRY LABELS
READ RETRY
WRITE RETRY

5.10.3.1 RETRY POSITION

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+99	-99	1	Decimal	None	2	0	None	mm

If writing data on a tag failed, the printer feeds the RFID tag forward or backward for specified length, in order to retry data write. When “0” is set for this parameter, a retry is not performed.
Only the value of -3mm or less or +3mm or more is effective.

5.10.3.2 RETRY LABLES

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	Labels

When issuing an RFID tag failed, the printer prints the error (Void) pattern, and retries to issue a tag for up to the specified number of times. If the printer does not succeed even after having retried for the specified number of times, the printer stops, resulting in an RFID WRITE error.

5.10.3.3 READ RETRY

The number of times tag read is retried and the timeout for read retry are set.

(1) The number of times tag read is retried

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	Times

The printer retries to read the data in an RFID tag for up to the specified number of times. If the data read retry period expired before the specified number of retries, the printer stops the retries at the time. Whenever the printer writes data onto an RFID tag, the tag will be read first. The max. number of retries set by this parameter is also used for this pre-read.

(2) The timeout for RFID tag read retry

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
9.9	0.0	0.1	Decimal	None	1	1	None	Second

The printer retries to read the data in an RFID tag for the specified length of time. If the printer has retried for the specified number of times within the RFID read retry period, the printer stops the retries at the time. Whenever the printer writes data onto an RFID tag, the tag is read first. The read retry timeout set by this parameter is also used for this pre-read.

5.10.3.4 WRITE RETRY

The number of times tag write is retried and the timeout for write retry are set.

(1) The number of times tag write is retried

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
255	0	1	Decimal	None	3	0	None	Times

The printer retries to write data onto an RFID tag for up to the specified number of times. If the data write period expired before the specified number of retries, the printer stops the retries at the time.

(2) The timeout for RFID tag write retry

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
9.9	0.0	0.1	Decimal	None	1	1	None	Second

The printer retries to write data on an RFID tag for the specified length of time.
If the printer has retried for the specified number of times within the RFID write retry timeout, the printer stops the retries at the time.

5.10.4 UHF SETTING

The parameters related to UHF setting are set.

The menu structure of UHF SETTING

Menu item
<7>RFID
UHF SETTING
POWER LEVEL
Q VALUE
AGC THRESHOLD
WRITE AGC THRESHOLD
WRITE RETRY MIN AGC
CALIB. MODE
CALIB. AGC
CALIB. POSITION
ANTENNA POSITION

5.10.4.1 POWER LEVEL

Radio output level of UHF is set.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
See Note 1.	See Note 1.	1	Decimal	None	3	0	None	None

NOTES:

1. The maximum and minimum values vary depending on the module type.

	Max. value	Min. value	Initial value
B-EX700-RFID-U4-R B-EX700-RFID-U4-EU/US/AU-R	18	0	18

2. The range of output level is 18 (approx. 100mW) to 0 (approx. 1mW).

5.10.4.2 Q VALUE

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

In the case multiple RFID tags are read at the same time, this menu is useful to focus on a target tag. Set the Q value to “1” or above (2 is recommended). Q value “0” causes the tags to interfere with each other and disables proper data write.

When the Q value is set, set an AGC threshold for data write and an AGC threshold lower limit for retry, also. Setting all these values enables writing data to a tag placed just above the antenna.

Actually, the problem of reading multiple tags at the same time does not occur with most RFID tag types. It is not necessary to change the default setting of “0”.

NOTE: *This is effective only for the following modules:*

- *B-EX706-RFID-U4-R*
- *B-EX706-RFID-U4-EU/US/AU-R*

5.10.4.3 AGC THRESHOLD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When the obtained gain of an RFID tag is lower than the AGC threshold, the tag is considered as an error tag even if a data write succeeds.
When the AGC threshold is set to “0”, all tags are writable.
When this parameter is set to “8”, for example, tags with the AGC threshold level of 7 or less are considered as error tags.
The optimum value is different depending on the tag types.

***NOTE**: This is effective only for the following modules:*

- *B-EX700-RFID-U4-R*
- *B-EX700-RFID-U4-EU/US/AU-R*

5.10.4.4 WRITE AGC THRESHOLD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When the Q value is set to 1 or above, the AGC threshold for data write becomes effective.
When the obtained gain of an RFID tag is lower than the AGC threshold for data write, a data write operation is not performed. In other words, setting an AGC threshold for data write enables writing data only to a tag placed just above the antenna.
Supposing that the gain of a tag just above the antenna is 14 and that of a tag off the antenna is 7, setting the threshold to 11 (a value between 8 and 14) enables the printer to write data only to the tag just above the antenna.
When the threshold is set to 0, a data write operation is performed regardless of the gain of a tag.
Both of the AGC threshold and the AGC threshold for data write are used to determine whether a tag is defective or not, but the timing of a gain measurement is different. In the case of the AGC threshold, this is performed after data is written to a tag. On the contrary, when the AGC threshold for data write is effective a measurement is performed before data is written. And if a gain value is lower than the threshold, a data write operation is not performed.
The optimum value differs depending on the tag type.
Actually, the problem of reading multiple tags at the same time does not occur with most RFID tag types. It is not necessary to change the default setting of “0”.

***NOTE**: This is effective only for the following modules:*

- *B-EX706-RFID-U4-R*
- *B-EX706-RFID-U4-EU/US/AU-R*

5.10.4.5 WRITE RETRY MIN AGC

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

When the Q value is set to 1 or above, the AGC threshold lower limit for retry becomes effective.
In the case the printer could not find any tag whose gain is over the AGC threshold for data write, the AGC threshold is lowered to the highest gain of the detected tags whose gains are over the AGC threshold lower limit for retry specified with this parameter.

Example 1

AGC threshold for data write: 11
Lower limit for retry: 9
Detected tag's gain: 10

As the gain of the tag is lower than the threshold, a data write operation is not performed for this tag at the first try. However, the gain is greater than the lower limit.
Then the printer retires to write data to this tag according to a new AGC threshold of 10.
In this case, a retry of a data write will mostly succeed because the detected tag's gain is greater than the new threshold. (However, the success rate is not 100% because a gain of a tag is not always the same.)

Example 2

AGC threshold for data write: 11
Lower limit for retry: 9
Detected tag's gain: 8

As the gain of the tag is lower than the threshold, a data write operation is not performed for this tag at the first try. Also, the gain is lower than the lower limit.
Then the printer retries to write data to this tag according to a new AGC threshold of 9.
In this case, a retry of data write will mostly fail because the detected tag's gain is lower than the new threshold. (However, the error rate is not 100% because a gain of a tag is not always the same.)

When the same value is set for the AGC threshold for data write and the AGC threshold lower limit for retry, respectively, the threshold will not be changed for a retry.
The optimum value differs depending on the tag type.
However, the problem that multiple tags are read at the same time does not occur with most RFID tag types. It is not necessary to change the default setting of "0".

NOTE: This is effective only for the following modules:
- *B-EX706-RFID-U4-R*
- *B-EX706-RFID-U4-EU/US/AU-R*

5.10.4.6 CALIB. MODE

This parameter is to select whether the RFID calibration function is enabled or not.
- OFF
- ON

***NOTES**:*
1. *When enabled (ON), the AGC value (CALIB. AGC) and the distance to the read/write position (CALIB. POSITION) obtained through an RFID calibration become effective.*
2. *When enabled (ON), the printer will automatically feed RFID media forward/backward for the distance specified by CALIB. POSITION parameter before writing/reading RFID tag. Therefore, @003 command's parameters "a" and "bbbb" become invalid. (For details of the @003 command, refer to the External Equipment Interface Specification for the B-EX Series.)*
3. *When the values obtained by an RFID calibration are set, this parameter will automatically turn ON.*
4. *For details of the RFID calibration, refer to Section 10.7 RFID CALIBRATION.*

5.10.4.7 CALIB. AGC

By performing an RFID calibration, an AGC (response wave intensity from an RFID tag) value is automatically obtained and set.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
15	0	1	Decimal	None	2	0	None	None

NOTES:

1. *This parameter is effective only when the CALIB. MODE parameter is set to ON.*
2. *Data write/read is performed only for the tags having the AGC value equal to or larger than the AGC value set for this parameter. When the AGC value is less than the one set for this parameter, RFID WRITE ERROR occurs.*
3. *For details of the RFID calibration, refer to Section 10.7 RFID CALIBRATION.*

5.10.4.8 CALIB. POSITION

By performing an RFID calibration, an optimum data read/write position (distance from the home position) is automatically obtained and set.

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
+999.9	-999.9	0.1	Decimal	None	3	1	None	mm

NOTES:

1. *This parameter is effective only when the CALIB. MODE parameter is set to ON.*
2. *The printer will automatically feed RFID media forward/backward for the distance specified by CALIB. POSITION parameter before writing/reading RFID tag, which is normally performed with @003 command.*
3. *The feed direction is indicated by "+" (backward) and "–" (forward).*
4. *Setting values ranging from -2.9mm to +2.9mm do not reflect the read/write position fine adjustment.*
5. *For details of the RFID calibration, refer to Section 10.7 RFID CALIBRATION.*

5.10.4.9 ANTENNA POSITION

This parameter, used for an RFID calibration, is to select the combinational position of the RF antenna and the wave director.

- FRONT
- CENTER
- REAR

<Combination of the RF antenna and the wave director>

Antenna position	Antenna rotation	Wave director position	Application
FRONT	0°	0 mm	Usable
CENTER			Unusable
REAR			Unusable

NOTES:

1. *A "usable" antenna position must be selected for this parameter.*
2. *If an RFID calibration is performed with "Unusable" antenna position selected, the printer operation is not guaranteed. (Refer to Section 10.7.1 Outline of the RFID Calibration.)*
3. *For details of the RFID calibration, refer to Section 10.7 RFID CALIBRATION.*

5.10.5 OTHER

The menu structure of OTHER

Menu item
<7>RFID
OTHER
TAG CHECK
MULTI WRITE

5.10.5.1 TAG CHECK

- OFF: Error tag detection is not performed.
- ON (ID): Error tag detection is performed.
- ON (ACCESS PASSWORD): Error tag detection is performed.

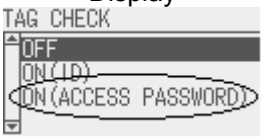
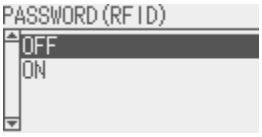
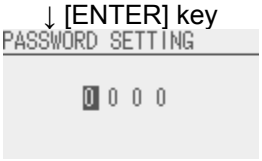
***NOTES**:*

1. Description of the options

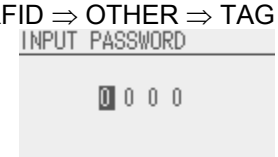
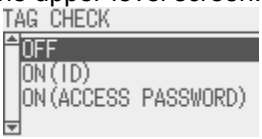
- *OFF: Error tag detection is disabled.*
  Though a tag is read before writing data on it, data is always written on the tag whatever data is set as the header data.
- *ON (ID): Error tag detection is enabled.*
  A tag (EPC area for GEN2 tags) is read before writing data on it, and data is written on the tag only when the header data is "A5A5".
- *ON (ACCESS PASSWORD): Error tag detection is enabled.*
  Error tag detection is enabled only for GEN2 tags. The access password area of a tag is read before writing data on it. Only when the data read matches the access password setting data, the data is written on the tag.

2. To prevent unauthorized changes of the setting, a password can be set to protect the error tag detection setting. (For the password setting procedure, see below.)

3. Example of operation when "ON (ACCESS PASSWORD)" is selected

	Display	Operation
1. TAG CHECK screen		Select "ON (ACCESS PASSWORD)".
	↓ [ENTER] key	
2. Access password entry screen		Enter an 8-digit access password.
	↓ [ENTER] key	
3. Auto unlock setting screen		Choose whether or not to enable the auto unlock function. When "ON" is selected, locked tags are automatically unlocked by the access password and data write is enabled.
	↓ [ENTER] key	
4. Tag check setting protection password setting screen		Choose whether or not to set the password to protect the error tag detection setting. When "OFF" is selected, this menu is ended and the upper-level menu is displayed. When "ON" is selected, the password entry screen is displayed.
	(When "ON" is selected) ↓ [ENTER] key	
5. Tag check setting protection password setting screen		Enter a 4-digit protection password.
	↓ [ENTER] key This menu is ended, and the upper-level screen is displayed.	

4. Example of operation when the tag check setting protection password has been set (when "ON" is set on the tag check setting protection password setting screen)

	Display	Operation
1. SYSTEM MODE ⇒ <7>RFID ⇒ OTHER ⇒ TAG CHECK		
2. Tag check setting protection password entry screen		Enter the 4-digit protection password.
	↓ [ENTER] key * When the password matched: The TAG CHECK screen is displayed. * When the password unmatched: Error message is displayed. Press the [ENTER] key to exit this menu and return to the upper-level screen.	
3. TAG CHECK screen		

When "OFF" or "ON(ID)" is selected, the tag check setting protection password will be automatically set to "OFF". (After this, the tag check setting protection password entry screen will not appear when opening the TAG CHECK menu.)

5.10.5.2 MULT WRITE

- OFF
- ON

***NOTES**:*

1. *Gen2-compatible Hibiki tag (HITACHI) has a function which reduces the time to write data on the RFID chips. This is called "Multi-word write". Use of this function enables a speed-up of the data write operation. However, this function is unique to the Hibiki tag, and not usable with the other Gen2-compatible chips.*
2. *The following modules do not support this function.*
   - *B-EX706-RFID-U4-R*
   - *B-EX706-RFID-U4-EU/US/AU-R*

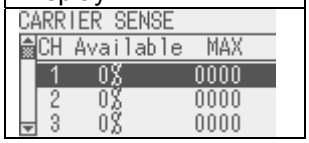
5.10.6 CARRIER SENSE

The printer enters the carrier sense mode, and performs a carrier sense. Environmental radio wave of each channel is picked up for about 30 times during 5 seconds.

The menu structure of CARRIER SENSE

Menu item
<7>RFID
CARRIER SENSE

Display example

Display


***NOTES**:*

1. *This function is supported only by the B-EX706-RFID-U4-R.*
2. *The left-most number indicates a channel number. The percentage means the availability of the channel, which is determined by performing approx. 30 carrier senses. Thus, "100%" means that any other devices do not use this channel.*
3. *The MAX column shows the value of the maximum radio wave picked up. The larger the value is, the stronger radio wave source exists nearby.*
4. *The display can be scrolled up or down, from Channel 1 (1CH) to channel 9 (9CH), by using the [UP] or [DOWN] key.*
5. *Pressing the [ENTER] key causes the printer to perform a carrier sense again. To exit a carrier sense, press the [CANCEL] key.*
6. *When the RFID module type is set to "NONE" or a communication cannot be established, a message, "NO RFID MODULE", is displayed.*
7. *When the RFID module type is set to other than U2, a message, "NOT AVAILABLE" is displayed.*
8. *When the RFID module type is set to U2 but effective data cannot be obtained, a message, "NO RESPONSE" is displayed.*
9. *If the RFID module's country setting is not specified (user-inaccessible setting), an "RFID CONFIG ERR" message is displayed.*

5.11 RTC

Contents of RTC menu

Menu item	
<8>RTC	
	DATA/TIME
	BATTERY CHECK
	RENEWAL

5.11.1 DATE TIME

This setting is effective only when the optional RTC module is installed.
Date and time are set.

5.11.2 BATTERY CHECK

- OFF
- ON

5.11.3 RENEWAL

- Start of JOB — As the real time clock data is read only for the first media in a batch, the same time is printed on the all media.
- Every PAGE — As the real time clock data is read at the start of printing each media, a real time can be printed on each media.

5.12 USB MEMORY

Contents of USB MEMORY menu

Menu item	
<9>USB MEMORY	
	USB TO PRINTER
	PRINTER TO USB

NOTES:

1. *The following table shows the error messages and descriptions which may be displayed while USB memory is used:*
   After the error message is displayed, the operation is not retried.

Message	Description
FORMAT ERROR Check the settings.	Format error or no memory installed
MEMORY WRITE ERR. Check the data and the settings.	Write error
MEMORY READ ERR. Check the data and the settings.	Read error
MEMORY FULL Free some memory space.	Insufficient memory
FILE NOT FOUND Check the data and the settings.	No applicable file found
UNKNOWN ERROR	Other errors

2. *Depending on the remaining memory size or the USB memory status, a write error may occur even in the case of insufficient free space.*
3. *Usable USB memory's file system is as follows. To use other file system in USB memory, they need to be formatted to either of the following on the PC in advance.*

File system	Max. size
FAT (FAT16)	2GB
FAT32	8GB

5.12.1 USB TO PRINTER

- COPIED DATA
- CONFIG FILE

NOTES:

1. *The data store in USB memory is copied to the printer.*
   - *COPIED DATA* — *File (*.DAT) containing firmware (BOOT/MAIN/CG/KANJI/HTML), storage area data, and parameter settings*
     The file is created in binary format when "PRINTER TO USB" is executed.
   - *CONFIG FILE* — *File (*.CFG) in which the path of the firmware (BOOT/MAIN/CG/KANJI/HTML) is saved*
     The file is created in text format when the master media is made. The format of the file is described in Section 8. Auto Configuration Mode. When an item to be saved is selected, the file selection screen is shown.

3. For the file selection screen, see Section 11.6 FILE SELECTION SCREEN.
** The scrollbar on the file selection screen is not provided with the knob regardless of the number of files.*
4. The confirmation display appears when a file is selected from the file selection screen.
** When CFG files is selected, the message included in the CFG file is shown prior to the confirmation display.*
5. After confirming the data copy, the printer reads data from USB memory.
6. It takes about 3 to 5 minutes to read all data.
7. Copied Data
When saving other model's data is attempted, only the parameter settings are read. In this case, parameters not supported by the destination printer are inapplicable. It takes about 3 seconds to copy data.
** B-EX6T1/T, B-EX6T1-G, B-EX6T3-Tand B-EX6T3-G are regarded as the same model.*
8. Copied Data of Parameters
Parameters not supported by the destination printer are read, but not applied. Also, even if the destination printer has the same parameters with the source printer, options may be different.
9. When an error occurs during an access to the USB memory, the error message described in Section 5.12 USB MEMORY is displayed. The printer does not retry the operation.

5.12.2 PRINTER TO USB

・ ALL

NOTES:
1. *The firmware (BOOT/MAIN/CG/KANJI/HTML), storage area data, and parameter settings are copied to the USB memory.*
2. *When an item to be saved is selected, the confirmation display is shown and the data is stored in the USB memory. It takes about 40 seconds to copy all data.*
3. *A file is automatically created in the USB memory and named in the following format based on the printer model and the date of creation.*
/ATA0/SYSTEM/B-EX6T1-T1105.DAT (e.g. B-EX6T Type1 305dpi model, Nov. 5)
If a file with the same name already exists in the USB memory, it will be overwritten.
4. *When the error occurs during an access to the USB memory, the error message described in Section 5.12 USB MEMORY is displayed. The printer does not retry the operation.*

5.13 FACTORY TEST

Contents of FACTORY TEST menu

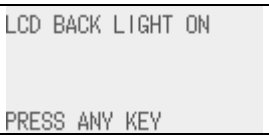
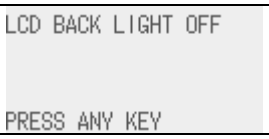
Menu item	
<10>FACTORY TEST	
	HEAD UP ADJUST
	PANEL TEST
	KEY TEST

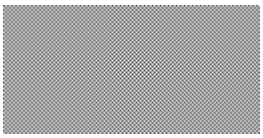
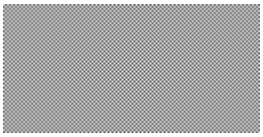
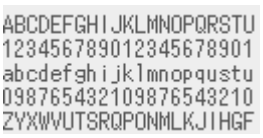
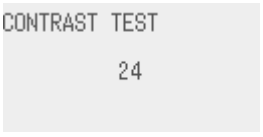
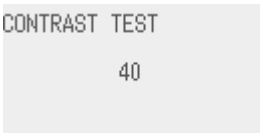
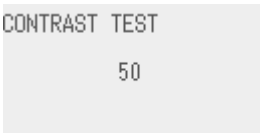
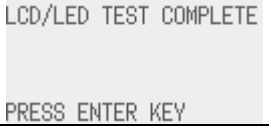
5.13.1 HEAD UP ADJUST

The head-up solenoid is turned on for 10 seconds.

5.13.2 PANEL TEST

The LCD test is performed in the following order.
(Start) ⇒ Backlight test ⇒ Missing dot test ⇒ Character display test ⇒ Contrast test ⇒ (End)
The display language is English regardless of the LCD Language parameter setting.

	LCD	Operation and LCD/LED status
Backlight test		ONLINE LED turns on. ERROR LED turns on. Backlight turns on.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns off.
		Press any key.
Missing dot test		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot line is displayed along the edges of the LCD.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. All LCD dots are on.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. All LCD dots are off.
		Press any key.

		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot check pattern is displayed. The upper left corner dot is black.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. 1-dot check pattern is displayed. The upper left corner dot is white.
		Press any key.
Character display test		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Character display
		Press any key.
Contrast test		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the minimum contrast.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the default contrast.
		Press any key.
		ONLINE LED turns on. ERROR LED turns on. Backlight turns on. Displays with the maximum contrast.
		Press any key.
End display		ONLINE LED turns on. ERROR LED turns off. Backlight turns on.
		Press the [ENTER] or [CANCEL] key to return to the upper-level menu.

5.13.3 KEY TEST

The test is performed in the following order.
(Start) ⇒ FEED key test ⇒ RESTART key test ⇒ PAUSE key test ⇒ UP key test ⇒ RIGHT key test ⇒ DOWN key test ⇒ LEFT key test ⇒ MODE key test ⇒ CANCEL key test ⇒ ENTER key test ⇒ (End)
The display language is English regardless of the LCD Language parameter setting.

	LCD	Operation and LCD/LED status
FEED KEY TEST	PRESS FEED KEY	
		Press the [FEED] key.
RESTART KEY TEST	PRESS RESTART KEY	
		Press the [RESTART] key.
PAUSE KEY TEST	PRESS PAUSE KEY	
		Press the [PAUSE] key.
UP KEY TEST	PRESS UP KEY	
		Press the [UP] key.
RIGHT KEY TEST	PRESS RIGHT KEY	
		Press the [RIGHT] key.
DOWN KEY TEST	PRESS DOWN KEY	
		Press the [DOWN] key.
LEFT KEY TEST	PRESS LEFT KEY	
		Press the [LEFT] key.
MODE KEY TEST	PRESS MODE KEY	
		Press the [MODE] key.
CANCEL KEY TEST	PRESS CANCEL KEY	
		Press the [CANCEL] key.

ENTER KEY TEST	PRESS ENTER KEY	
		Press the [ENTER] key.
END DISPLAY	KEY TEST COMPLETE PRESS ENTER KEY	
		Press the [ENTER] or [CANCEL] key to return to the upper-level menu.

***NOTES**:*

1. *If a key other than designated is pressed, the printer waits until the designated key is pressed. (The test does not proceed to the next.)*
2. *If the key test does not proceed to the next test even after the designated key is pressed, the key may be broken. In this case, turn off the printer.*

5.14 BASIC

Contents of BASIC menu

Menu item	
<11>BASIC	
	BASIC
	FILE MAINTENANCE
	TRACE
	SYSTEM PROGRAM

5.14.1 BASIC

- OFF
- ON

5.14.2 FILE MAINTENANCE

The block numbers and BASIC program file names (up to 12 characters) stored in the BASIC program storage area are displayed. If the file name exceeds 12 characters, the overflowing characters are not displayed.
When no file is stored, Place of the file name is displayed with a hyphen (-).(-) is

5.14.3 TRACE

- OFF
- ON

5.14.4 SYSTEM PROGRAM

The printer changes the mode to execute the BASIC program.

5.15 EMULATION MODE

Contents of EMULATION MODE menu

Menu item
<12>EMULATION MODE

- ・OFF Disabled.
- ・AUTO DETECT ON Whether to enable Z-Mode or D-Mode is automatically detected. BASIC system mode program screen is not displayed immediately.
- ・AUTO DETECT ON SET Whether to enable Z-Mode or D-Mode is automatically detected. BASIC system mode program screen is displayed immediately.
- ・Z MODE ON Z-Mode is enabled. BASIC system mode program screen is not displayed immediately.
- ・Z MODE ON SET Z-Mode is enabled. BASIC system mode program screen is displayed immediately.
- ・D MODE ON D-Mode is enabled. BASIC system mode program screen is not displayed immediately.

***NOTES**:*

1. *By turning the EMULATION MODE parameter setting from "OFF" to other setting, the MEDIA LOAD parameter is automatically set as follows. This can be changed by setting the MEDIA LOAD parameter again after the Z-MODE is enabled.*

Model	MEDIA LOAD parameter setting
B-EX6T1/T3 QM	ECO

2. *When "AUTO DETECT ON" or "AUTO DETECT ON SET" is selected, the printer starts in the auto detection mode which automatically determines whether to enable Z-Mode or D-Mode by a first control character the printer receives. Also, "EMULATION MODE" is displayed on the LCD. After Z-Mode or D-Mode is selected, mode detection is not performed until the printer power is turned off and back to on.*

Mode detection result depending on control character

Control character	Hex.	Mode detection result
SOH	0x01	D Mode
STX	0x02	D Mode
%01	0x25, 0x30, 0x31	D Mode
%02	0x25, 0x30, 0x32	D Mode
^ (other than ^01 and ^02)	0x5E	Z Mode
^01	0x5E, 0x30, 0x31	D Mode
^02	0x5E, 0x30, 0x32	D Mode
ESC *c	0x1B, 0x2A, 0X63	D Mode
~	0x7E	Z Mode

Supplementary explanation

(1) Auto detection result follows the above table, regardless of Alternate Control Code Modes setting for D Mode. For details of Alternate Control Code Modes, refer to Section 5.1 Control Code Command Functions in D Mode Command Specification (JEA-03767).

(2) In the auto detection mode, the printer may not normally receive data specified by a part of download commands (~DG, ~DU and ~DY of Z Mode). In this case, set this parameter to Z MODE ON or Z MODE ON SET.

5.16 XML

Contents of XML menu

Menu item
<13>XML

- ・OFF Disables XML function.
- ・STD Standard specification
- ・ORACLE Specification for Oracle
- ・SAP Specification for SAP
- ・STD (EXT memory) Standard specification (external memory is used)
- ・ORACLE (EXT memory) Specification for Oracle (external memory is used)
- ・SAP (EXT memory) Specification for SAP (external memory is used)

NOTE:
When the XML feature is enabled, the user system mode functions are not guaranteed. It is required to terminate the user system mode with reset. For the functions covered by the system mode, settings configured in the system mode must be used.

5.17 LCD PANEL

Contents of LCD PANEL menu

Menu item
<14>LCD PANEL
LANGUAGE
DISPLAY
CONTRAST

5.17.1 LCD LANGUAGE

- ENGLISH
- GERMAN
- FRENCH
- DUTCH
- SPANISH
- JAPANESE
- ITALIAN
- PORTUGUESE
- Simplified CHINESE
- KOREAN
- TURKISH
- POLISH

NOTE:
In the printer modes other than online, the language displayed on the LCD panel is JAPANESE when JAPANESE is selected, and ENGLISH when ENGLISH, GERMAN, FRENCH, DUTCH, SPANISH, ITALIAN, PORTUGUESE, Simplified CHINESE, KOREAN, TURKISH, or POLISH is selected.

5.17.2 DISPLAY

The menu structure of DISPLAY

Menu item
<14>LCD PANEL
DISPLAY
MODEL NAME
PRINTED COUNTER
IP ADDRESS

5.17.2.1 MODEL NAME

- OFF Model name is hidden.
- ON Model name is displayed.

5.17.2.2 PRINTED COUNTER

- OFF The number of labels printed is hidden.
- ON The number of labels printed is displayed.

5.17.2.3 IP ADDRESS

- OFF IP address is hidden.
- ON IP address is displayed.

5.17.3 CONTRAST

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
50	24	2	Decimal	None	2	0	Enabled	None

NOTE: *Contrast setting*

- + (Plus) Higher contrast
- - (Minus) Lower contrast

5.18 PASSWORD

Contents of PASSWORD menu

Menu item
<15>PASSWORD

・OFF Password is not set.
・ON Password is set.

5.18.1 PASSWORD

Max. value	Min. value	Step	Display	Sign	Integer digit	Decimal place	0-padding	Unit of measure
F	0	1	Hex.	None	1	0	None	None

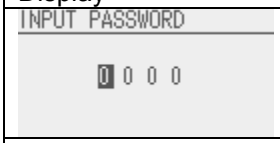
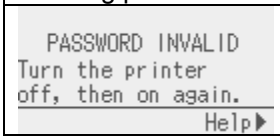
5.18.2 System mode and user system mode start screen when password is enabled

When the password is enabled, the password entry screen is displayed at the time the system mode or user system mode is started.

Password entry for system mode

Display	Procedure
	Turn on the printer while holding down the [FEED] and [RESTART] keys at the same time. The password entry screen is displayed.
	Enter the password.
	The printer enters the system mode.
When a wrong password is entered or the [CANCEL] key or [MODE] key is pressed	
	Password invalid message is displayed.
A wrong password was entered for 3 times consecutively.	
	The printer starts in online mode.

Password entry for user system mode

Display	Procedure
	Turn on the printer, press the [PAUSE] key to place the printer in pause state. Then, hold down the [MODE] key for 3 seconds. The password entry screen is displayed.
	Enter the password.
	The printer enters the user system mode.
When a wrong password is entered or the [CANCEL] key or [MODE] key is pressed	
	Password invalid message is displayed.
A wrong password was entered for 3 times consecutively.	
	The printer locks. Turn off printer and back to on.

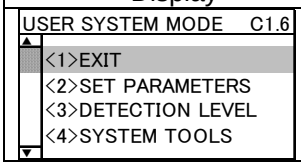
NOTE:
If you forgot the system mode password, disable it with @010 command

6. USER SYSTEM MODE

6.1 OUTLINE OF USER SYSTEM MODE

1. The printer enters the user system mode with the following operations.
   - While the printer is in pause state, perform either of the following operations:
     - Hold down the [RESTART] key for 3 sec. or more.
     - Hold down the [MODE] key for 3 sec. or more.
   - While the printer is online, perform the following operation:
     - Hold down the [MODE] key for 3 sec. or more.
2. The user system mode is intended for performing various parameter settings.
3. The key operations for the user system mode are described below.

Top screen of user system mode

Display


Top menu list

English
<1>EXIT
<2>SET PARAMETERS
<3>DETECTION LEVEL
<4>SYSTEM TOOLS
<5>SHOW ISSUE CONDITION
<6>RESET

Outline of the top menu

<1>EXIT	Used to return the printer to online state. (The printer is not reset.)
<2>SET PARAMETERS	Used to set the parameters for each printer function.
<3>DETECTION LEVEL	Used to set the thershold value.
<4>SYSTEM TOOLS	Used to print data sent from the host or store it in USB memory.
<5>SHOW ISSUE CONDITION	Used to display the print conditions (such as sensor type, print speed and orientation).
<6>RESET	Used to reset the printer.

6.2 EXIT

The printer state is returned from the user system mode to the online mode. (No reset is performed.)
Some parameter settings are reset when the Exit is performed. The parameters to be reset are indicated with “Reset Req.”. Other parameters are not reset.

Contents of EXIT menu

Menu item
<1>EXIT

6.3 SET PARAMETERS

Same as Section 5.5 SET PARAMETERS of the system mode.

6.4 DETECTION LEVEL

Contents of DETECTION LEVEL menu

Menu item
<3>DETECTION LEVEL
1)REFL.(PRE-PRINT)
2)TRANS.(PRE-PRINT)

Same as Section 5.7.4 THRESHOLD LEVEL.

