



TEC Thermal Printer

B-SX4T/SX5T SERIES

User's Manual

Document No. **EO0-33013AUM**

Original **Jan., 2003**
(Revised **Feb., 2003**)

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TOSHIBA TEC CORPORATION

Precaution

This service manual is intended for use by service technicians, and designed as a guide for repair & maintenance. The manual is intended to promote smooth service operations of the product in the market place. It is not intended for any other purpose such as development or product specifications. For questions regarding development or product specifications, please contact the TOSHIBA TEC department in charge.

This manual may be changed or revised without notice. If you find any misprints or omissions, please contact the TOSHIBA TEC Service Dept. (Ohito) promptly (Facsimile No. 0558-76-9842).

TOSHIBA TEC cannot be held responsible for any trouble which have been caused by misprints or omissions.

The following related manuals contain additional specific information on using B-SX4T/SX5T SERIES and can be referred to for more detailed information available from TOSHIBA TEC sales headquarters.

- Interface/Communication Manual
- Supply Manual
- Specifications

Safety Summary

Personal safety in handling or maintaining the equipment is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained in this manual and written inside or outside of the printer should be read and understood before handling or maintaining the equipment.

Never modify the machine. Except for the addition of options as specifically provided for in the service manual, change or modifications to the machine are not approved. Unauthorized changes or modifications may not comply with your country's safety standards.

Safety Precaution

Electrical equipment is dangerous. Electrical shock from such equipment can cause death. Never operate electrical equipment unless authorized to do so by a responsible authority. In emergency work on electrical equipment is authorized, be sure that it is performed in strict compliance with approved safety regulations.

The following safety precautions will help to ensure proper use of the printer:

- Turn off the printer before 1) opening the top cover for any reason, 2) attaching/detaching any cable and memory cards.
- Disconnect the power cord whenever you are working inside the printer.
- Keep your work environment static free.

TEC

TEC Thermal Printer

B-SX4T-QQ/QP

Owner's Manual



TOSHIBA TEC CORPORATION

CE Compliance (for EU only)

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

VORSICHT:

- Schallemission: unter 70dB (A) nach DIN 45635 (oder ISO 7779)
- Die für das Gerät Vorgesehene Steckdose muß in der Nähe des Gerätes und leicht zugänglich sein.

Centronics is a registered trademark of Centronics Data Computer Corp.
Microsoft is a registered trademark of Microsoft Corporation.
Windows is a trademark of Microsoft Corporation.

As an ENERGY STAR® Partner, TOSHIBA TEC has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.



-- Outline of the International ENERGY STAR® Office Equipment Program --

The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the penetration of energy efficient computers and other office equipment. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, monitors, printers, facsimiles, copiers, scanners, and multifunction devices. Their standards and logos are uniform among participating nations.

ENERGY STAR is a U.S. registered mark.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(for USA only)

Changes or modifications not expressly approved by manufacturer for compliance could void the user's authority to operate the equipment.

"This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations."

"Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

(for CANADA only)



Safety Summary

Personal safety in handling or maintaining the equipment is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained in this manual should be read and understood before handling or maintaining the equipment.

Do not attempt to effect repairs or modifications to this equipment. If a fault occurs that cannot be rectified using the procedures described in this manual, turn off the power, unplug the machine, then contact your authorised TOSHIBA TEC representative for assistance.

Meanings of Each Symbol



This symbol indicates warning items (including cautions). Specific warning contents are drawn inside the Δ symbol. (The symbol on the left indicates a general caution.)



This symbol indicates prohibited actions (prohibited items). Specific prohibited contents are drawn inside or near the $\textcircled{\text{X}}$ symbol. (The symbol on the left indicates “no disassembling”.)



This symbol indicates actions which must be performed. Specific instructions are drawn inside or near the \bullet symbol. (The symbol on the left indicates “disconnect the power cord plug from the outlet”.)



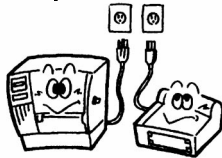
WARNING

This indicates that there is the risk of **death** or **serious injury** if the machines are improperly handled contrary to this indication.



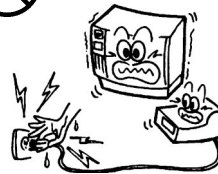
Any other than the specified AC voltage is prohibited.

Do not use voltages other than the voltage (AC) specified on the rating plate, as this may cause **fire** or **electric shock**.



Prohibited

Do not plug in or unplug the power cord plug with wet hands as this may cause **electric shock**.



Prohibited

If the machines share the same outlet with any other electrical appliances that consume large amounts of power, the voltage will fluctuate widely each time these appliances operate. Be sure to provide an exclusive outlet for the machine as this may cause **fire** or **electric shock**.



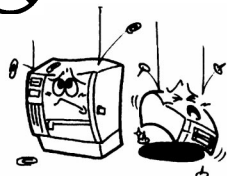
Prohibited

Do not place metal objects or water-filled containers such as flower vases, flower pots or mugs, etc. on top of the machines. If metal objects or spilled liquid enter the machines, this may cause **fire** or **electric shock**.



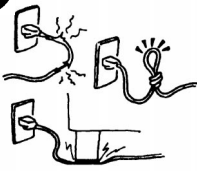
Prohibited

Do not insert or drop metal, flammable or other foreign objects into the machines through the ventilation slits, as this may cause **fire** or **electric shock**.



Prohibited

Do not scratch, damage or modify the power cords. Also, do not place heavy objects on, pull on, or excessively bend the cords, as this may cause **fire** or **electrical shock**.



Disconnect the plug.




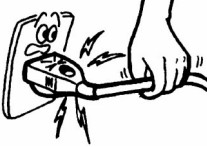



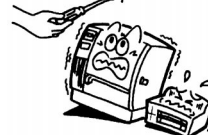
If the machines are dropped or their cabinets damaged, first turn off the power switches and disconnect the power cord plugs from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of the machine in that condition may cause **fire** or **electric shock**.



Disconnect the plug.

Continued use of the machines in an abnormal condition such as when the machines are producing smoke or strange smells may cause **fire** or **electric shock**. In these cases, immediately turn off the power switches and disconnect the power cord plugs from the outlet. Then, contact your authorised TOSHIBA TEC representative for assistance.



 <p>Disconnect the plug.</p> 	<p>If foreign objects (metal fragments, water, liquids) enter the machines, first turn off the power switches and disconnect the power cord plugs from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of the machine in that condition may cause fire or electric shock.</p>	 <p>Disconnect the plug.</p> 	<p>When unplugging the power cords, be sure to hold and pull on the plug portion. Pulling on the cord portion may cut or expose the internal wires and cause fire or electric shock.</p>
 <p>Connect a grounding wire.</p> 	<p>Ensure that the equipment is properly grounded. Extension cables should also be grounded. Fire or electric shock could occur on improperly grounded equipment.</p>	 <p>No disassembling.</p> 	<p>Do not remove covers, repair or modify the machine by yourself. You may be injured by high voltage, very hot parts or sharp edges inside the machine.</p>



CAUTION

This indicates that there is the risk of personal **injury** or **damage** to objects if the machines are improperly handled contrary to this indication.

Precautions

The following precautions will help to ensure that this machine will continue to function correctly.

- Try to avoid locations that have the following adverse conditions:
 - * Temperatures out of the specification
 - * Shared power source
- * Direct sunlight
- * Excessive vibration
- * High humidity
- * Dust/Gas
- The cover should be cleaned by wiping with a dry cloth or a cloth slightly dampened with a mild detergent solution. NEVER USE THINNER OR ANY OTHER VOLATILE SOLVENT on the plastic covers.
- USE ONLY TOSHIBA TEC SPECIFIED paper and ribbons.
- DO NOT STORE the paper or ribbons where they might be exposed to direct sunlight, high temperatures, high humidity, dust, or gas.
- Ensure the printer is operated on a level surface.
- Any data stored in the memory of the printer could be lost during a printer fault.
- Try to avoid using this equipment on the same power supply as high voltage equipment or equipment likely to cause mains interference.
- Unplug the machine whenever you are working inside it or cleaning it.
- Keep your work environment static free.
- Do not place heavy objects on top of the machines, as these items may become unbalanced and fall causing **injury**.
- Do not block the ventilation slits of the machines, as this will cause heat to build up inside the machines and may cause **fire**.
- Do not lean against the machine. It may fall on you and could cause **injury**.
- Care must be taken not to injure yourself with the printer paper cutter.
- Unplug the machine when it is not used for a long period of time.
- Place the machine on a stable and level surface.

Request Regarding Maintenance

- Utilize our maintenance services.
After purchasing the machine, contact your authorised TOSHIBA TEC representative for assistance once a year to have the inside of the machine cleaned. Otherwise, dust will build up inside the machines and may cause a **fire** or a **malfunction**. Cleaning is particularly effective before humid rainy seasons.
- Our preventive maintenance service performs the periodic checks and other work required to maintain the quality and performance of the machines, preventing accidents beforehand.
For details, please consult your authorised TOSHIBA TEC representative for assistance.
- Using insecticides and other chemicals
Do not expose the machines to insecticides or other volatile solvents. This will cause the cabinet or other parts to deteriorate or cause the paint to peel.

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WARNING!

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.*
3. *Please refer to your local Authorised Service representative with regard to any queries you may have in this manual.*

1. PRODUCT OVERVIEW

1.1 Introduction

Thank you for choosing the TEC B-SX4T series thermal printer. This Owner's Manual contains from general set-up through how to confirm the printer operation using a test print, and should be read carefully to help gain maximum performance and life from your printer. For most queries please refer to this manual and keep it safe for future reference. Please contact your TOSHIBA TEC representative for further information concerning this manual.

1.2 Features

This printer has the following features:

- The print head block can be opened providing smooth loading of media and ribbon.
- Various kinds of media can be used as the media sensors can be moved from the centre to the left edge of the media.
- When the optional interface board is installed, Web functions such as remote maintenance and other advanced network features are available.
- Superior hardware, including the specially developed 8 dots/mm (203 dots/inch) thermal print head which will allow very clear print at a printing speed of 76.2 mm/sec. (3 inches/sec.), 152.4 mm/sec. (6 inches/sec.), or 254.0 mm/sec. (10 inches/sec.).
- Besides the optional Cutter Module, there is also an optional Strip Module, Ribbon Saving Module, PCMCIA Interface Board, Expansion I/O Interface Board, LAN Interface Board, and the USB Interface Board.

1.3 Unpacking

Unpack the printer as per the Unpacking Instructions supplied with the printer.

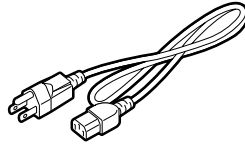
NOTES:

1. Check for damage or scratches on the printer. However, please note that TOSHIBA TEC shall have no liability for any damage of any kind sustained during transportation of the product.
2. Keep the cartons and pads for future transportation of the printer.

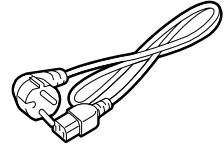
1.4 Accessories

When unpacking the printer, please make sure all the following accessories are supplied with the printer.

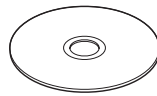
- US Power Cord (1 pc.)
(P/No. FBCB0030203)
QQ model only



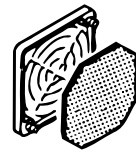
- EU Power Cord (1 pc.)
(P/No. EKA-0030001)
QP model only



- CD-ROM (1 pc.)
QQ (P/No.: 7FM00331000)
QP (P/No.: 7FM00254000)



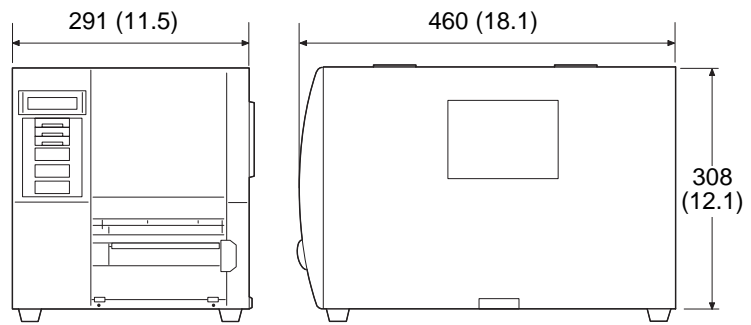
- Fan Filter (1 pc.)
(P/No. FMBB0036801)



1.5 Appearance

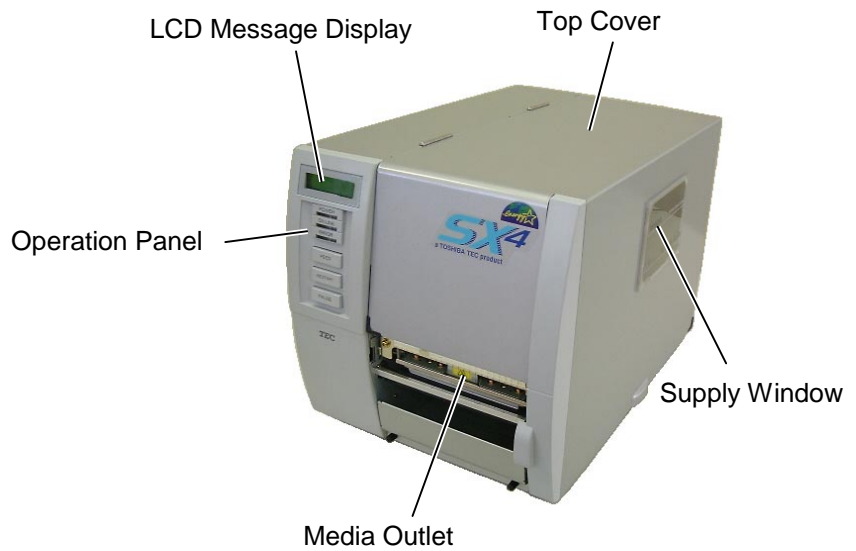
The names of the parts or units introduced in this section are used in the following chapters.