6.5 SYSTEM TOOLS

Menu item	
<4>SYSTEM TOOLS	
DUMP	
RS-232C	
USB	
PRINT	*1
ON DEMAND	
ALL	
CENTRONICS	⇒ The subsequent menus are same as *1.
LAN/WLAN	⇒ The subsequent menus are same as *1.
BASIC1	⇒ The subsequent menus are same as *1.
BASIC2	⇒ The subsequent menus are same as *1.
USB	⇒ The subsequent menus are same as *1.
RFID	⇒ The subsequent menus are same as *1.
LOG	
PRINTER TO USB	
CANCEL	
OK	

6.6 SHOW ISSUE CONDITION

Contents of SHOW ISSUE CONDITION menu

Menu item		
<5>SHOW ISSUE CONDITION		
	Sensor	(*1)
	Mode	(*1)
	Print speed	(*1)
	Ribbon	(*1)
	Direction	(*1)
	Media pitch	(*1)
	Print length	(*1)
	Print width	(*1)
	Media width	(*1)

***NOTES**:*

*The current setting value for each parameter is shown in the position of (*1). The options for the parameters are as follows.*

1. *Sensor*
   - *NO*
   - *REFLECTIVE*
   - *TRANSMISSIVE*
   - *TR.Threshold*
   - *RE.Threshold*
2. *Mode*
   - *BATCH*
   - *CUT (yyy)* ** yyy: Cut interval (1 to 100)*
   - *PEEL OFF*
   - *PEEL OFF (Appl)*
3. *Print speed*

   ** Selectable print speed differs depending on the model.*
   - *3ips B-EX6T1/T3-G/T*
   - *5ips B-EX6T1/T3-G/T*
   - *8ips B-EX6T1/T3-G/T*
   - *10ips B-EX6T1/T3-G/T*
   - *12ips B-EX6T1/T3-G/T*
4. *Ribbon*
   - *NO (Direct)*
   - *RBN w/ save*
   - *RBN w/o save*
   - *NO w/ headup*

5. Direction
- *BOTTOM*
- *TOP*
- *BOTM/Mir*
- *TOP/Mir*

6. Media pitch
- *(10.0 - 1500.0) mm*

7. Print length
- *(6.0 - 1498.0) mm*

8. Print width
- *(10.0 - 160.0) mm*

9. Media width
- *(50.0 - 165.0) mm*

6.7 RESET

Contents of RESET menu

Menu item
<6>RESET

7. DOWNLOAD

Power OFF

(1) Power off state

(2) Turn the power on while holding down the [FEED], [RESTART] and [PAUSE] keys at the same time.

(3) Download mode display

Start of download

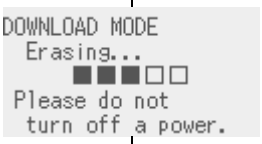
(4) Send a download command.

(5) The printer starts receiving the data.

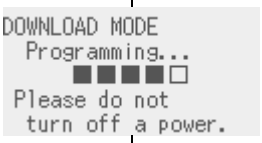
(6) The printer is receiving the data

(7) Data is being checked.

(8) Data is being checked.



(9) The flash ROM is being erased.



(10) Downloaded data is being written.

(11) Downloading is completed.

(12) After downloading is completed, the printer will be automatically restarted, and placed in the online state.

* DOWNLOAD MODE2 is unused. There is no difference in downloading procedure from DOWNLOAD MODE.

When error occurs while downloading data with download mode, the following error message will be displayed:

Error message

Error message	Description
DOWNLOAD MODE Syntax Error Please retry after checking the data	Communication error (Command error)
DOWNLOAD MODE Check SUM Error Please retry after checking the data	The checksum of the boot program does not end with "00".
DOWNLOAD MODE PCB ID Conflict Please retry after checking the data	Downloading the boot program for wrong PCB was attempted.
DOWNLOAD MODE Model Type Conflict Please retry after checking the data	Downloading the boot program for wrong printer model was attempted.
DOWNLOAD MODE Data Size Over Please retry after checking the data	The data size is too large.
DOWNLOAD MODE fail! Format Error Call a service person.	Format error
DOWNLOAD MODE fail! Write Error Call a service person.	Write error

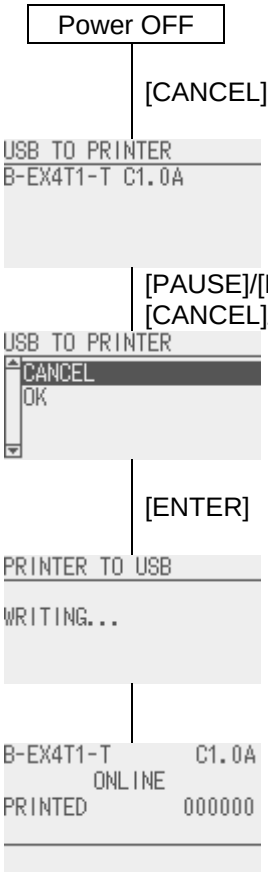
NOTES:

1. *When an error occurs, the printer stops and never recovers unless the power is turned off and on.*
2. *After a write error occurs, turning the printer off and back and "DOWNLOAD MODE" to be displayed and the printer to enter the loading mode. The program needs to be loaded again.*
3. *While "DOWNLOAD MODE" is displayed, the expansion I/O output status becomes indefinite.*
4. *When there is a difference in the model name between the boot program and the actual printer, "MODEL TYPE ERROR" is displayed and the printer stops.*
5. *When the checksum for the boot program does not end with "00H", "CHECKSUM ERROR" is displayed and the printer stops with error.*
6. *After receiving the all data of the boot program, the printer compares it with the currently installed boot program, and erases the flash memory for writing data if there is a difference.*
   When there is no difference, the downloading normally ends without erasing the memory or writing data.
7. *The LCD may show the message "Initializing…" when the printer is turned off in the download mode. This does not affect the printer operation.*
8. *When the [FEED]+[RESTART]+[PAUSE] keys are held down at the timing of printer reset in the system mode or user system mode, the forced download mode display appears on the LCD. This menu is not executable. The printer must be turned off and back to on while the [FEED]+[RESTART]+[PAUSE] keys are held down.*

8. AUTO CONFIGURATION MODE

8.1 OUTLINE OF THE AUTO CONFIGURATION MODE

When turning on the printer while holding down the [CANCEL] key, the printer to start auto configuration mode.
The auto configuration mode allows for automatically downloading the master firmware and restarting the printer.



(1) Power off state
(2) Turn on the printer while holding down the [CANCEL] key.

(3) Auto configuration mode display

(4) Press the [PAUSE], [MODE], [CANCEL] or [ENTER] key to show the next display.

(5) Confirmation display

(6) Select “OK” and press the [ENTER] key.
* When “CANCEL” is selected, the printer returns to the online state without downloading the firmware.

(7) The firmware is being downloaded.

(8) After downloading is completed, the printer will return to the online state.

8.2 PREPARATION FOR USB MEMORY

To execute the auto configuration mode, the firmware file (*.bin) should be downloaded and the dedicated CFG file need to be created in the USB memory in advance. To enter the auto configuration mode, the RTCUSB host, USB memory, correct CFG file need to be all prepared. Lack of any one of these disables shifting to the auto configuration mode, but starts normally.

Each file is saved in the SYSTEM directory created in the root directory in the USB memory.

Example: When BOOT/MAIN/CG programs are downloaded:

/ATA0/SYSTEM/B-EX-BOOT-Vx.x-xx.bin
/ATA0/SYSTEM/B-EX-MAIN-Vx.x-xx.bin
/ATA0/SYSTEM/B-EX-CG-Vx.x-xx.bin
/ATA0/SYSTEM/AUTOCONFIG.CFG

8.3 AUTO CONFIGURATION FILE

To execute the auto configuration mode, it is required to create the auto configuration file, which is an exclusive CFG file, in the USB memory in advance.

The auto configuration file is stored in the following path under the name of “AUTO CONFIG.CFG”.

/ATA0/SYSTEM/AUTOCONFIG.CFG

8.3.1 Format

Auto configuration file has the following formats.

Example	Description
B-EX6T1-G,0020	Model information
B-EX6T1-T C1.0A	Display message
/ATA0/SYSTEM/B-EX-BOOT-Vx.x-xx.bin	Firmware file to be downloaded
/ATA0/SYSTEM/B-EX-MAIN-Vx.x-xx.bin	Firmware file to be downloaded
/ATA0/SYSTEM/B-EX-CG-Vx.x-xx.bin	Firmware file to be downloaded

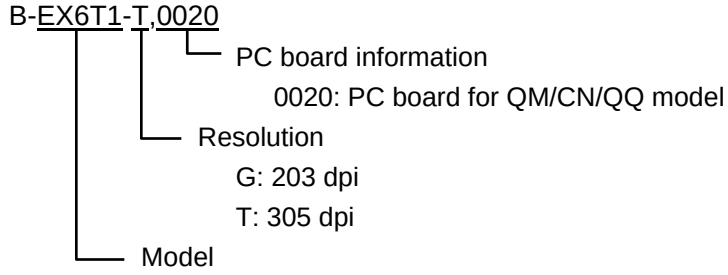
8.3.2 Model Information

Applicable model’s information is stored.

The information is comma separated. The first half is the model name (the above example indicates B-EX6T Type 1 203-dpi model) and the second half is the PC board information.

If the actual printer and this model information do not match, the auto configuration mode will not start.

Description of the model information:



8.3.3 Display Message

A message displayed on the LCD while the printer is in the auto configuration mode.

Word-wrap feature is enabled.

Only characters that can be expressed with ASCII are allowed to be input.

8.3.4 Firmware File to be Downloaded

Name of the file to be downloaded

9. POWER SAVE FUNCTION

1. Printer status allowing shift to the power save mode

When the following status continues for a specified length of time, the printer will enter the power save mode and show the power save mode message. (Refer to 5. Message in the power save mode described below.)

- ONLINE (Idle, communicating)
- Pause
- Error
- Waiting for removal of a label from the media outlet
- System mode (except for the menus that use the 27V line, such as self-diagnosis, test print and sensor adjustment.)
- User system mode (except for the menus that use the 27V line, such as dumping.)
- Pause of the expansion I/O

2. Conditions for exiting the power save mode

The power save mode is terminated when:

- Printing is performed.
- Key is pressed.
- The status of the expansion I/O pause signal or active signal changes (because the message indicating a pause state is displayed on the LCD.)
- Printing or paper feed is initiated through the expansion I/O, or printing is caused by a release of the printer from the pause state instructed through the expansion I/O
- The printer receives U1/U2 command (Forward feed/reverse feed command).
- The printer receives T command (Feed command).
- The printer receives XS command (Issue command).
- The printer receives IB command (Eject command).
- The printer receives RFID-related command accompanied by printer action
- The head lever is locked/unlocked (because the message notifying the head lever unlock state is displayed on the LCD.)
- Automatic calibration is performed with the head lever locked.
- Up and down of the solenoid is tested during the Factory Test menu in the system mode.
- Sensor adjustment is performed in the system mode.

3. Display and key operations during the power save mode

When the printer enters the power save mode, it shows “POWER SAVING MODE” on the LCD and turns off the LCD backlight. However, the operations mentioned in 6 enable the printer to display usual messages and turn on the LCD backlight even in the power save mode. If the printer status remains unchanged for 30 seconds, “POWER SAVING MODE” is displayed and the LCD backlight turns off again.

4. LED during the power save mode

While the printer is in the power save mode, the state of the LEDs is as follows.

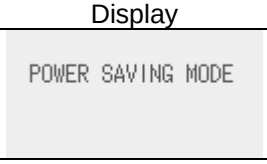
- ONLINE LED: Flashes (ON: 1000msec. OFF: 1000msec.)
- ERROR LED: OFF

5. Message in the power save mode

The language differs depending on the printer status before the printer enters the power save mode.

Printer status before power save	Supported language
Online mode (except for manual threshold setting)	Multi-language
System mode, User system mode and manual threshold setting in online mode	Japanese/English

Power save mode display

Display


When the printer is placed in the power save mode by above-mentioned printer status allowing shift to the power save mode, “POWER SAVING MODE” is displayed.

6. Conditions for displaying usual messages in the power save mode

When the following occurs in the power save mode, the power save mode is terminated.

- key is pressed.
- The head lever is unlocked or locked in the power save mode. (This is because there is a message indicating the head lever unlock.)
- There is a change in the pause signal line or active signal line of the expansion I/O. (This is because there is a message indicating a pause state.)

7. Conditions for displaying “POWER SAVING MODE”

When there is no key operations or head lever status change and the power save mode is continued for 30 seconds, “POWER SAVING MODE” is displayed on the LCD.

When data is saving in the storage area, “POWER SAVING MODE” is displayed in 30 seconds after the completion of the data save if no printer operation is done.

10. ON LINE MODE

10.1 KEY FUNCTION

The printer behaviour is not guaranteed when undefined key is operated.

10.1.1 Online Mode Display

Key	Function
[FEED]	(1) Feeds one piece of media. Ejects one piece of media. Used to adjust the media to the proper position. If printing is attempted with the media improperly positioned, printing is not performed at the proper position. One or two pieces of media need to be fed to adjust the paper position before printing. (2) Prints the data in the image buffer on one piece of media according to the system mode setting. ***NOTE:*** *A Clear Command or a command for drawing shall not be sent while printing caused by a depression of the [FEED] key. If it is sent, the layout will be destroyed, and the media will not be printed properly. Also, if printing is performed by a depression of the [FEED] key while the data is being drawn in the image buffer, the layout may be destroyed.* * For details of the following cases, refer to the parameter setting section. • How to issue the label stock having the label pitch of 25.4 mm or less in the cut issue mode when the disc cutter is used. • How to issue the label stock having the minimum label pitch or less for each print speed in the cut issue mode when the rotary cutter is used. * In the strip mode, feeds labels even when the peel-off sensor is detecting a label. * When Media Load parameter is enabled, a media feed is performed to find the print start position depending on the condition. For details, refer to Section 5.5.1 MEDIA LOAD.
[RESTART]	(1) Resumes printing after a temporary stop of printing or after an error. (2) Places the printer in the usual initial state, which is obtained when the power is turned on. (3) Places the printer in the user system mode.
[PAUSE]	(1) Stops label printing temporarily. (2) Programs the threshold value.
[MODE]	(1) Places the printer in the user system mode.
[CANCEL]	(1) Clears the job.
[ENTER]	(1) Displays help messages. (2) Saves the log/receive buffer data. (B-EX4T1 Japan model with firmware V1.0I only) (3) Places the printer in the RFID calibration mode. (Supported by the B-EX4T1-G/T-QM/CN C1.4 or later).
[UP]	(1) Places the printer in the Information mode. (Supported from the firmware version C1.0I for B-EX4T1-G/T-QM/CN, C1.0F for the B-EX4T2-G/T-QM/CN, C1.1A for the B-EX4T2-H-QM/CN, and D1.1 for the B-EX4D2-G/T-QM/CN.)
[DOWN]	(1) No function.
[LEFT]	(1) No function.
[RIGHT]	(1) Displays help messages.

10.1.2 Help Display

Key	Function
[FEED]	(1) Ends help display.
[RESTART]	(1) Ends help display.
[PAUSE]	(1) Ends help display.
[MODE]	(1) Ends help display.
[CANCEL]	(1) Ends help display. (2) Returns to the previous help page. (3) Ends help display.
[ENTER]	(1) Ends help display. (2) Goes to the next help page. (3) Ends help display.
[UP]	(1) Moves the cursor upward.
[DOWN]	(1) Moves the cursor downward.
[LEFT]	(1) Returns to the previous help page. (2) Ends help display.
[RIGHT]	(1) Goes to the next help page. (2) Ends help display.

10.1.3 Manual Threshold Setting Display

Key	Function
[FEED]	(1) Moves the cursor upward. (2) Re-sets
[RESTART]	(1) Moves the cursor downward.
[PAUSE]	(1) Sets the threshold. (2) Fixes the selection.
[MODE]	No function.
[CANCEL]	No function.
[ENTER]	(1) Fixes the selection. (2) Ends manual threshold setting.
[UP]	(1) Moves the cursor upward.
[DOWN]	(1) Moves the cursor downward.
[LEFT]	(1) Goes to the judgment result page (2) Goes to the fine adjustment setting menu
[RIGHT]	(1) Goes to the detail page. (2) Goes to the fine adjustment setting menu

10.2 LED FUNCTION

[ONLINE] LED	Indicates that the printer is in online state.
	Flashes when the printer is communicating with the host.
	Flashes at a 500-msec. interval (ON: 250ms., OFF: 250ms.) in synchronization with the [ERROR] LED when the printer is turned off.
[ERROR] LED	Indicates that the printer is in error state.
	Flashes when a ribbon near end condition is detected (at a 1-second interval (ON: 500 ms., OFF: 500 ms.)
	Flashes when a system error occurs (at a 1-second interval (ON: 500 ms., OFF: 500 ms.)
	Flashes at a 500-msec. interval (ON: 250ms., OFF: 250ms.) in synchronization with the [ONLINE] LED when the printer is turned off.

***NOTE**: If the wireless LAN is being linked at power off time, both [ONLINE] and [ERROR] LEDs turn on, not flash.*

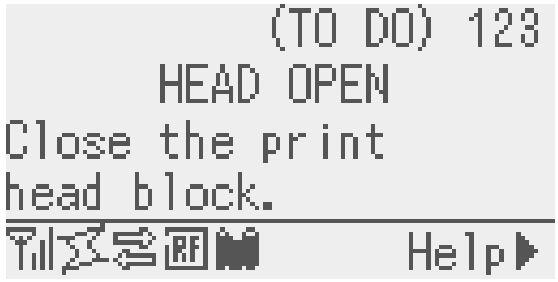
10.3 LCD FUNCTION

The LCD displays the messages which indicate the printer status.

LCD	Type	Graphics LCD
	Size	128 dots (W) X 64 dots (H)
	Display structure	Maximum of 21 digits x 5 lines

10.4 ONLINE MODE LCD DISPLAY

10.4.1 Online Mode LCD Display Example

Printer condition	LCD Display	Display contents
Online		← Model name, Firmware version (*5) ← Message ← The number of labels printed (*1) ← IP address etc. (*4) ← Icon
Pause		← The number of remaining labels to print (*2) ← Message ← 1st line of the error message ← 2nd line of the error message (*6) ← Icon
Head open		← The number of remaining labels to print (*2) ← Message ← 1st line of the error message ← 2nd line of the error message ← Icon, Help guide (*3)

* Whether to display or hide the 1st, 3rd and 4th lines of online mode display can be selected in the system mode.
* Refer to “Icon display” for Icon in detail.

(*1) The number of labels printed is the cumulative number of labels printed while the printer is activated. It is reset to zero when the printer is turned on. During an issue with the cut interval specified, the number of labels is updated when the label is cut normally.

(*2) [The number of remaining labels to print] = [Specified number of labels to print] – [The number of normally printed labels before occurrence of an error or placing the printer in pause]

When the number of remaining labels to print is zero, it is not displayed. During an issue with the cut interval specified, the number of remaining labels is updated when the label is cut normally.

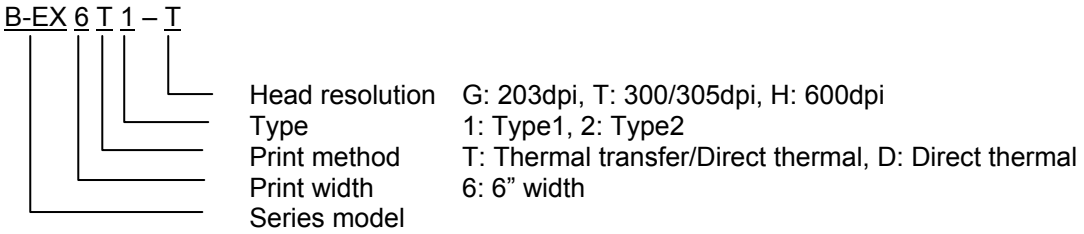
(*3) The help guide is displayed only when applicable help message exists.

(*4) The message displayed in this area is IP address or supplemental information like ribbon near end.

- When LAN/WLAN setting is disabled, the IP address is not displayed even if displaying IP address is enabled in the system mode.
- The ribbon near end message is displayed when a ribbon near end is detected, regardless of whether or not displaying the ribbon near end message is enabled in system mode.

A ribbon near end is detected depending on diameter of the unused ribbon. The diameter of 38mm is equivalent to 30-meter ribbon and the diameter of 43 mm is equivalent to 70-meter ribbon, respectively.

(*5) The model name description



(*6) The ribbon near end message may be displayed on this line. The condition for display is the same as *4.

10.4.2 Icon

Five kinds of icon are displayed in the bottom line of the online mode display.

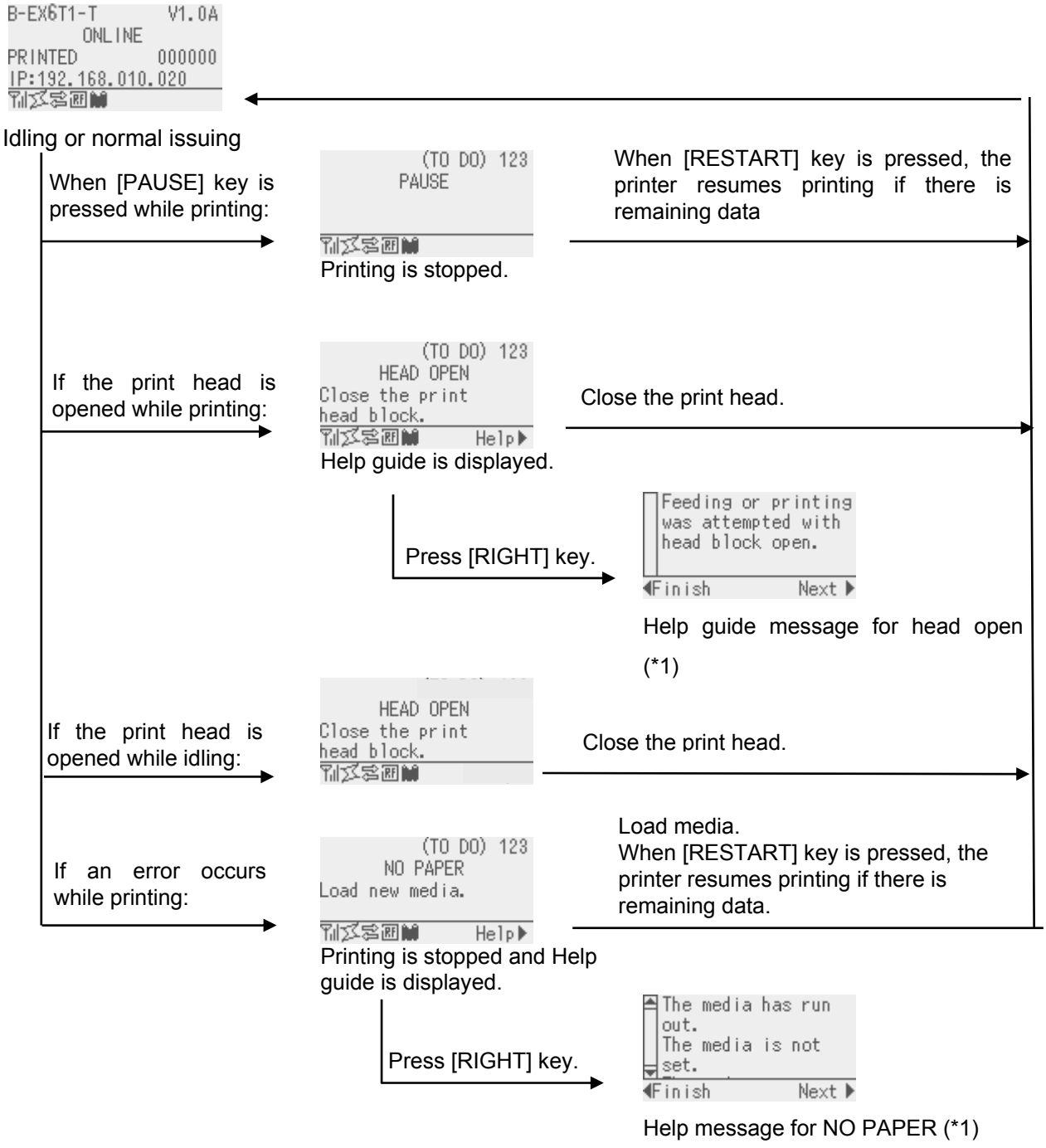
These icons are displayed only in the online mode display.

Icon	Explanation
Wireless LAN icon	● Displayed and used when the wireless LAN module is mounted. ● The graph shows the strength of radio wave. Graph 0: Outside the communication range Graph 1: Strength of radio wave is weak. Graph 2: Strength of radio wave is middle Graph 3: Strength of radio wave is strong
Link icon	● Displayed and used when the wireless LAN module is mounted. ● Displayed while the printer is communicating by wireless LAN. ● Blinks while roaming. OFF: No connection ON: Connecting to an access point Blink: Roaming (*4)
Data transmission icon	● Appears when a print job is present. ON: Print job is present.

RFID icon	● Displayed and used when the RFID module is mounted. ● Appears when a communication between the printer and the RFID module is enabled. ● Blinks during a communication with the RFID module. - The communication includes the one without radio wave output. - Blinks after radio wave output is instructed to the module even when no radio wave is output. (Blinks while the module stops outputting radio wave or changing the channel under the influence of other carrier.)  ON: Module type is set and ready to communicate  Blink: Communicating
Ribbon near end icon	● Ribbon near end is detected. ● Blinks when the ribbon is close to the end. ● Ribbon near end is detected depending on the diameter of unused ribbon. ∅38 mm is equivalent to 30-meter ribbon and ∅43 mm is equivalent to 70-meter ribbon.  Blinking: Ribbon near end state (*4)

(*4) Icon blinks at a 1-second interval (ON for 500 msec. and OFF for 500 msec.)

10.4.3 Online Mode Display Transition, Operation example



(*1)

The icon flashes at a 1-second interval (ON: 500 msec. OFF: 500 msec.)

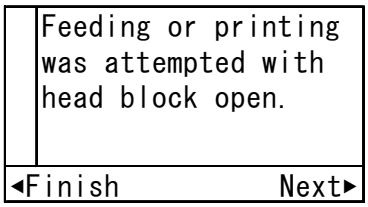
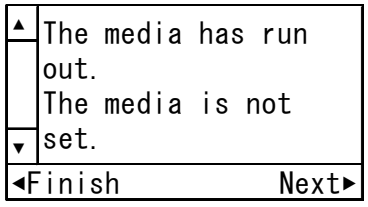
10.5 HELP SCREEN

10.5.1 Explanation of Help Screen

When “Help” is displayed at the lower right of the online mode screen, pressing the [RIGHT] or [ENTER] key causes a help message to be shown.

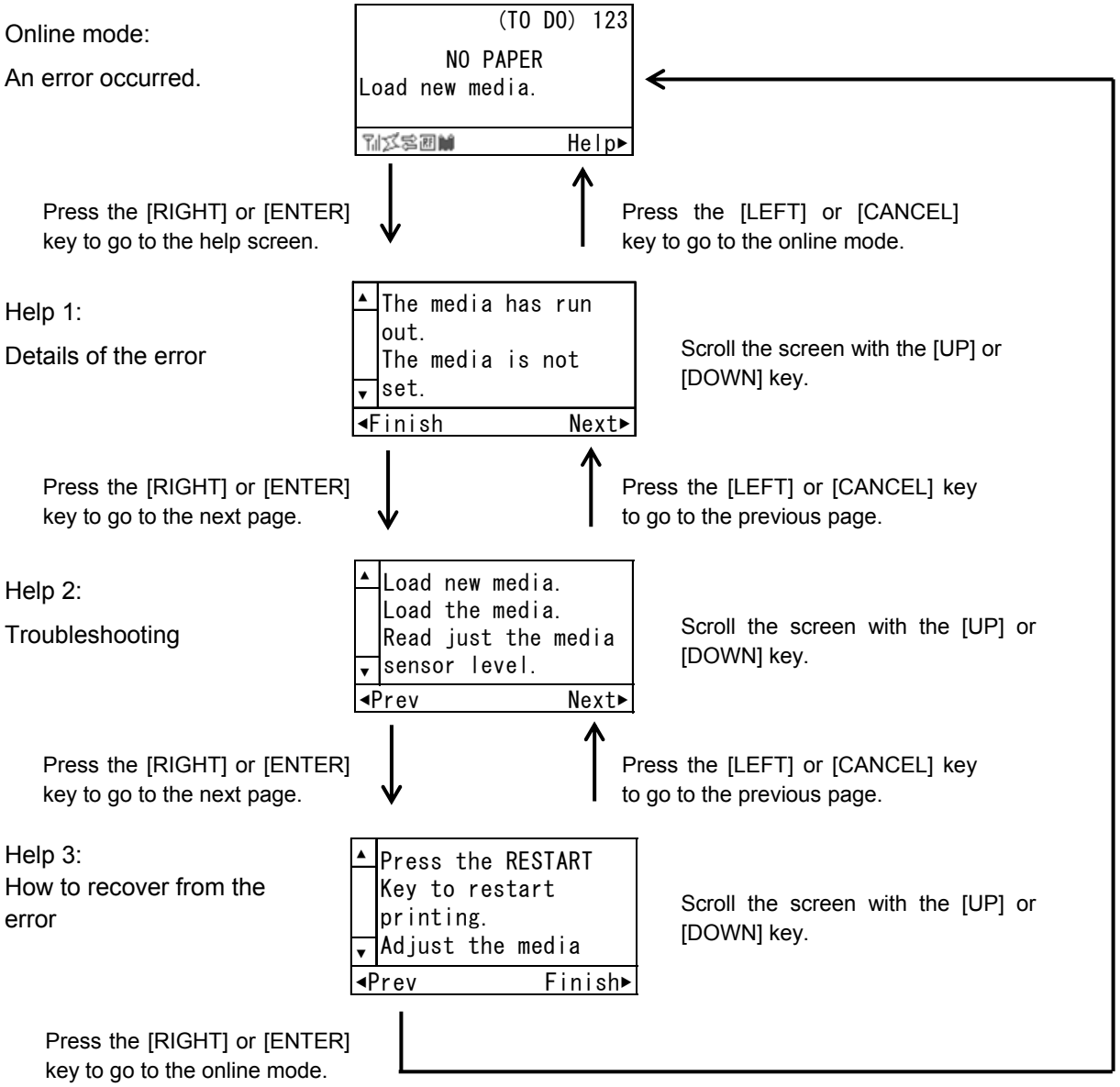
The help message is displayed on the upper four lines. When the message exceeds four lines, the up and down arrows are shown on the scrollbar on the left, and the hidden lines can be displayed by scrolling down.

Example of help message

Help message	Display example	
Up to 4 lines		← 1st line of help message ← 2nd line of help message ← 3rd line of help message ← 4th line of help message ← Help guide
	Since the help message is within three lines, the scrollbar arrows are not shown.	
5 lines or more		← 1st line of help message ← 2nd line of help message ← 3rd line of help message ← 4th line of help message ← Help guide
	Since the help message exceeds four lines, the scrollbar arrows are shown.	

10.5.2 Help Screen Transition and Operation Example

The help screen consists of three pages, which are Help 1, Help 2 and Help 3.
Help 1 shows the details of the error, Help 2 shows a troubleshooting, and Help 3 shows how to recover from the error.



***NOTE**: When a key other than above is pressed while Help 1 or Help 2 is displayed, the help screen is ended and r eturned to the online mode screen.*

10.6 MANUAL THRESHOLD SETTING

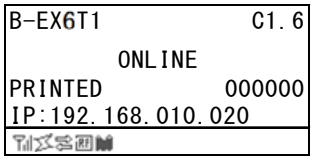
10.6.1 Outline of Threshold setting

When a label stock is printed, the printer automatically corrects the print position by detecting gaps between the labels by using the transmissive sensor to maintain a constant print position. However, when pre-printed label stock is used, print positions may not be detected correctly depending on ink type used for preprints. In this case, it is required to manually set the transmissive sensor threshold through key operations and store the value in the non-volatile memory.
This threshold stored is used for printing by selecting “3: Transmissive Sensor (when using the pre-printed label)” for the sensor type of the Issue Command, and data is printed at a constant print position correctly since the print positions are detected based on this threshold.

When the media with black marks printed on the back side is used, the printer automatically corrects the print position by detecting the black marks by using the reflective sensor. However, if there is reflective rate variation on the media except for the black marks, the print position cannot be corrected properly. In this case, it is required to manually set the reflective sensor threshold through key operations and store the value in the non-volatile memory.
This threshold stored is used for printing by selecting “4: Reflective Sensor (when using a manual threshold value)” for the sensor type of the Issue Command, and data is printed at a constant print position correctly since the print positions are detected based on this threshold.

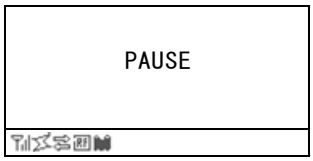
10.6.2 Threshold Setting Operation Example

1. Online mode:
Online state



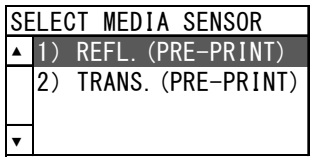
↓ Press the [PAUSE] key.

2. Online mode:
Pause state



↓ Hold down the [PAUSE] key for 3 seconds.

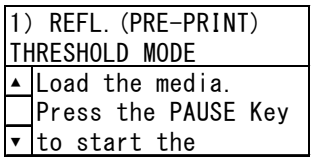
3. Threshold setting:
Media sensor selection



Move the cursor with the [UP] or [DOWN] key.

↓ Press the [ENTER] key.

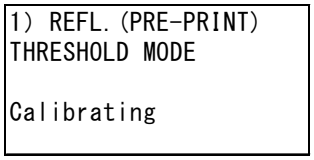
4. Threshold setting:
Waiting for the media to be loaded



Scroll the screen with the [UP] or [DOWN] key.

↓ Press the [PAUSE] key.

5. Threshold setting:
Calibration

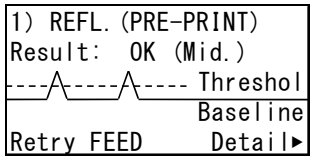


Hold down the [PAUSE] key to keep feeding the media.

↓ Release the [PAUSE] key. (Media feed stops.)

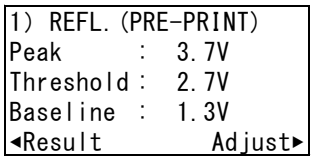
When the judgment result is OK, go to “6. Threshold setting”.
When the judgment result is NG, go to “7. Threshold setting”.

6. Threshold setting:
6a. Judgment result: OK
(After threshold setting)



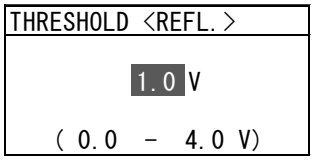
[FEED] key → “3. Media sensor selection.” (Threshold is set again.)
[ENTER] key → “2. Pause state.” (Threshold setting is completed.)
[RIGHT] key → “6b. Details of the result.” (Result and the threshold value are displayed.)

6b. Details of the result



↓ Press the [RIGHT] key.

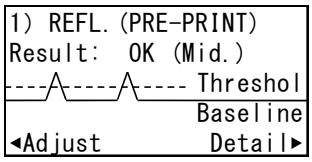
6c. Threshold fine adjustment



Operation is same as 9.7.4 THRESHOLD LEVEL.

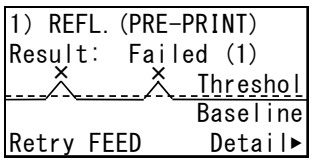
Press any of the [PAUSE], [ENTER], and [CANCEL] key.

6d. Judgment result (After the fine adjustment)



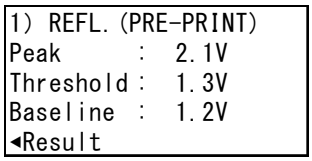
[LEFT] key → "6c. Threshold fine adjustment." (The threshold value is fine adjusted again.)
[ENTER] key → "2. Pause state." (Threshold setting is completed.)
[RIGHT] key → "6b. Details of the result." (Result and the threshold value are displayed.)

7. Threshold setting:
7a. Judgment result (NG)



[FEED] key → "3. Media sensor selection." (Threshold is set again.)
[ENTER] key → "2. Pause state." (Threshold setting is completed.)
[RIGHT] key → "7b. Details of the result." (Result and the threshold value are displayed.)

7b. Details of the result

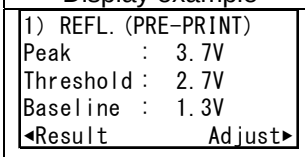


[LEFT] key: Go to "7a. Judgment"

The threshold setting judgment result is indicated with one of the following icon types.

No.	Display example	Icon name	Explanation
1		OK (Mid.)	Print position is detectable with the media sensor. Threshold is at the midpoint between the peak and the baseline.
2		OK (High)	Threshold is near the peak voltage, so detection of a gap/black mark may fail if the difference between the threshold and the peak voltage is very small. (Adjusting the threshold to the midpoint between the peak and the baseline enables more accurate detection.)
3		OK (Low)	Threshold is near the baseline voltage, so detection of a gap/black mark may fail if the difference between the threshold and the base voltage is very small. (Adjusting the threshold to the midpoint between the peak and the baseline enables more accurate detection.)
4		NG (1)	Print position is not detectable with the media sensor. Fine adjustment is necessary.
5		NG (1)	Print position is not detectable with the media sensor because the threshold ≤ Baseline. Fine adjustment is necessary.
6		NG (2)	Print position is not detectable with the media sensor. (Calibration may enable print position detection, but it is very difficult.)

Details of the result

Display example	Displayed item	Explanation
	• Sensor type • Peak value • Threshold voltage • Baseline voltage • Key operation guide	The calibration result and the threshold voltage are displayed. Pressing the [RIGHT] key enables setting a threshold fine adjustment value. Pressing the [LEFT] key returns the screen to the calibration result.

***NOTES**:*

(1) When the [PAUSE] key is released within 3 seconds while the printer is paused, the [PAUSE] key is invalid.

(2) To set the threshold, 1.5 pieces or more label shall be fed. (If the label feed amount is insufficient, the threshold may not be properly set. In this case, the threshold setting needs to be retried.)

(3) While the print head is lifted, the [PAUSE] key is invalid even if the [PAUSE] key is held down for 3 seconds or more.

(4) When the print position is not corrected even after the threshold is set, the sensor adjustment may be insufficient. In this case, readjust the sensor in the system mode, and set the threshold.
(When the backing paper of the label is too thick, the transmissive sensor needs to be readjusted.)

In addition, make sure that "3: Transmissive sensor (when using the preprinted label)" or "4: Reflective sensor (when using a manual threshold value)" is selected for sensor type of the Feed Command and the Issue Command.

(5) Paper end and ribbon end are not detected during the threshold setting. (The setting continues as long as the [PAUSE] key is held down even if the printer runs short of media or ribbon.)

(6) The detailed result of the calibration is shown when the [RIGHT] key is pressed while the judgment result is displayed. The measured sensor level and the currently programmed threshold fine adjustment value can be checked.

Fine adjustment value = Peak voltage – Threshold voltage

(7) Pressing the [LEFT] key returns the detailed result to the judgment result display. Pressing the [RIGHT] key causes the display to go to the threshold fine adjustment screen. This is the same menu with the threshold fine adjustment menu in section 5.7.3.1 REFLECT (Reflective sensor) or 5.7.3.2 TRANS. (Transmissive sensor).

(8) After the threshold fine adjustment value is set, the screen returns to the result display.

(9) While the result of fine adjusted threshold setting is shown, pressing the [LEFT] key returns the screen to the threshold fine adjustment screen and pressing the [RIGHT] key shows the details of the result.

(10) During a threshold setting, the media is fed at the same speed with that for the previous issue.

(11) Whether the threshold setting succeeded or not can be checked with the following methods.

■ Media feed with the [FEED] key

1) While the judgment result is displayed, press the [FEED] key to terminate the threshold setting.
   → The printer is placed in the pause state.
2) Press the [RESTART] key to clear the pause state.
   → The printer is placed in the online state.
3) Hold down the [MODE] key
   → The printer enters the system mode.
4) Select “<4>SENSOR” and “THRESHOLD SELECT”.
5) Select the applicable media sensor type (“REFLECT” or “TRANS.”) and press the [ENTER] key.
   → The selected sensor type menu is shown.
6) Select “MANUAL THRESHOLD”, press the [ENTER] key, then [MODE] key.
   → The system mode menu is displayed.
7) Turn off the power, and back to on.
   → The printer is placed in the online state.
8) Press the [FEED] key to feed the media.
   → If a paper jam occurs or the media does not stop at the print start position, retry the threshold setting.

■ Sending Issue command

1) While the judgment result is displayed, press the [FEED] key to terminate the threshold setting.
   → The printer is placed in the pause state.
2) Press the [RESTART] key to clear the pause state.
   → The printer is placed in the online state.
3) Hold down the [MODE] key.
   → The printer enters the system mode.
4) Select “<4>SENSOR” and “THRESHOLD SELECT”.
5) Select the same media sensor type with that specified by the Issue Command which is sent to the printer.

Sensor type in Issue Command	Setting
0: No sensor	Whether the threshold setting succeeded or not cannot be checked.
1: Reflective sensor	Select “<4>SENSOR”, “THRESHOLD SELECT” with the [UP], [DOWN] and [ENTER] keys. Select “REFLECT”. When the selected sensor type display is shown, select “MANUAL THRESHOLD” and press the [ENTER] key. * Select the media sensor type to the one for which the threshold was set.
2: Transmissive sensor (when using normal labels)	Select “TRANS.” When the selected sensor type display is shown, select “MANUAL THRESHOLD” and press the [ENTER] key. * Select the media sensor type to the one for which the threshold was set.

3: Transmissive sensor (when using preprinted labels)	No setting is necessary.
4: Reflective sensor (when using a manual threshold value)	No setting is necessary.

6) Press the [MODE] key.
   → The system mode menu is displayed.
7) Turn off the power, and back to on.
   → The printer is placed in the online state.
8) Send an Issue Command to make the printer print.
   → If a paper jam occurs or the media does not stop at the print start position, retry the threshold setting.

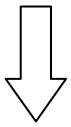
10.7 RFID CALIBRATION

The supported RFID module and RFID tag types are as follows:

Module: B-EX700-RFID-U4-EU-R

Tag: The following tag type only (The others are unusable.)

• TSE Web (Supplier: SMARTRAC, Chip: NXP U-Code G2iL)



Feed direction

Tag name	Label pitch (mm)	Label length (mm)	Label width (mm)		Remarks
			Left	Right	
TSE Web	60	54	34		The dimensions on the left are actual measurement values.

10.7.1 Outline of the RFID Calibration

RFID calibration is a function to automatically determine the distance to the optimum write/read position and the AGC value required for properly writing/reading data on/from RFID tags.
When the result of an RFID calibration is saved (by pressing the [ENTER] key) while the detected values are shown on the screen, the value obtained through the RFID calibration is set for the CALIB. AGC and CALIB. POSITION parameters in the system mode. In addition, the following parameters are automatically set.

CALIB. MODE: ON
POWER LEVEL: 4
Q VALUE: 4

NOTES:

1. *Note that the optimum write/read positions and AGC value obtained through RFID calibration do not guarantee a perfect write/read, so they should be used as a guide.*
2. *Prior to an RFID calibration, be sure to perform an automatic calibration (User system mode → <2>SET PARAMETERS → CALIBRATE) to place the media at the print start position. In other words, an automatic calibration must be performed each time before performing RFID calibration.*
3. *If an RFID calibration is performed without placing the media at the print start position, an improper value may be set, which may cause an error message, "RFID WRITE ERROR", to be shown during writing/reading data or data to be written on/read with a wrong tag.*
4. *Be sure to select a usable antenna position in the system mode before performing an RFID calibration. Failure to do this may cause an improper value to be set, which may cause an error message, "RFID WRITE ERROR", to be shown during writing/reading data or data to be written on/read with a wrong tag.*

Antenna position set in the system mode	Actual RF antenna position		Application
	Rotation of RF antenna	Wave director position	
FRONT	0°	FRONT	Usable
CENTER			Unusable
REAR			Unusable

5. *While an RFID calibration is performed, EPC data is written on a tag.*
   The data to be written is 5555AAAA5555AAAA5555AAAA (12 bytes).
   If this data has already been written on a tag, proper operation of RFID calibration is not guaranteed. Therefore, once a tag undergoes an RFID calibration, this tag cannot be used for RFID calibration again.

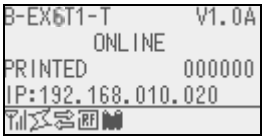
10.7.2 RFID Calibration Operation Example

***NOTE**: Be sure to complete the following before performing an RFID calibration.*

1) Select a usable antenna position in the system mode. (Refer to Section 10.7.1 Outline of the RFID Calibration.)

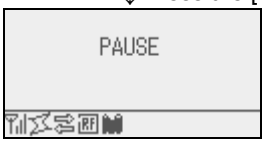
2) Place the RFID media at the print start position in advance by performing an automatic calibration.

[Online mode]
1. Normal state



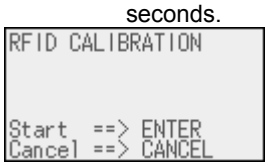
↓ Press the [PAUSE] key.

[Online mode]
2. Pause state



↓ Hold down the [ENTER] key for 3 seconds.

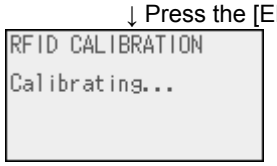
[RFID Calibration]
3. Calibration start



Pressing the [CANCEL] key returns the screen to 1. Normal state.

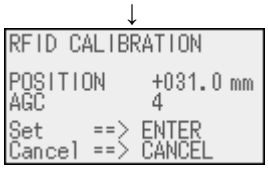
↓ Press the [ENTER] key.

[RFID Calibration]
4. Calibration is being performed.



↓

[RFID Calibration]
5a. Result: Detected.



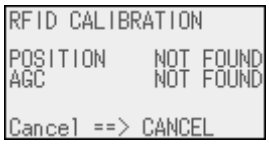
Pressing the [ENTER] key returns the screen to 1. Normal state.

The value for “POSITION” on the display is set for “CALIB. POSITION”, the value of “AGC” is set for “CALIB. AGC”, and ”CALIB. MODE” is turned ON.

Pressing the [CANCEL] key returns the screen to 1. Normal state.

The values for “POSITION” and “AGC” on the display are not saved.

[RFID Calibration]
5b. Result: Not found.



Pressing the [CANCEL] key returns the screen to 1. Normal state.

As the tag is not found, no value is saved.

NOTES:

1. *The position and AGC value obtained through an RFID calibration are the optimum read/write position and the optimum AGC value for the media at the print start position.*
2. *When the [ENTER] key is released within 3 seconds in the pause state, the [ENTER] key is invalid.*
3. *After performing an RFID calibration, the printer returns the RFID media to the print start position.*
4. *When the MOVE TO TEAROFF parameter is set to ON, an RFID calibration can be performed. In this case, the printer feeds the RFID media to the print start position temporarily, performs an RFID calibration, then returns the media to the former position.*
5. *If an engine-related error (such as print head open, paper end, ribbon end, and ribbon near end) occurs during an RFID calibration, the printer stops at the position of the error occurs. Therefore, the media does not return to the print start position (or the forwarded position in the case the MOVE TO TEAROFF parameter is ON.) In this case, the “5b. Result Not found screen” is displayed.*
6. *An RFID calibration is inoperable in the strip issue mode.*
7. *Do not send a command to the printer while an RFID calibration is being performed. If a command is sent during an RFID calibration, printer operation is not guaranteed.*

10.8 INFORMATION MODE

10.8.1 Outline of the Information Mode

In the information mode, the total feed amount counted during feed and printing operations is displayed on the LCD, and printed in units of centimeter and inch on request.
The feed amount is counted at the end of feed or printing, and saved in the non-volatile memory.

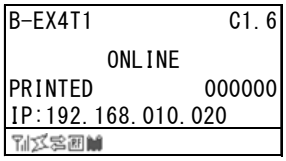
NOTES:

1. *The effective range of the feed amount(*1) is as follows. When the feed amount exceeds the maximum, the maximum value will be saved.*
   In unit of centimeter: 0 to 320000000
   In unit of inch: 0.0 to 125984251.9
2. *In the following cases, feed or printing is not counted in this feed amount(*1).*
   Reverse feed, Forward feed to the strip position, Pre-strip feed, Auto forward feed, Void printing on RFID media, RFID tag position adjustment command (@003 command), Pre-reverse feed when an expansion I/O device is connected, Printing in offline (Diag. test print, maintenance counter print, test print, dump), printing in the information mode, manual threshold, automatic calibration, and RFID calibration
3. *Since the feed amount(*1) is counted based on the label pitch specified by the command, a large margin of error may be generated if the command-specified label pitch differs from the actually-measured label pitch.*
4. *Since the counted feed amount is saved in the non-volatile memory (EEPROM), replacement of the EEPROM is prohibited. (Except for the case the Main PC board is replaced with a service part.)*

(*1): Feed amount counted in the information mode

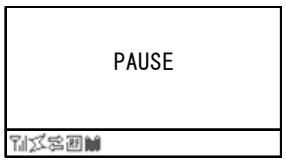
10.8.2 Information Mode Operation Example

[Online mode]
1. Normal state



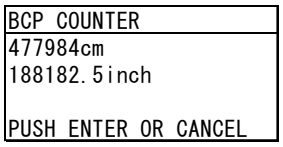
↓ Press the [PAUSE] key.

[Online mode]
2. Pause state



↓ Hold down the [UP] key for 3 seconds.

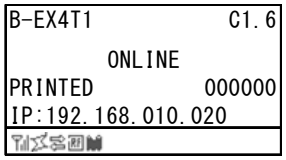
[Information mode]
3. Feed amount is displayed.



Pressing the [CANCEL] key returns the screen to 1. Normal state.

↓ Press the [ENTER] key.

[Online mode]
4. Printing is performed.



After printing is finished, the screen returns to 1. Normal state.

NOTES:

1. *When printing is performed in this mode, a quick reset is performed.*

   Performing a quick reset causes the print count (number of labels issued) to be reset to zero and the image buffer to be cleared. When the automatic calibration is enabled, a calibration is performed after the quick reset.

   When the automatic call at power on parameter is enabled in the Saved data call command, saved data will be called after a quick reset.

2. *Previous print conditions are applied to the printing performed in this mode, except:*

   Print orientation

   When the mirror printing has been specified, only the mirror printing is not performed. Therefore, the bottom first mirror printing and top first mirror printing will be changed to bottom first printing and top first printing, respectively.

   Effective print width and X-coordinate fine adjustment

   When the feed amount to be printed reaches the max. number of digits (74 mm), the print position will be center-aligned.

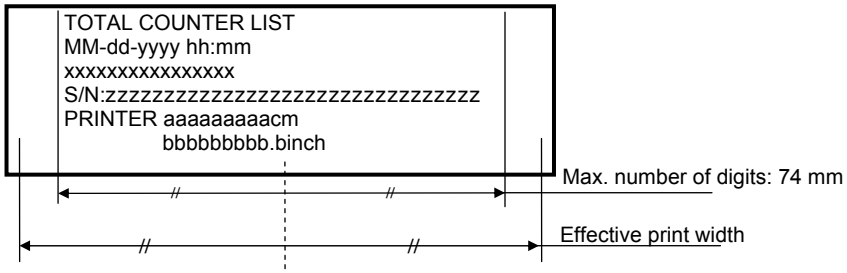
3. *Before shifting to the Information mode, make sure that the printer has not received any commands related to feed or drawing. If the printer has received such commands, printing will not be performed and the printer will return to the normal state. At this time, a quick reset will not be performed.*

4. *Do not send a command to the printer in the Information mode.*

10.8.3 Information Mode Print Sample

<Print sample>

B-EX6T1/T3: Max. number of digits: 74 mm, Center-aligned



<Print data>

Item	Information		Range
1st line	Title		TOTAL COUNTER LIST
2nd line	Date and time (*1)	MM: Month	01 to 12
		dd: Day	01 to 31
		yyyy: Year	2000 to 2099
		hh: Hour	00 to 23
		mm: Minute	00 to 59
3rd line	Model	B-EX6T1-QM/CN 203 dpi	B-EX6T1-G
		B-EX6T1-QM/CN 305 dpi	B-EX6T1-T
		B-EX6T3-QM/CN 203 dpi	B-EX6T3-G
		B-EX6T3-QM/CN 305 dpi	B-EX6T3-T
4th line	Serial number (*2)		11 to 32-digit half-size alpha-numeric (A to Z, a to z, 0 to 9, space, hyphen)
5th line	Feed amount in information mode (unit: cm)		0 to 320000000
6th line	Feed amount in information mode (unit: inch)		0 to 125984251.9

*1: When an optional real time clock is not installed, data areas in this line will be blank. (E.g " - - : ".)

*2: In the case a serial number has never been registered to the printer, MAC address of wired LAN is printed without delimiters. If the MAC address of wired LAN cannot be obtained, this line will be blank.

10.9 JOB CANCELLATION

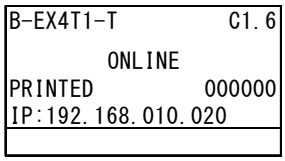
10.9.1 Outline of the Job Cancellation

The [CANCEL] key enables cancellation of subsequent print jobs.
Holding down the [CANCEL] key for 3 seconds while the printer is in an error* or pause state causes the printer to start a quick reset and shift to the online mode.
As long as the [CANCEL] key is held down, the data in the receive buffer is all discarded.
Job cancellation is finished when the [CANCEL] key is released, and the printer restores to the normal condition.

*: Errors which can be recovered by a depression of the [RESTART] key.
For details, refer to Section10.10 LCD MESSAGES AND LED INDICATIONS.
*: A command error may occur if the [CANCEL] key is released before the all received data has been discarded.

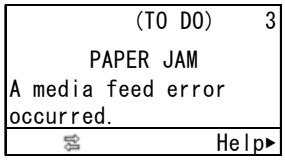
10.9.2 Job Cancellation Operation Example

[Online mode]
1. Normal state



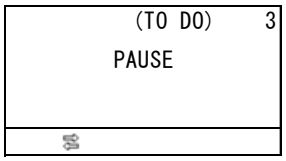
↓ Occurrence of an error or press the [PAUSE] key.

[Online mode]
2-1. Error state



Error state

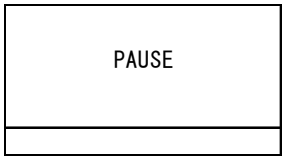
2-2. Pause state



Pause state

↓ Hold down the [CANCEL] key for 3 seconds.

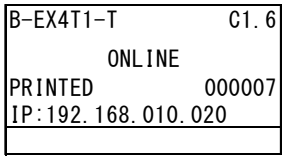
[Online mode]
3. Job cancellation after a quick reset



While the [CANCEL] key is held down, received data is discarded.

↓ Release the [CANCEL] key.

[Online mode]
4. Normal state



The printer restores to the normal state in the online mode.

10.10 LCD MESSAGES AND LED INDICATIONS

No	LCD Message 2nd line (English)	LED indications		Printer status	Restoration by the [RESTART] key Yes/No	Acceptance of Status Request and Reset Command Yes/No
		ON LINE	ERROR			
1	ONLINE	○	●	In the online mode	---	Yes
		⊙	●	In the online mode (Communicating)	---	Yes
		○	⊙	In the online mode with a ribbon near end detected (Note 1)	---	Yes
2	HEAD OPEN	●	●	A feed or an issue was attempted with the head opened.	---	Yes
		●	⊙	A feed or an issue was attempted with the head opened in a ribbon near end state. (Note 1)	---	Yes
3	PAUSE	●	●	In a pause state	Yes	Yes
		●	⊙	In a pause state with a ribbon near end detected (Note 3)	Yes	Yes
4	COMMS ERROR	●	○	A parity error or framing error has occurred during communication by RS-232C.	Yes	Yes
5	PAPER JAM	●	○	▪ A paper jam occurred during paper feed. ▪ The media is not set properly. ▪ The media actually used and the selected media sensor type do not match. ▪ The media sensor position does not align with the black mark position. ▪ The actual media size and the specified media length do not match. ▪ The media sensor level is not suitable for the actual media. ▪ The gap of pre-printed label cannot be detected.	Yes	Yes
6	CUTTER ERROR	●	○	▪ A paper jam occurred in the cutter. ▪ The cutter did not move from the home position. ▪ The cutter cover was open.	Yes	Yes
7	NO PAPER	●	○	▪ The media has run out. ▪ The media has not been set. ▪ Media sensor level is not suitable for the paper used.	Yes	Yes
8	NO RIBBON	●	○	The ribbon has run out.	Yes	Yes
9	HEAD OPEN	●	○	A feed or an issue was attempted with the head opened. (Except media feed caused by the [FEED] key or Expansion I/O)	Yes	Yes
10	HEAD ERROR	●	○	▪ A broken dot error has occurred in the thermal head. ▪ The error has occurred in the head driver.	Yes	Yes

11	EXCESS HEAD TEMP	●	○	The thermal head temperature has become excessively high.	No	Yes
12	RIBBON ERROR	●	○	▪ An abnormal condition occurred with the sensor for determining the torque of the ribbon motor. ▪ A ribbon jam occurred. ▪ The ribbon has been torn. ▪ The ribbon has not been set.	Yes	Yes
13	REWIND FULL	●	○	An overflow error has occurred in the rewinder unit.	Yes	Yes
14	SAVING ####KB/&&&&KB or SAVING %,%%%.%%%KB	○	●	External characters or PC command save mode.	---	Yes
15	FORMAT ####KB/&&&&KB or FORMAT %,%%%.%%%KB	○	●	Initializing the storage area.	---	Yes
16	NOW LOADING…	○	●	Downloading TrueType font or BASIC program	---	Yes
17	MEMORY WRITE ERR.	●	○	An error has occurred while writing data into the memory for storage. (USB memory, flash ROM on the CPU board)	No	Yes
18	FORMAT ERROR	●	○	An erase error has occurred while formatting the memory for storage (USB memory, flash Rom on the CPU board)	No	Yes
19	MEMORY FULL	●	○	Saving failed because of the insufficient capacity of the memory for storage (USB memory, flash ROM on the CPU board)	No	Yes
20	SYNTAX ERROR Command error (Refer to Notes 1 and 2)	●	○	A command error has occurred while analyzing the command.	Yes	Yes
21	POWER FAILURE	●	○	A momentary power interruption has occurred. (The LCD message may corrupt before the error message is displayed.)	No	No
22	EEPROM ERROR	●	○	A backup EEPROM cannot be read/write pr.	No	No

23	SYSTEM ERROR	●	○	When any abnormal operations as below are performed, a system error occurs. (a) Command fetch from an odd address (b) Access to the word data from a place other than the boundary of the word data (c) Access to the long word data from a place other than the boundary of the long word data (d) Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode. (e) Undefined command placed in other than the delay slot has been decoded. (f) Undefined command in the delay slot has been decoded. (g) Command to rewrite the delay slot has been decoded.	No	No
24	DHCP CLIENT INIT…	●	●	Initializing DHCP CLIENT. * Only when DHCP is enabled	---	---
25	RFID WRITE ERROR	●	○	The printer did not succeed in writing data onto the RFID tag after having retried for the specified times.	Yes	Yes
26	RFID ERROR	●	○	The printer cannot communicate with the RFID module.	No	Yes
27	INPUT PASSWORD	●	●	The printer is waiting for an entry of password.	No	No
28	PASSWORD INVALID	●	●	A wrong password was entered consecutively for three times.	No	No
29	RFID CONFIG ERR	●	○	B-EX700-RFID-U2-EU/US-R, B-EX700-RFID-U4-EU/US-R, U4 module preinstall model only RFID module's destination code is not specified.	No	No
30	LOW BATTERY (Refer to Notes 4 and 5)	●	○	RTC battery is low.	No	Yes
31	INTERNAL COM ERR	●	●	A hardware error has occurred in the internal serial interface.	No	No

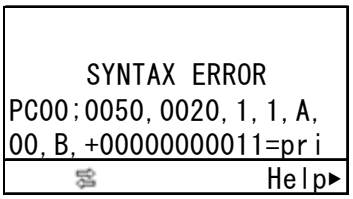
Explanation of symbols

Symbol	Explanation	Range
○:	ON	---
⊙:	Blinking	---
●:	OFF	---
%%,%%%,%%%:	Remaining memory size of the external USB memory	0 to 09,999,999 (Kbyte)
####:	Remaining memory size for PC command storage area in the internal memory	0 to 3072 (Kbyte)
&&&&:	Remaining memory size for writable character storage area	0 to 3147 (Kbyte)

NOTES:

1. *When the ribbon near end detection is enabled, the error LED blinks at a 1-second interval (ON for 500 msec. OFF for 500 msec.) while the printer is in a ribbon near end state.*
2. *When there is command error in received commands, up to 42 bytes of error command, starting from the command code, are shown on 3rd and 4th lines of the LCD.*
   (However, [LF] and [NUL] are not displayed. Also, 43 bytes and later are not displayed.)

Display example

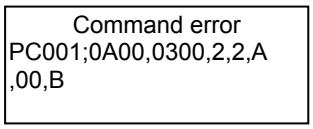


(Example 1)

[ESC] PC001;0**A**00,0300,2,2,A,00,B [LF][NUL]

Command error

LCD

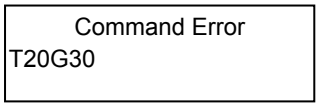


(Example 2)

[ESC]T20**G**30[LF][NUL]

Command error

LCD

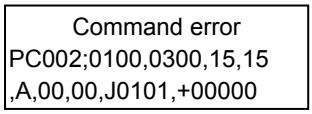


(Example 3)

[ESC] PC002;0100,0300,15,15,A,00,00,J0101,+000000000**A**,Z10,P1[LF][NUL]

Command error

LCD



3. *When a command error is displayed, the code other than 20H - 7FH and A0H - DFH is displayed as "?" (3FH).*
4. *The battery check does not work when the printer is being reset and the RTC is not installed.*
5. *It is necessary to follow the procedure below to use RTC function under a low battery condition:*
   Turn off the printer power while the printer is in an error state. Start the printer in the system mode, set the date and time for the RTC again, then reset the printer to place the printer in online state.
   ** The printer can print the programmed date and time until it is turned off.*

LCD message (2nd line)

No	English
1	ONLINE
2	HEAD OPEN
3	PAUSE
4	COMMS ERROR
5	PAPER JAM
6	CUTTER ERROR
7	NO PAPER
8	NO RIBBON
9	HEAD OPEN
10	HEAD ERROR
11	EXCESS HEAD TEMP
12	RIBBON ERROR
13	REWIND FULL
14	SAVING ####KB/&&&&KB SAVING %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
16	NOW LOADING…
17	SETTING MODE
18	MEMORY WRITE ERR.
19	FORMAT ERROR
20	MEMORY FULL
21	SYNTAX ERROR
22	POWER FAILURE
23	EEPROM ERROR
24	SYSTEM ERROR
25	DHCP CLIENT INIT…
26	RFID WRITE ERROR
27	RFID ERROR
28	INPUT PASSWORD
29	PASSWORD INVALID
30	RFID CONFIG ERR
31	LOW BATTERY
32	INTERNAL COM ERR

No	German
1	ONLINE
2	Kopf offen.
3	PAUSE
4	Kommunikations-Fehler
5	PAPIERSTAU
6	Messer Fehler
7	Kein Papier.
8	KEIN FARBBAND
9	Kopf offen.
10	Kopf Fehler
11	Kopftemp. zu hoch
12	FARBBAND FEHLER
13	AUFWICKLER VOLL
14	SAVING ####KB/&&&&KB SAVING %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
16	NOW LOADING...
17	SETTING MODE
18	MEMORY WRITE ERROR
19	FORMAT ERROR
20	Speicher voll
21	SYNTAX ERROR
22	POWER FAILURE
23	EEPROM Fehler
24	SYSTEM ERROR
25	DHCP CLIENT INIT...
26	RFID WRITE ERROR
27	RFID FEHLER
28	INPUT PASSWORD
29	PASSWORT ungültig
30	RFID CONFIG Error
31	Batterie schwach
32	INTERNAL COMM ERROR

No	French
1	PRETE
2	TÊTE OUVERTE
3	PAUSE
4	ERREURS DE COMMUNICAT
5	BOURRAGE PAPIER
6	ERREUR MASSICOT
7	PAS DE PAPIER
8	PAS DE RUBAN
9	TÊTE OUVERTE
10	ERREUR DE TÊTE
11	TETE TROP CHAUDE
12	ERREUR RUBAN
13	REENROULEUR PLEIN
14	SAUVE ####KB/&&&&KB SAUVE %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
16	CHARGEMENT ...
17	MODE REGLAGES
18	ERR. ECRITURE MÉMOIRE
19	ERREUR DE FORMAT
20	MÉMOIRE PLEINE
21	ERREUR DE SYNTAXE
22	ERREUR D'ALIMENTATION
23	ERREUR EEPROM
24	ERREUR SYSTÈME
25	INIT CLIENT DHCP ...
26	ERREUR ECRITURE RFID
27	ERREUR RFID
28	INPUT PASSWORD
29	MOT DE PASSE INVALIDE
30	ERREUR CONFIG. RFID
31	BATTERIE FAIBLE
32	ERREUR COMM. INT.