1.5.1 Dimensions

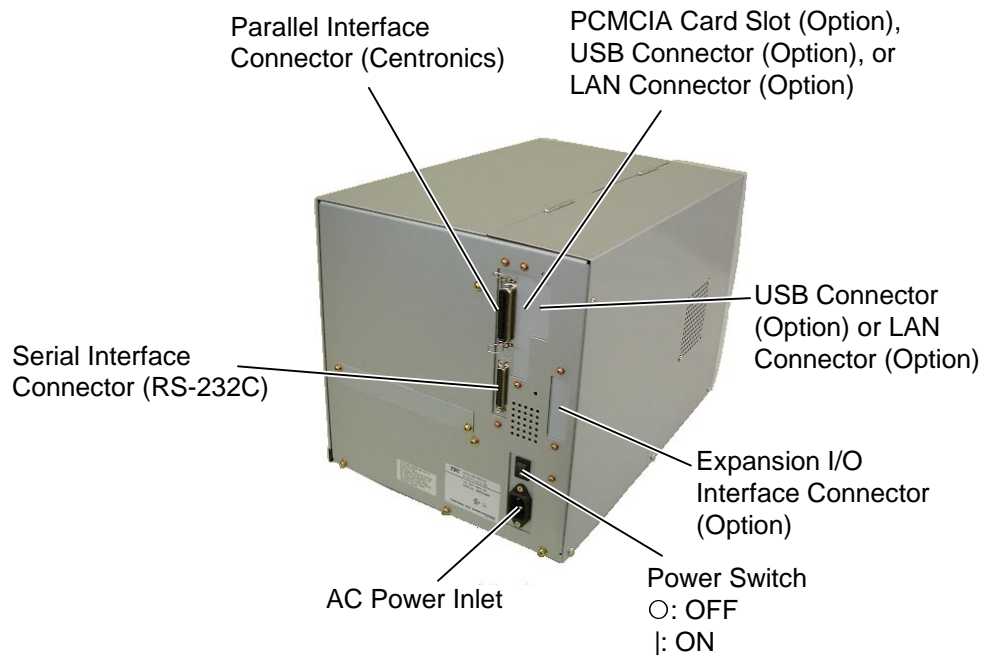


Dimensions in mm (inches)

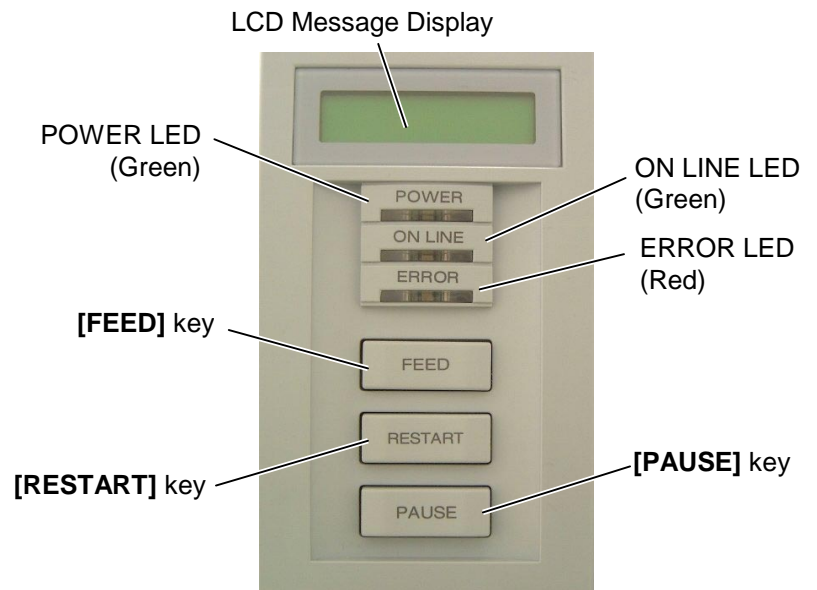
1.5.2 Front View



1.5.3 Rear View

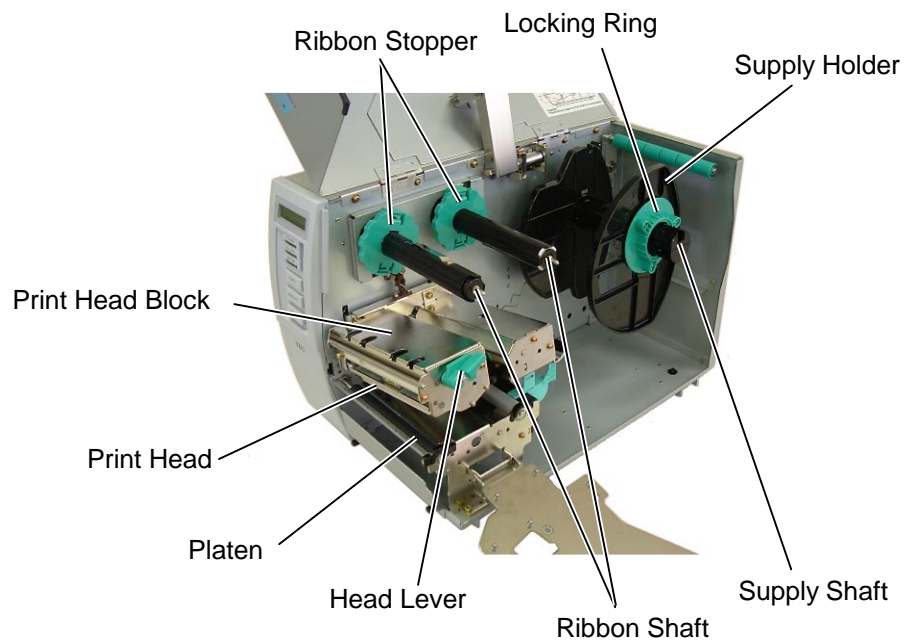


1.5.4 Operation Panel



Please see Section 3.1 for further information about the Operation Panel.

1.5.5 Interior



2. PRINTER SETUP

This section outlines the procedures to setup your printer prior to its operation. The section includes precautions, connecting cables, assembling accessories, loading media and ribbon, inserting the optional memory card, and performing a test print.

2.1 Precautions

To insure the best operating environment, and to assure the safety of the operator and the equipment, please observe the following precautions.

- Operate the printer on a stable, level, operating surface in a location free from excessive humidity, high temperature, dust, vibration or direct sunlight.
- Keep your work environment static free. Static discharge can cause damage to delicate internal components.
- Make sure that the printer is connected to a clean source of AC Power and that no other high voltage devices that may cause line noise interference are connected to the same mains.
- Assure that the printer is connected to the AC mains with a three-prong power cable that has the proper ground (earth) connection.
- Do not operate the printer with the cover open. Be careful not to allow fingers or articles of clothing to get caught into any of the moving parts of the printer especially the optional cutter mechanism.
- Make sure to turn off the printer power and to remove the power cord from the printer whenever working on the inside of the printer such as changing the ribbon or loading the media, or when cleaning the printer.
- For best results, and longer printer life, use only TOSHIBA TEC recommended media and ribbons.
- Store the media and ribbons in accordance with their specifications.
- This printer mechanism contains high voltage components; therefore you should never remove any of the covers of the machine as you may receive an electrical shock. Additionally, the printer contains many delicate components that may be damaged if accessed by unauthorised personnel.
- Clean the outside of the printer with a clean dry cloth or a clean cloth slightly dampened with a mild detergent solution.
- Use caution when cleaning the thermal print head as it may become very hot while printing. Wait until it has had time to cool before cleaning. Use only the TOSHIBA TEC recommended print head cleaner to clean the print head.
- Do not turn off the printer power or remove the power plug while the printer is printing or while the ON LINE lamp is blinking.

2.2 Procedure before Operation

NOTE:

To communicate with the host computer, one of the following cables is required.

- (1) RS-232C cable: 25 pins
- (2) Centronics cable: 36 pins
- (3) USB: B plug (Option)
- (4) LAN: 10 Base-T or 100 Base-TX (Option)

This section describes the outline of the printer setup.

1. Unpack the accessories and printer from the box.
2. Refer to Safety Precautions in this manual and set up the printer at a proper location.
3. Fit the Fan Filter to the printer. (Refer to Section 2.3.)
4. The host computer must have a serial, Centronics parallel, USB or LAN port. (Refer to Section 2.4.)
5. Be sure to insert the power cord plug into an AC outlet. (Refer to Section 2.5.)
6. Load the media. (Refer to Section 2.7.)
7. Adjust the position of the Feed Gap Sensor or Black Mark Sensor depending on the media being used. (Refer to Section 2.7.)
8. Load the ribbon. (Refer to Section 2.8.)
9. Turn the power ON. (Refer to Section 2.6.)
10. Perform a test print. (Refer to Section 2.10.)
11. Install the Printer Drivers. (Refer to the Printer Driver Manual.)

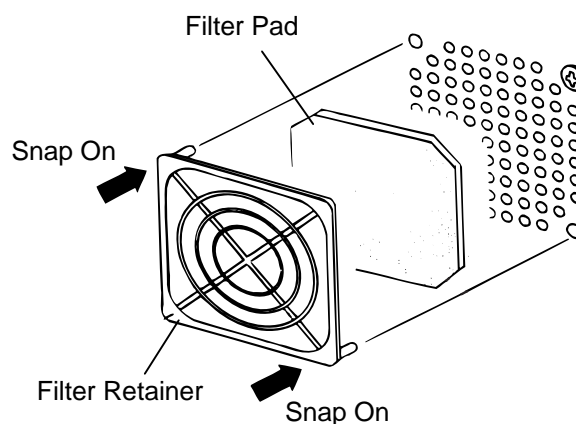
2.3 Fitting the Fan Filter

When installing the printer, it is important to ensure that the Fan Filter is attached before using the printer.

The Fan Filter consists of 2 parts:

- (1) Filter Pad
- (2) Filter Retainer

To fit the Fan Filter, put the Filter Pad inside the Filter Retainer and simply press into place as shown in the diagram below, ensuring connecting pins are aligned with the connecting holes.



2.4 Connecting the Cables to Your Printer

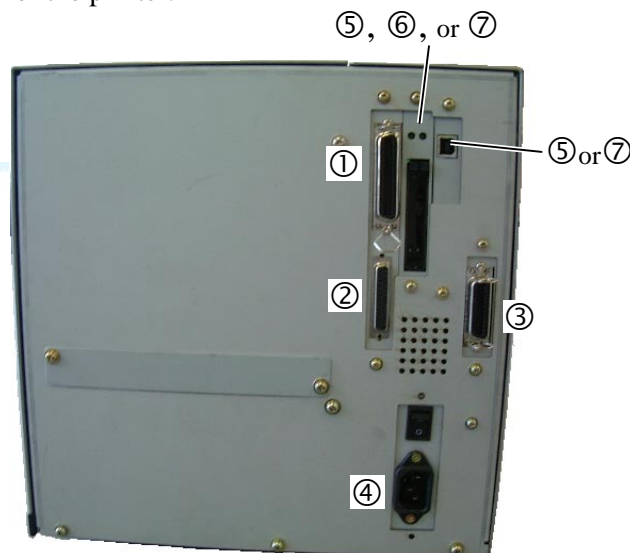
The following paragraphs outline how to connect the cables from the printer to your host computer, and will also show how to make cable connections to other devices. Depending on the application software you use to print labels, there are 4 possibilities for connecting the printer to your host computer. These are:

- A serial cable connection between the printer's RS-232 serial connector and one of your host computer's COM ports. (Refer to APPENDIX 3.)
- A parallel cable connection between the printer's standard parallel connector and your host computer's parallel port (LPT).
- An Ethernet connection using the optional LAN board.
- A USB cable connection between the printer's optional USB connector and your host computer's USB port. (Conforming to USB 1.1)

NOTES:

1. The picture on the right shows the layout of the interface connectors when the options are fully installed. It may be different depending on your system configuration.
2. The USB interface and LAN interface cannot be used at the same time.

The diagram below shows all the possible cable connections to the current version of the printer.



- ① Parallel Interface Connector (Centronics)
- ② Serial Interface Connector (RS-232C)
- ③ Expansion I/O Interface Connector (Option)
- ④ Power Inlet
- ⑤ USB Interface Connector (Option)
- ⑥ PCMCIA Card Slot (Option)
- ⑦ LAN Interface Connector (Option)

2.5 Connecting the Power Cord

CAUTION!

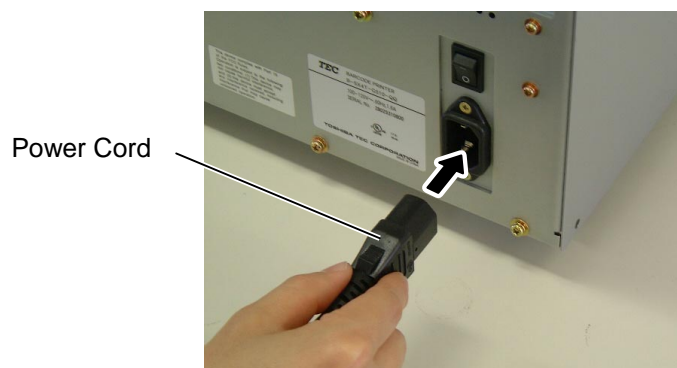
1. Make sure that the printer Power Switch is turned to the OFF (O) position before connecting the Power Cord to prevent possible electric shock or damage to the printer.
2. Use only the Power Cord supplied with the printer. Use of any other cord may cause electric shock or fire.
3. Connect the Power Cord to a supply outlet with a properly grounded (earthed) connection.

1. Make sure that the printer Power Switch is in the OFF (O) position.



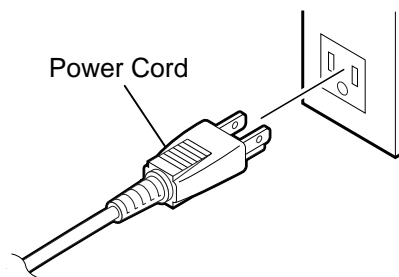
Power Switch

2. Connect the Power Cord to the printer as shown in the figure below.



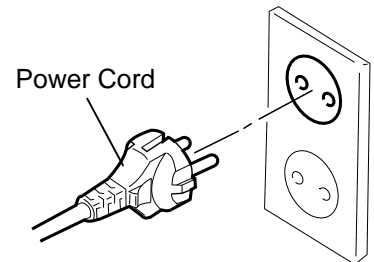
Power Cord

3. Plug the other end of the Power Cord into a grounded outlet as shown in the figure below.



Power Cord

[QQ Type]



Power Cord

[QP Type]

2.6 Turning the Printer ON/OFF

When the printer is connected to your host computer it is good practice to turn the printer ON before turning on your host computer and turn OFF your host computer before turning off the printer.

2.6.1 Turning ON the Printer

CAUTION!

Use the power switch to turn the printer On/Off. Plugging or unplugging the Power Cord to turn the printer On/Off may cause fire, an electric shock, or damage to the printer.

NOTE:

If a message other than ON LINE appears on the display or the ERROR LED lamp is illuminated, go to Section 5.1, Error Messages.

1. To turn ON the printer power, press the Power Switch as shown in the diagram below. Note that (|) is the power ON side of the switch.



Power Switch

2. Check that the ON LINE message appears in the LCD Message Display and that the ON LINE and POWER LED lights are illuminated.

2.6.2 Turning OFF the Printer

CAUTION!

1. Do not turn off the printer power while the media is being printed as this may cause a paper jam or damage to the printer.
2. Do not turn off the printer power while the ON LINE lamp is blinking as this may cause damage to your computer.

1. Before turning off the printer Power Switch verify that the ON LINE message appears in the LCD Message Display and that the ON LINE LED light is on and is not flashing.
2. To turn OFF the printer power press the Power Switch as shown in the diagram below. Note that (O) is the power OFF side of the switch.



Power Switch

2.7 Loading the Media

WARNING!

1. Do not touch any moving parts. To reduce the risk of fingers, jewellery, clothing, etc., being drawn into the moving parts, be sure to load the media once the printer has stopped moving completely.
2. The Print Head becomes hot immediately after printing. Allow it to cool before loading the media.
3. To avoid injury, be careful not to trap your fingers while opening or closing the cover.

CAUTION!

Be careful not to touch the Print Head Element when raising the Print Head Block. Failure to do this may cause missing dots by static electricity or other print quality problems.

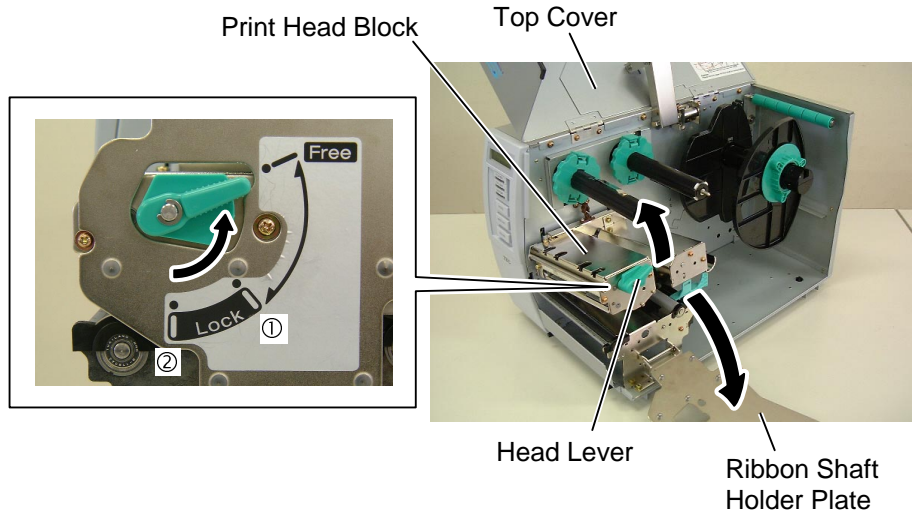
NOTES:

1. When the Head Lever is turned to **Free** position, the Print Head is raised.
2. To allow printing the Head Lever must be set to **Lock** position. (This ensures that the Print Head is closed.) There are two head pressure levels in the **Lock** position. Set the Head Lever depending on the media type:
 Position ①: Labels
 Position ②: Tags
 However, proper position may differ depending on media. For details, refer to TOSHIBA TEC authorised service representative.
3. Do not turn the Locking Ring counterclockwise too far or it may come off the Supply Holder.