No	Dutch
1	IN LIJN
2	PRINTKOP OPEN.
3	PAUZE
4	COMMUNICATIE FOUT
5	PAPIER STORING.
6	FOUT SNIJMES
7	GEEN PAPIER
8	GEEN LINT
9	PRINTKOP OPEN.
10	FOUT PRINTKOP
11	PRINTKOP OVERHIT.
12	LINT FOUT
13	OPROLEENHEID VOL
14	OPSLAAN ####KB/&&&&KB OPSLAAN %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
16	LADEN . . .
17	INSTELMODUS
18	MEM SCHRIJF FOUT
19	FORMAT FOUT
20	GEHEUGEN VOL
21	SYNTAX FOUT
22	VOEDING FOUT
23	FOUT EEPROM
24	SYSTEEM FOUT.
25	INIT CLIENT DHCP
26	SCHRIJFFOUT RFID
27	RFID FOUT
28	INPUT PASSWORD
29	ONGELDIG PASWOORD
30	RFID CONFIG. FOUT
31	LAGE BATTERIJ.
32	INTERNE COMM. FOUT

No	Spanish
1	PREPARADA
2	CABEZAL ABIERTO
3	PAUSA
4	ERROR DE COMUNICACION
5	ATASCO DE PAPEL
6	ERROR DE CORTADOR
7	SIN PAPEL
8	SIN CINTA
9	CABEZAL ABIERTO
10	ERROR DE CABEZAL
11	EXCESO TEMP. CABEZAL
12	ERROR DE CINTA
13	REBOBINADOR LLENO
14	SALVAR ####KB/&&&&KB SALVAR %%,%%%,%%%KB
15	FORMATO ####KB/&&&&KB FORMATO %%,%%%,%%%KB
16	CARGANDO...
17	MODO CONFIG.
18	ERROR DE ESCRITURA
19	ERROR DE FORMATO
20	MEMORIA LLENA
21	ERROR DE SINTAXIS
22	FALLO DE ALIMENTACION
23	ERROR EN LA EEPROM
24	ERROR DE SISTEMA
25	INIC. CLIENTE DHCP...
26	ERROR ESCRITURA RFID
27	ERROR EN RFID
28	INPUT PASSWORD
29	CONTRASEÑA NO VALIDA
30	ERROR DE CONFIG. RFID
31	BATERIA BAJA
32	ERR INTERNO COMUNIC.

No	Japanese
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No	Italian
1	On Line
2	Testina Aperta
3	PAUSA
4	Errore Seriale
5	Carta inceppata
6	Errore Taglierina
7	Manca Carta
8	Manca Nastro
9	Testina Aperta
10	ERRORE TESTINA
11	Temp. testa alta
12	ERRORE NASTRO
13	REWINDER PIENO
14	SALVA ####KB/&&&&KB SALVA %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB FORMAT %%,%%%,%%%KB
16	CARICAMENT
17	Configurazione
18	Err. Scritt. memoria
19	ERRORE FORMATTAZIONE
20	Memoria piena
21	SYNTAX ERROR
22	ERRORE ALIMENT.
23	Errore EEPROM
24	SYSTEM ERROR
25	DHCP CLIENT INIT...
26	RFID WRITE ERROR
27	RFID ERROR
28	INPUT PASSWORD
29	PASSWORD ERRATA
30	RFID CONFIG ERR
31	BATTERIA BASSA
32	Errore Comm Interna

No	Portuguese
1	PREPARADA
2	CABECA ABERTA
3	PAUSA
4	ERRO DE COMUNICACAO
5	PAPEL ENCRAVADO
6	ERRO DE CORTADOR
7	SEM PAPEL
8	SEM FITA
9	CABECA ABERTA
10	ERRO DE CABECA
11	EXCESSO TEMP. CABECA
12	ERRO DE FITA
13	REBOBINADOR CHEIO
14	SALVAR ####KB/&&&&KB SALVAR %%,%%%,%%%KB
15	FORMATO ####KB/&&&&KB FORMATO %%,%%%,%%%KB
16	A CARREGAR...
17	MODO CONFIG.
18	ERRO DE ESCRITA
19	ERRO DE FORMATO
20	MEMORIA CHEIA
21	ERRO DE SINTAXE
22	FALHA DE ALIMENTACAO
23	ERRO NA EEPROM
24	ERRO DE SISTEMA
25	INIC. CLIENTE DHCP...
26	ERRO ESCRITA RFID
27	ERRO EM RFID
28	INPUT PASSWORD
29	SENHA INVALIDA
30	ERRO DE CONFIG. RFID
31	POUCA BATERIA
32	ERR INTERNO COMUNIC.

No	Chinese
1	ONLINE
2	打印头打开
3	暂停
4	通讯错误
5	卡纸
6	切刀错误
7	缺纸
8	无碳带
9	打印头打开
10	打印头错误
11	过高打印头温度。
12	碳带错误
13	回卷器满
14	保存 ####KB/&&&&KB 保存 %%,%%%,%%%KB
15	格式化 ####KB/&&&&KB 格式化 %%,%%%,%%%KB
16	正在加载…
17	设置模式
18	内存写入错误
19	格式化错误
20	内存满
21	语法错误
22	电源故障
23	EEPROM 错误
24	系统错误。
25	DHCP 客户端初始化…
26	RFID 写入错误
27	RFID 错误
28	INPUT PASSWORD
29	密码无效
30	RFID 配置错误
31	电量低
32	内部通讯错误

No	Korean
1	온라인
2	헤드 열림
3	PAUSE
4	통신 에러.
5	용지 잼
6	커터 에러
7	종이가 없습니다.
8	리본이 없습니다.
9	헤드 열림
10	써멀헤드 에러.
11	헤드 이상 과열.
12	리본 에러
13	리와인더에 가득 참
14	등록 ####KB/&&&&KB
	등록 %%,%%%,%%%KB
15	초기화 ####KB/&&&&KB
	초기화 %%,%%%,%%%KB
16	등록중
17	설정 모드 중
18	메모리 쓰기 에러.
19	초기화 에러
20	메모리 오버
21	커맨드 에러
22	전원 이상
23	EEPROM 에러
24	시스템 에러
25	DHCP CLIENT 초기화중
26	RFID 쓰기 에러
27	RFID 에러
28	INPUT PASSWORD
29	패스워드 에러
30	RFID 설정 에러
31	배터리 저전압
32	내부 시리얼 에러

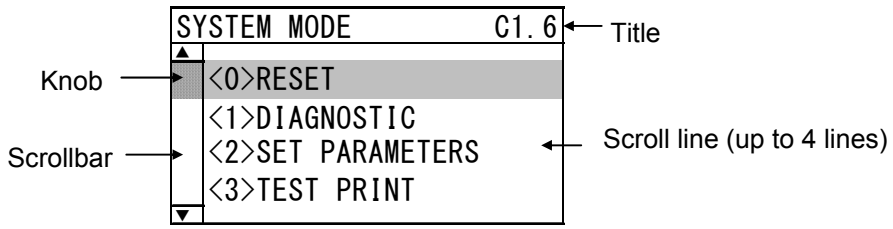
No	Turkish
1	ONLINE
2	Kafa açık
3	PAUSE
4	İLETİŞİM HATASI
5	Kağıt sıkışması
6	KESİCİ HATASI
7	Kağıt yok
8	Ribbon yok
9	Kafa açık
10	Kafa hatası
11	Kafada aşırı ısınma
12	RIBBON HATASI
13	SARICI DOLU
14	KAYIT ####KB/&&&&KB
	KAYIT %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB
	FORMAT %%,%%%,%%%KB
16	YÜKLÜYOR…
17	AYAR MODU
18	Hafızaya yazma hatası
19	FORMAT hatası
20	Hafıza dolu
21	SYNTAX HATASI
22	GÜÇ HATASI
23	EEPROM hatası
24	SISTEM HATASI
25	DHCP istemci başlıyor
26	RFID YAZMA HATASI
27	RFID HATASI
28	INPUT PASSWORD
29	GEÇERSİZ ŞİFRE
30	RFID AYAR HATASI
31	DÜŞÜK PİL
32	İç iletişim hatası

No	Polish
1	ONLINE
2	OTWARTA GŁOWICA.
3	PAUZA
4	BŁĄD COMMS
5	ZACIĘCIE PAPIERU
6	BŁĄD NOŻA
7	BRAK PAPIERU
8	BRAK TAŚMY
9	OTWARTA GŁOWICA.
10	BŁĄD GŁOWICY
11	PRZEKR TEMP GŁOWICY
12	BŁĄD TAŚMY
13	NAWIJAK PEŁEN
14	ZAPIS ####KB/&&&&KB
	ZAPIS %%,%%%,%%%KB
15	FORMAT ####KB/&&&&KB
	FORMAT %%,%%%,%%%KB
16	ŁADOWANIE...
17	TRYB USTAWIEŃ
18	BŁĄD ZAPISU PAMIĘCI
19	BŁĄD FORMATOWANIA
20	PAMIĘĆ PEŁNA
21	BŁĄD SKŁADNI
22	BŁĄD ZASILANIA
23	BŁĄD EEPROM
24	BŁĄD SYSTEMU
25	INICJ KLIENTA DHCP...
26	BŁĄD ZAPISU RFID
27	BŁĄD RFID
28	INPUT PASSWORD
29	BŁĘDNE HASŁO
30	BŁĄD KONFIG RFID
31	SŁABA BATERIA
32	WEWN. BŁĄD COMM

11. DISPLAY PATTERN AND KEY OPERATION FOR SYSTEM MODE AND USER SYSTEM MODE

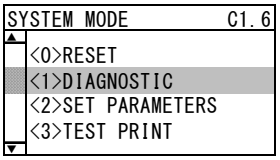
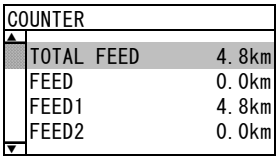
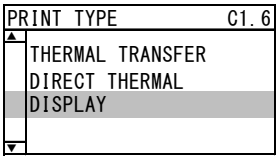
11.1 LIST BOX WITH SCROLLBAR

The list box is used for displaying the menus or items to be selected. It is comprised of the following parts.



The knob appears on the scrollbar when the number of scroll lines is over 4 lines.

There are three types of list box with scrollbar, as follows.

	Display
Menu screen (without setting value)	
Menu screen (with setting value)	
Setting value selection screen	

Key function (Menu screen)

Key	Substitute Key	Function
[MODE]	None	Returns to the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[ENTER]	[PAUSE]	Displays a next screen.
[UP]	[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[DOWN]	[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[LEFT]	None	No function
[RIGHT]	None	No function

Key function (value setting display)

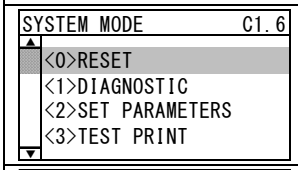
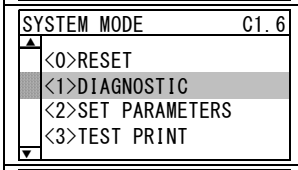
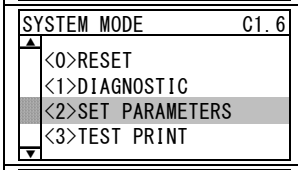
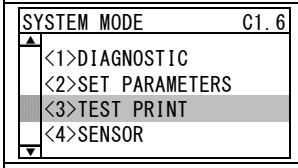
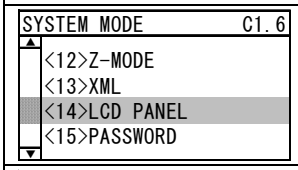
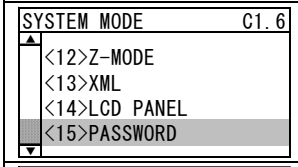
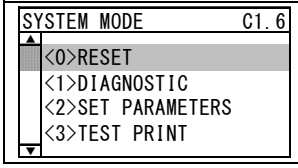
Key	Substitute Key	Function
[MODE]	None	Returns to the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[ENTER]	[PAUSE]	Saves the changes and returns to the upper-level menu.
[UP]	[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[DOWN]	[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[LEFT]	None	No function
[RIGHT]	None	No function

NOTE:

Printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above ([FEED]+[RESTART]).

Movement of the cursor in screen scroll

The cursor moves in the following way with a press the [UP] or [DOWN] key. The following table shows the example of press the [DOWN] key. The [UP] key functions in the same way.

Display	Key operation	Explanation
		
	Press the [DOWN] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
	Press the [DOWN] key.	The position of the displayed menus remains unchanged and only the cursor moves down to the next item.
	Press the [DOWN] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
:	:	
	Press the [DOWN] key.	The entire menu list moves up by one line and the cursor moves down to the next item.
	Press the [DOWN] key.	The position of the menu list remains unchanged and only the cursor moves down to the next item.
	Press the [DOWN] key.	When the cursor is positioned at the bottom of the list, the menu and the cursor scroll from the bottom to the top.

NOTES:

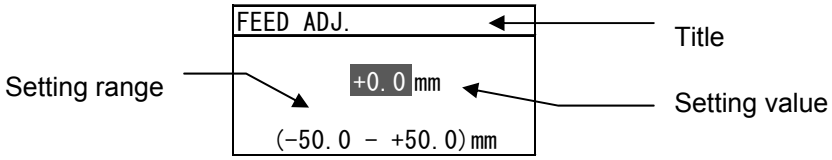
1. *Cursor position when shifting from upper-level menu to its sub menu*
   When shifting from upper-level menu to its sub menu, the cursor is positioned at the topmost item except for RFID setting menu (because the RFID menu items show the setting value).
2. *Cursor position when shifting from upper-level menu to its subordinate value setting screen*
   When shifting from upper-level menu to its subordinate value setting screen, the cursor is positioned at the currently selected item.
3. *Cursor position when shifting from sub menu or value setting screen to its upper-level menu*
   When shifting from lower menu or value setting screen to its upper-level menu, the cursor is positioned at the previously selected item.

4. *When the [MODE] key is pressed while the main menu is displayed:*
   When the [MODE] key is pressed while the main menu of the system mode or user system mode is displayed, the cursor is positioned at the topmost item.
5. *When the [CANCEL] key is pressed while the main menu is displayed:*
   When the [CANCEL] key is pressed while the main menu of the system mode or user system mode is displayed, the cursor does not move from the current position.

11.2 VALUE SETTING SCREEN

The value setting screen is used for setting a value by increasing or decreasing it.
It is comprised of the following parts.

Display example



NOTES:

1. *The currently programmable item is highlighted.*
2. *The display of the symbols like "+" and "-", and the unit of measure like "mm" and "step" differs depending on the item to be set.*

	Display
Setting screen with one field	FEED ADJ. +0.0 mm (−50.0 − +50.0)mm
Setting screen with multiple fields (placed horizontally)	IP ADDRESS 192.168.010.002
Setting screen with multiple fields (placed vertically)	READ RETRY 5 times (0 − 255)times 4.0 sec (0.0 − 9.9)sec

Key function (Setting screen with one field)

Key	Substitute Key	Function
[MODE]	None	Returns to the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Returns to the upper-level menu without saving changes.
[ENTER]	[PAUSE]	Saves the changes and returns to the upper-level menu.
[UP]	[RESTART]	Increases the setting value by specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[DOWN]	[FEED]	Decreases the setting value by specified step. When the setting value reaches the minimum, it returns to the maximum value and decreases.
[LEFT]	None	No function
[RIGHT]	None	No function

Key operation (Setting screen with multiple fields (horizontal))

Key	Substitute Key	Function
[MODE]	None	Return to the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Return to the upper-level menu without saving changes.
[ENTER]	[PAUSE]	Save the changes and returns to the upper-level menu.
[UP]	[RESTART]	Increases the setting value by specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[DOWN]	[FEED]	Decreases the setting value by specified step. When the setting value reaches the minimum, it returns to the maximum value and decreases.
[LEFT]	None	Moves the cursor to the left field. The cursor does not move any further when the left-most field is selected.
[RIGHT]	None	Moves the cursor to the right field. The cursor does not move any further when the right-most field is selected.

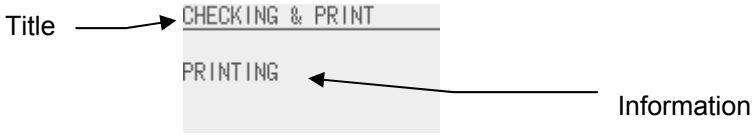
Key function (Setting screen with multiple fields (vertical))

Key	Substitute Key	Function
[MODE]	None	Return to the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Return to the upper-level menu without saving changes.
[ENTER]	[PAUSE]	Save the changes and returns to the upper-level menu.
[UP]	[RESTART]	Increases the setting value by specified step. When the setting value reaches the maximum, it returns to the minimum value and increases.
[DOWN]	[FEED]	Decreases the setting value by specified step. When the setting value reaches the minimum, it returns to the maximum value and decreases.
[LEFT]	None	Moves the cursor to the upper field. The cursor does not move any further when the topmost field is selected.
[RIGHT]	None	Moves the cursor to the lower field. The cursor does not move any further when the bottom field is selected.

11.3 INFORMATION SCREEN

The information screen is used when there is no settings are configured.
It is comprised with the following:

Display example



	Display
	CHECKING & PRINT PRINTING
Scroll	FILE MAINTENANCE 00 ZEBRASTMSX5. 01 ---------- 02 SHORT.BAS 03 ----------
RFID tag read	ID READ TAG 1/1 00010203 04050607 08090A0B 0C0D0E0F

Key function

Key	Substitute Key	Function
[MODE]	None	Displays the top menu.
[CANCEL]	[FEED] + [RESTART]	Displays the upper-level menu.
[ENTER]	[PAUSE]	Displays the upper-level menu.
[UP]	[RESTART]	No function
[DOWN]	[FEED]	No function
[LEFT]	None	No function
[RIGHT]	None	No function

Key function (Scroll)

Key	Substitute Key	Function
[MODE]	None	Displays the top menu.
[CANCEL]	[FEED] + [RESTART]	Displays the next screen or upper-level menu.
[ENTER]	[PAUSE]	Displays the next screen or upper-level menu.
[UP]	[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[DOWN]	[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top
[LEFT]	None	No function
[RIGHT]	None	No function

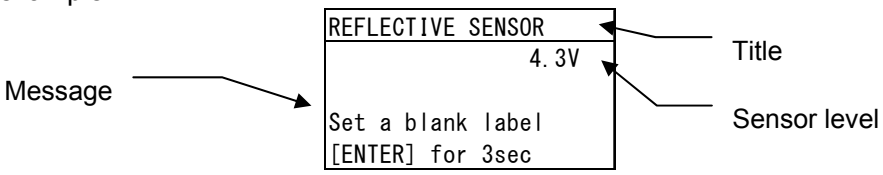
Key function (RFID tag read)

Key	Substitute Key	Function
[MODE]	None	Displays the top menu without saving changes.
[CANCEL]	[FEED] + [RESTART]	Displays the upper-level menu without saving changes.
[ENTER]	[PAUSE]	RFID tag is read again.
[UP]	[RESTART]	Displays the data of the previous tag. The display does not change when the first tag data is being shown.
[DOWN]	[FEED]	Displays the data of the next tag. The display does not change when the last tag data is being shown.
[LEFT]	None	No function
[RIGHT]	None	No function

11.4 SENSOR ADJUSTMENT SCREEN

The sensor adjustment screen is used only when the level of the media sensors on the printer is required to be adjusted.
It is comprised with the following:

Display example



	Display
Before adjustment	REFLECTIVE SENSOR 4.3V Set a blank label [ENTER] for 3sec
After adjustment	REFLECTIVE SENSOR 4.5V * Adjust Complete

Key function (before adjustment)

Key	Substitute Key	Function
[MODE]	None	Displays the top menu.
[CANCEL]	None	Displays the upper-level menu.
[ENTER]	None	When held down for 3 seconds or more, the sensor adjustment is performed. When this key is released within 3 seconds, the screen returns to the upper-level menu.
[UP]	None	No function
[DOWN]	None	No function
[LEFT]	None	No function
[RIGHT]	None	No function

Key function (after adjustment)

Key	Substitute Key	Function
[MODE]	None	Displays the top menu.
[CANCEL]	None	Displays re-adjustment menu.
[ENTER]	None	Displays the upper-level menu.
[UP]	None	No function
[DOWN]	None	No function
[LEFT]	None	No function
[RIGHT]	None	No function

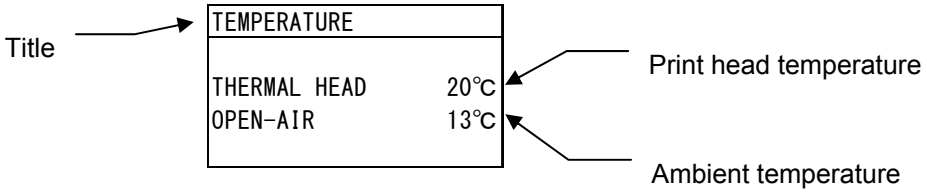
NOTES:

1. *The symbol "*" shown on the right side of the adjustment value indicates the completion of adjustment.*
2. *The voltage value being selected is updated approximately every 200 msec. interval.*

11.5 TEMPERATURE DISPLAY SCREEN

Temperature display screen is used only for displaying the print head temperature and ambient temperature.
It is comprised with the following:

Display example



	Display
Display of temperatures	TEMPERATURE THERMAL HEAD 20℃ OPEN-AIR 13℃

Key function

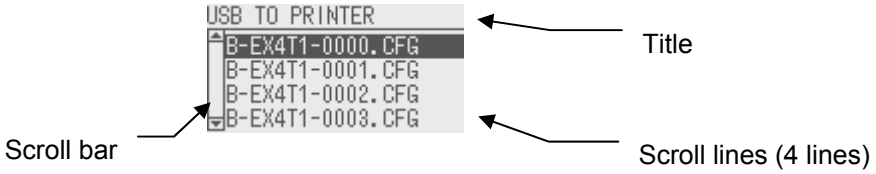
Key	Substitute Key	Function
[MODE]	None	Displays the top menu.
[CANCEL]	None	Displays the upper-level menu.
[ENTER]	None	Displays the upper-level menu.
[UP]	None	No function
[DOWN]	None	No function
[LEFT]	None	No function
[RIGHT]	None	No function

NOTE*: Each temperature is updated approximately every 200 msec. interval.*

11.6 FILE SELECTION SCREEN

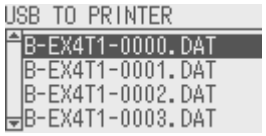
File selection screen is used for selecting a file when copying data from USB memory to the printer.
It is comprised with the following:

Display example



NOTE:
The scrollbar knob on the file selection screen is not displayed regardless of the number of files.

There are two types of file selection screens as follows.

Copy data selection screen	
CFG file selection screen	

Key function

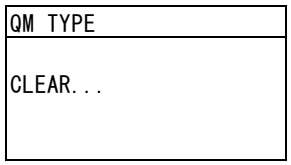
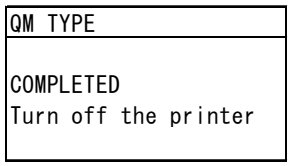
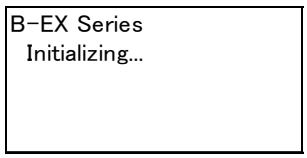
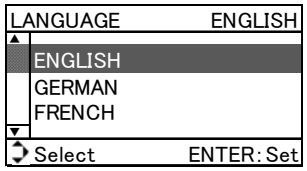
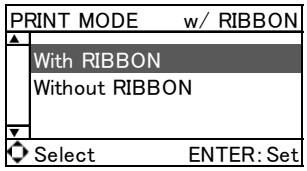
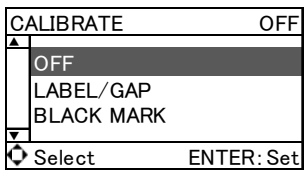
Key	Substitute Key	Function
[MODE]	None	Displays the top menu without selecting a file.
[CANCEL]	[FEED]+[RESTART]	Displays the upper-level menu without selecting a file.
[ENTER]	[PAUSE]	Displays the next page.
[UP]	[RESTART]	Moves the cursor upward. The cursor does not move any further when it is positioned at the top.
[DOWN]	[FEED]	Moves the cursor downward. The cursor does not move any further when it is positioned at the bottom.
[LEFT]	None	No function
[RIGHT]	None	No function

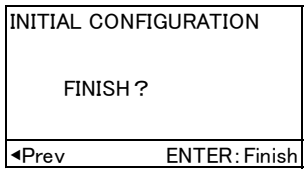
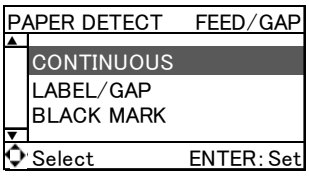
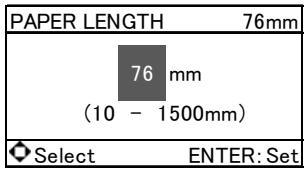
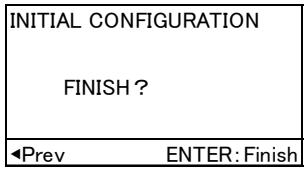
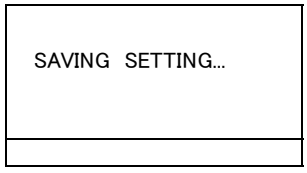
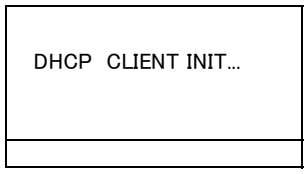
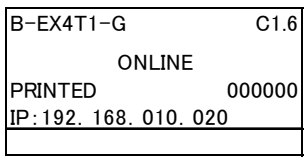
NOTE:
Printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above (e.g. [FEED]+[RESTART]).

12. INITIAL SETTING WIZARD

Only when the printer is started for the first time after clears a parameter, the initial setting wizard is started. This wizard enables setting the basic parameters, such as the LCD language and print mode, required for various printer settings. The values set with this wizard can be modified in the system mode and by commands.

Example of the Initial Setting Wizard Operation

	RAM clear with QM type selected	
1. Clears a parameter.	 ↓  ↓ Power OFF/ON  ↓	
2. The initial setting wizard is started.	 ↓ [ENTER] key	
3. Select a language.	 ↓ [ENTER] key	Choose an option with the [UP] or [DOWN] key.
4. Print mode	 ↓ [ENTER] key	Choose an option with the [UP] or [DOWN] key.
5. Select a calibration type.		Choose an option with the [UP] or [DOWN] key.
6.-1 When an option other than “OFF” is selected for CALIBRATE		

	6.-1-1 Finish	 ↓ [ENTER] key. 7. The settings are saved.	
6.-2 When “OFF” is selected for CALIBRATE			
	6.-2-1 Media detection	 ↓ [ENTER] key	Choose an option with the [UP] or [DOWN] key.
	6.-2-2 Media length	 ↓ [ENTER] key	Set a value with the [UP] or [DOWN] key.
	6.-2-3 Finish	 ↓ [ENTER] key. 7. The settings are saved.	
7. The settings are saved.		 ↓	
8. DHCP client is initialized.		 ↓	
9. Online mode			

Key functions (Wizard screen)

Key	Substitute key	Function
[MODE]	None	Displays the top page without saving the changes.
[CANCEL]	[FEED] + [RESTART]	Displays the upper level menu without saving the changes.
[ENTER]	[PAUSE]	In the case of option selection screen, save the changes and displays the next screen.
[UP]	[RESTART]	Moves the cursor upward. When the cursor is positioned at the top of the list, it scrolls from the top to the bottom.
[DOWN]	[FEED]	Moves the cursor downward. When the cursor is positioned at the bottom of the list, it scrolls from the bottom to the top.
[LEFT]	None	Displays the next screen without saving the changes.
[RIGHT]	None	Displays the upper-level screen without saving the changes.

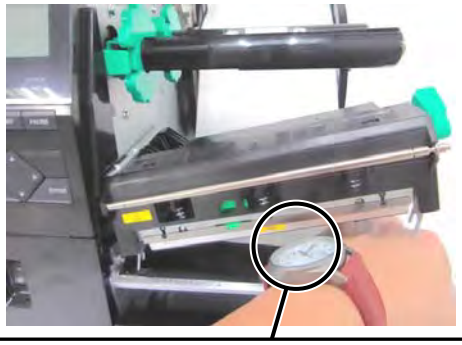
NOTE:
Printer operation is not guaranteed when multiple keys are pressed at the same time except for those mentioned above ([FEED]+[RESTART]).

13. PERIODIC MAINTENANCE PROCEDURE

All machines are generally delivered in their best condition. To maintain optimal operating condition and help gain maximum performance and life of machines, we would recommend you to conduct periodic maintenance. Doing this is also effective in preventing unexpected troubles and avoiding wasteful system down time, by which more benefit is produced to your customers and greater reliance is placed on the product quality.
Please refer to the following general maintenance procedure and perform periodic servicing.

CAUTION!

When replacing parts or performing maintenance on the printer, be careful not to damage the print head with a hard object like a watch or a ring.



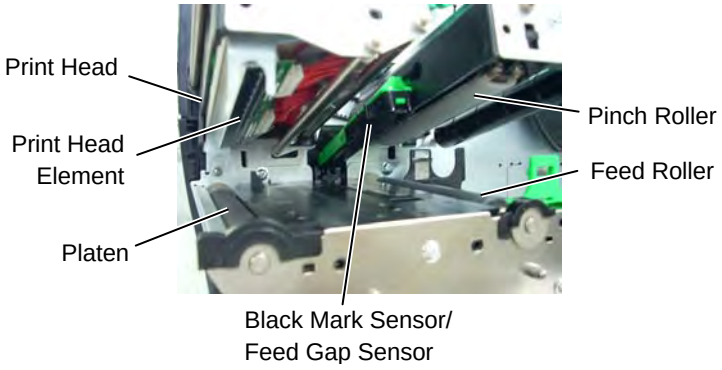
Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.

Care must be taken not to allow a metal object like a ring to touch the print head edge.

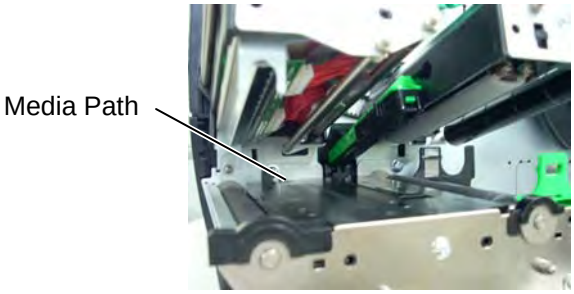
Since the print head element can be easily damaged by shock, please treat it carefully by not hitting a hard object against it.

NOTE: *Before starting the periodic maintenance, be sure to read carefully and understand the Service Manuals, especially warnings, cautions and adjustment.*

1. Ask an operator or a manager about any machine trouble.
2. Check the run distance on the maintenance counter.
3. Turn the power off and disconnect the power cord.
4. Open the top cover.
5. Clean the inside of the printer.
   (1) The entire inside of the printer should be cleaned.
   (2) Wipe the platen, capstan roller, and pinch roller with a cloth moistened with alcohol.
   (3) Clean the print head elements with the TOSHIBA TEC-approved print head cleaner.