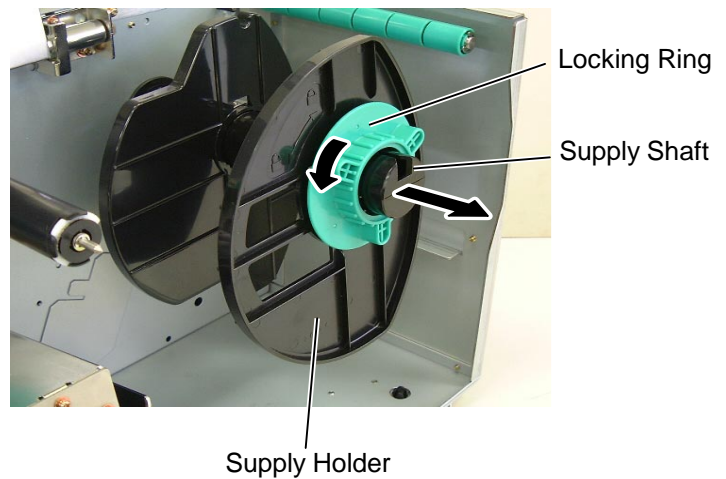
The following procedure shows the steps to properly load the media into the printer so that it feeds straight and true through the printer.

The printer prints both labels and tags.

1. Turn off the power and open the Top Cover.
2. Turn the Head Lever to **Free** position, then release the Ribbon Shaft Holder Plate.
3. Open the Print Head Block.



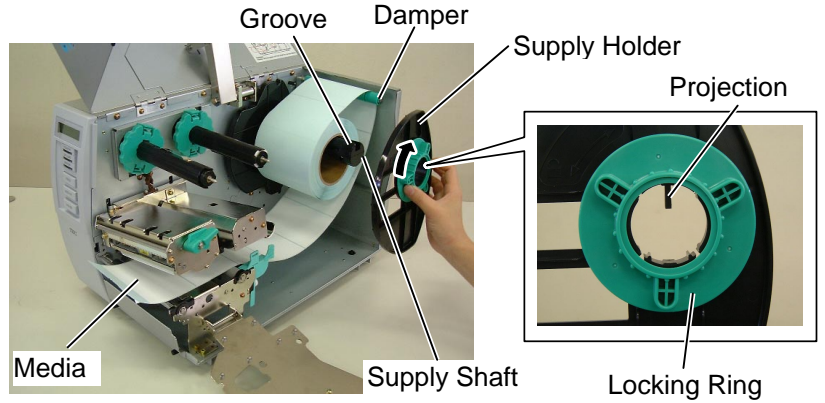
4. Turn the Locking Ring counterclockwise and remove the Supply Holder from the Supply Shaft.



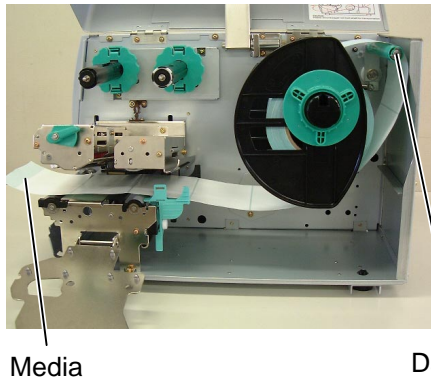
2.7 Loading the Media (Cont.)

NOTE:
Do not over-tighten the Locking Ring of the Supply Holder.

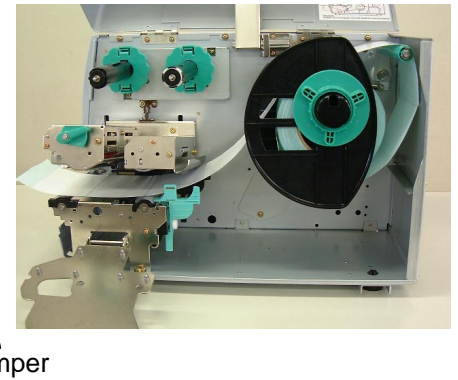
5. Put the media on the Supply Shaft.
6. Pass the media around the Damper, then pull the media towards the front of the printer.
7. Align the projection of the Supply Holder with the groove of the Supply Shaft, and push the Supply Holder against the media until the media is held firmly in place. This will center the media automatically.
Then turn the Locking Ring clockwise to secure the Supply Holder.



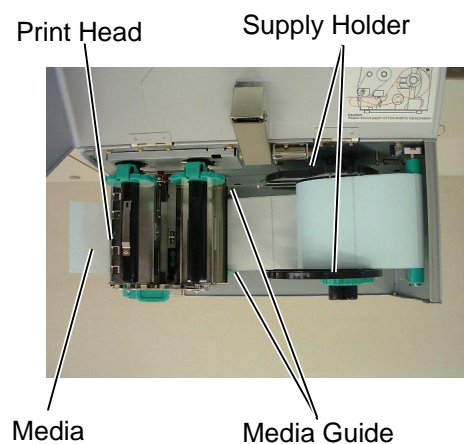
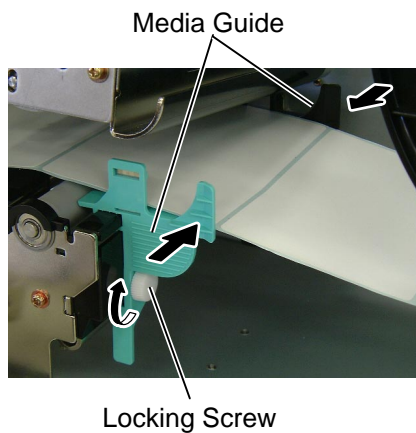
In case of a label rolled with the print side facing inside.



In case of a label rolled with the print side facing outside.



8. Place the media between the Media Guides, adjust the Media Guides to the media width, and tighten the Locking Screw.
9. Check that the media path through the printer is straight. The media should be centered under the Print Head.



2.7 Loading the Media (Cont.)

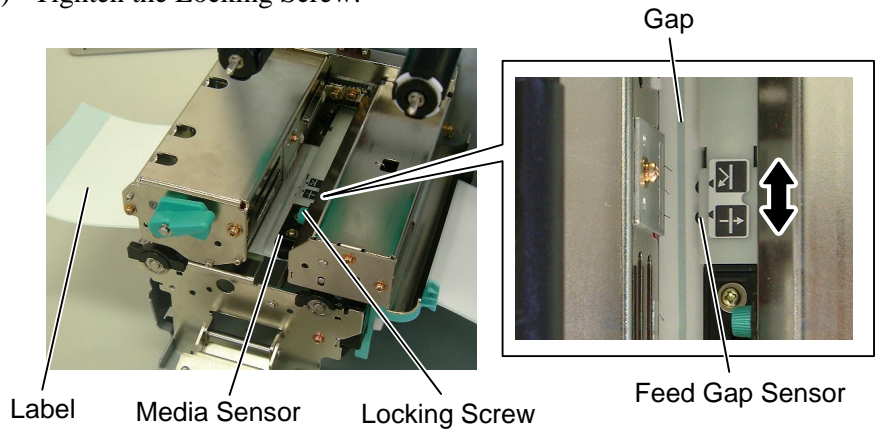
10. Lower the Print Head Block until it stops.
11. After loading the media, it may be necessary to set the Media Sensors used to detect the print start position for label or tag printing.

NOTE:

Be sure to set the black mark sensor to detect the centre of the black mark, otherwise a paper jam or no paper error may occur.

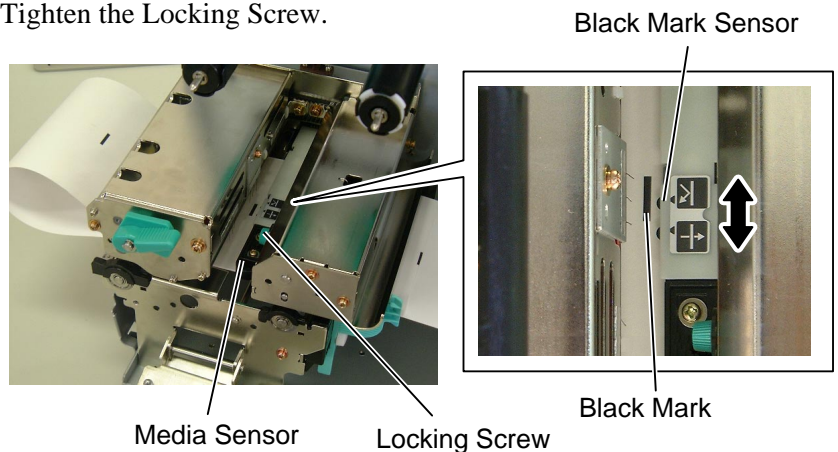
Setting the Feed Gap Sensor position

- (1) Remove the Locking Screw that secures the Media Sensor.
- (2) Manually move the Media Sensor so that the Feed Gap Sensor is positioned at the center of the labels. (↕ indicates the position of the Feed Gap Sensor).
- (3) Tighten the Locking Screw.



Setting the Black Mark Sensor position

- (1) Remove the Locking Screw that secures the Media Sensor.
- (2) Pull about 500 mm of media out of the front of the printer, turn the media back on itself and feed it under the Print Head past the sensor so that the black mark can be seen from above.
- (3) Manually move the Media Sensor so that the Black Mark Sensor is in line with the center of the black mark on the media. (↕ indicates the position of the Black Mark Sensor).
- (4) Tighten the Locking Screw.

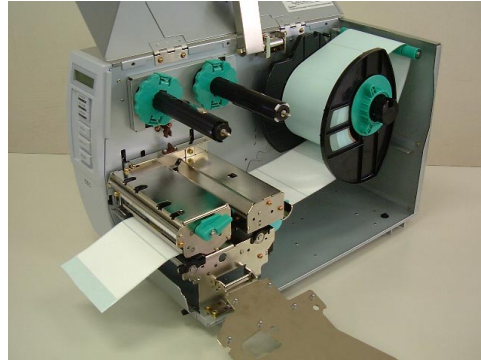


2.7 Loading the Media (Cont.)

12. There are four issue modes available on this printer. How to set the media for each mode is provided below.

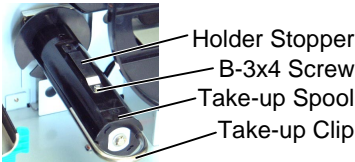
Batch mode

In the batch mode, the media is continuously printed and fed until the number of labels/tags specified in the issue command have been printed.



NOTES:

1. Be sure to set the Selection Switch to **STANDARD/PEEL OFF** position.
2. The backing paper is easier to feed back to the Take-Up Spool if the Front Plate is removed.
3. Fit the Take-Up Clip so that the longer side of the clip is fitted into the shallow groove in the Take-Up Spool.
4. 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-3x4 screw. Otherwise, it may be difficult to pull out the wound backing paper roll.

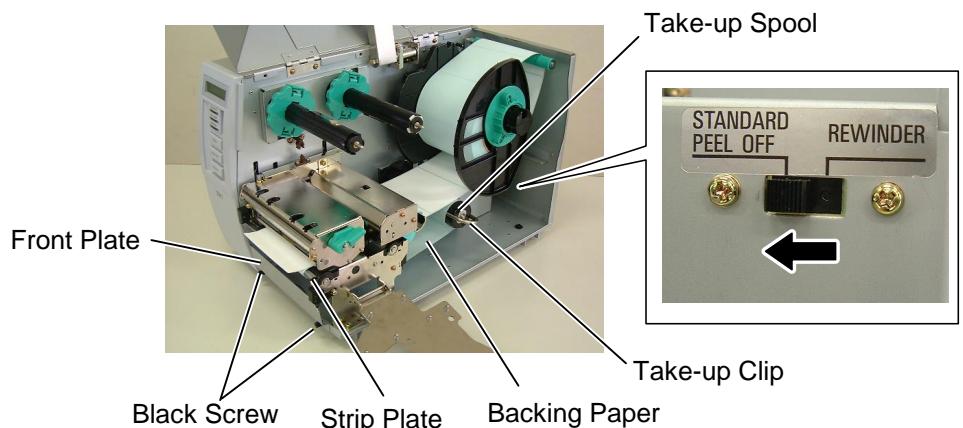


When using a paper core, put the core on the Take-up Spool with the Holder Stopper on it, and attach the top edge of the backing paper to the core with adhesive tape. The Take-up Clip is not necessary. This winding method is applicable to the Built-in Rewinder mode.

Strip mode

When the optional Strip Module is fitted, the backing paper is automatically removed from the label at the Strip Plate as each label is printed.

- (1) Remove enough labels from the leading edge of the media to leave 500mm of backing paper free.
- (2) Insert the backing paper under the Strip Plate.
- (3) Wind the backing paper onto the Take-up Spool and fix it in position with the Take-up Clip. (Wind the paper counterclockwise around the spool as this is the direction it rotates.)
- (4) Rotate the Take-up Spool anti-clockwise a few times to remove any slack in the backing paper.
- (5) Set the Selection Switch mounted on the Rewinder Assembly to **STANDARD/PEEL OFF** position.



2.7 Loading the Media (Cont.)

NOTE:

Be sure to set the Selection Switch to **REWINDER** position.

ADJUSTMENT:

If the media skews when using the Built-in Rewinder, turn the Adjustment Knob of the Rewinder Guide Plate to correct the media feed. Clockwise turn moves the Rewinder Guide Plate forward and counter-clockwise moves it backward.

When the media skews to the right:

Loosen the SM-4x8 screw, turn the Adjustment Knob clockwise, and then tighten the SM-4x8 screw when the Rewinder Guide Plate is positioned correctly.

When the media skews to the left:

Loosen the SM-4x8 screw, turn the Adjustment Knob counter-clockwise, and tighten the SM-4x8 screw when the Rewinder Guide Plate is positioned correctly.

WARNING!

The cutter is sharp, so care must be taken not to injure yourself when handling the cutter.

CAUTION!

1. Be sure to cut the backing paper of the label. Cutting labels will cause the glue to stick to the cutter which may affect the cutter quality and shorten the cutter life.
2. Use of tag paper when the thickness exceeds the specified value may affect the cutter life.

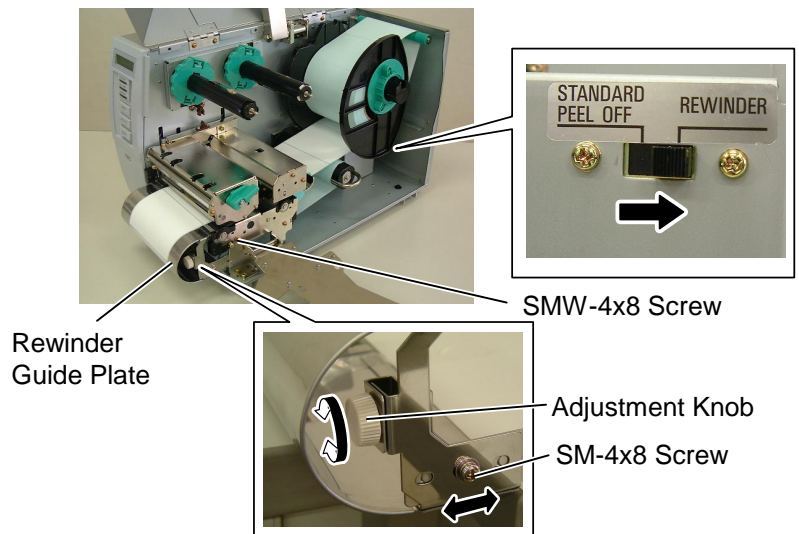
NOTE:

When using the Rotary Cutter, be sure to install the Ribbon Saving Module (B-9904-R-QM). Failure to do this may cause a paper jam or ribbon error.

Build-in rewinder mode

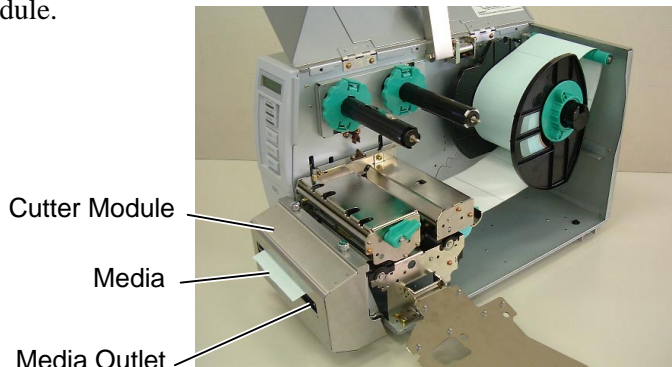
The Rewinder Assembly of the Strip Module can be used in batch mode to take up the printed media as a Built-in Rewinder.

- (1) Remove the two Black Screws to detach the Front Plate.
- (2) Attach the Rewinder Guide Plate enclosed with the optional Strip Module to the Strip Plate with the SMW-4x8 sems screws.
- (3) Insert the media under the Rewinder Guide Plate.
- (4) Wind the media onto the Take-up Spool and fix it in position with the Take-up Clip.
- (5) Rotate the Take-up Spool counterclockwise a few times to remove any slack in the media.
- (6) Set the Selection Switch mounted on the Rewinder Assembly to **REWINDER** position.



Cut mode

When the optional Cutter Module is fitted, the media is automatically cut. A swing cutter and a rotary cutter are available as an option, but they are used in the same way. Insert the leading edge of the media into the Media Outlet of the Cutter Module.



13. If the loaded media is direct thermal media (a chemically treated surface), the media loading procedure is now completed. Close the Ribbon Shaft Holder Plate, and turn the Head Lever to **Lock** position to close. Then, close the Top Cover. If the media is thermal transfer media, it is also necessary to load a ribbon. Refer to Section 2.8 Loading the Ribbon.

2.8 Loading the Ribbon

WARNING!

1. Do not touch any moving parts. To reduce the risk of fingers, jewellery, clothing, etc., being drawn into the moving parts, be sure to load the ribbon once the printer has stopped moving completely.
2. The print head becomes hot immediately after printing. Allow it to cool before loading the ribbon.
3. To avoid injury, be careful not to trap your fingers while opening or closing the cover.

CAUTION!

Be careful not touch the Print Head Element when raising the Print Head Block. Failure to do this may cause missing dots by static electricity or other print quality problems.

NOTES:

1. When attaching the ribbon stoppers, make sure that the pinchers face into the printer
2. Be sure to remove any slack in the ribbon when printing. Printing with a wrinkled ribbon will lower the print quality.
3. The Ribbon Sensor is mounted on the rear of the Print Head Block to detect a ribbon end. When a ribbon end is detected, "NO RIBBON" message will appear on the display and the ERROR LED will illuminate.

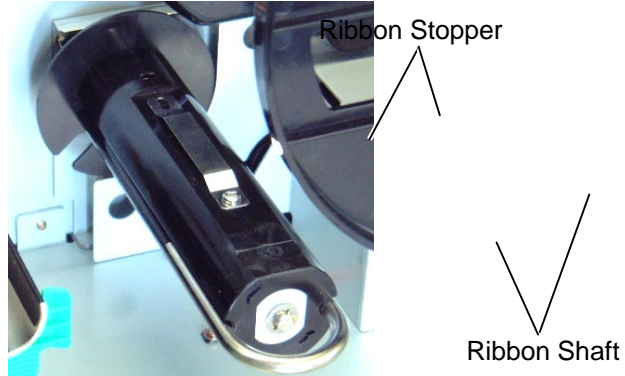
NOTE:

Ribbon loss per ribbon saving varies according to the relation between the outer roll diameter of the used ribbon and the print speed.

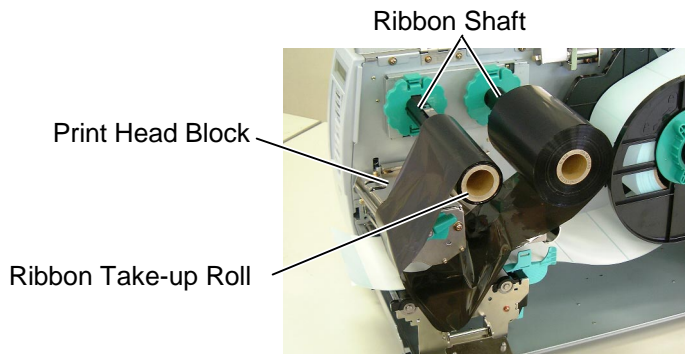
Print speed	Ribbon loss/Ribbon saving
3"/sec.	Approx. 6 mm
6"/sec.	Approx. 10 mm
10"/sec.	Approx. 20 mm

There are two types of media available for printing on: these are thermal transfer media and direct thermal media (a chemically treated surface). DO NOT LOAD a ribbon when using a direct thermal media.

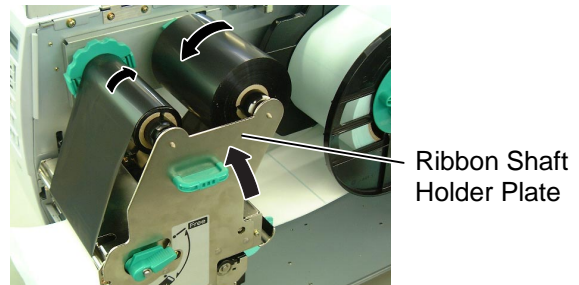
1. Grasp the tabs on the top and bottom of the Ribbon Stoppers and move the Ribbon Stoppers back to the end of the Ribbon Shaft.



2. Leaving plenty of slack between the ribbon spools, place the ribbon onto the Ribbon Shafts as shown below.



3. Slide the Ribbon Stoppers along the Ribbon Shafts to a position where the ribbon is centred when fitted.
4. Lower the Print Head Block and set the Ribbon Shaft Holder Plate aligning its holes with the Ribbon Shafts.
5. Take up any slack in the ribbon. Wind the leading tape onto the ribbon take-up roll until the ink ribbon can be seen from the front of the printer.



6. Turn the Head Lever to **Lock** position to close the Print Head.
7. Close the Top Cover.

■ **Auto Ribbon Saving Mode**

When the auto ribbon saving function is selected, it will be activated to reduce ribbon loss when a no print area extends more than 20 mm (3 or 6 ips) or 30 mm (10 ips). For further information on this function, please ask a TOSHIBA TEC authorised service representative.

2.9 Inserting the Optional PCMCIA Cards

CAUTION!

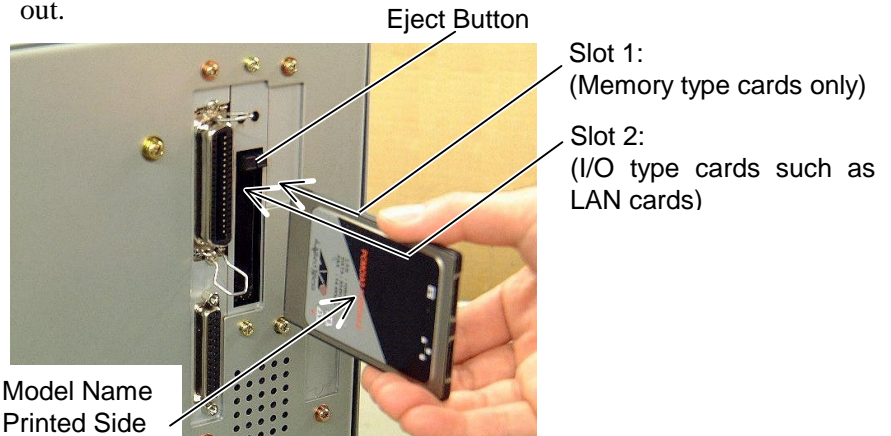
1. To protect PC cards, discharge static electricity from your body by touching the metal cabinet of the printer before touching the card.
2. Before inserting or removing a PCMCIA card make sure that the printer's power is turned off.
3. Be sure to protect PCMCIA Cards when not in use by putting them into their protective covers.
4. Do not subject the card to any shocks or excessive force nor expose the card to extremes in temperature or humidity.
5. The card may be inserted into the slot halfway even in the wrong orientation. However, the slot is safety designed so that the card will not seat against the connector pins.

NOTE:

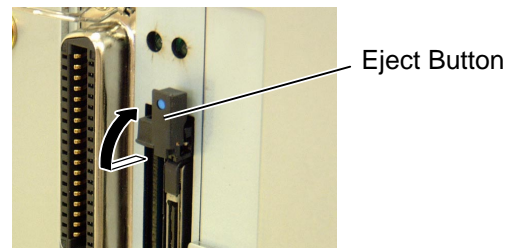
Reading a read-only-type flash memory is possible if it has been used on the TOSHIBA TEC printer, such as B-472 and B-572.

When the optional PCMCIA Interface Board is installed into the printer, there will be two PCMCIA slots available as shown in the figure below. This allows the use of Flash Memory type Cards or I/O Cards such as LAN Cards. The following paragraphs outline how to insert PCMCIA cards.

1. Make sure that the printer's Power Switch is in the OFF position.
2. Hold the PCMCIA Card so that the side with the model name faces left. Insert the card into the proper slot until the Eject Button pops out.



3. Slightly pull and fold the Eject Button upward.



4. The following PCMCIA cards can be used.

Type	Maker	Description	Remarks
ATA Card	San Disk, Hitachi	A card conforming to the PC card ATA standard	-----
LAN Card	3 COM	3CCE589ET Series	Install into the slot (2) only. (This card installed into the slot (1) will not work.)
Flash Memory Card (4 MB)	Maxell	EF-4M-TB CC	Read/Write
	Maxell	EF-4M-TB DC	
	Centennial Technologies INC.	FL04M-15-11119-03	Read (See NOTE.)
	INTEL	IMC004FLSA	
	Simple TECHNOLOGY	STI-FL/4A	
	Mitsubishi	MF84M1-G7DAT01	
	PC Card KING MAX	FJN-004M6C	
	Centennial Technologies Inc.	FL04M-20-11138-67	
	PC Card	FJP-004M6R	
Flash Memory Card (1 MB)	Mitsubishi	MF84M1-GMCAV01	
	Maxell	EF-1M-TB AA	
	Mitsubishi	MF81M1-GBDAT01	

2.10 Test Print

A print test should be performed to check that the printer is operating correctly.

The following paragraphs guide you through the diagnostic procedure for test label printing. Please follow the step-by-step procedures exactly for best results.

1. Use label stock for the test print. For best results, use labels that are 76 mm or longer in length.
2. Press and hold the **[FEED]** and **[PAUSE]** keys while turning on the printer power switch. The LCD Message Display will show the following message.

```
<1>DIAG.    1.0A
```

3. Press the **[FEED]** key three times to advance to the test print mode as indicated by the following message in the LCD Message Display.

```
<4>TEST PRINT
```

4. Press the **[PAUSE]** key and the print condition setting display will appear.

```
<4>TEST PRINT  
PRINT CONDITION
```

5. Press the **[PAUSE]** key and the issue count setting display will appear. Set the issue count with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
ISSUE COUNT    1
```

6. Press the **[PAUSE]** key and the print speed setting display will appear. Set the print speed with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
PRINT SPEED 6"/s
```

7. Press the **[PAUSE]** key and the sensor type setting display will appear. Select the sensor type with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
SENSOR TRANS.
```

8. Press the **[PAUSE]** key and the print mode setting display will appear. Select the print mode with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
PRT TYPE TRANSFR
```

NOTES:

1. Select the sensor type which matches the media being used. Basically, the Reflective Sensor (Black Mark Sensor) is for tag paper, and the Transmissive Sensor (Feed Gap Sensor) is for labels.
2. Select the print mode which matches the media being used. Basically, the thermal transfer is with ribbon, and the thermal direct is without ribbon.

2.10 Test Print (Cont.)

NOTE:
When PAPER FEED is selected, the printer feeds the media to the correct print start position. If the print start position adjustment is unnecessary, select PAPER NO FEED and save the media.

9. Press the **[PAUSE]** key and the issue mode setting display will appear. Select the issue mode with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
TYPE [S]NO CUT
```

10. Press the **[PAUSE]** key and the media size setting display will appear. Select the media size with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
LABEL LEN. 76mm
```

11. Press the **[PAUSE]** key and the paper feed setting display will appear. Select whether or not a paper feed is performed with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
PAPER FEED
```

12. When the **[PAUSE]** key is pressed, one blank media will be issued. Then the LCD Message Display will return to showing the test print start message.

```
<4>TEST PRINT
```

13. Press the **[PAUSE]** key and then **[FEED]** key. When pressing the **[PAUSE]** key, the printer will print the specified issue counts of the slant lines (1 dot).

```
<4>TEST PRINT
SLANT LINE (1DOT)
```

14. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the slant lines (3 dots).

```
<4>TEST PRINT
SLANT LINE (3DOT)
```

15. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the characters of various sizes.

```
<4>TEST PRINT
CHARACTERS
```

16. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the bar codes.

```
<4>TEST PRINT
BARCODE
```

17. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of blank labels.