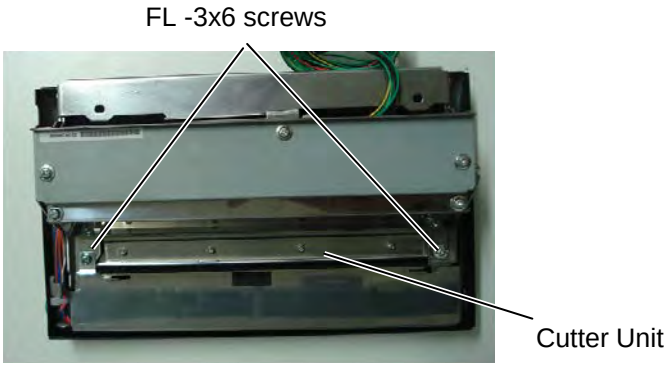
(4) Remove paper debris or label glue from the media path.



(5) When using the cutter unit, clean the cutter blade and the media path.

WARNING!
When cleaning the cutter, be careful not to be injured by the cutter blade.

1. Loosen the two FL -3x6 screws to remove the Cutter Cover.
2. Remove the jammed paper.
3. Clean the Cutter with a soft cloth slightly moistened with alcohol.
4. Attach the Cutter Cover.



6. Apply FLOIL HTM-308 to the cutter unit using a soft cloth.

> ***CAUTION!***
> *1. Lubrication: During parts replacement*
> *2. Kinds of oil: FLOIL HTM-308: 1 Kg can. (Parts No. W0-00916000)*
> *3. Do not spray the inside of the printer with lubricants. Unsuitable oil can damage the mechanism.*

All machines are generally delivered in their best condition. Efforts should be made to keep them that way. Lack of oil, or the presence of debris or dust, may cause an unexpected failure. To maintain in optional operating condition, periodically clean the machine and apply the proper kind of oil to each part in which lubrication is needed.
Although the frequency of lubrication varies according to how often the machine is used, as a minimum it is necessary to lubricate before any part becomes dry. It is also necessary to wipe off excessive oil or it will collect dirt.

7. Confirm that the problem occurs as reported, and then take corrective action.
8. Replace the following parts periodically, if necessary. The following table shows approximate product life for each part.

No.	Part Name	Standard interval of replacement
1	Cutter unit (Option: B-EX206-QM-R)	300,000 cuts
2	Platen	50 km
3	Feed Roller	50 km
4	Pinch Roller	50 km

NOTES: *1. The above values of the cutter life are obtained on condition that the periodically maintained cutter is used with Toshiba Tec-approved supplies by the proper method described in the manuals.*
2. The above values differ depending on the thickness and substances of the media to be used. When using the cutter to cut the labels, be sure to cut the backing paper. Failure to do this may cause the glue to stick to the cutter and shorten the cutter life.

9. Confirm each part adjustment. Make any necessary adjustments.

10. Conduct the following tests and make sure that there is no problem.
    (1) Print test with TOSHIBA TEC-approved media and ribbon. (Print tone, print head position, etc.)
    (2) Print start position adjustment (Horizontal: media position, vertical: sensor adjustment/adjustment by issuing commands.)
    (3) Communication test
    (4) Abnormal noise
    (5) Confirm that there are not any other errors.
11. Close the top cover.
12. Clean the outside of the printer.
13. Fill out a report form. Hand it to the manager and obtain a signature.

14. TROUBLESHOOTING

Problems	Cause	Solution
Power does not turn ON.	1. Input voltage to the printer is not within the rated voltage. (Check by connector on the PS unit.)	Replace the power cable or power inlet. Replace the PS unit.
	2. Output voltage from the printer is not within the rated voltage. [Check that the voltage between +24V pins and PG pins of connector on the PS unit is 24V. And check that the voltage between +5V and SG is 5V.]	
	3. No voltage to the MAIN PC board. [Check that the voltage between +27V and PG pins of connector on the MAIN PC board is 24V. And check that the voltage between +5V and LG is 5V.]	Replace the power harness. Replace the MAIN PC board.
	4. Failure of MAIN PC board.	
LED or LCD does not light.	1. Failure of the panel PC board or operation panel	Replace the panel PC board or operation panel.
	2. Failure of the operation panel harness	Replace the operation panel harness.
	3. Failure of the MAIN PC board	Replace the MAIN PC board.
Poor printing	1. Poor media quality.	Use the media approved by TOSHIBA TEC.
	2. Dirty print head	Clean the print head.
	3. The print head block is not set completely.	Close the print head block completely.
Printer does not print.	1. Print head failure	Replace the print head.
	2. Connection of the print head connector is incomplete, a bad contact, or broken elements.	Connect the harness completely, or replace the harness.
	3. Failure in rewinding/feeding of the ribbon.	Replace the ribbon take-up motor, ribbon feed motor or MAIN PC board.
	4. Failure of the MAIN PC board.	Replace the MAIN PC board.
	5. Failure of the software	Check the program.
	6. Failure of the printer cable.	Replace the printer cable.
Dot missing	1. Broken print head element	Replace the print head.
	2. Broken print head cable wires	Replace the print head harness.
	3. Failure of the MAIN PC board	Replace the MAIN PC board.
Blurred print	1. Poor media quality.	Use only TOSHIBA TEC-approved media.
	2. Dust is on the media.	Clean the print head and remove any dust from the media.

Problems	Cause	Solution
Ribbon wrinkle	1. Poor ribbon quality.	Use only TOSHIBA TEC-approved ribbon.
	2. Ribbon is not rewound or fed smoothly.	Replace the ribbon rewind motor or ribbon feed motor.
Media feed failure	1. Media is not set properly.	Set the media properly.
	2. Poor media quality	Use the media approved by TOSHIBA TEC.
	3. Improper adjustment of the feed gap sensor or black mark sensor.	Re-adjust the sensor.
	4. Threshold is improper.	Set the threshold correctly.
	5. Failure of the feed gap sensor or black mark sensor	Replace the feed gap sensor or black mark sensor.
	6. The cutter mechanism is not installed properly.	Install the cutter module properly.
	7. Failure of the stepping motor.	Replace the stepping motor or MAIN PC board.
Communication error	1. Failure of the communication cable	Replace the cable.
	2. Failure of the RS-232C connector	Replace the connector
	3. Failure of the communication connector	Replace the connector.
	4. Failure of the PC or application software	Modify the program.
	5. Failure of the MAIN PC board	Replace the MAIN PC board.

15. MAJOR UNIT REPLACEMENT

WARNING!
Turn the power off and disconnect the power cord before replacing the main parts.

CAUTION!

When replacing parts or performing maintenance on the printer, be careful not to damage the print head with a hard object like a watch or a ring.

Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.

Care must be taken not to allow a metal object like a ring to touch the print head edge.

Since the print head element can be easily damaged by shock, please treat it carefully by not hitting a hard object against it.

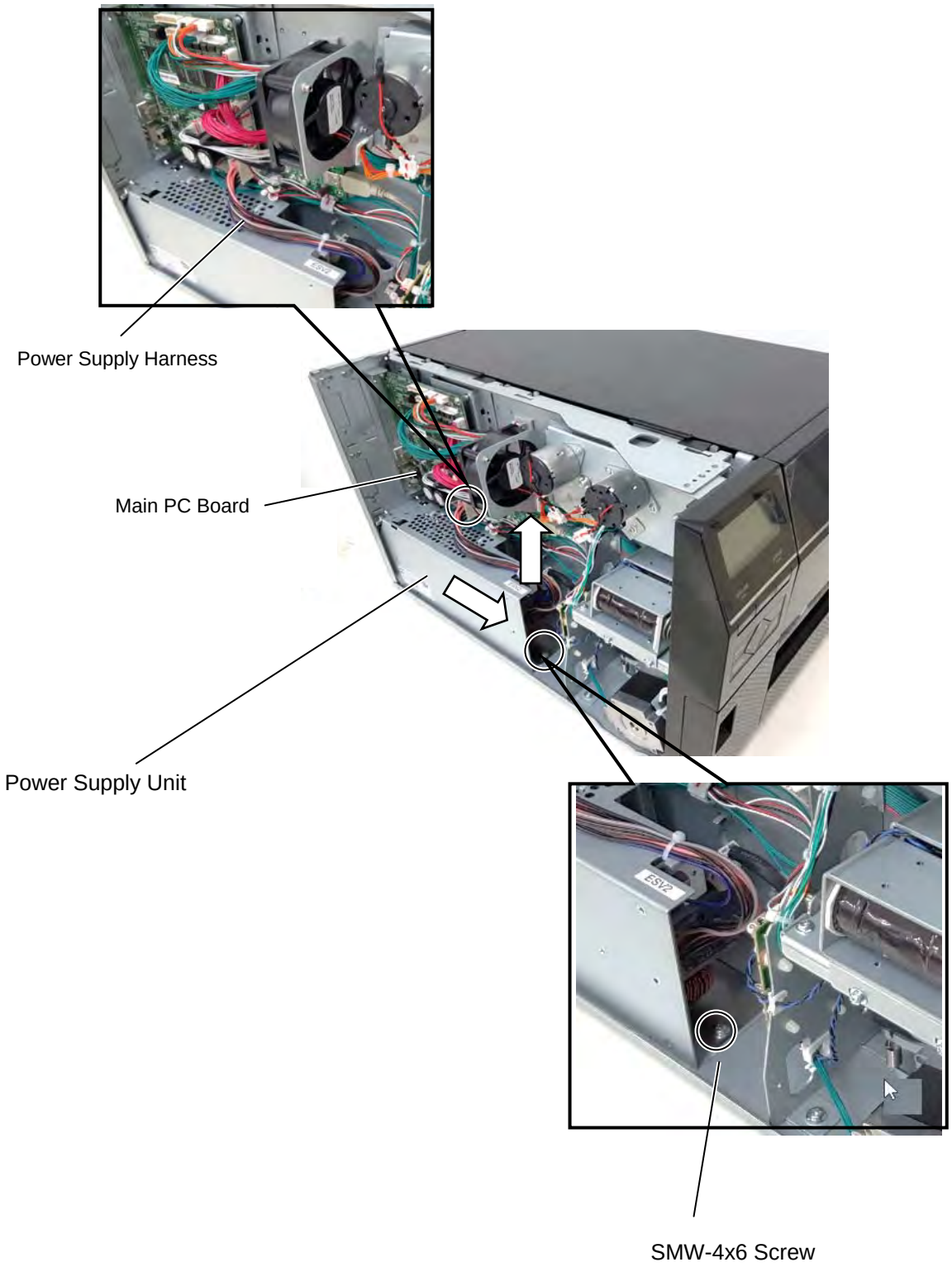
NOTE:

Be sure to disconnect all cables of the printer from the PC and the option devices.

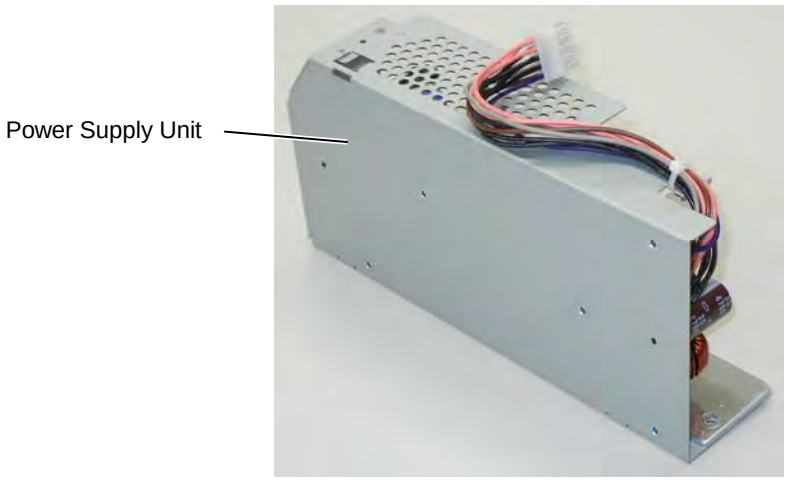
Never remove the screws fixing the print head block. (See Caution in Section 3.)

15.1 POWER SUPPLY UNIT

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the power supply harness from the Main PC board.
3) Remove the SMW-4x6 screw to detach the power supply unit from the printer.



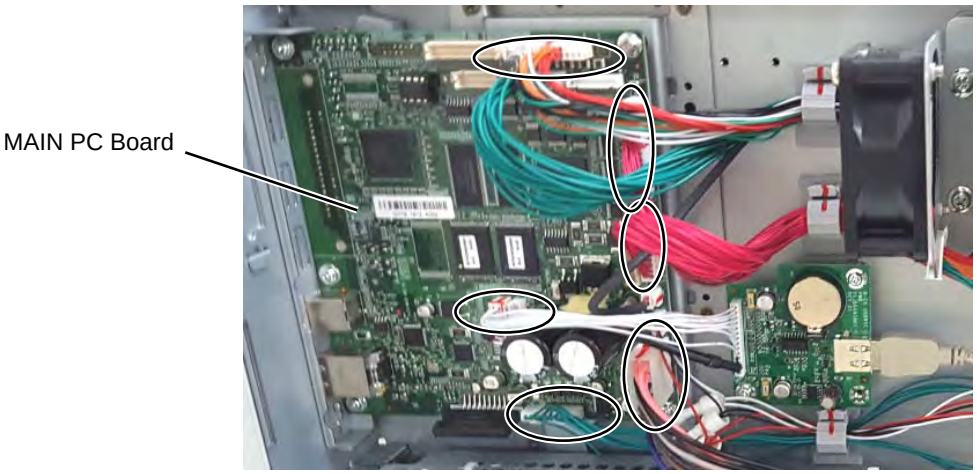
4) Replace the power supply unit with a new one, then reassemble in the reverse order of removal.



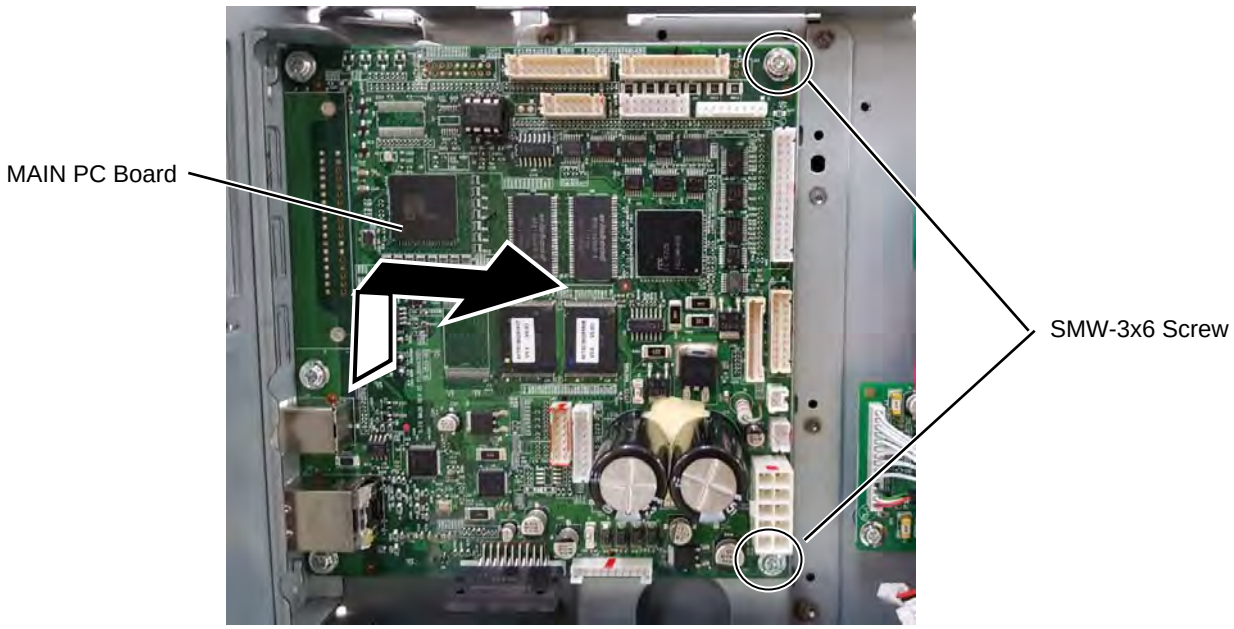
15.2 MAIN PC BOARD

***NOTE**:*
After the MAIN PC board is replaced, the printer settings will be reset. Therefore, a copy of the current printer settings needs to be taken in advance using any of the following methods.
(1) By using the Printer Setting Tool, save the current settings prior to a replacement of the MAIN PC board, and download these settings to the printer after the replacement.
(2) Print out the maintenance counter values and parameter settings in the system mode prior to a replacement of the MAIN PC board, and set the parameter settings as they were after the replacement.

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the all cables from the MAIN PC board.



3) Remove the two SMW-3x6 screws, slightly lift and move the MAIN PC board in the direction of the arrow.



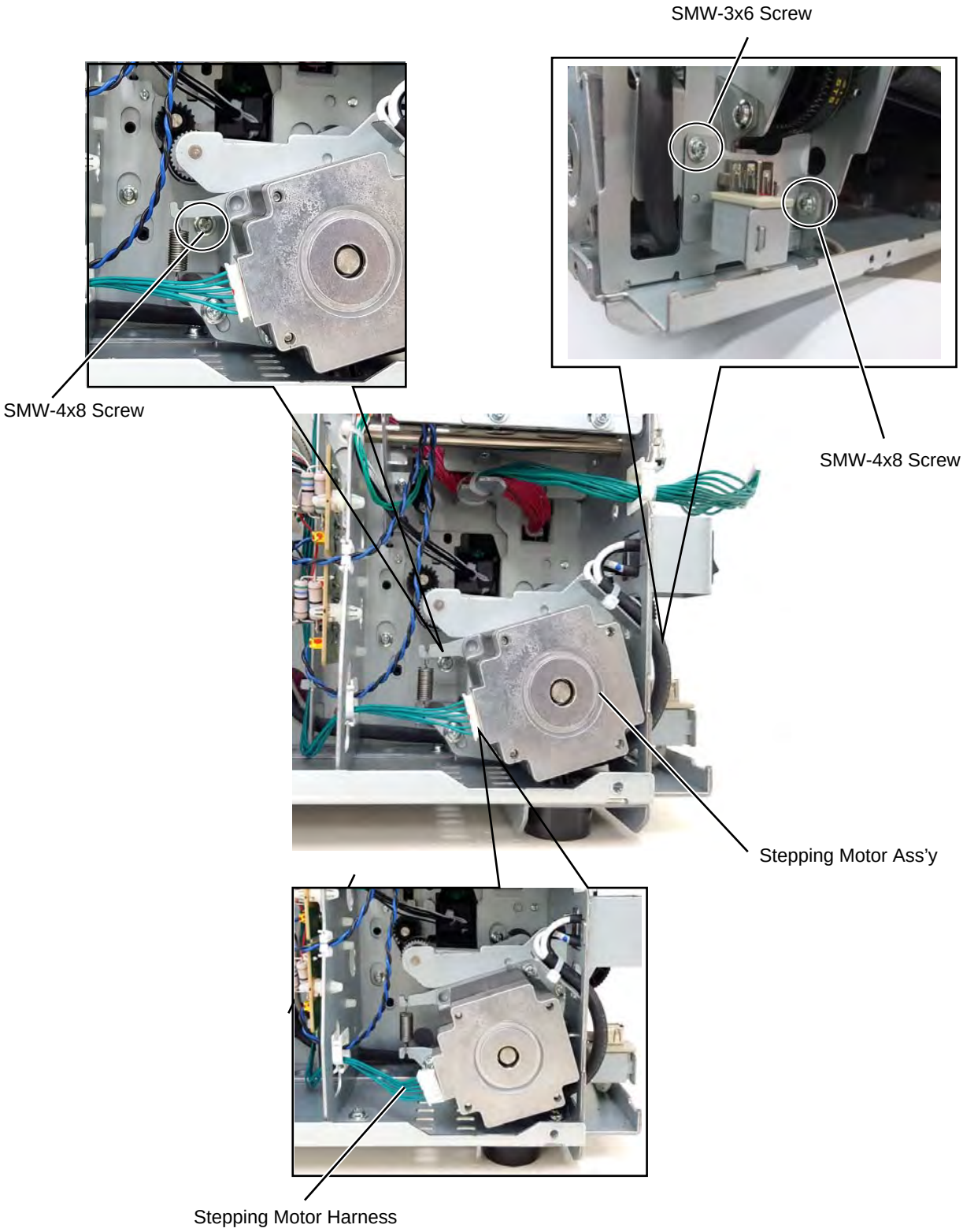
4) Replace the Main PC board with a new one, then reassemble in the reverse order of removal.

15.3 OPERATION PANEL ASS'Y

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Remove the operation panel ass'y. (Refer to Section 3.4.)
3) Replace the operation panel ass'y with a new one, then reassemble in the reverse order of removal.

15.4 STEPPING MOTOR ASS'Y

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Remove the SMW-3x6 screw to detach the USB connector.
3) Disconnect the stepping motor harness from the stepping motor ass'y.
4) Remove the two SMW-4x8 screws to detach the stepping motor ass'y.

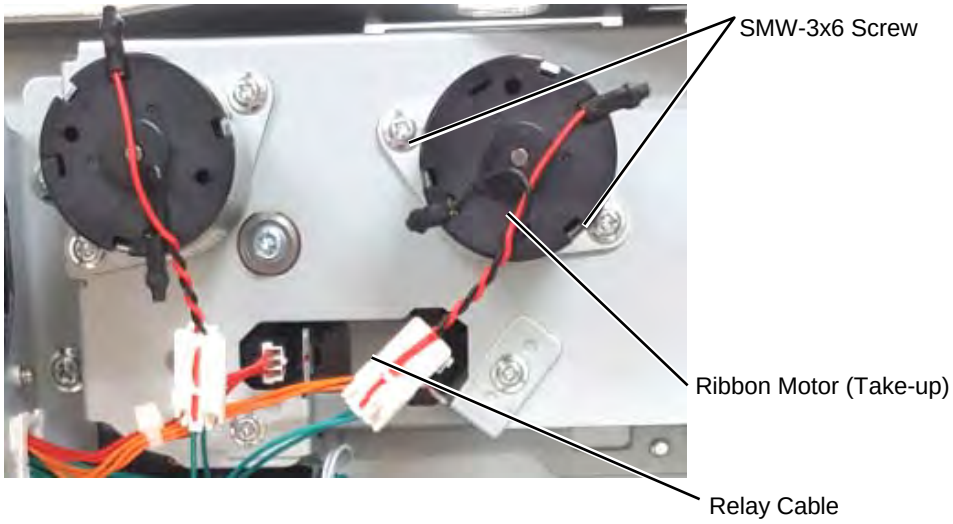


5) Replace the stepping motor ass'y with a new one, then reassemble in the reverse order of removal.

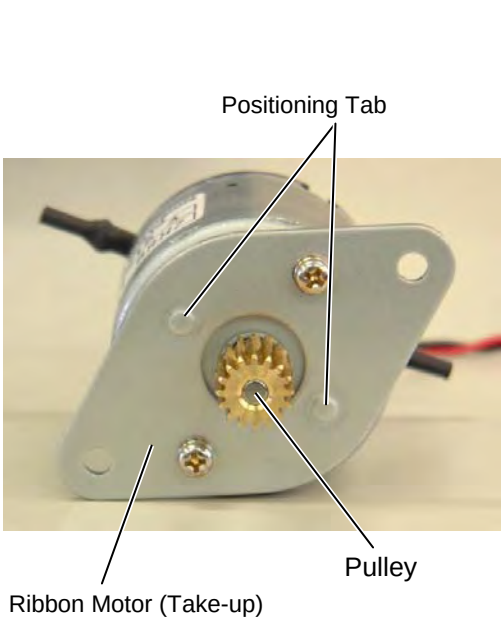
15.5 RIBBON MOTORS (TAKE-UP, FEED)

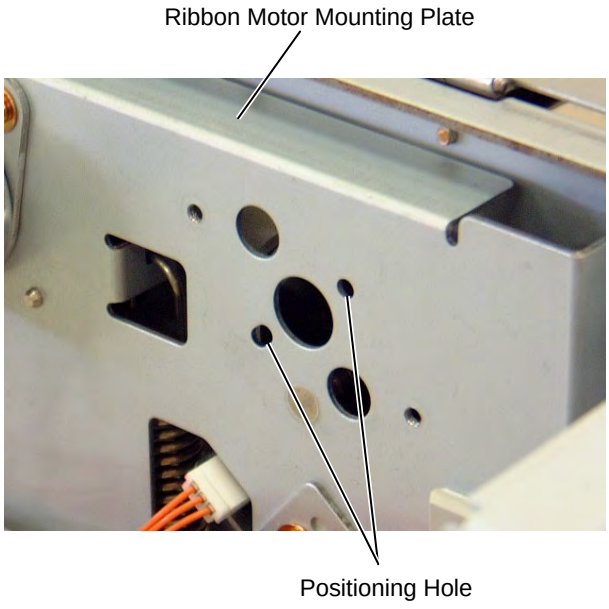
15.5.1 Ribbon Motor (Take-up)

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the relay cable from the ribbon motor (take-up).
3) Remove the two SMW-3x6 screws to detach the ribbon motor (take-up).



4) Replace the ribbon motor (take-up) with a new one, then reassemble in the reverse order of removal.
   - Fit the positioning tabs of the ribbon motor (take-up) into the positioning holes in the ribbon motor mounting plate.
   - Apply FLOIL HTM-308 to the pulley using a soft cloth.

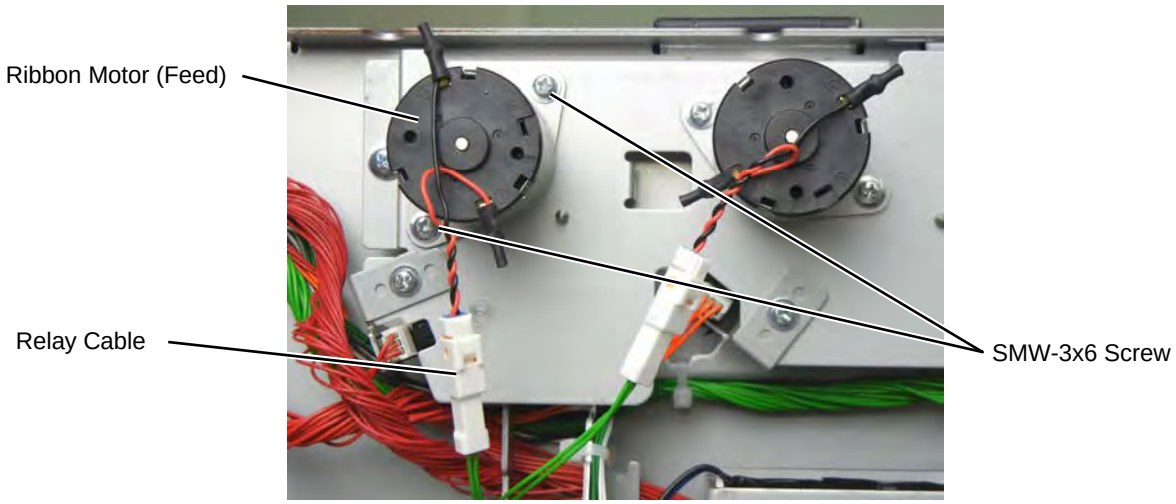




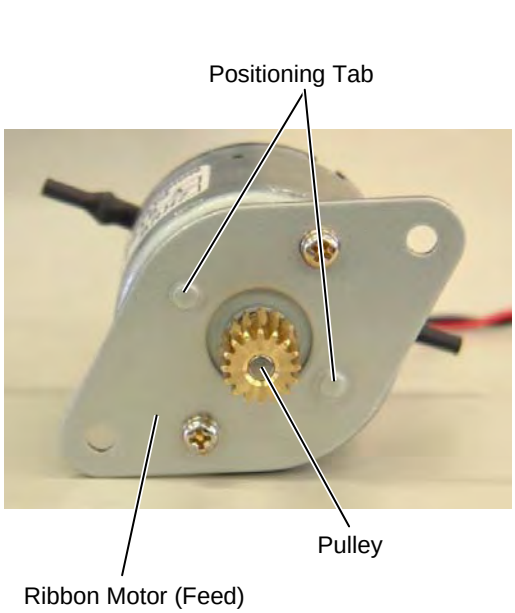
5) Refer to Section 5.5.28 to fine adjust the ribbon motor torque.

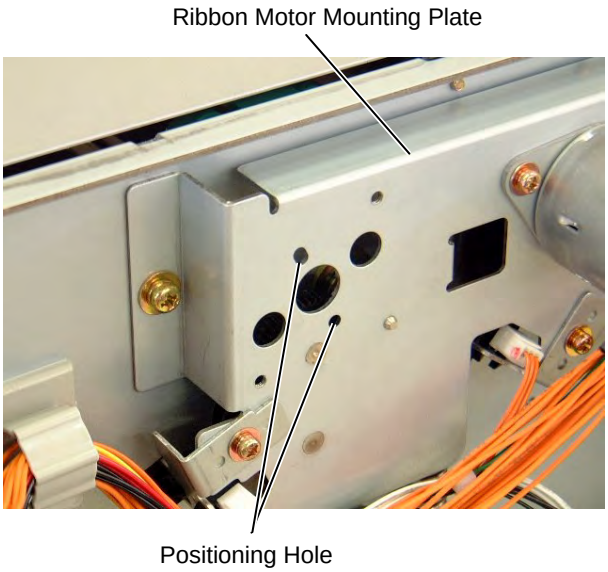
15.5.2 Ribbon Motor (Feed)

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the relay cable from the ribbon motor (feed).
3) Remove the two SMW-3x6 screws to detach the ribbon motor (feed).



4) Replace the ribbon motor (feed) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
   - Fit the positioning tabs of the ribbon motor (feed) into the positioning holes in the ribbon motor mounting plate.
   - Apply FLOIL HTM-308 to the pulley using a soft cloth.



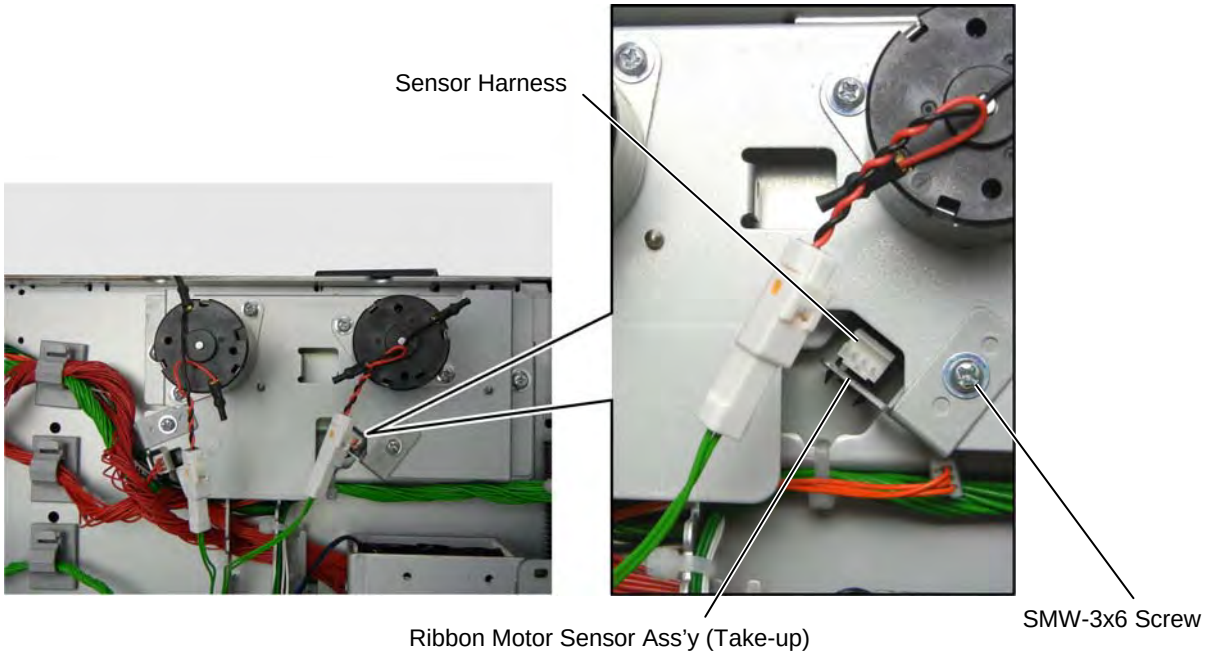


5) Refer to Section 5.5.28 to fine adjust the ribbon motor torque.