```
<4>TEST PRINT
NON PRINTING
```

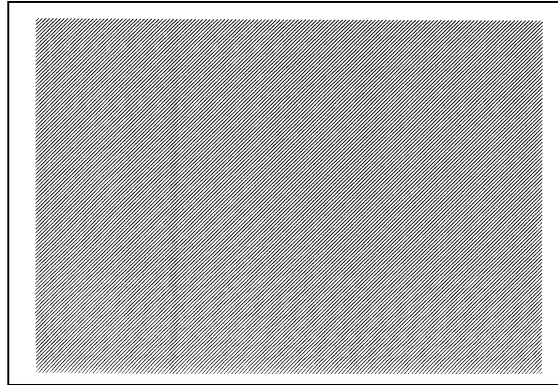
18. Press the **[PAUSE]** key and the LCD Message Display will return to showing the test print start message.

NOTE:
If the **[FEED]** key is pressed after the blank labels are printed, the printer will enter the Factory Test mode. To exit from the Factory Test mode, press the **[PAUSE]** key.

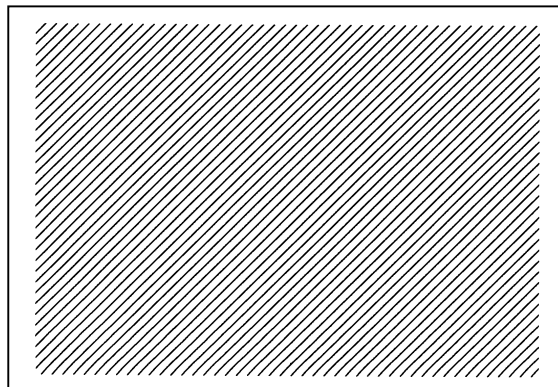
2.10 Test Print (Cont.)

- 19. When you have finished performing the test print operation, turn the printer's power OFF then back to ON and check that the LCD Message Display shows ON LINE and that the ON LINE and POWER LED lights are illuminated.

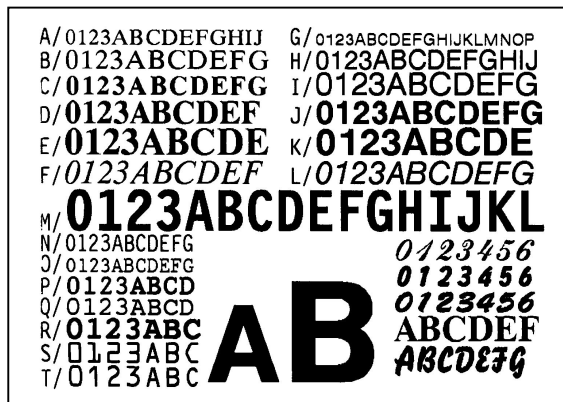
Sample of the slant line (1 dot) test print label



Sample of the slant line (3 dots) test print label

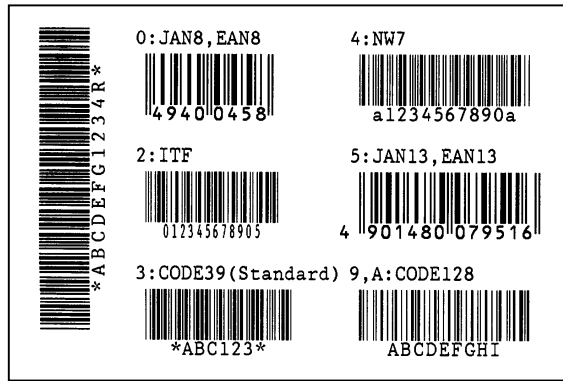


Sample of the character test print label

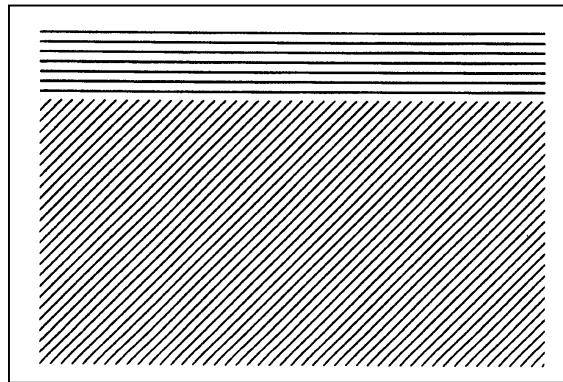


2.10 Test Print (Cont.)

Sample of the bar code test print label



Sample of the factory test label



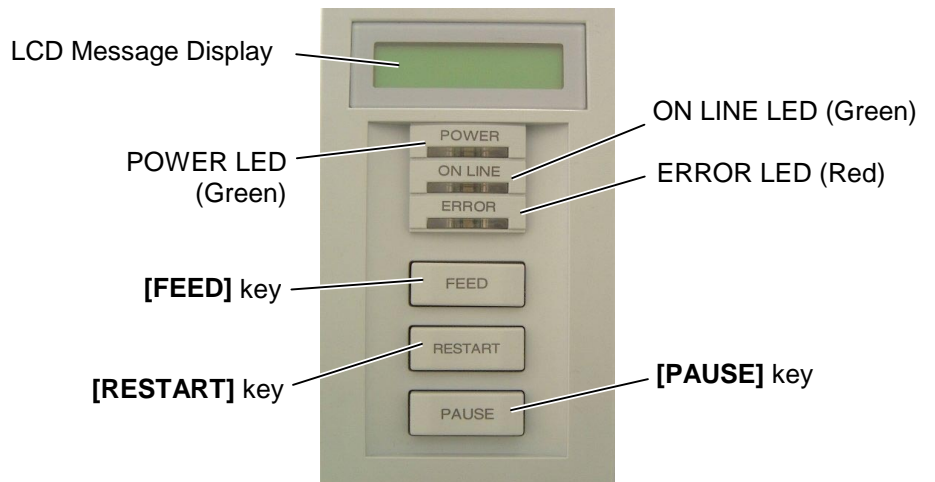
3. ON LINE MODE

This chapter describes usage of the keys on the Operation Panel in On Line mode.

When the printer is in On Line mode and connected to a host computer, the normal operation of printing images on labels or tags can be accomplished.

3.1 Operation Panel

- The figure below illustrates the operation panel and key functions.



The LCD Message Display shows messages in alphanumeric characters and symbols to indicate the printer's current status. Up to 32 characters can be displayed on two lines.

There are three LED lights on the operation panel.

LED	Illuminates when...	Flashes when...
POWER	The printer is turned on.	-----
ON LINE	The printer is ready to print.	The printer is communicating with your computer.
ERROR	Any error occurs with the printer.	The ribbon is nearly over. (See NOTE.)

NOTE:
Flashes only when the Ribbon Near End Detection function is selected.

There are three keys on the operation panel.

PAUSE	Used to stop printing temporarily.
RESTART	Used to restart printing.
FEED	Used to feed the media.

NOTE:
Use the **[RESTART]** key to resume printing after a pause, or after clearing an error.

3.2 Operation

When the printer is turned on, the "ON LINE" message appears on the LCD Message Display. It is shown during standby or normal printing.

1. The printer is turned on, standing by, or printing.

ON LINE	
B-SX4T	V1.0A

2. If any error occurs during printing, an error message appears. The printer stops printing automatically. (The number on the right side shows the remaining number of media to be printed.)

NO PAPER	125
B-SX4T	V1.0A

3. To clear the error, press the **[RESTART]** key. The printer resumes printing.

ON LINE	
B-SX4T	V1.0A

4. If the **[PAUSE]** key is pressed during printing, the printer stops printing temporarily. (The number on the right side shows the remaining number of media to be printed.)

PAUSE	52
B-SX4T	V1.0A

5. When the **[RESTART]** key is pressed, the printer resumes printing.

ON LINE	
B-SX4T	V1.0A

3.3 Reset

A reset operation clears the print data sent from the computer to the printer, and returns the printer to an idle condition.

1. The printer is turned on, standing by, or printing.

ON LINE	
B-SX4T	V1.0A

2. To stop printing, or clear the data sent from the computer, press the **[PAUSE]** key. The printer stops printing.

PAUSE	52
B-SX4T	V1.0A

3. Press and hold the **[RESTART]** key for 3 seconds or longer.

<1>RESET

4. Press the **[PAUSE]** key. The data sent from the computer will be cleared, and the printer returns to an idle condition.

ON LINE	
B-SX4T	V1.0A

NOTE:

If the **[RESTART]** key is held for less than 3 seconds when the printer is in an error or pause state, the printer restarts printing. However, when a communication error or command error occurs, the printer returns to an idle condition.

3.4 Dump Mode

In Dump mode, any characters sent from the host computer will be printed. Received characters are expressed in hexadecimal values. This allows the user to verify programming commands and debug the program.

For details, please refer to your nearest TOSHIBA TEC service representative.

4. MAINTENANCE

WARNING!

1. Be sure to disconnect the power cord before performing maintenance. Failure to do this may cause an electric shock.
2. To avoid injury, be careful not to pinch your fingers while opening or closing the cover and print head block.
3. The print head becomes hot immediately after printing. Allow it to cool before performing any maintenance.
4. Do not pour water directly onto the printer.

This chapter describes how to perform routine maintenance.

To ensure the continuous high quality operation of the printer, you should perform a regular maintenance routine. For high throughput it should be done on a daily basis. For low throughput it should be done on a weekly basis.

4.1 Cleaning

To maintain the printer performance and print quality, please clean the printer regularly, or whenever the media or ribbon is replaced.

4.1.1 Print Head/Platen/Sensors

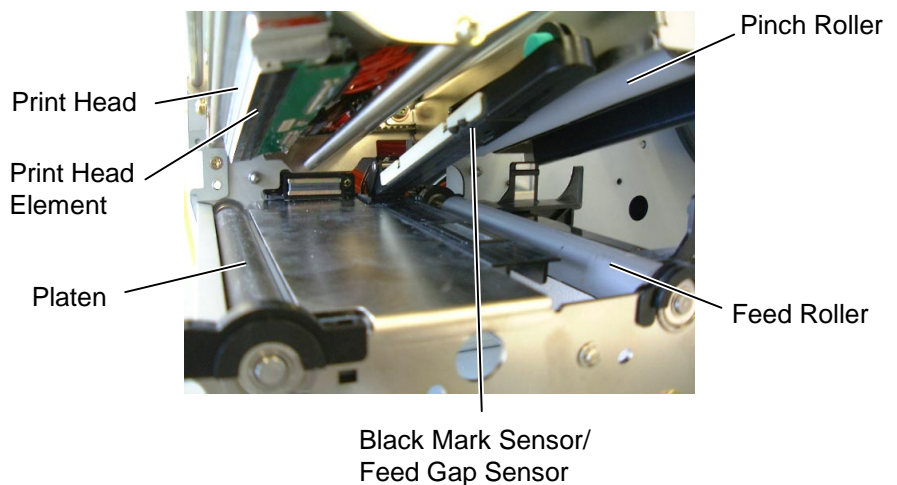
CAUTION!

1. Do not allow any hard objects to touch the Print Head or Platen, as this may cause damage to them.
2. Do not use any volatile solvent including thinner and benzene, as this may cause discoloration to the cover, print failure, or breakdown of the printer.
3. Do not touch the Print Head Element with bare hands, as static may damage the Print Head.
4. Be sure to use the Print Head Cleaner enclosed with this printer. Failure to do this may shorten the Print Head life.

NOTE:

Please purchase the Print Head Cleaner (P/No. 24089500013) from your authorised TOSHIBA TEC service representative.

1. Turn off the power and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to **Free** position, then release the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.
6. Clean the Print Head Element with a Print Head Cleaner or a cotton swab or soft cloth slightly moistened with alcohol.



7. Wipe the Platen, Feed Roller, and Pinch Roller with a soft cloth slightly moistened with alcohol. Remove dust or foreign substances from the internal part of the printer.
8. Wipe the Feed Gap Sensor and Black Mark Sensor with a dry soft cloth.

4.1.2 Covers and Panels

CAUTION!

1. *DO NOT POUR WATER directly onto the printer.*
2. *DO NOT APPLY cleaner or detergent directly onto any cover or panel.*
3. *NEVER USE THINNER OR OTHER VOLATILE SOLVENT on the plastic covers.*
4. *DO NOT clean the panel, covers, or the supply window with alcohol as it may cause them to discolour, loose their shape or develop structural weakness.*

Wipe the covers and panels with a dry soft cloth or a cloth slightly moistened with mild detergent solution.



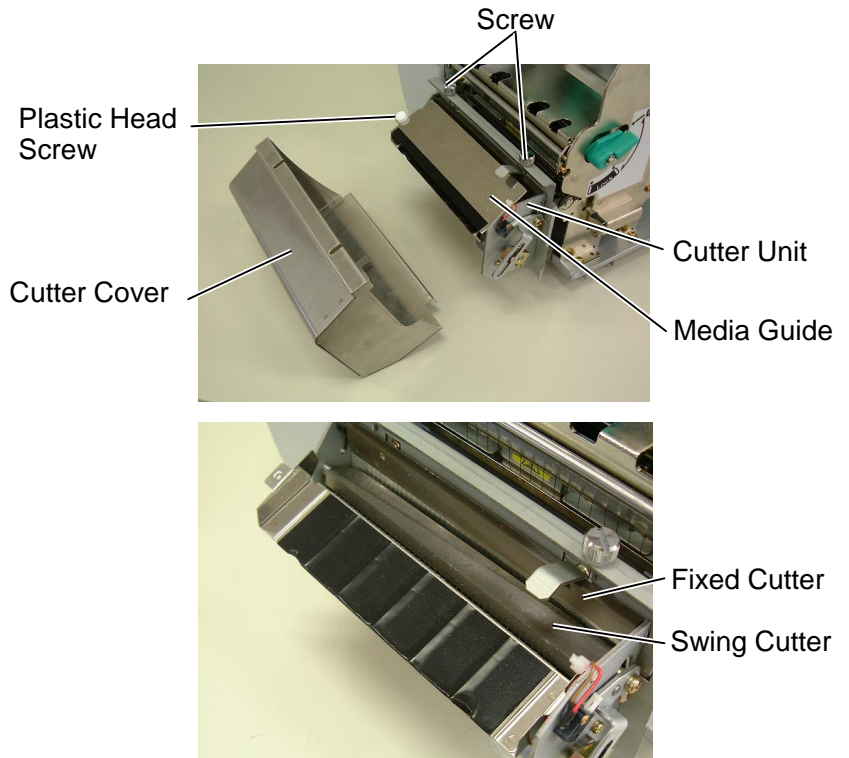
4.1.3 Optional Cutter Module

WARNING!

1. *Be sure to turn the power off before cleaning the Cutter Module.*
2. *As the cutter blade is sharp, care should be taken not to injure yourself when cleaning.*

The swing cutter and rotary cutter are available as an option. They are both cleaned in the same way. When removing the Cutter Cover of the rotary cutter unit, remove the screws from the bottom of the cover.

1. Loosen the two screws to remove the Cutter Cover.
2. Remove the Plastic Head Screw to detach the Media Guide.
3. Remove the jammed paper.
4. Clean the Cutter with a soft cloth slightly moistened with alcohol.
5. Reassemble the Cutter Module in the reverse order of removal.



4.2 Care/Handling of the Media and Ribbon

CAUTION!

Be sure to carefully review and understand the Supply Manual. Use only media and ribbons that meet specified requirements. Use of non-specified media and ribbons may shorten the head life and result in problems with bar code readability or print quality. All media and ribbons should be handled with care to avoid any damage to the media, ribbons or printer. Read the guidelines in this section carefully.

- Do not store the media or ribbon for longer than the manufacturer's recommended shelf life.
- Store media rolls on the flat end. Do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media and ribbon in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.
- The thermal paper used for direct thermal printing must not have specifications which exceed Na^+ 800 ppm, K^+ 250 ppm and Cl^- 500 ppm.
- Some ink used on pre-printed media may contain ingredients which shorten the print head's product life. Do not use labels pre-printed with ink which contain hard substances such as carbonic calcium (CaCO_3) and kaolin ($\text{Al}_2\text{O}_3, 2\text{SiO}_2, 2\text{H}_2\text{O}$).

For further information, please contact your local distributor or your media and ribbon manufacturers.

5. TROUBLESHOOTING

This chapter lists the error messages, possible problems, and their solutions.

WARNING!

If a problem cannot be solved by taking the actions described in this chapter, do not attempt to repair the printer. Turn off and unplug the printer, then contact an authorised TOSHIBA TEC service representative for assistance.

5.1 Error Messages

NOTES:

- If an error is not cleared by pressing the **[RESTART]** key, turn the printer off and then on.
- After the printer is turned off, all print data in the printer is cleared.
- "****" indicates the number of unprinted media. Up to 9999 (in pieces).

Error Messages	Problems/Causes	Solutions
HEAD OPEN	The Print Head Block is opened in Online mode.	Close the Print Head Block.
HEAD OPEN ****	Feeding or printing has been attempted with the Print Head Block open.	Close the Print Head Block. Then press the [RESTART] key.
COMMS ERROR	A communication error has occurred.	Make sure the interface cable is correctly connected to the printer and the host, and the host is turned on.
PAPER JAM ****	<ol style="list-style-type: none"> 1. The media is jammed in the media path. The media is not fed smoothly. 2. A wrong Media Sensor is selected for the media being used. 3. The Black Mark Sensor is not correctly aligned with the Black Mark on the media. 4. Size of the loaded media is different from the programmed size. 5. The Feed Gap Sensor cannot distinguish the print area from a label gap. 	<ol style="list-style-type: none"> 1. Remove the jammed media, and clean the Platen. Then reload the media correctly. Finally press the [RESTART] key. 2. Turn the printer off and then on. Then select the Media Sensor for the media being used. Finally resend the print job. 3. Adjust the sensor position. Then press the [RESTART] key. 4. Replace the loaded media with one that matches the programmed size then press the [RESTART] key, or turn the printer off and then on, select a programmed size that matches the loaded media. Finally resend the print job. 5. Refer to Section 5.4 to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.
CUTTER ERROR **** (Only when the cutter module is installed on the printer.)	The media is jammed in the cutter.	Remove the jammed media. Then press the [RESTART] key. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
NO PAPER ****	<ol style="list-style-type: none"> The media has run out. The media is not loaded properly. The media is slack. 	<ol style="list-style-type: none"> Load new media. Then press the [RESTART] key. Reload the media correctly. Then press the [RESTART] key. Take up any slack in the media.
RIBBON ERROR ****	The ribbon is not fed properly.	Remove the ribbon, and check the status of the ribbon. Replace the ribbon, if necessary. If the problem is not solved, turn off the printer, and call a TOSHIBA TEC authorised service representative.
NO RIBBON ****	The ribbon has run out.	Load a new ribbon. Then press the [RESTART] key.
REWIND FULL ****	The Built-In Rewinder Unit is full.	Remove the backing paper from the Built-In Rewinder Unit. Then press the [RESTART] key.
EXCESS HEAD TEMP	The Print Head has overheated.	Turn off the printer, and allow it to cool down (about 3 minutes). If this does not solve the problem, call a TOSHIBA TEC authorised service representative.
HEAD ERROR	There is a problem with the Print Head.	Replace the Print Head.
Other error messages	A hardware or software problem may have occurred.	Turn the printer off and then on. If this does not solve the problem, turn off the printer again, and call a TOSHIBA TEC authorised service representative.

5.2 Possible Problems

This section describes problems that may occur when using the printer, and their causes and solutions.

Possible Problems	Causes	Solutions
The printer will not turn on.	<ol style="list-style-type: none"> The Power Cord is disconnected. The AC outlet is not functioning correctly. The fuse has blown, or the circuit breaker has tripped. 	<ol style="list-style-type: none"> Plug in the Power Cord. Test with a power cord from another electric appliance. Check the fuse or breaker.
The media is not fed.	<ol style="list-style-type: none"> The media is not loaded properly. The printer is in an error condition. 	<ol style="list-style-type: none"> Load the media properly. Solve the error in the message display. (See Section 5.1 for more detail.)
Nothing is printed on the media.	<ol style="list-style-type: none"> The media is not loaded properly. The ribbon is not loaded properly. The print head is not installed properly. The ribbon and media are not matched. 	<ol style="list-style-type: none"> Load the media properly. Load the ribbon properly. Install the print head properly. Close the Print Head Block. Select an appropriate ribbon for the media type being used.
The printed image is blurred.	<ol style="list-style-type: none"> The ribbon and media are not matched. The Print Head is not clean. 	<ol style="list-style-type: none"> Select an appropriate ribbon for the media type being used. Clean the print head using the Print Head Cleaner or a cotton swab slightly moistened with ethyl alcohol.
The cutter does not cut.	<ol style="list-style-type: none"> The Cutter Cover is not attached properly. The media is jammed in the Cutter. The cutter blade is dirty. 	<ol style="list-style-type: none"> Attach the Cutter Cover properly. Remove the jammed paper. Clean the cutter blade.

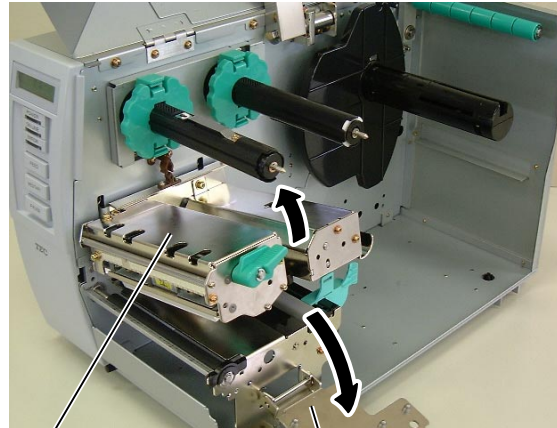
5.3 Removing Jammed Media

This section describes in detail how to remove jammed media from the printer.

CAUTION!

Do not use any tool that may damage the Print Head.

1. Turn off and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to **Free** position, then open the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.



Print Head Block

Ribbon Shaft Holder Plate

6. Remove the jammed media from the printer. **DO NOT USE** any sharp implements or tools as these could damage the printer.
7. Clean the Print Head and Platen, then remove any further dust or foreign substances.
8. Paper jams in the Cutter Unit can be caused by wear or residual glue from label stock on the cutter. Do not use non-specified media in the cutter.

NOTE:

If you get frequent jams in the cutter, contact a TOSHIBA TEC authorised service representative.

5.4 Threshold Setting

NOTES:

1. If the **[PAUSE]** key is released within 3 seconds while in the pause state, the paper will not feed.
2. Failure to feed more than 1.5 labels may result in an incorrect threshold setting.
3. While the Print Head Block is raised, the **[PAUSE]** key does not work.
4. A paper end error cannot be detected during paper feed.
5. Selecting the Transmissive Sensor (for pre-printed labels) within software commands allows the printer to detect the proper print start position even when using pre-printed labels.
6. If using the Transmissive Sensor and the printer continues to print out of position even after setting the threshold, contact a TOSHIBA TEC service representative.

To maintain a constant print position the printer uses the Transmissive Sensor to detect the gap between labels by measuring the amount of light passing through the media. When the media is pre-printed, the darker (or more dense) inks can interfere with this process causing paper jam errors. To get around this problem a minimum threshold can be set for the sensor in the following way.

■ Threshold setting procedure

1. Turn the power ON. The printer is in stand by mode.