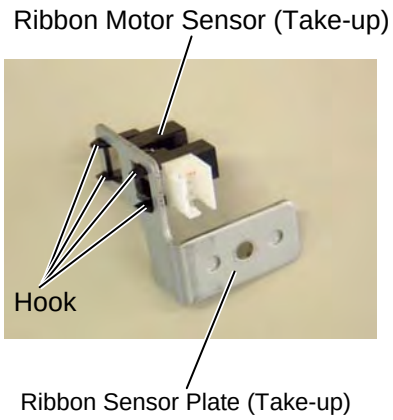
15.6 RIBBON MOTOR SENSORS (TAKE-UP, FEED)

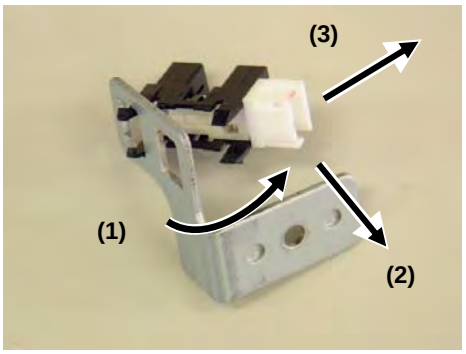
15.6.1 Ribbon Motor Sensor (Take-up)

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the sensor harness from the ribbon motor sensor ass'y (take-up).
   NOTE: *The other end of the sensor harness is connected to the Main PC board.*
3) Remove the SMW-3x6 screw to detach the ribbon motor sensor ass'y (take-up).

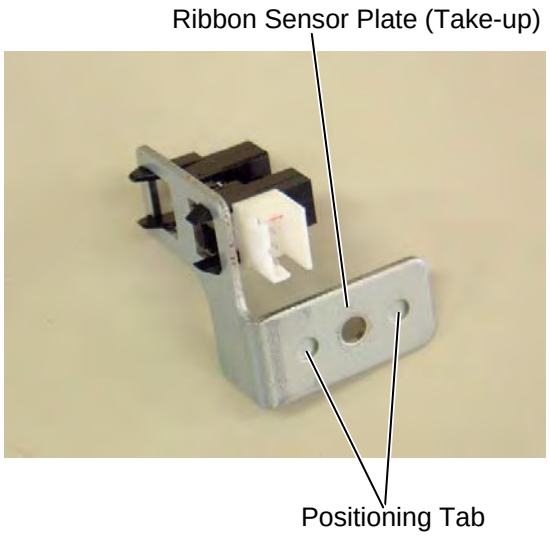


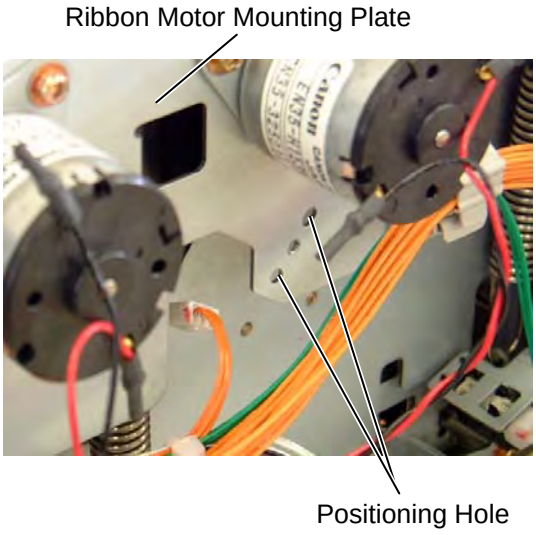
4) Detach the ribbon motor sensor (take-up) from the ribbon sensor plate (take-up) in the following steps.
   NOTE: *The ribbon motor sensor (take-up) is attached to the plate with the four hooks.*
   (1) Pull the ribbon motor sensor (take-up) in the direction indicated by the arrow to unhook the two hooks on the connector side.
   (2) Move the ribbon motor sensor (take-up) in the direction indicated by the arrow to unhook the other hooks.
   (3) Detach the ribbon motor sensor (take-up) from the plate.





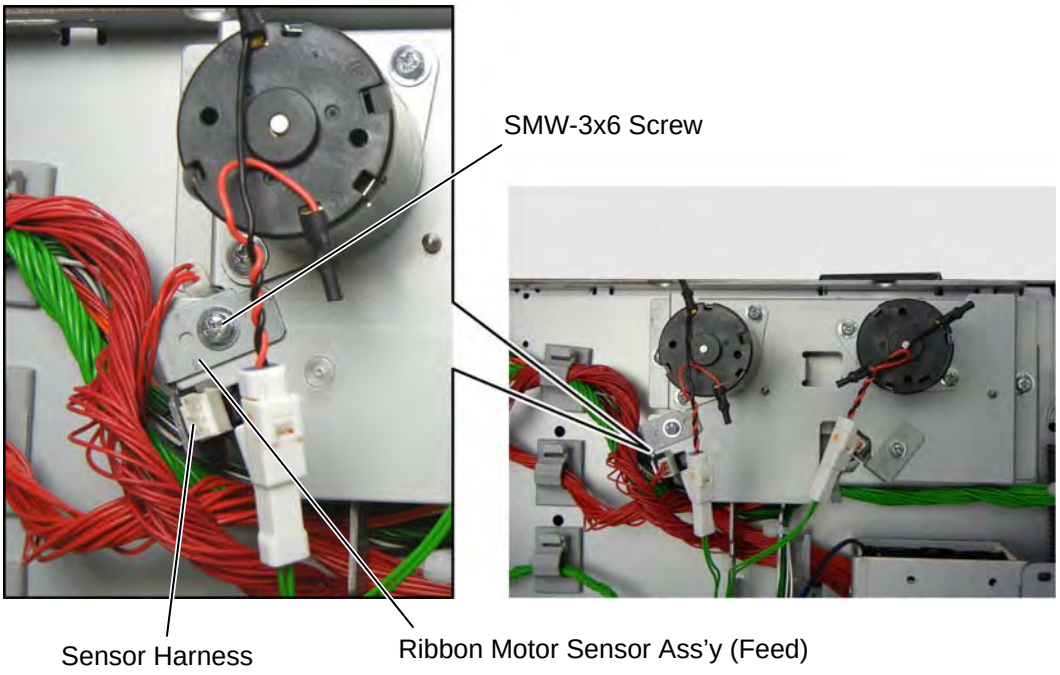
5) Replace the ribbon motor sensor (take-up) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
   - Attach the ribbon motor sensor (take-up) to the ribbon sensor plate (take-up) in the correct direction.
   - Fit the positioning tabs of the ribbon sensor plate (take-up) into the positioning holes in the ribbon motor mounting plate.



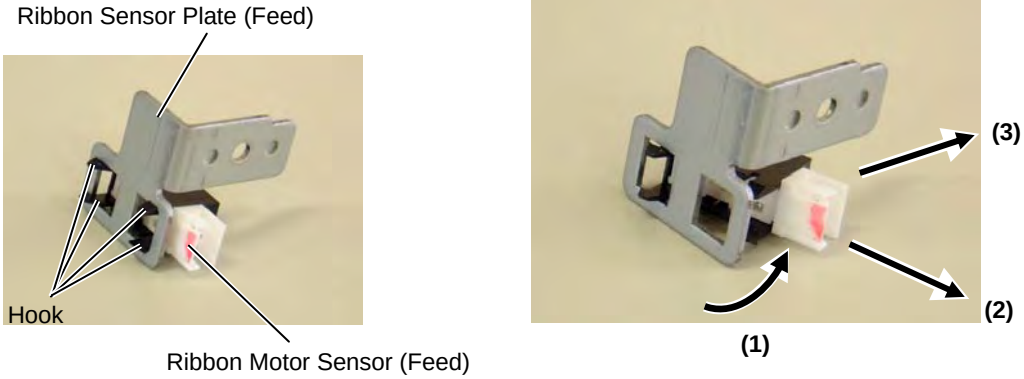


15.6.2 Ribbon Motor Sensor (Feed)

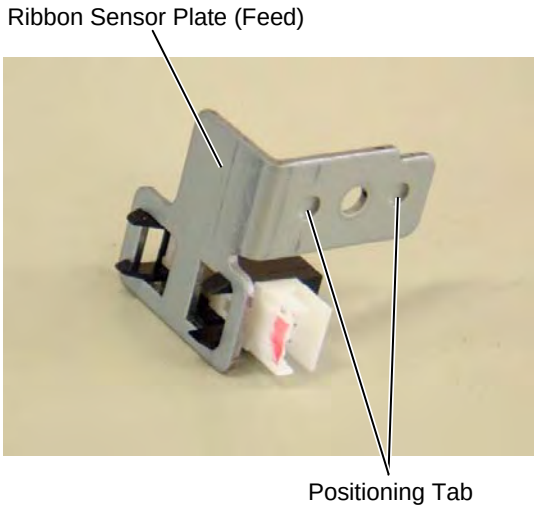
1) Remove the side panel (L). (Refer to Section 3.2.)
2) Disconnect the sensor harness from the ribbon motor sensor ass'y (feed).
   NOTE: *The other end of the sensor harness is connected to the Main PC board.*
3) Remove the SMW-3x6 screw to detach the ribbon motor sensor ass'y (feed).

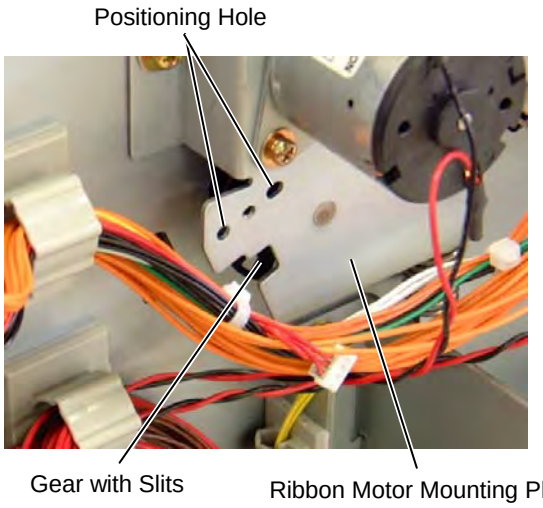


4) Detach the ribbon motor sensor (feed) from the ribbon sensor plate (feed) in the following steps.
   NOTE: *The ribbon motor sensor (feed) is attached to the plate with the four hooks.*
   (1) Pull the ribbon motor sensor (feed) in the direction indicated by the arrow to unhook the two hooks on the connector side.
   (2) Move the ribbon motor sensor (feed) in the direction indicated by the arrow to unhook the other hooks.
   (3) Detach the ribbon motor sensor (feed) from the plate.



5) Replace the ribbon motor sensor (feed) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
   - Attach the ribbon motor sensor (feed) to the ribbon sensor plate (feed) in the correct direction.
   - Fit the positioning tabs of the ribbon sensor plate (feed) into the positioning holes of the ribbon motor block.



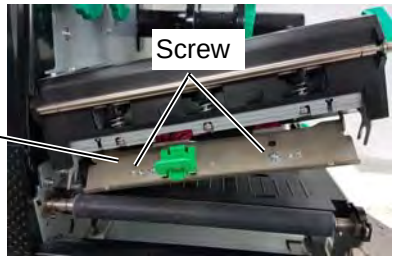


15.7 PRINT HEAD

WARNING!
Never perform the replacement just after printing. Doing so may cause you to be injured by the print head being hot.

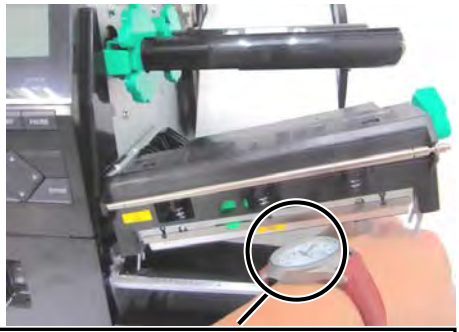
CAUTION!

1. *Never touch the element when handling the print head.*
2. *Never touch the connector pins to avoid a breakdown of the print head by static electricity.*
3. *Never remove the screws which secure the print head to the bracket. Doing so may cause improper print quality.*

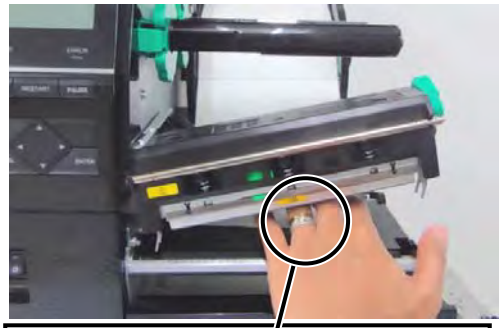


4. *Never disassemble the head block frame. Doing so may cause a print failure, such as ribbon wrinkle, blurred print, etc.*

5. *When replacing parts or performing maintenance on the printer, be careful not to damage the print head with a hard object like a watch or a ring.*



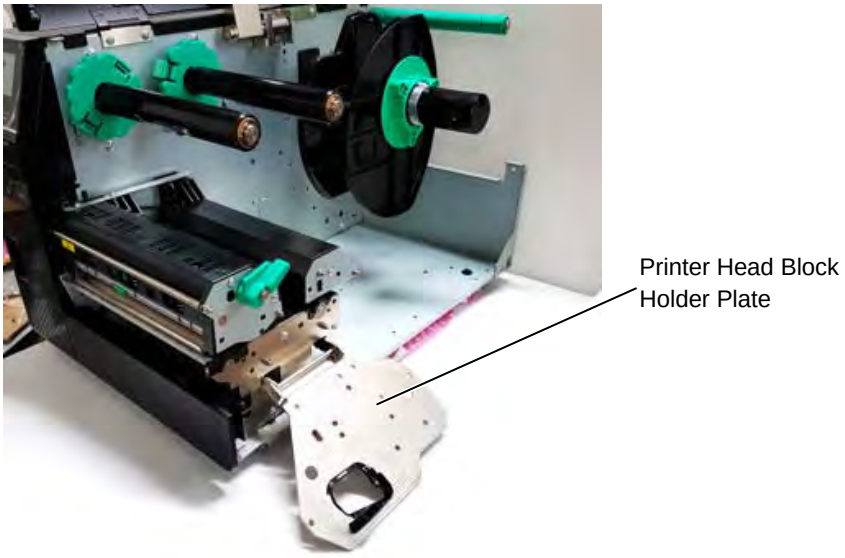
Care must be taken not to allow the metal or glass part of a watch to touch the print head edge.



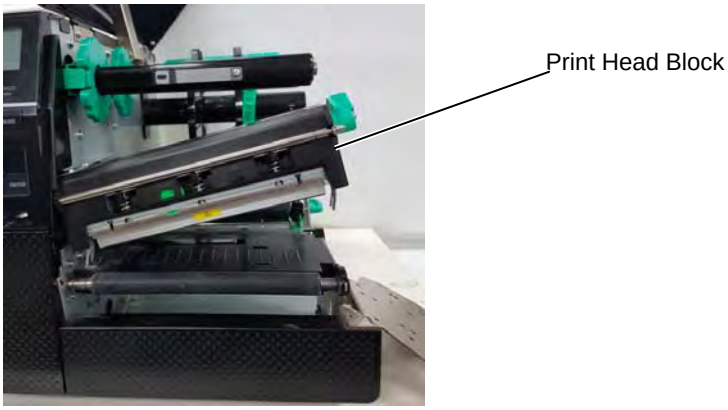
Care must be taken not to allow a metal object like a ring to touch the print head edge.

Since the print head element can be easily damaged by shock, please treat it carefully by not hitting a hard object against it.

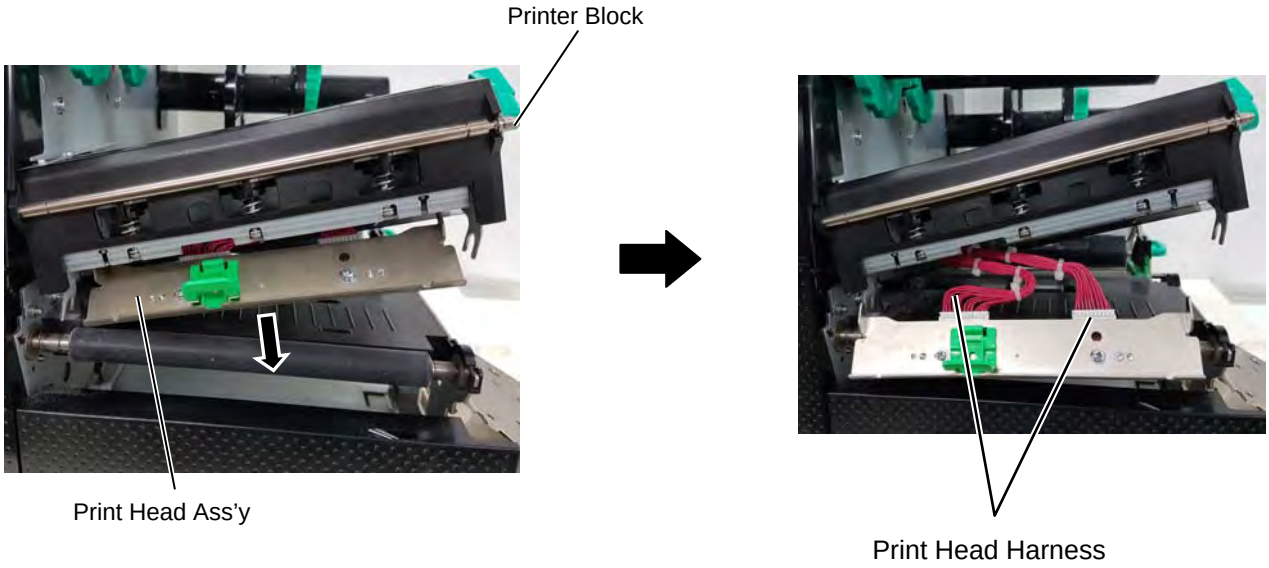
1) Open the top cover. (Refer to Section 3.1.)
2) Turn the head lever to the **FREE** position to open the ribbon shaft holder plate. (Refer to Section 3.3.)



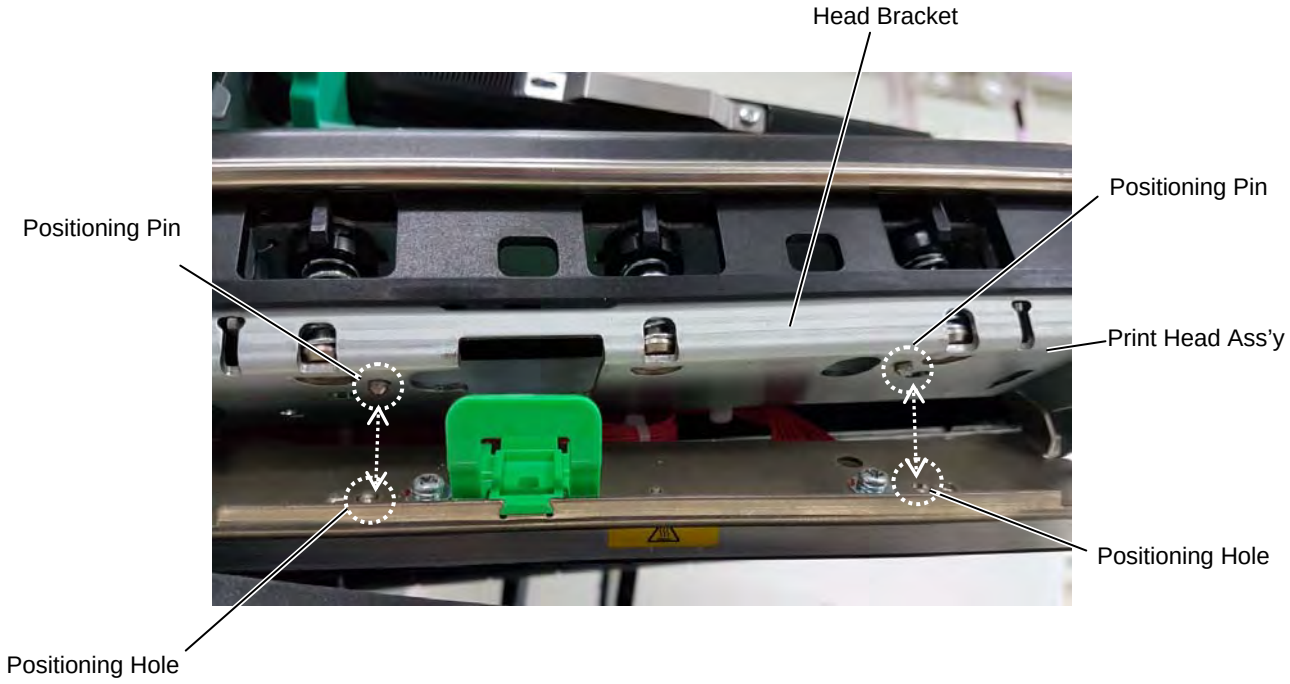
3) Open the print head block.



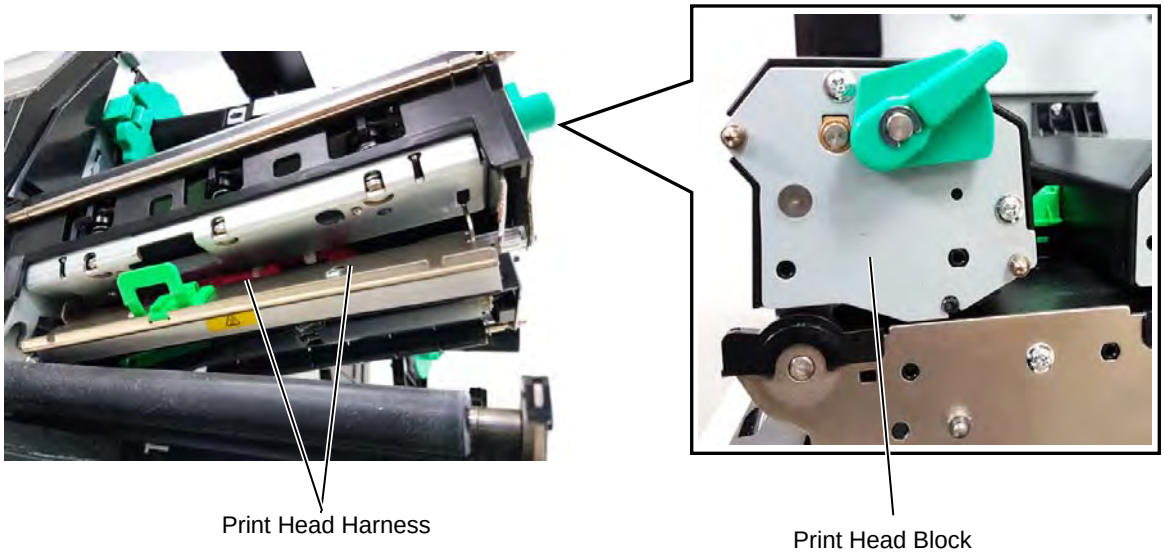
4) Pull the print head ass'y in the direction indicated by the arrow, and disconnect the two harnesses to detach the print head ass'y.



5) Replace the print head ass'y with a new one, then reassemble in the reverse order of removal.
NOTE: *Fit the positioning pins of the head bracket into the positioning holes of the print head ass'y, which doesn't require the position adjustment.*



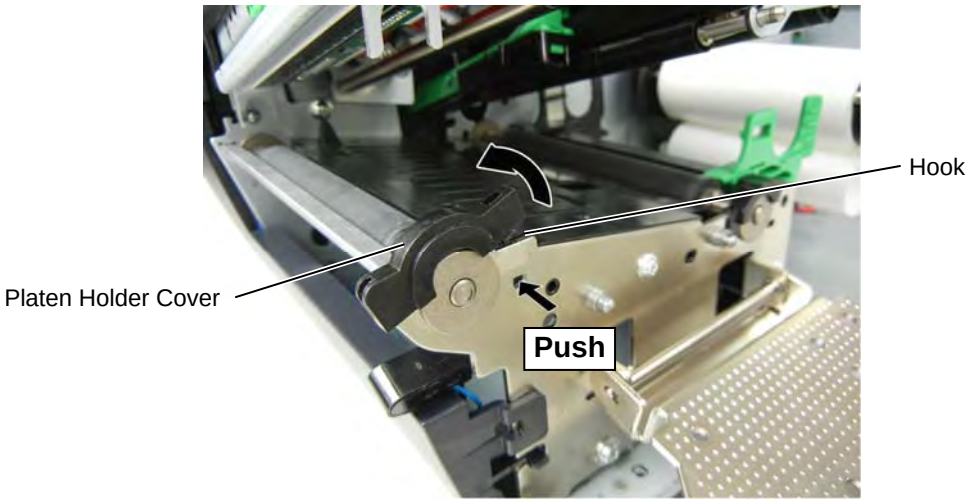
6) Make sure that the print head harness doesn't appear out of the print head block. If so, the print head harness may touch the ribbon and the media, causing a print failure.



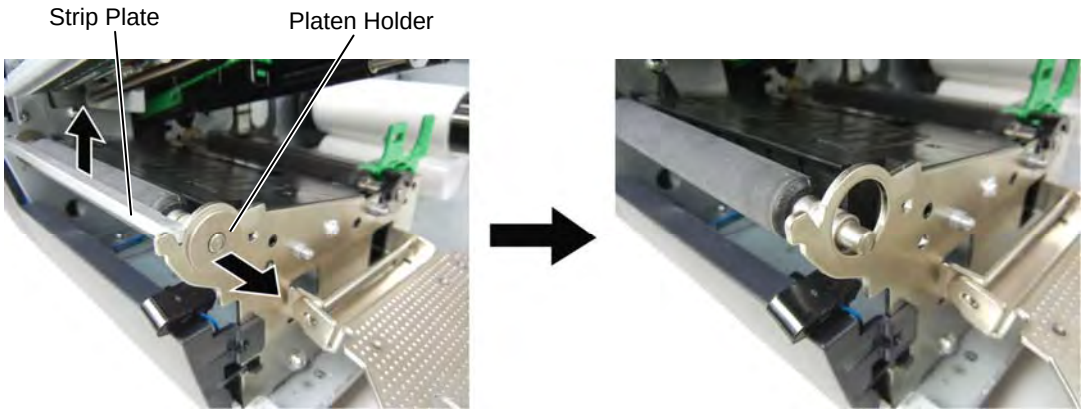
7) Perform a test print. Make sure that printing is performed correctly.
If the print tone is improper, refer to Section 5.5.5 Density fine tune (Thermal transfer) to fine adjust the print tone.
8) Refer to Section 5.8.2 to perform a maintenance counter clear.

15.8 PLATEN

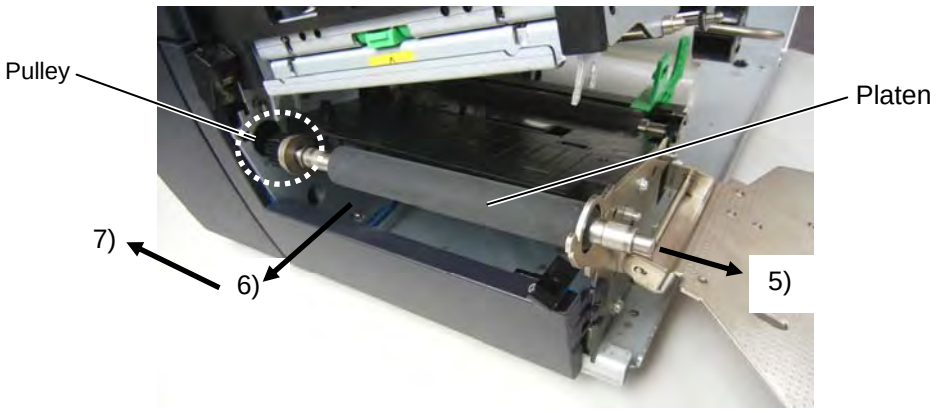
1) Open the top cover. (Refer to Section 3.1.)
2) Open the print head block.
3) Push the hook through the rectangle hole with a fine tool to remove the platen holder cover.



4) Remove the platen holder and the strip plate.



5) Pull the platen ass'y to the right until the entire pulley appears.
6) Pull the pulley forward.
7) Pull the platen to the left to detach it from the printer.

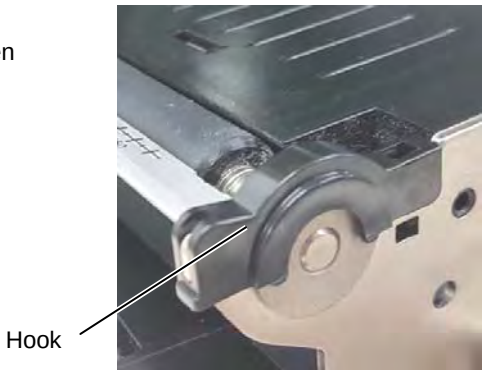


8) Replace the platen with a new one, then reassemble in the reverse order of removal.

NOTES:

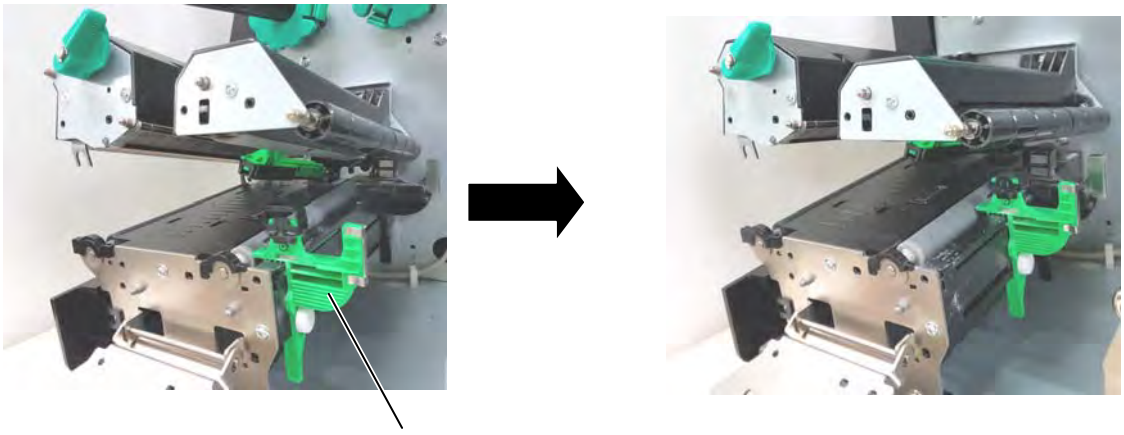
1. Apply FLOIL to the platen pulley before installing the platen.

2. When installing the platen, first fully insert the pulley into the printer. Also make sure that the platen holder cover is fixed with the hook.