```
ON LINE
B-SX4T      V1.0A
```

2. Load a pre-printed media roll.

3. Press the **[PAUSE]** key.

```
PAUSE
B-SX4T      V1.0A
```

4. The printer enters the pause mode.

5. Press and hold the **[PAUSE]** key for at least 3 seconds in the pause state.

```
TRANSMISSIVE
B-SX4T      V1.0A
```

6. The sensor type is displayed.

7. Select the sensor to be adjusted by pressing the **[FEED]** key.

```
REFLECTIVE
B-SX4T      V1.0A
```

Black mark sensor

↑
[FEED] key

```
TRANSMISSIVE
B-SX4T      V1.0A
```

↓
Feed gap sensor

8. Press and hold the **[PAUSE]** key until more than 1.5 labels (tags) have been issued.

The media will continue to be fed until the **[PAUSE]** key is released. (Threshold setting for the selected sensor is completed by this operation.)

```
PAUSE
B-SX4T      V1.0A
```

9. Press the **[RESTART]** key.

```
ON LINE
B-SX4T      V1.0A
```

10. The printer is in stand-by.

11. Send an issue command from the PC to the printer.

```
ON LINE
B-SX4T      V1.0A
```

APPENDIX 1 SPECIFICATIONS

Appendix 1 describes the printer specifications and supplies for use on the B-SX4T printer.

A1.1 Printer

The following is the printer specifications.

Item	Model	B-SX4T-GS10-QQ	B-SX4T-GS10-QP
Supply voltage		AC100 – 120V, 50/60 Hz±10%	AC220 – 240V, 50 Hz±10%
Power consumption			
During a print job		1.6 A, 133 W maximum	1.0 A, 134 W maximum
During standby		0.18 A, 14 W maximum	0.13 A, 14 W maximum
Operating temperature range		5°C to 40°C (40°F to 104°F)	
Relative humidity		25% to 85% RH (no condensation)	
Resolution		8 dots/mm (203 dpi)	
Printing method		Thermal transfer or Thermal direct	
Printing speed		76.2 mm/sec. (3 inches/sec.) 152.4 mm/sec (6 inches/sec.) 254.0 mm/sec (10 inches/sec.)	
Available media width (including backing paper)		30.0 mm to 112.0 mm (1.2 inches to 4.4 inches)	
Effective print width (max.)		104.0 mm (4.1 inches)	
Issue mode		Batch Cut (Cut mode is enabled only when the optional Cutter Module is installed.) Strip (Strip mode is enabled only when the optional Strip Module is installed.)	
LCD Message display		16 characters × 2 lines	
Dimension (W × D × H)		291 mm × 460 mm × 308 mm (11.5" × 18.1" × 12.1")	
Weight		39.7 lb (18 kg) (Media and ribbon are not included.)	
Available bar code types		JAN8, JAN13, EAN8, EAN8+2 digits, EAN8+5 digits, EAN13, EAN13+2 digits, EAN13+5 digits, UPC-E, UPC-E+2 digits, UPC-E+5 digits, UPC-A, UPC-A+2 digits, UPC-A+5 digits, MSI, ITF, NW-7, CODE39, CODE93, CODE128, EAN128, Industrial 2 to 5, Customer Bar Code, POSTNET, KIX CODE, RM4SCC (ROYAL MAIL 4STATE CUSTOMER CODE), RSS14	
Available two-dimensional code		Data Matrix, PDF417, QR code, Maxi Code, Micro PDF417, CP Code	
Available font		Times Roman (6 sizes), Helvetica (6 sizes), Presentation (1 size), Letter Gothic (1 size), Prestige Elite (2 sizes), Courier (2 sizes), OCR (2 types), Gothic (1 size), Outline font (4 types), Price font (3 types)	
Rotations		0°, 90°, 180°, 270°	
Standard interface		Serial interface (RS-232C) Parallel interface (Centronics)	
Optional interface		PCMCIA interface (B-9700-PCM-QM) USB interface (B-9700-USB-QM) LAN interface (B-9700-LAN-QM) Expansion I/O interface (B-7704-IO-QM)	

NOTES:

- Data Matrix™ is a trademark of International Data Matrix Inc., U.S.
- PDF417™ is a trademark of Symbol Technologies Inc., US.
- QR Code is a trademark of DENSO CORPORATION.
- Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.

A1.2 Options

Option Name	Type	Description
Swing cutter module	B-4205-QM	A stop and cut swing cutter.
Rotary cutter module	B-8204-QM	Rotary cutter
Strip module	B-9904-H-QM	This allows use of on-demand (peel-off) operation or to take-up labels and backing paper together when using the rewind guide plate. To purchase the strip module, please inquire at your local distributor.
Ribbon saving module	B-9904-R-QM	This module moves the print head up and down by using a solenoid to minimise ribbon usage as far as possible.
Expansion I/O interface board	B-7704-IO-QM	Installing this board in the printer allows connection to an external device with the exclusive interface.
PCMCIA interface board	B-9700-PCM-QM	This board enables the use of the following PCMCIA cards. LAN card: 3 COM 3CCE589ET (recommended) ATA card: Conforming to PC card ATA standard Flash memory card: 1MB and 4MB cards (See Section 2.9.)
Built-in LAN interface board	B-9700-LAN-QM	This board enables the printer to be used in a LAN network.
USB interface board	B-9700-USB-QM	Installing this board enables a connection to a PC which has a USB interface.

NOTE:

To purchase the optional kits, please contact the nearest authorised TOSHIBA TEC representative or TOSHIBA TEC Head Quarters.

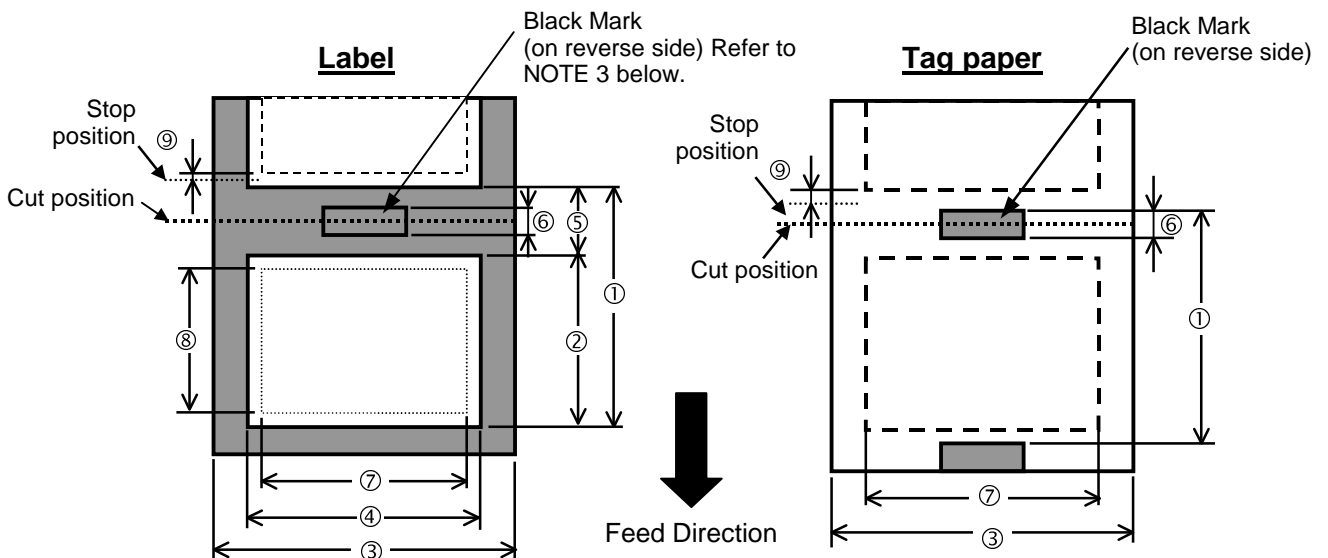
A1.3 Media

Please make sure that the media being used is approved by TOSHIBA TEC. The warranty does not apply when a problem is caused by using media that is not approved by TOSHIBA TEC.

For information regarding TOSHIBA TEC approved media, please contact a TOSHIBA TEC authorised service representative.

A1.3.1 Media Type

Two types of media can be loaded for this thermal transfer and direct thermal printer: label or tag. The table below shows size and shape of the media available for this printer.



A1.3.1 Media Type (Cont.)

[Unit: mm]

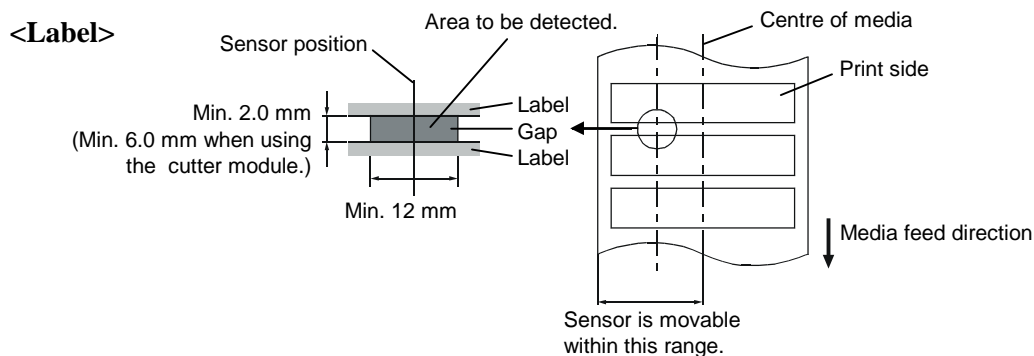
Item	Label dispensing mode	Batch mode	Strip mode	Cut mode	
				Rotary cutter (*2)	Swing cutter
① Media pitch	Label	10.0 – 1500.0	25.4 – 1500.0	3"/sec., 6"/sec.: 38.0 - 1500.0	38.0 – 1500.0
	Tag	10.0 – 1500.0	----	3"/sec., 6"/sec.: 30.0 – 1500.0	25.4 – 1500.0
② Media length		8.0 – 1498.0	23.4 – 1498.0	3"/sec., 6"/sec.: 25.0 – 1498.0	25.0 – 1498.0(*1)
③ Width including backing paper (See NOTE 5.)		30.0 – 112.0	50.0 – 112.0	30.0 – 112.0	
④ Label width (See NOTE 5.)		27.0 – 109.0	47.0 – 109.0	27.0 – 109.0	
⑤ Gap length		2.0 – 20.0		6.0 – 20.0	
⑥ Black mark length (Tag paper)		2.0 – 10.0			
⑦ Effective print width		10.0 – 104.0±0.2			
⑧ Effective print length	Label	6.0 – 1496.0	21.4 – 1496.0	3"/sec., 6"/sec.: 23.0 - 1496.0	23.0 – 1496.0
	Tag	8.0 – 1498.0	----	3"/sec., 6"/sec.: 28.0 – 1498.0	23.0 – 1498.0
⑨ Print speed up/slow down area		1.0			
Thickness	Label	0.13 – 0.17			
	Tag	0.15 – 0.29			
Maximum effective length for on the fly issue		1361.0			
Maximum outer roll diameter		Ø200			
Roll direction		Inside			
Inner core diameter		Ø76.2±0.3			

NOTES:

1. To ensure print quality and print head life use only TOSHIBA TEC specified media.
2. The media length specifications for use of the cutter are:
 - *1: When issuing a label using the swing cutter, label length should be 35.0 mm – (Gap length/2).
 - *2: The rotary cutter does not support the print speed of 10"/sec.
When using the Rotary Cutter, be sure to install the Ribbon Saving Module (B-9904-R-QM). Failure to do this may cause a paper jam or ribbon error.
3. When marking black marks on the label rolls, they should be marked at the gaps.
4. "On the fly issue" means that the printer can feed and print without stopping between labels.
5. There are restrictions in use of the media which is narrower than 50 mm. For details, refer to TOSHIBA TEC service representative.

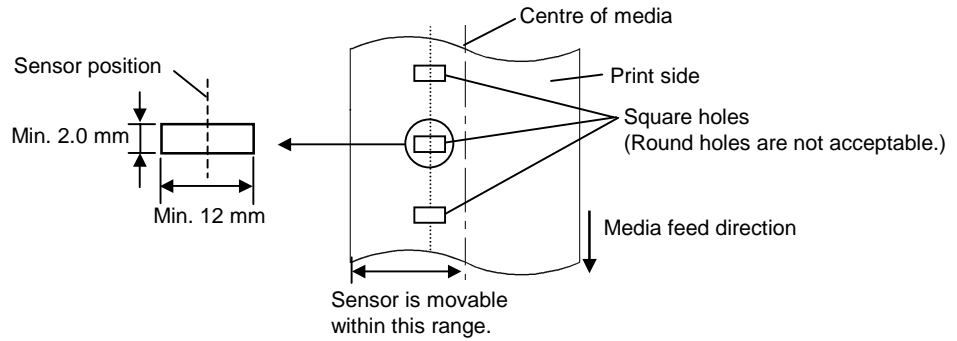
A1.3.2 Detection Area of the Transmissive Sensor

The Transmissive Sensor is movable from the centre to the left edge of media.
The Transmissive Sensor detects a gap between labels, as illustrated below.



A1.3.2 Detection Area of the Transmissive Sensor (Cont.)

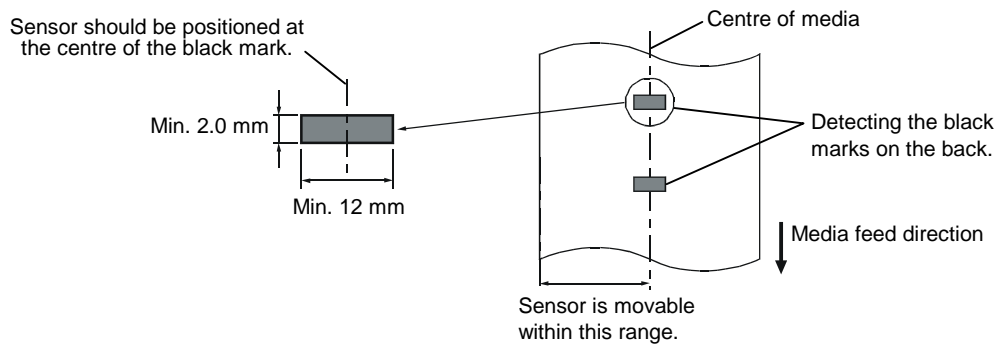
<Tag paper with square holes>



NOTE:
Round holes are not acceptable.

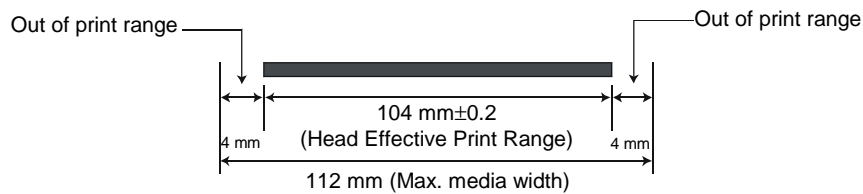
A1.3.3 Detection Area of the Reflective Sensor

The Reflective Sensor is movable from the centre to the left edge of media.
The reflection factor of the Black Mark must be 10% or lower with a waveform length of 950 nm.
The Reflective Sensor should be aligned with the centre of the Black Mark.



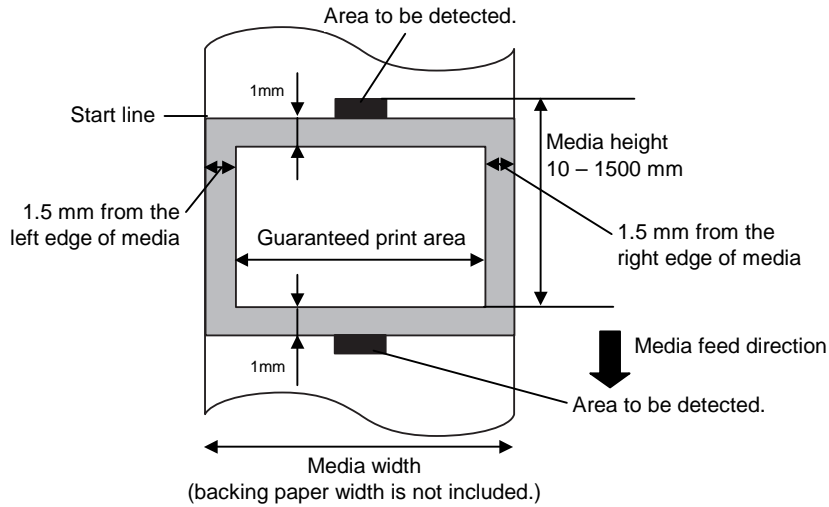
A1.3.4 Effective Print Area

The figure below illustrates the relation between the head effective print width and media width.



A1.3.4 Effective Print Area (Cont.)

The figure below shows the effective print area on the media.



NOTES:

1. Be sure not to print on the 1.5-mm wide area from the media edges (shaded area in the above figure). Printing this area may cause ribbon wrinkles, resulting in a poor print quality of the guaranteed print area.
2. The centre of media is positioned at the centre of the Print Head.
3. Print quality in the 3-mm area from the print head stop position (including 1-mm non-printable area for print speed slow down) is not guaranteed.

A1.4 Ribbon

Please make sure that the ribbon being used is approved by TOSHIBA TEC. The warranty does not apply to any problem caused by using non-approved ribbons.

For information regarding TOSHIBA TEC approved ribbon, please contact a TOSHIBA TEC service representative.

Type	Spool type
Width	41 – 112 mm Recommended width is 41, 50, 68, 84, and 112 mm.
Length	600 m
Outside Diameter	φ90 mm (max.)

The table below shows the correlation between ribbon width and media width (backing paper is not included.)

Ribbon width	Media width	Ribbon width	Media width
41 mm	30 – 36 mm	84 mm	63 – 79 mm
50 mm	36 – 45 mm	112 mm	71 – 112 mm
68 mm	45 – 63 mm		

NOTES:

1. To ensure print quality and print head life use only TOSHIBA TEC specified ribbons.
2. To avoid ribbon wrinkles use a ribbon that is wider than the media by 5 mm or more. However, too much difference in width between the two may cause wrinkles.
3. You can use a ribbon that is narrower than the media by 5 mm or more, however, this makes the print area narrower.

APPENDIX 2 MESSAGES AND LEDS

Appendix 2 describes the LCD messages displayed on the operation panel.

Symbols in the message

- 1: ○: The LED is illuminated. ⊙: The LED is flashing. ●: The LED is unlit.
- 2: ****: the number of unprinted media. Up to 9999 (in pieces)
- 3: %%% %%%: ATA Card's remaining memory 0 to 9999999 (in K bytes)
- 4: ###: Flash memory card remaining memory for PC save area: 0 to 895 (in K bytes)
- 5: &&&&: Remaining flash memory capacity for storing writable characters 0 to 3147 (in K bytes)

No.	LCD Message	LED Indication			Printer Status	Restoration by RESTART key Yes/No	Acceptance of Status Request Reset Command Yes/No
		POWER	ONLINE	ERROR			
1	ON LINE	○	○	●	In online mode	----	Yes
	ON LINE	○	⊙	●	In online mode (The printer in communication)	----	Yes
2	HEAD OPEN	○	●	●	The print head block is opened in online mode.	----	Yes
3	PAUSE ****	○	●	●	The printer is paused.	Yes	Yes
4	COMMS ERROR	○	●	○	A parity, overrun, or framing error has occurred during communication through the RS-232C.	Yes	Yes
5	PAPER JAM ****	○	●	○	The media is jammed during paper feed.	Yes	Yes