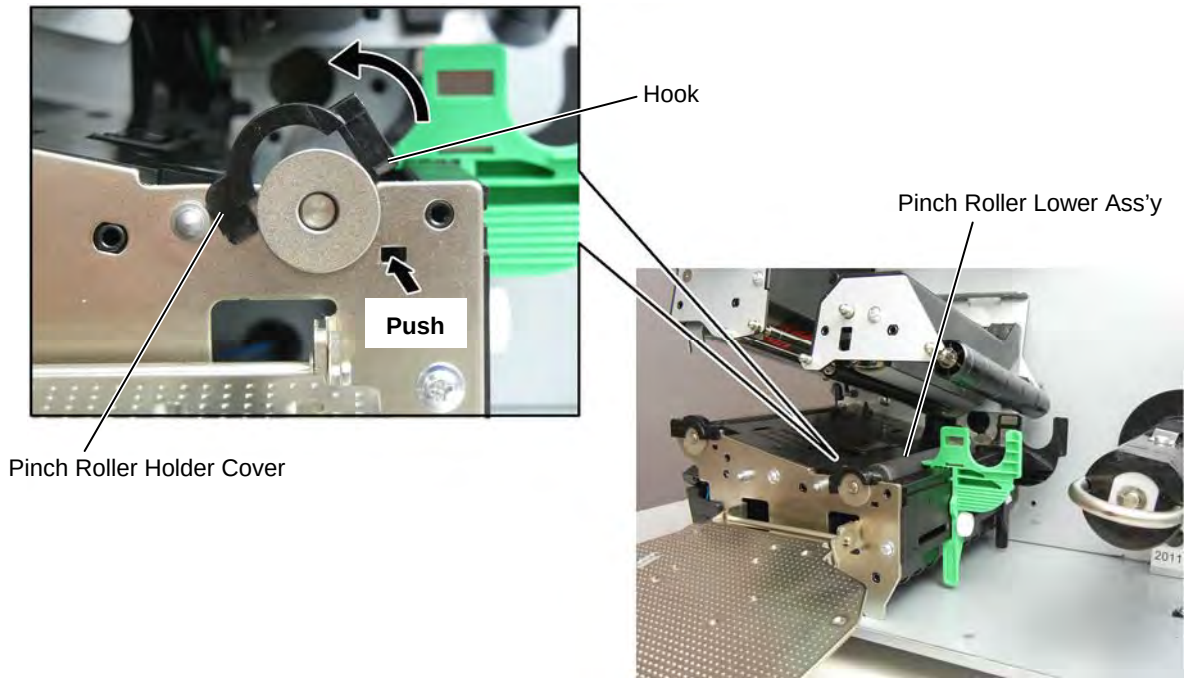


15.9 PINCH ROLLER LOWER ASS'Y

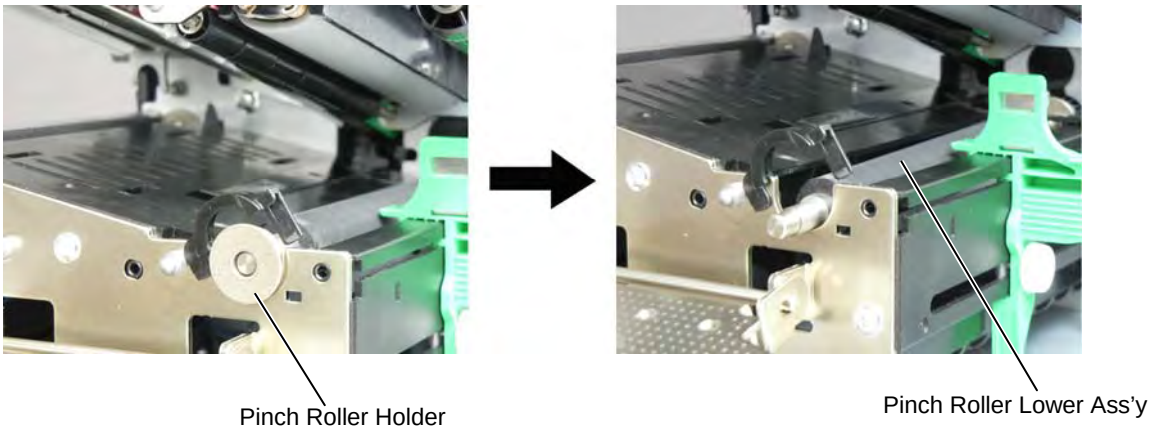
1) Open the top cover. (Refer to Section 3.1.)
2) Open the print head block.
3) Make sure that the media guide is closed. (In this condition, you can easily remove the pinch roller holder cover on the left side of the feed roller.)



4) Push the hook through the rectangle hole with a fine tool to open the pinch roller holder cover.



5) Detach the pinch roller holder and the pinch roller lower ass'y.

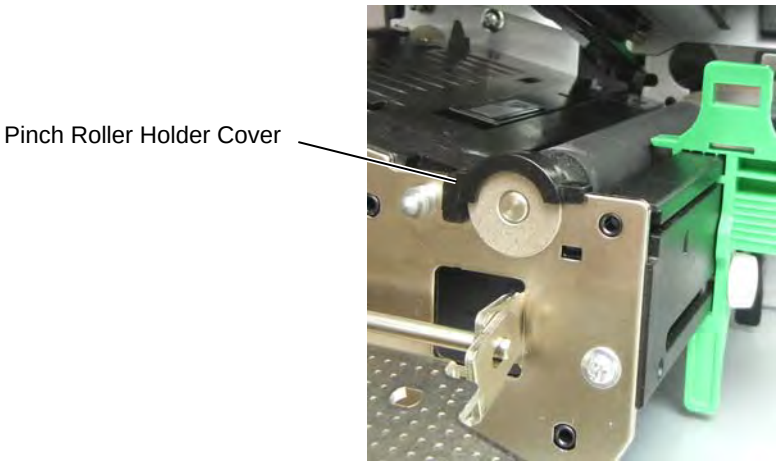


6) Replace the pinch roller lower ass'y with a new one, then reassemble in the reverse order of removal.

NOTES:

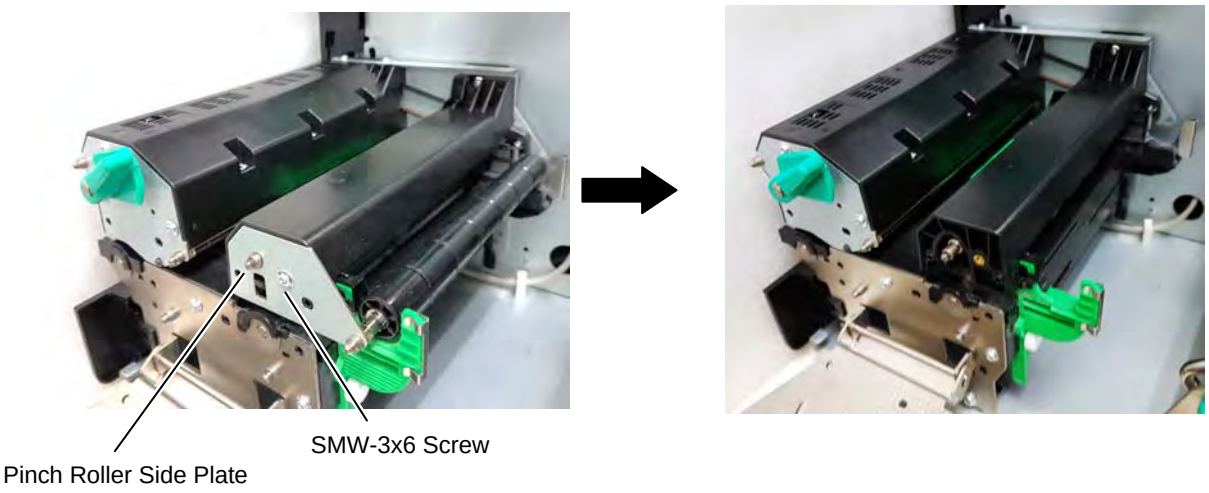
1. Apply FLOIL to the pinch roller gear before installing the pinch roller lower ass'y.

2. When reassembling, make sure that the pinch roller lower ass'y is attached correctly. Also, make sure that the pinch roller holder cover is fixed with the hook.

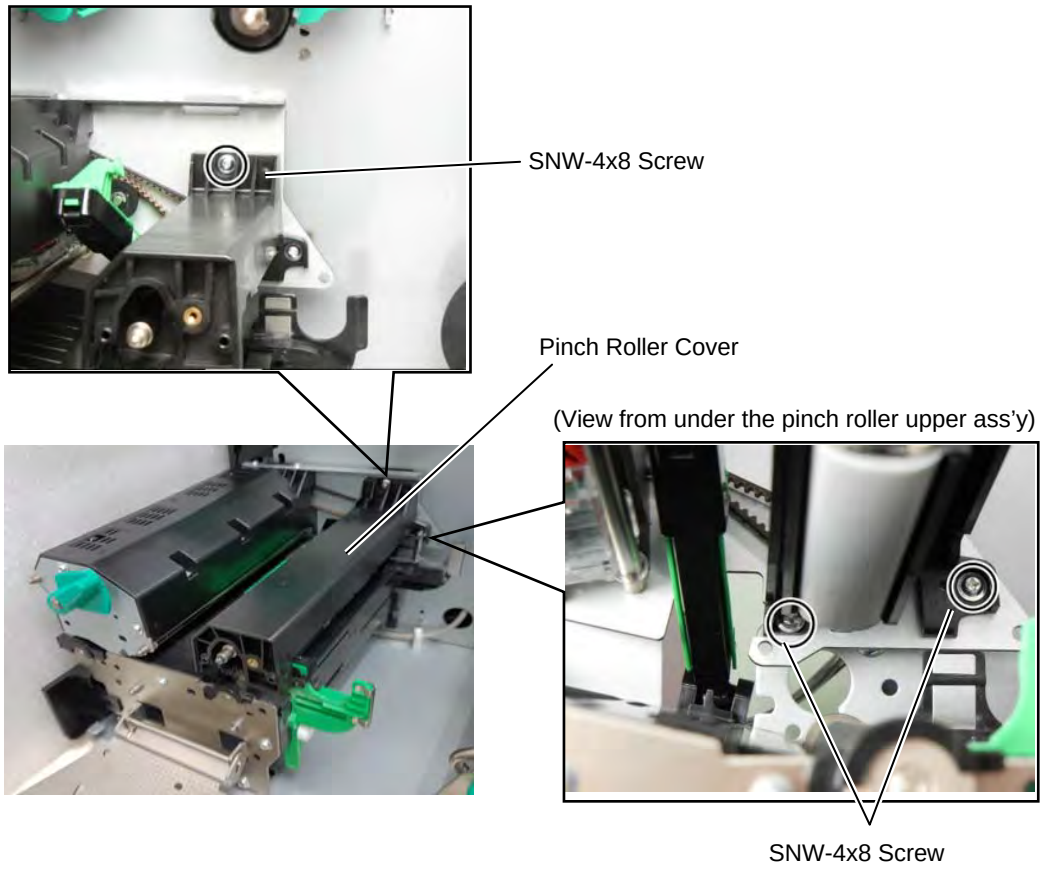


15.10 PINCH ROLLER UPPER ASS'Y

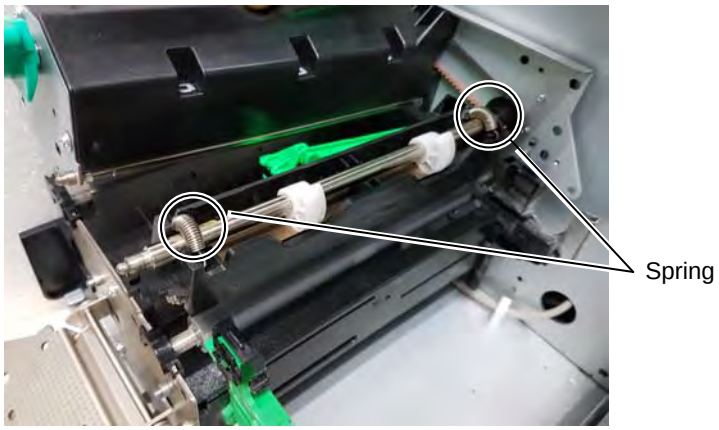
1) Open the top cover. (Refer to Section 3.1.)
2) Open the print head block.
3) Remove the SMW-3x6 screw to remove the pinch roller side plate.



4) Remove the three SMW-4x8 screws to detach the pinch roller cover.



5) Release the two springs to remove the pinch roller upper ass'y.

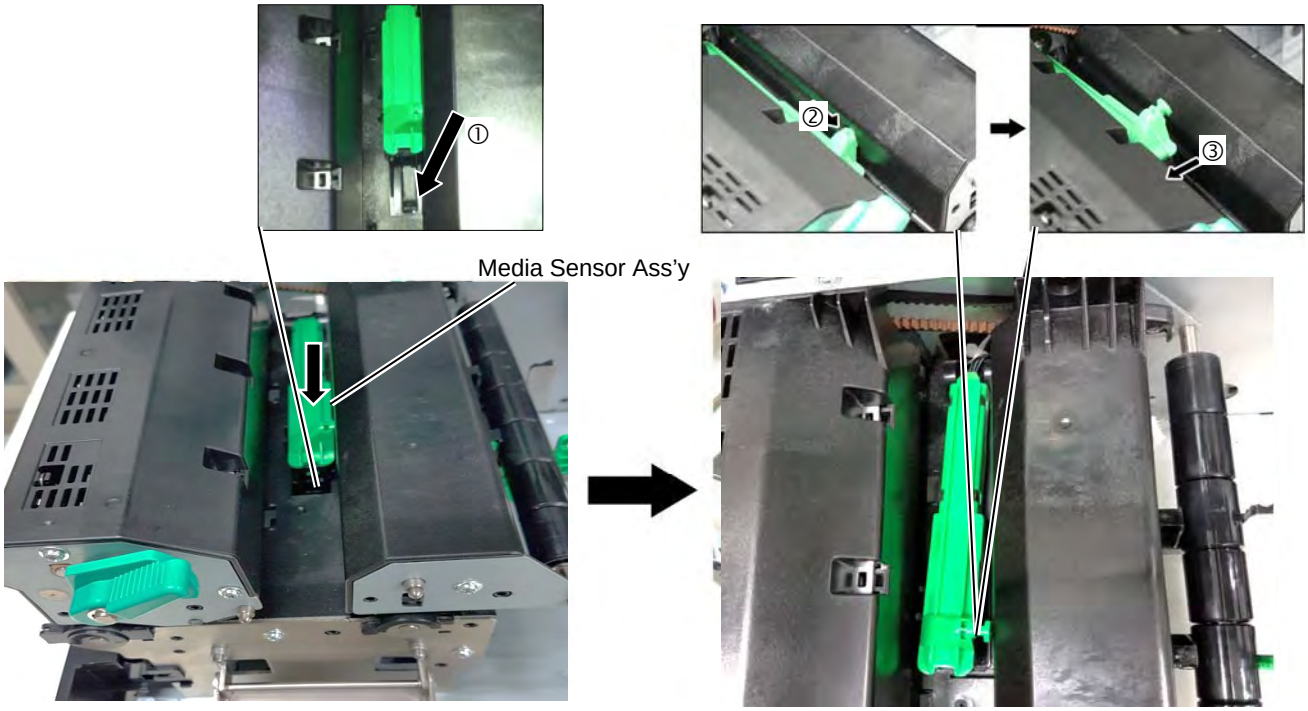


6) Replace the pinch roller upper ass'y with a new one, then reassemble in the reverse order of removal.

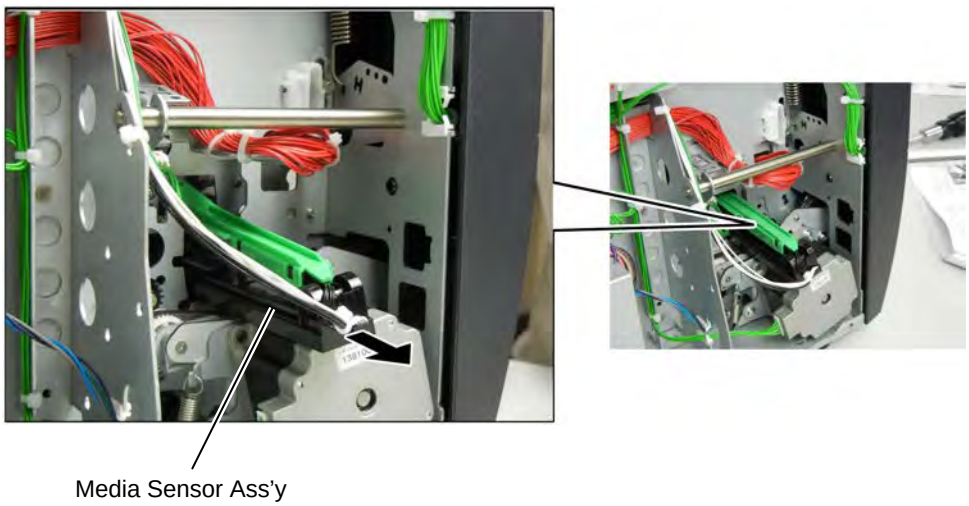
15.11 MEDIA SENSORS ASS'Y

NOTE: *The media sensor ass'y is comprised of the media sensor (upper) and the media sensor (lower). The media sensor (upper) contains the thermistor and the feed gap sensor (photo transistor). The media sensor (lower) contains the black mark sensor and the feed gap sensor (photo diode).*

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Open the top cover. (Refer to Section 3.1.)
3) Turn the head lock lever to the **FREE** position to open the ribbon shaft holder plate.
4) ① Press and hold the lock downwards.
   ② Slide the media sensor ass'y in the direction of the arrow until it stops.
   ③ Push the media sensor ass'y toward the print head block to disengage it from the pinch roller cover.



5) Pull the media sensor ass'y from the opposite side in the direction indicated by the arrow.

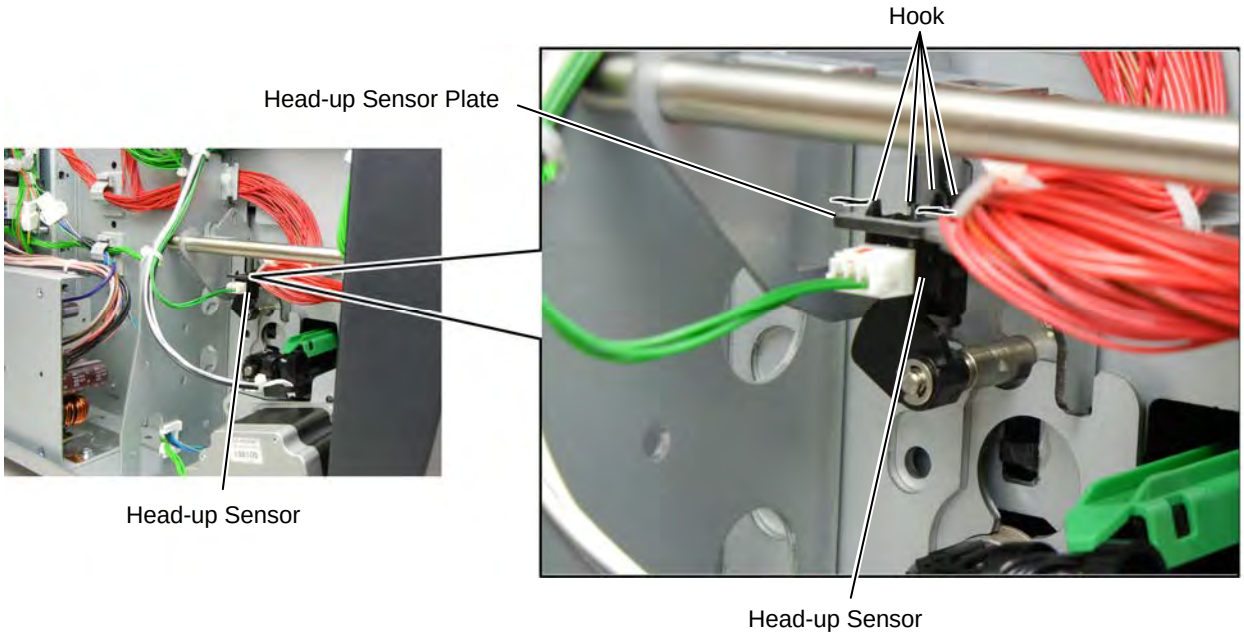


6) Replace the media sensor ass'y with a new one, then reassemble in the reverse order of removal.

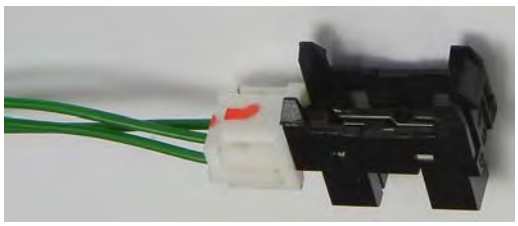
***NOTE**: After replacing the media sensor ass'y, refer to Section 5.7 to adjust the sensor level for the media to be used.*

15.12 HEAD UP SENSOR

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Squeeze the four hooks of the head up sensor to remove it from the head up sensor plate.

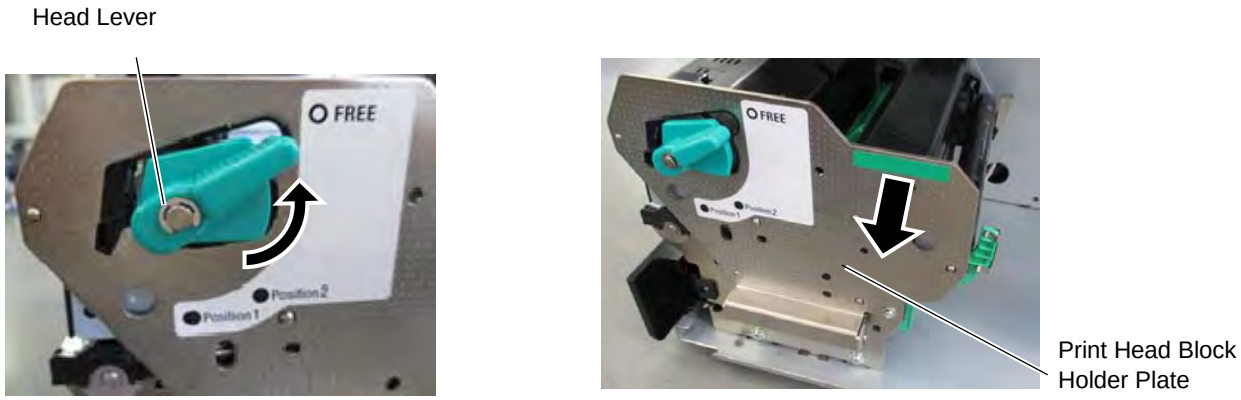


3) Replace the head up sensor with a new one, then reassemble in the reverse order of removal.

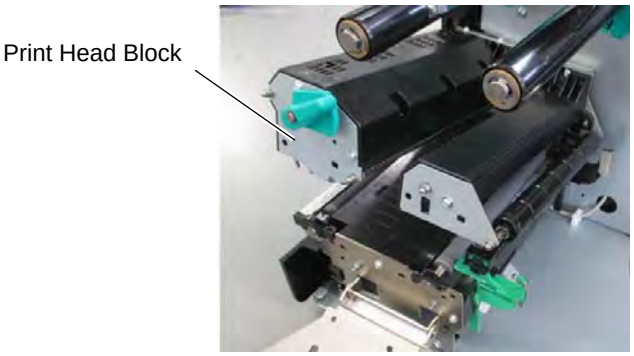


15.13 RIBBON END SENSOR

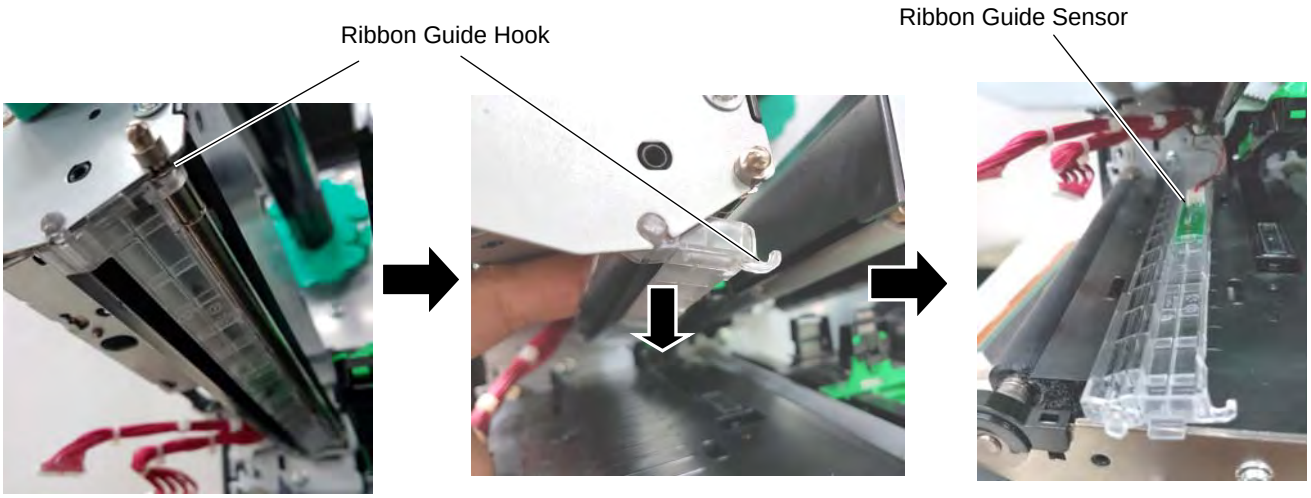
1) Open the top cover. (Refer to Section 3.1.)
2) Turn the head lock lever to **FREE** position and open the Print Head Block Holder Plate.



3) Open the print head block.

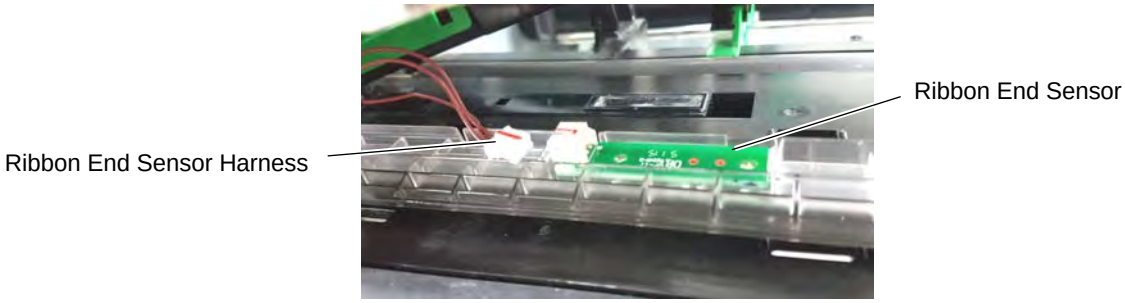


4) Remove the Print Head. See Section 15.7 for Details.
5) Push the Ribbon Guide down (both sides) to remove the assembly.



View from the lower right side

5) Disconnect the ribbon end sensor harness from the ribbon end sensor.



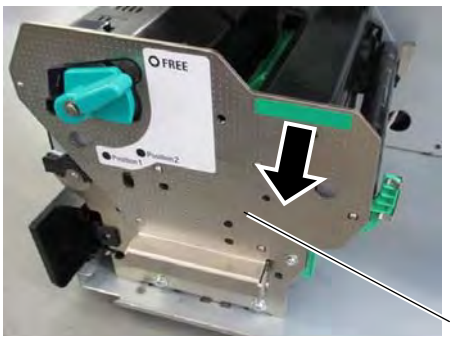
6) Replace the ribbon end sensor with a new one, then reassemble in the reverse order of removal.

***NOTE**: After replacing the ribbon end sensor, refer to Section 5.7 to adjust the sensor level for the ribbon to be used*

15.14 PAPER GUIDE ASSEMBLY

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Open the top cover. (Refer to Section 3.1.)
3) Turn the head lock lever to **FREE** position and open the Print Head Block Holder Plate.

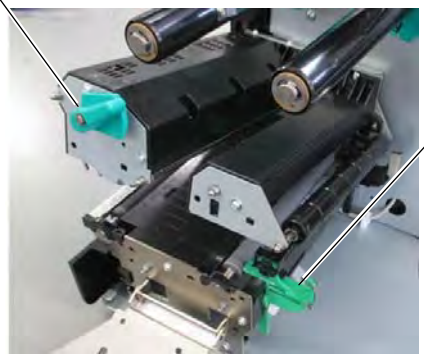
Head Lever



Print Head Block Holder Plate

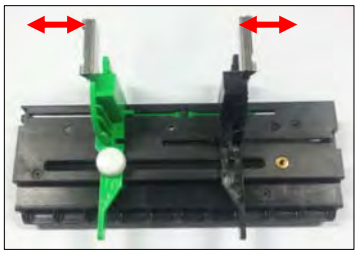
4) Open the print head block.

Print Head Block

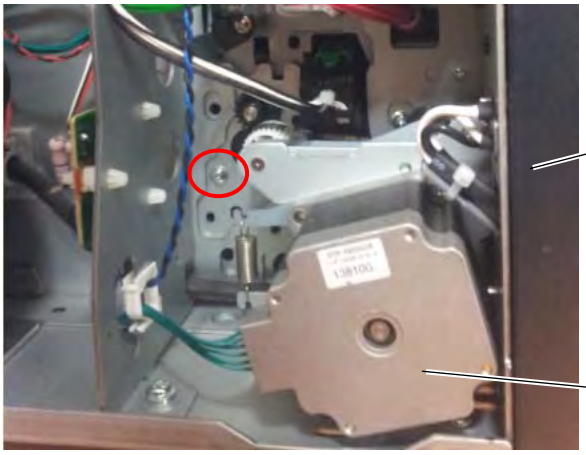


Paper Guide Assembly

(Center Aligned)



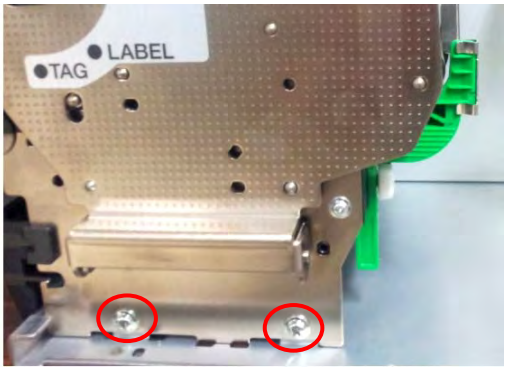
5) Go to the left side of the machine and remove the screw as indicated in the picture below.



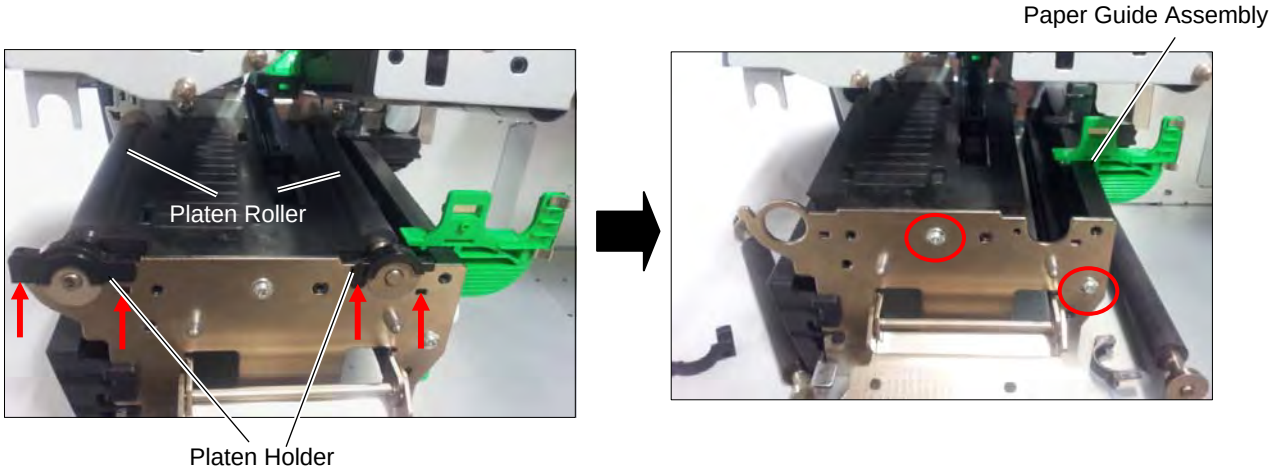
Front panel cover

Stepping Motor Ass'y

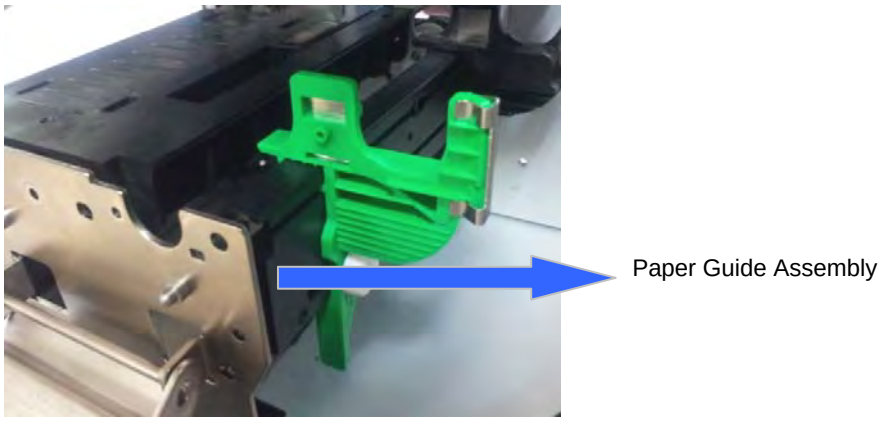
6) Loosen the two bottom screws of the Ribbon shaft holder plate.