6	CUTTER ERROR****	○	●	○	A problem has occurred with the cutter module.	Yes	Yes
7	NO PAPER ****	○	●	○	The media has run out, or the media is not loaded properly.	Yes	Yes
8	NO RIBBON ****	○	●	○	The ribbon has run out.	Yes	Yes
9	HEAD OPEN ****	○	●	○	Feed or printing was attempted with the print head block open.	Yes	Yes
10	HEAD ERROR	○	●	○	There is a problem with the print head.	Yes	Yes
11	EXCESS HEAD TEMP	○	●	○	The print head is overheated.	No	Yes
12	RIBBON ERROR****	○	●	○	The ribbon has been torn. A problem has occurred with the sensor that determines the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL ****	○	●	○	An overflow error has occurred in the rewinder unit.	Yes	Yes
14	SAVING%% %%% %%% %%% or SAVING ###&&&&	○	○	●	In writable character or PC command save mode	----	Yes
15	FLASH WRITE ERR.	○	●	○	An error has occurred while writing to flash memory or ATA card.	No	Yes
16	FORMAT ERROR	○	●	○	An erase error has occurred in formatting the flash memory or ATA card.	No	Yes
17	FLASH CARD FULL	○	●	○	Data cannot be stored because the flash memory or ATA card is full.	No	Yes
18	Display of error message (See Notes.)	○	●	○	A command error has occurred in analyzing the command.	Yes	Yes
19	POWER FAILURE	○	●	○	A power failure has occurred.	No	No
20	INITIALIZING...	○	●	●	A flash memory card is being initialised.	----	----
21	100BASE LAN INITIALIZING...	○	●	●	100 Base LAN Board is being initialized.	----	----

APPENDIX 3 INTERFACE

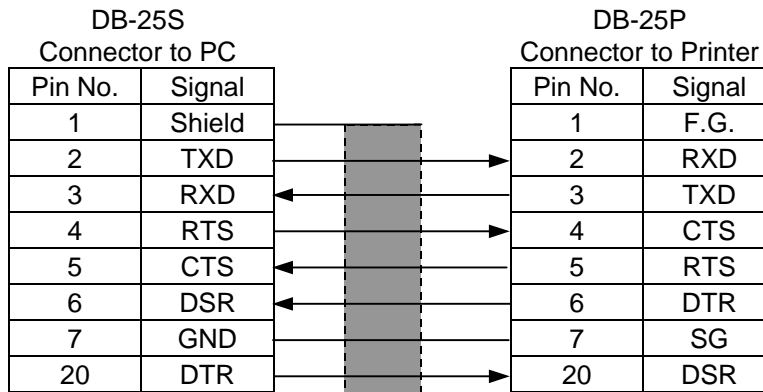
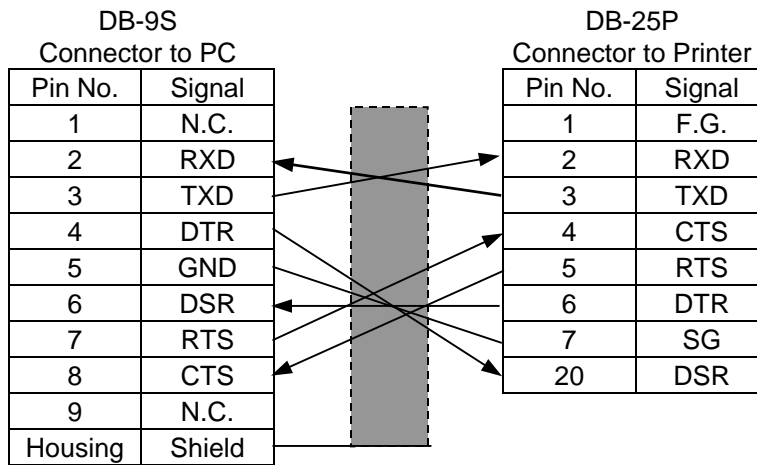
■ Interface Cables

To prevent radiation and reception of electrical noise, the interface cables must meet the following requirements:

- Fully shielded and fitted with metal or metallised connector housings.
- Keep as short as possible.
- Should not be bundled tightly with power cords.
- Should not be tied to power line conduits.

■ RS-232C Cable description

The serial data cable used to connect the printer to the host compute should be one of the following two types:



NOTE:

Use an RS-232C cable with the connector including inch type securing screws for the QQ model or metric type securing screws for the QP model.

APPENDIX 4 PRINT SAMPLES

■ Font

<A>Times Roman medium:12point

Times Roman medium:15point

<C>Times Roman bold:15point

<D>Times Roman bold:18point

<E>Times Roman bold:21point

<F>Times Roman italic:18point

<G>Helvetica medium:9point

<H>Helvetica medium:15point

<I>Helvetica medium:18point

<J>Helvetica bold:18point

<K>Helvetica bold:21point

<L>Helvetica italic:18point

<M>PRESENTATION BOLD:27POINT

<N>Letter Gothic medium:14.3point

<O>Prestige Elite medium:10.5point

<P>Prestige Elite bold:15point

<Q>Courier medium:15point

<R>Courier bold:18point

<S>OCR-A 12POINT

<T>OCR-B 12POINT

<q>Gothic 725 Black:6point

<Outline Font:A> **H e l v e t i c a b o l d**

<Outline Font:B> **Helvetica bold(P)**

<Outline Font:E> *0 1 2 3 4 5 6 7 8 9, , \$*

<Outline Font:F> **0 1 2 3 4 5 6 7 8 9, , \$**

<Outline Font:G> **0 1 2 3 4 5 6 7 8 9, , \$**

<Outline Font:H> **Dutch 801 bold**

<Outline Font:I> *Brush 738 regular*

<Outline Font:J> **Gothic 725 Black**

APPENDIX 4 PRINT SAMPLES (Cont.)

■ Bar codes

JAN8, EAN8



Interleaved 2 of 5



NW7



UPC-E



EAN13+5 digits



CODE39 (Full ASCII)



UPC-E+2 digits



EAN8+2 digits



UPC-A



MSI



CODE39 (Standard)



JAN13, EAN13



EAN13+2 digits



CODE128



CODE93



UPC-E+5 digits



EAN8+5 digits



UPC-A+2 digits



APPENDIX 4 PRINT SAMPLES (Cont.)

UPC-A+5 digits



UCC/EAN128



Industrial 2 of 5



POSTNET



Customer bar code



Customer bar code of high priority



KIX Code



RM4SCC



RSS-14



RSS-14 Stacked



RSS-14 Stacked Omnidirectional



RSS Limited



RSS Expanded



Data Matrix



PDF417



QR code



Micro PDF417



MaxiCode



CP Code



GLOSSARIES

Bar code

A code which represents alphanumeric characters by using a series of black and white stripes in different widths. Bar codes are used in various industrial fields: Manufacturing, Hospitals, Libraries, Retail, Transportation, Warehousing, etc. Reading bar codes is a fast and accurate means of capturing data while keyboard entry tends to be slow and inaccurate.

Batch mode

Issue mode that continuously prints media until the specified number of media has been printed.

Black mark

A mark printed on the media so that the printer can maintain a constant print position by detecting this mark.

Black mark sensor

A reflective sensor which detects the difference of potential between the black mark and print area to find the print start position.

Built-in rewinder mode

Printer mode of operation where an optional strip module is installed to take up printed media onto the build-in rewinder.

Cut mode

Printer mode of operation where an optional cutter module is installed to automatically cut media from the supply roll after they are printed. The print command can specify to cut every media or to cut after a set number of media have been printed.

Cutter module

A device used to cut the media.

DPI

Dot Per Inch

The unit used to express print density.

Expansion I/O interface

An optional interface circuit that may be installed into printer to allow the printer to be connected to an external device such as a wrapping machine and to receive feed, print start, and pause signals from the external device and to send back print, pause, and error status signals to the external device.

Feed gap sensor

A transmissive sensor which detects the difference of potential between the gap between labels and the label to find the print position of the label.

Font

A complete set of alphanumeric characters in one style of type. E.g. Helvetica, Courier, Times

Gap

Clearance between labels

IPS

Inch per second

The unit used to express print speed.

Label

A type of media with adhesive backing.

LCD

Liquid Crystal Display

Installed on the operation panel and displays operation modes, error message and so on.

Media

Material on which data is printed by the printer. Label, tag paper, fanfold paper, perforated paper, etc.

PCMCIA interface

An optional interface circuit that may be installed into the printer to allow the use of the small credit card sized PC cards such as flash memory cards and LAN cards. PCMCIA is the acronym for Personal Computer Memory Card International Association.

Pre-printed media

A type of media on which characters, logos, and other designs have been already printed.

Print head element

The thermal print head consists of a single line of tiny resistive elements and when current is allowed to flow through each element it heats up causing a small dot to be burned onto thermal paper or a small dot of ink to be transferred from a thermal ribbon to ordinary paper.

Print speed

The speed at which printing occurs. This speed is expressed in units of ips (inches per second).

Reflective sensor

See Black mark sensor.

Resolution

The degree of detail to which an image can be duplicated. The minimum unit of divided image is called a pixel. As the resolution becomes higher, the number of pixels increased, resulting in more detailed image

Ribbon

An inked film used to transfer an image onto the media. In the thermal transfer printing, it is heated by the thermal print head, causing an image to be transferred onto the media

Strip mode

A device used to remove labels from the backing paper.

Supply

Media and ribbon

Tag

A type of media with no adhesive. Usually tags are made of cardboard or other durable material.

Thermal direct printing

A printing method using no ribbon, but thermal media which reacts to heat. The thermal print head heats the thermal media directly, causing print image to be printed on the media.

Thermal print head

A print head using thermal transfer or thermal direct printing method.

Thermal transfer printing

A printing method that the thermal print head heats an ink or resin coating on the ribbon against the media, causing the ink/resin to transfer onto the media.

Threshold setting

A sensor setting operation to have the printer maintain a constant print position of pre-printed media.

Transmissive sensor

See Feed gap sensor.

USB (Universal Serial Bus)

An interface that is used to connect peripherals, such as a printer, keyboard, mouse. The USB allows disconnection of a USB device without turning off the power.

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<p>SUPPLEMENT FOR OWNER'S MANUAL</p> <p>TEC B-SX4T and B-SX5T SERIES</p>
--

This supplement is applicable to the following Owner's Manuals:

- **B-SX4T Series (EO1-33034)**
- **B-SX5T Series (EO1-33036)**

Precautions for using the Ribbon Saving Function

The ribbon saving module is standard on the B-SX5T series, but not on the B-SX4T series. Also, the ribbon saving function has been set to off by the parameter setting when the printer is delivered.

Therefore, to use the ribbon saving function on the B-SX4T series, it is necessary to install the B-9904-R-QM optional ribbon saving module and to enable the ribbon saving function by the parameter setting.

Regarding the B-SX5T series, you only need to enable the ribbon saving function by the parameter setting.

When enabling the ribbon saving function, it must be set depending on the head lever position. For details, please contact the nearest TOSHIBA TEC service representative or sales agent.

Printer model and option	Head lever position	Parameter setting	Ribbon saving function
B-SX5T-TS12-QQ B-SX5T-TS12-QP B-SX4T-TS10-QQ B-SX4T-TS10-QP	Position ①: Label or Position ②: Tag	RBN SAVE OFF (Default)	Disabled
B-SX5T-TS12-QQ B-SX5T-TS12-QP	Position ①: Label	RBN SAVE ON(Label)	Enabled for label
B-SX4T-TS10-QQ + B-9904-R-QM B-SX4T-TS10-QP + B-9904-R-QM	Position ②: Tag	RBN SAVE ON(TAG)	Enabled for tag paper

NOTES:

1. Be sure to match the parameter setting to the head lever position according to the media type. Mismatching may cause a failure of the ribbon saving module.
2. The amount of the saved ribbon differs depending on the print pattern and print speed.
3. When the head lever position is set to Position ②: Tag and "RBN SAVE ON(TAG)" is selected, the amount of the saved ribbon is a little less than that of "RBN SAVE ON(Label)" with the head lever position ①: Label due to a control of the mechanism.



TEC

TEC Thermal Printer

B-SX5T-QQ/QP

Owner's Manual



TOSHIBA TEC CORPORATION

CE Compliance (for EU only)

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

VORSICHT:

- *Schallemission: unter 70dB (A) nach DIN 45635 (oder ISO 7779)*
- *Die für das Gerät Vorgesehene Steckdose muß in der Nähe des Gerätes und leicht zugänglich sein.*

Centronics is a registered trademark of Centronics Data Computer Corp.
Microsoft is a registered trademark of Microsoft Corporation.
Windows is a trademark of Microsoft Corporation.