7) Remove the two platen rollers by unhooking the respective platen holders. After that, remove the 2 screws indicated in the picture below.



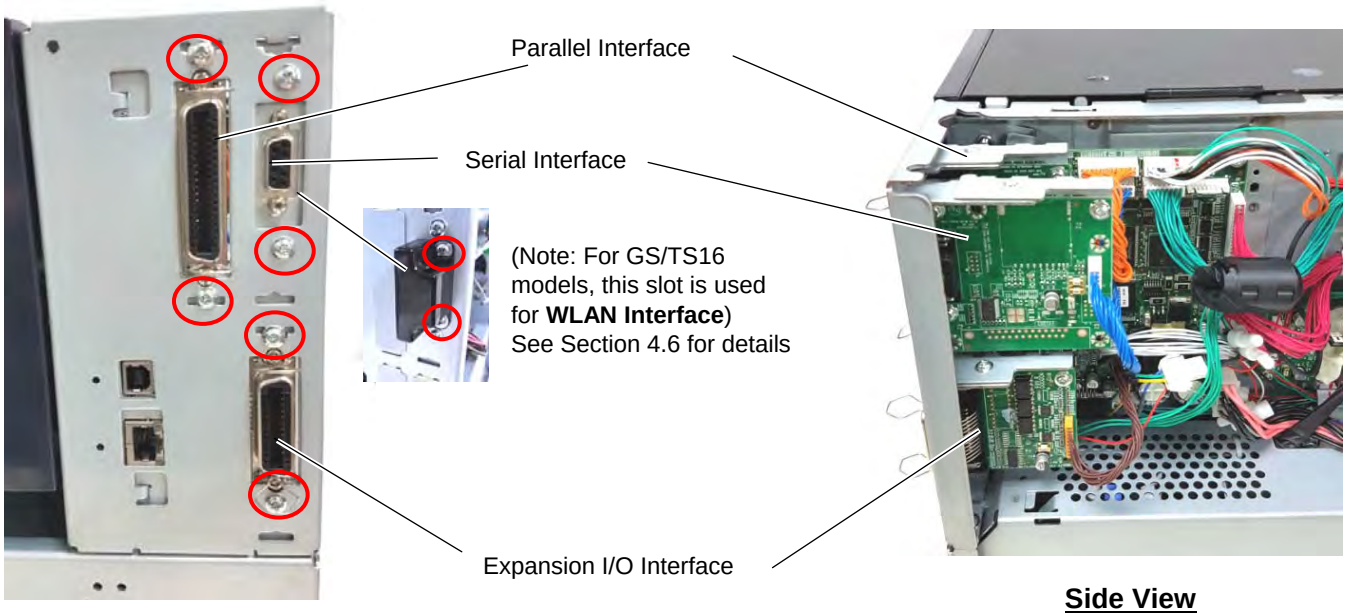
8) By this time you can already remove the whole Paper Guide Assembly.



9) Replace the Paper Guide Assembly with a new one, then reassemble in the reverse order of removal.

15.15 INTERFACE CARDS

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Each Interface card is being held by 2 screws.



Back View

Side View

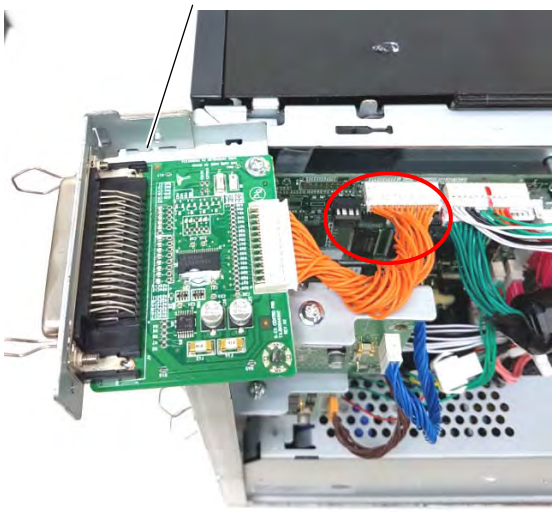
3) After removing the 2 screws, push the card to the inside and remove the connector from the Main PCB Board.

Expansion I/O Interface Card

Expansion I/O Interface Card

WLAN Card

Parallel Interface Card



Parallel Interface Card

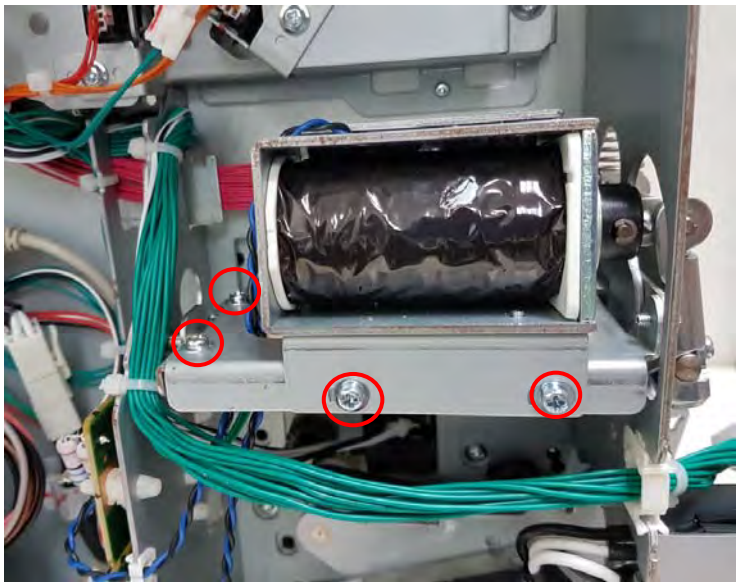
Parallel Interface Card

Parallel Interface Card

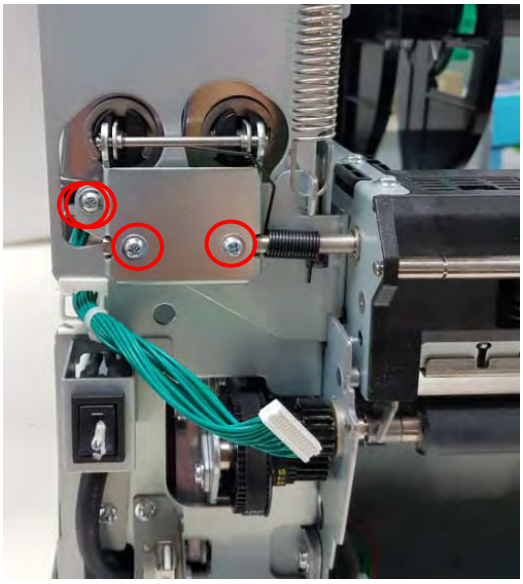
4) Replace the respective Interface Cards with a new one, then reassemble in the reverse order of removal.

15.16 HEAD UP SOLENOID

1) Remove the side panel (L). (Refer to Section 3.2.)
2) Remove the Operation Panel (Refer to Section 3.4.)
3) Remove the 7 screws holding the Solenoid.

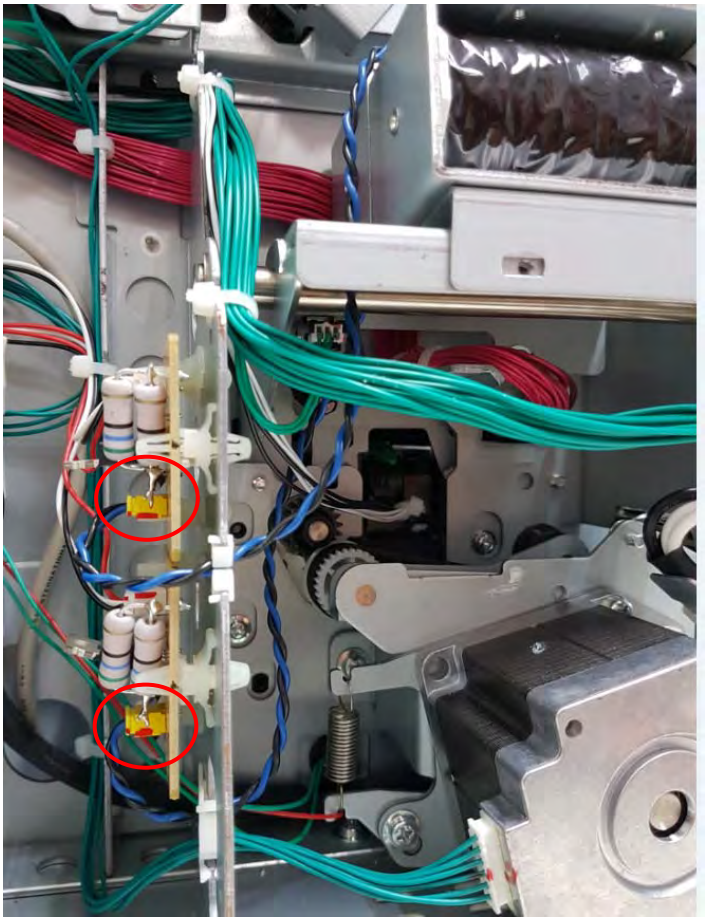


Side View

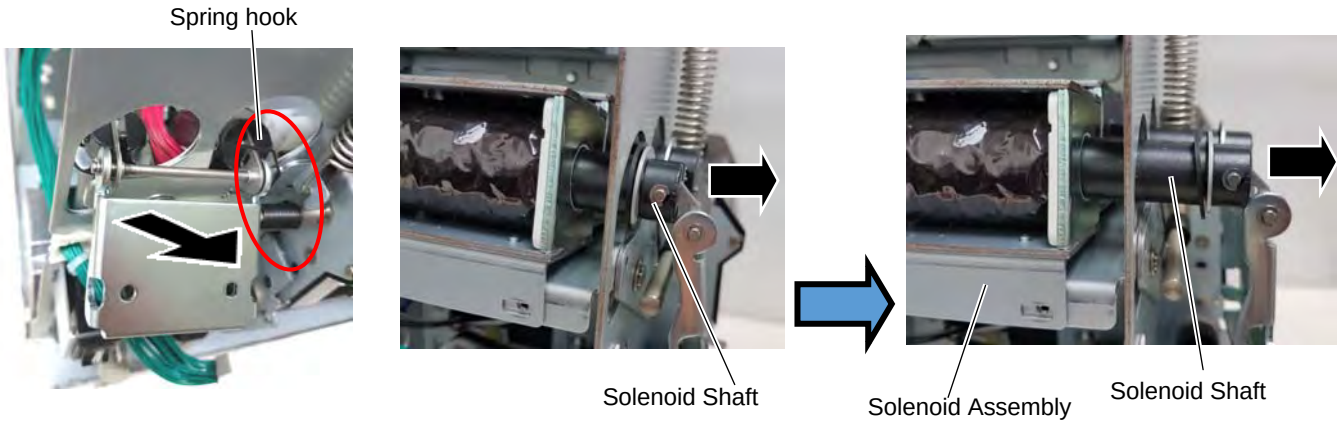


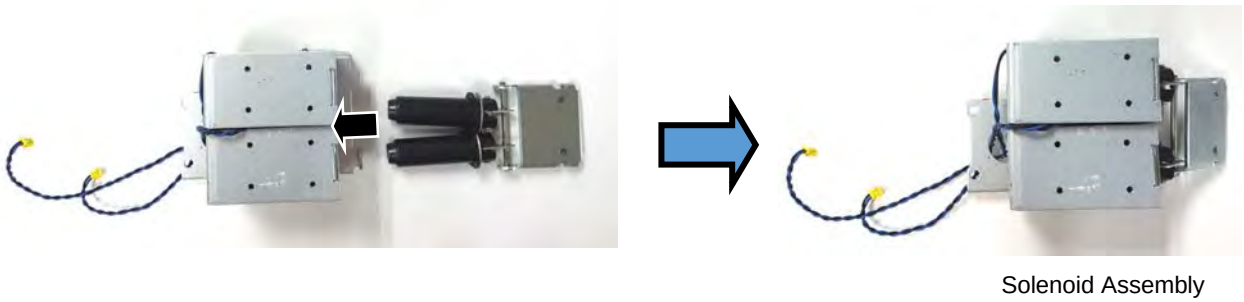
Front View

4) Detach the 2 connectors from the PCB.



5) Pull the shafts from the Solenoid assembly and remove the Solenoid assembly from the frame. Take note of the spring hook when pulling.





6) Replace the Head up Solenoid with a new one, then reassemble in the reverse order of removal.

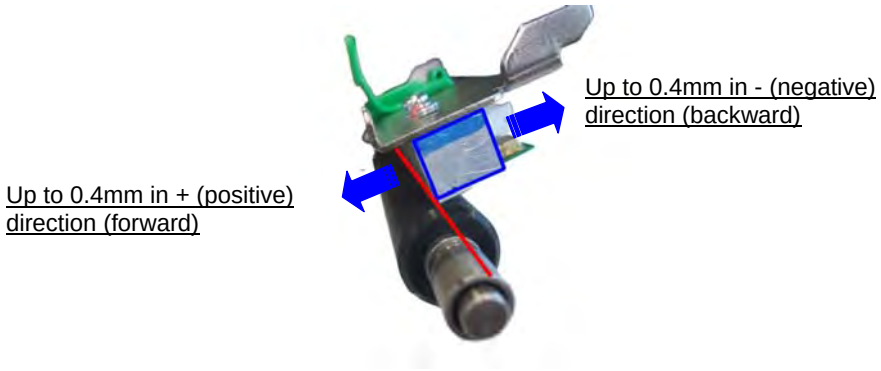
17. HOW TO ADJUST THE PRINT HEAD POSITION

17.1 OUTLINE OF THE PRINT HEAD POSITION ADJUSTMENT

Basically, the print heads of our bar code printers have been adjusted with TTEC-approved media and ribbon before shipment so that the print head element, provided at the edge of the print head, is positioned at the center of the arc of the platen.

***Note**: For details of TTEC-approved media and ribbons, please refer to the Supply Specification for the B-EX4T1 Series, B-EX4T2/D2 Series or theB-EX6T Series.*

To improve poor printing, such as blurred print, without changing user's media and ribbon, loosen the print head fixing screws and move the print head element position backward or forward from the center of the arc of the platen in the range of ±0.4mm to find the best position.
Generally, moving the print head element forward tends to improve blurred print, and moving it backward tends to improve smudges.



17.2 PRINT HEAD POSITION ADJUSTMENT PROCEDURE

The position adjustment range of the print head for the B-EX4/B-EX6 series is ±0.4mm (0.8mm in total). Move the print head element forward in the case of blurred print and move it backward in the case of smudge within the adjustment range to find the best position for clear printing.

***Note**: The pictures used in this section are those of the B-EX4 series. The procedures are common to the B-EX4 series and the B-EX6 series.*

WARNING!
Never replace the print head just after printing because the print head becomes very hot. Doing so may cause you to get burned.

1) Turn the power off and disconnect the power cord.
2) Open the top cover.
3) Turn the head lever to the Free position to open the ribbon shaft holder plate.
4) Open the print head block.
5) Remove the print head ass'y by pulling it toward the printer front side, and disconnect the two harnesses to detach the print head ass'y.

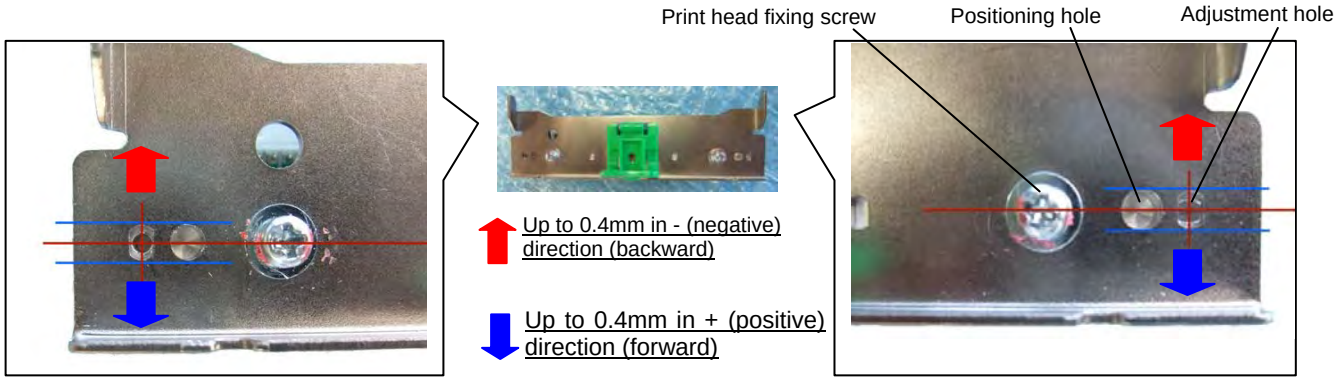
6) Place the removed print head ass'y on an antistatic sheet. Remove "Loctite" applied to the print head fixing screws and loosen the screws.

First, align the center of the print head fixing screws, the positioning holes, and the adjustment holes, then perform a print test.

If blurred print occurs, move the print head forward (in the positive direction) and repeat the print test until the print quality becomes proper.

If smudge occurs, move the print head backward (in the negative direction) and repeat the print test until the print quality becomes proper.

It is recommended to make adjustment in units of 0.1mm and move both sides at the same time.



7) When the best position is determined, tighten the print head fixing screws.

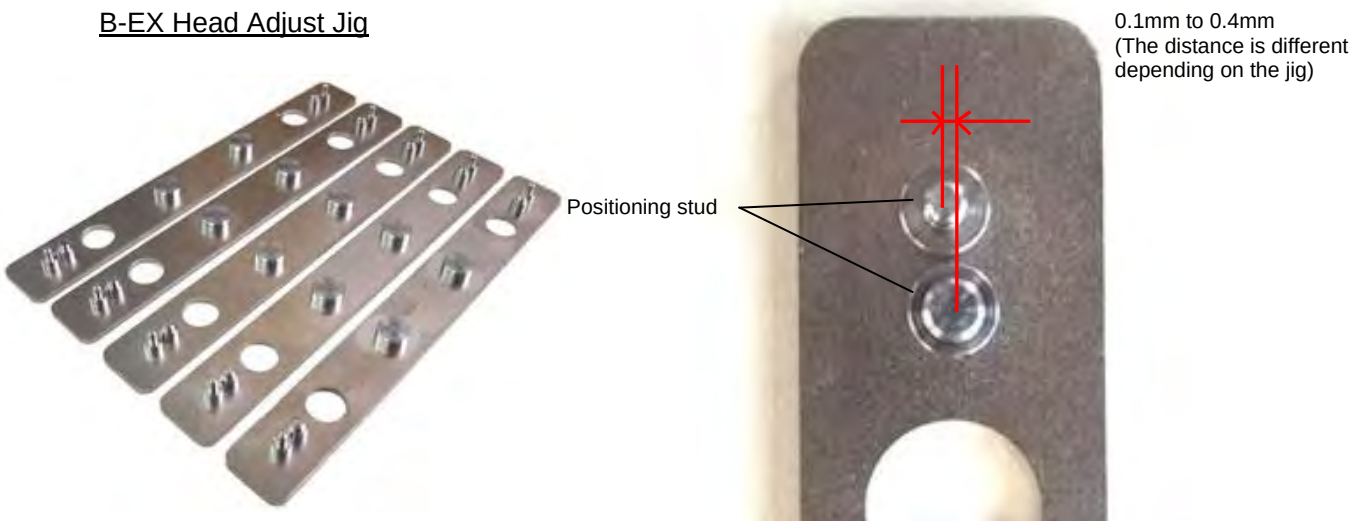
The above-mentioned procedures are the basic of print head position adjustment for TTEC barcode printers.

17.2.1 Print head position adjustment using adjustment jigs

These jigs are used when replacing the print head to adjust the position of a newly installed print head in the same way as the original one. The jigs also help you secure proper print quality with user's media and ribbon.
There are 5 types of jigs (±0.0mm jig, ±0.1mm jig, ±0.2mm jig, ±0.3mm jig, and ±0.4mm jig), which enables an adjustment in the range up to ±0.4mm, in units of 0.1mm.

Please be careful of the numbers and "+" and "-" symbols marked on the jigs.
Positive direction or negative direction is selected by changing the fitting direction of the jig.

B-EX Head Adjust Jig

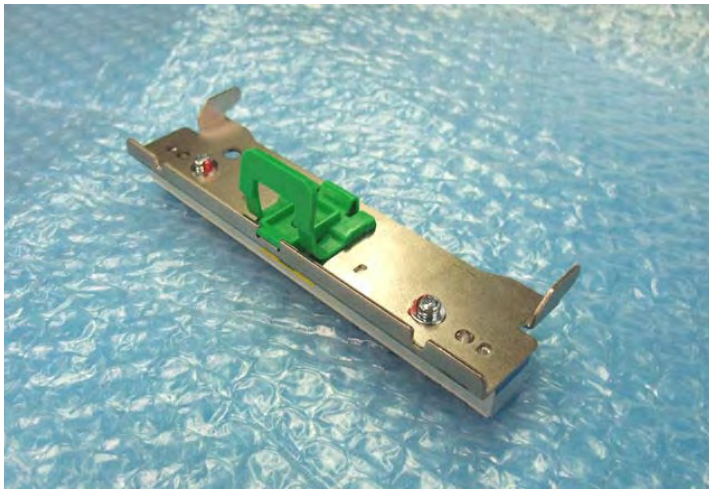


17.2.2 Adjustment procedure for a spare print head

If the print quality becomes inferior after replacing the print head with a spare part, adjust the print head position in the same way as the original one.

Step 1)
First, remove the original print head from the printer.

Note: *Be sure to place the print head on a soft cloth or antistatic sheet.*

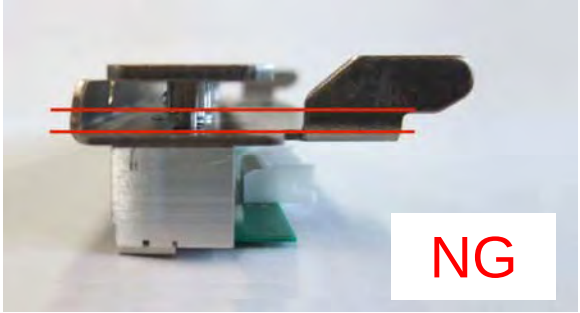


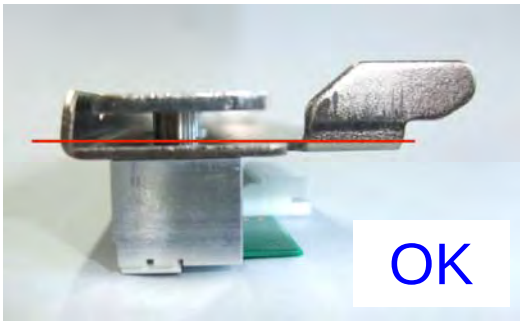
Step 2)
Completely remove “Loctite” adhesive applied to the print head fixing screws.
Failure to do this disables accurate measurement of the adjustment value.

Note: *DO NOT loosen the print head fixing screws at this stage.*

Step 3)
Remove the print head fixing clip (green part) and check the adjustment value for the original print head by fitting the jigs one by one, in the order from “±0mm” to “±0.4mm”. Insert the positioning studs of the jig into the positioning holes and the adjustment holes of the print head, and check which jig snugly fits the print head.

Note: *Do not push the jig hard against the print head. Doing so may damage the print head or the jigs.*





Step 4)

Next, place a spare print head to be installed on an antistatic sheet, remove the print head fixing clip (green part), completely remove “Loctite”, and loosen the print head fixing screws.
Fit the same jig which snugly fits the original print head to the spare print head, and tighten the print head fixing screws.

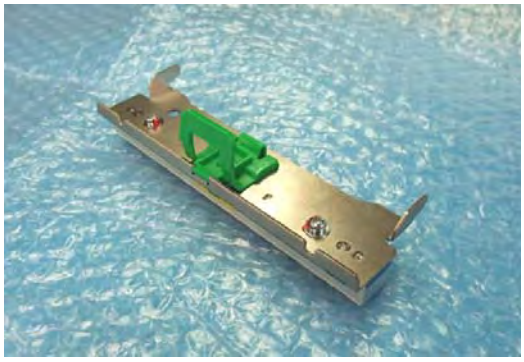
Step 5)

Re-attach the print head fixing clip (green part), and the adjustment is completed.
Install the spare print head on the printer, perform a test print.
If print quality is still poor, refer to ***Section 17.2.3 Adjustment procedure for the installed print head*** and follow the procedure.

17.2.3 Adjustment procedure for the installed print head

Step 1)

Remove the print head from the printer.



Note 1: *Be sure to place the print head on a soft cloth or antistatic sheet.*
Note 2: *Completely remove “Loctite” applied to the print head fixing screws.*
Failure to do this disables accurate measurement of the adjustment value.

Step 2)

Remove the print head fixing clip (green part), and loosen the print head fixing screws.
First, fit the **±0.2mm jig** to the print head **in the negative direction** and tighten the print head fixing screws.

Step 3)

Attach the print head fixing clip (green part), and perform a print test to check the print quality.
When there is no problem with the print quality, the adjustment is completed.

Step 4)

If poor print still occurs, repeat the above Step 2 and Step 3 to find the best position.
Use the jigs in the following order:

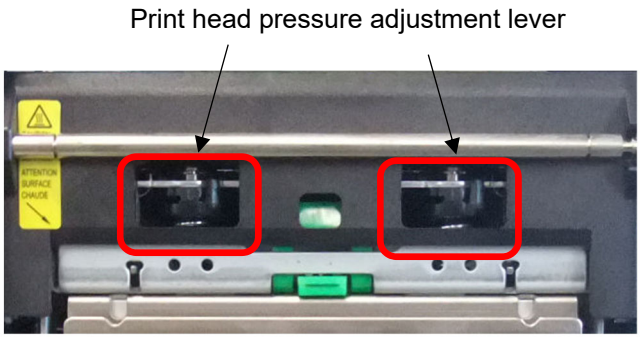
(1) -0.2mm → (2) -0.3mm → (3) -0.4mm → (4) -0.1mm → (5) 0mm → (6) +0.1mm

When print quality becomes proper, the adjustment is completed.

If the print quality does not improve, adjust the print head position to the most acceptable position among the above six positions.

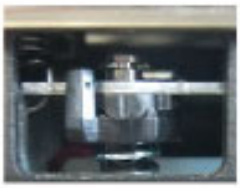
18. PRINT HEAD PRESSURE ADJUSTMENT LEVER

The B-EX4/B-EX6 Series has a print head pressure adjustment mechanism.
Adjusting the balance of the print head pressure with this mechanism, the pressure against the ribbon is made transversely equal, as the result, ribbon wrinkles are improved. This is effective especially when narrow ribbons are used.



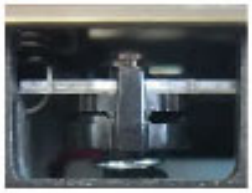
Sample picture: B-EX4 series

Lever position: Left



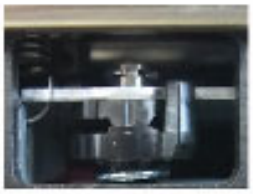
Pressure: Low

Lever position: Center



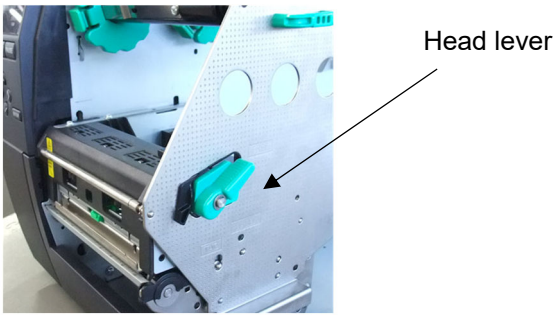
Pressure: Middle

Lever position: Right

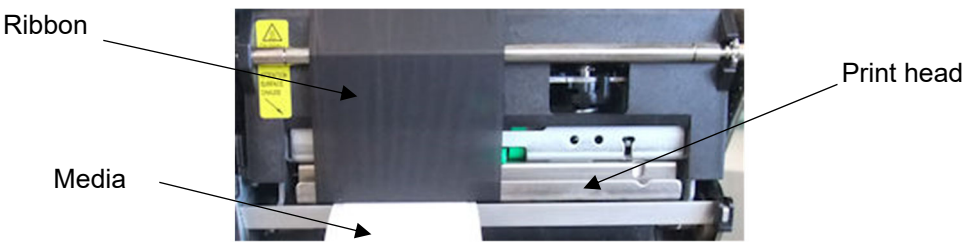


Pressure: High (Default)

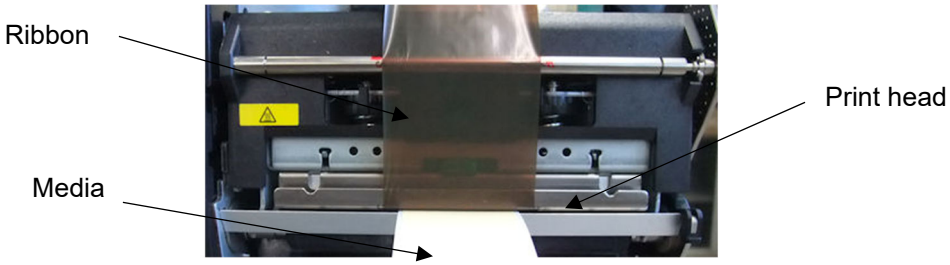
Before operating the print head pressure adjustment lever, turn the head lever to **Free** position.



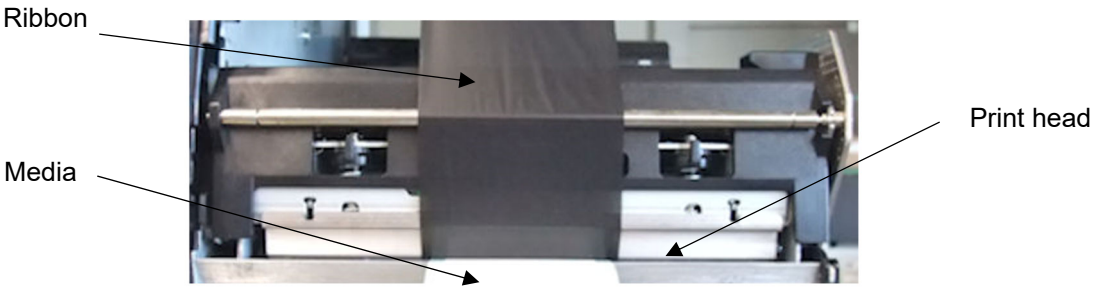
(1) B-EX4T2 series (Ribbon is left-aligned)
In the case of the B-EX4T2 series, the ribbon and the media are left-aligned. Therefore, the print head pressure against the ribbon tends to become uneven. If the ribbon wrinkles, basically adjust the left side (printer frame side) to **High** and the right side to **Low** to make the print head pressure balance equal.



(2) B-EX4T1/B-EX4T3 series (Ribbon is centered)
If the ribbon wrinkles while using a narrow ribbon or when print data is positioned at the right or left side only, basically adjust the side where wrinkles occur to **Low** and the other side to **High** to make the print head pressure balance equal.



(3) B-EX6T series (Ribbon is centered)
As the effective print width is wide on the B-EX6T series, the print head pressure against the ribbon tends to become uneven. If the ribbon wrinkles, basically adjust the center to **High**, the wrinkle side to **Low**, and the normal side to **Middle** or **High** to make the print head pressure balance equal.



Ribbon wrinkle problem tends to occur depending on the various conditions, such as ribbon width, media width, ribbon motor torque, and print head position.
For detailed information, please refer to the Supply Manual for the applicable model.