As an ENERGY STAR® Partner, TOSHIBA TEC has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.



-- Outline of the International ENERGY STAR® Office Equipment Program --

The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the penetration of energy efficient computers and other office equipment. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, monitors, printers, facsimiles, copiers, scanners, and multifunction devices. Their standards and logos are uniform among participating nations.

ENERGY STAR is a U.S. registered mark.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(for USA only)

Changes or modifications not expressly approved by manufacturer for compliance could void the user's authority to operate the equipment.

"This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations."

"Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

(for CANADA only)



Safety Summary

Personal safety in handling or maintaining the equipment is extremely important. Warnings and Cautions necessary for safe handling are included in this manual. All warnings and cautions contained in this manual should be read and understood before handling or maintaining the equipment.

Do not attempt to effect repairs or modifications to this equipment. If a fault occurs that cannot be rectified using the procedures described in this manual, turn off the power, unplug the machine, then contact your authorised TOSHIBA TEC representative for assistance.

Meanings of Each Symbol



This symbol indicates warning items (including cautions). Specific warning contents are drawn inside the Δ symbol. (The symbol on the left indicates a general caution.)



This symbol indicates prohibited actions (prohibited items). Specific prohibited contents are drawn inside or near the $\text{\textcircled{X}}$ symbol. (The symbol on the left indicates “no disassembling”.)



This symbol indicates actions which must be performed. Specific instructions are drawn inside or near the \bullet symbol. (The symbol on the left indicates “disconnect the power cord plug from the outlet”.)

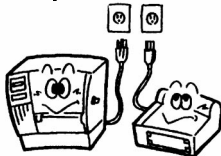


WARNING

This indicates that there is the risk of **death** or **serious injury** if the machines are improperly handled contrary to this indication.



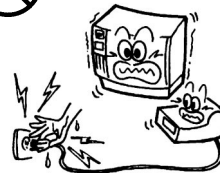
Any other than the specified AC voltage is prohibited.



Do not use voltages other than the voltage (AC) specified on the rating plate, as this may cause **fire** or **electric shock**.



Prohibited



Do not plug in or unplug the power cord plug with wet hands as this may cause **electric shock**.



Prohibited



If the machines share the same outlet with any other electrical appliances that consume large amounts of power, the voltage will fluctuate widely each time these appliances operate. Be sure to provide an exclusive outlet for the machine as this may cause **fire** or **electric shock**.



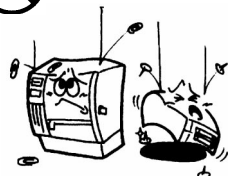
Prohibited



Do not place metal objects or water-filled containers such as flower vases, flower pots or mugs, etc. on top of the machines. If metal objects or spilled liquid enter the machines, this may cause **fire** or **electric shock**.



Prohibited



Do not insert or drop metal, flammable or other foreign objects into the machines through the ventilation slits, as this may cause **fire** or **electric shock**.



Prohibited



Do not scratch, damage or modify the power cords. Also, do not place heavy objects on, pull on, or excessively bend the cords, as this may cause **fire** or **electrical shock**.



Disconnect the plug.










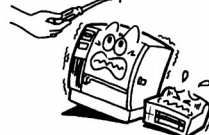
If the machines are dropped or their cabinets damaged, first turn off the power switches and disconnect the power cord plugs from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of the machine in that condition may cause **fire** or **electric shock**.



Disconnect the plug.



Continued use of the machines in an abnormal condition such as when the machines are producing smoke or strange smells may cause **fire** or **electric shock**. In these cases, immediately turn off the power switches and disconnect the power cord plugs from the outlet. Then, contact your authorised TOSHIBA TEC representative for assistance.

 <p>Disconnect the plug.</p> 	<p>If foreign objects (metal fragments, water, liquids) enter the machines, first turn off the power switches and disconnect the power cord plugs from the outlet, and then contact your authorised TOSHIBA TEC representative for assistance. Continued use of the machine in that condition may cause fire or electric shock.</p>	 <p>Disconnect the plug.</p> 	<p>When unplugging the power cords, be sure to hold and pull on the plug portion. Pulling on the cord portion may cut or expose the internal wires and cause fire or electric shock.</p>
 <p>Connect a grounding wire.</p> 	<p>Ensure that the equipment is properly grounded. Extension cables should also be grounded. Fire or electric shock could occur on improperly grounded equipment.</p>	 <p>No disassembling.</p> 	<p>Do not remove covers, repair or modify the machine by yourself. You may be injured by high voltage, very hot parts or sharp edges inside the machine.</p>



CAUTION

This indicates that there is the risk of personal **injury** or **damage** to objects if the machines are improperly handled contrary to this indication.

Precautions

The following precautions will help to ensure that this machine will continue to function correctly.

- Try to avoid locations that have the following adverse conditions:
 - * Temperatures out of the specification
 - * Shared power source
- * Direct sunlight
- * Excessive vibration
- * High humidity
- * Dust/Gas
- The cover should be cleaned by wiping with a dry cloth or a cloth slightly dampened with a mild detergent solution. NEVER USE THINNER OR ANY OTHER VOLATILE SOLVENT on the plastic covers.
- USE ONLY TOSHIBA TEC SPECIFIED paper and ribbons.
- DO NOT STORE the paper or ribbons where they might be exposed to direct sunlight, high temperatures, high humidity, dust, or gas.
- Ensure the printer is operated on a level surface.
- Any data stored in the memory of the printer could be lost during a printer fault.
- Try to avoid using this equipment on the same power supply as high voltage equipment or equipment likely to cause mains interference.
- Unplug the machine whenever you are working inside it or cleaning it.
- Keep your work environment static free.
- Do not place heavy objects on top of the machines, as these items may become unbalanced and fall causing **injury**.
- Do not block the ventilation slits of the machines, as this will cause heat to build up inside the machines and may cause **fire**.
- Do not lean against the machine. It may fall on you and could cause **injury**.
- Care must be taken not to injure yourself with the printer paper cutter.
- Unplug the machine when it is not used for a long period of time.
- Place the machine on a stable and level surface.

Request Regarding Maintenance

- Utilize our maintenance services.
After purchasing the machine, contact your authorised TOSHIBA TEC representative for assistance once a year to have the inside of the machine cleaned. Otherwise, dust will build up inside the machines and may cause a **fire** or a **malfunction**. Cleaning is particularly effective before humid rainy seasons.
- Our preventive maintenance service performs the periodic checks and other work required to maintain the quality and performance of the machines, preventing accidents beforehand.
For details, please consult your authorised TOSHIBA TEC representative for assistance.
- Using insecticides and other chemicals
Do not expose the machines to insecticides or other volatile solvents. This will cause the cabinet or other parts to deteriorate or cause the paint to peel.

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GLOSSARIES

INDEX

WARNING!

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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.*
3. *Please refer to your local Authorised Service representative with regard to any queries you may have in this manual.*

1. PRODUCT OVERVIEW

1.1 Introduction

Thank you for choosing the TEC B-SX5T series thermal printer. This Owner's Manual contains from general set-up through how to confirm the printer operation using a test print, and should be read carefully to help gain maximum performance and life from your printer. For most queries please refer to this manual and keep it safe for future reference. Please contact your TOSHIBA TEC representative for further information concerning this manual.

1.2 Features

This printer has the following features:

- The print head block can be opened providing smooth loading of media and ribbon.
- Various kinds of media can be used as the media sensors can be moved from the centre to the left edge of the media.
- The strip module, ribbon saving module, and expansion I/O interface board are provided on this printer as standard.
- When the optional interface board is installed, Web functions such as remote maintenance and other advanced network features are available.
- Superior hardware, including the specially developed 12 dots/mm (306 dots/inch) thermal print head which will allow very clear print at a printing speed of 76.2 mm/sec. (3 inches/sec.), 127.0 mm/sec. (5 inches/sec.), or 203.2 mm/sec. (8 inches/sec.).
- Besides the optional Cutter Module, there are also an optional PCMCIA Interface Board, LAN Interface Board, and the USB Interface Board.

1.3 Unpacking

Unpack the printer as per the Unpacking Instructions supplied with the printer.

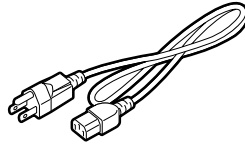
NOTES:

1. Check for damage or scratches on the printer. However, please note that TOSHIBA TEC shall have no liability for any damage of any kind sustained during transportation of the product.
2. Keep the cartons and pads for future transportation of the printer.

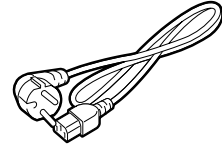
1.4 Accessories

When unpacking the printer, please make sure all the following accessories are supplied with the printer.

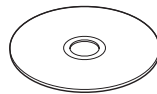
- US Power Cord (1 pc.)
(P/No. FBCB0030203)
QQ model only



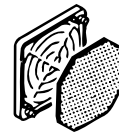
- EU Power Cord (1 pc.)
(P/No. EKA-0030001)
QP model only



- CD-ROM (1 pc.)
QQ (P/No.: 7FM00332000)
QP (P/No.: 7FM00256000)



- Fan Filter (1 pc.)
(P/No. FMBB0036801)



- Rewinder Guide Plate (1 pc.)
(P/No.: FMBD0034501)

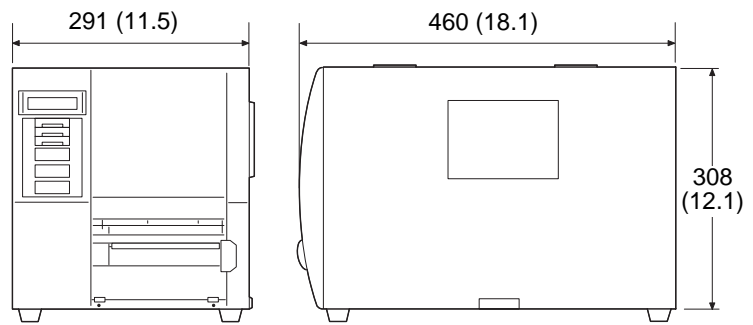


- SMW-4x8 Sems Screws (2 pcs.)
(P/No.: X0-00161000)

1.5 Appearance

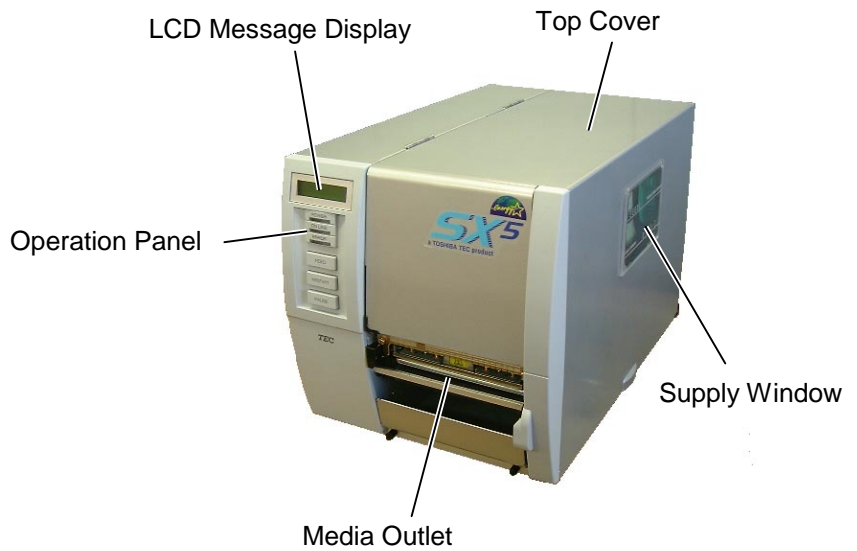
The names of the parts or units introduced in this section are used in the following chapters.

1.5.1 Dimensions

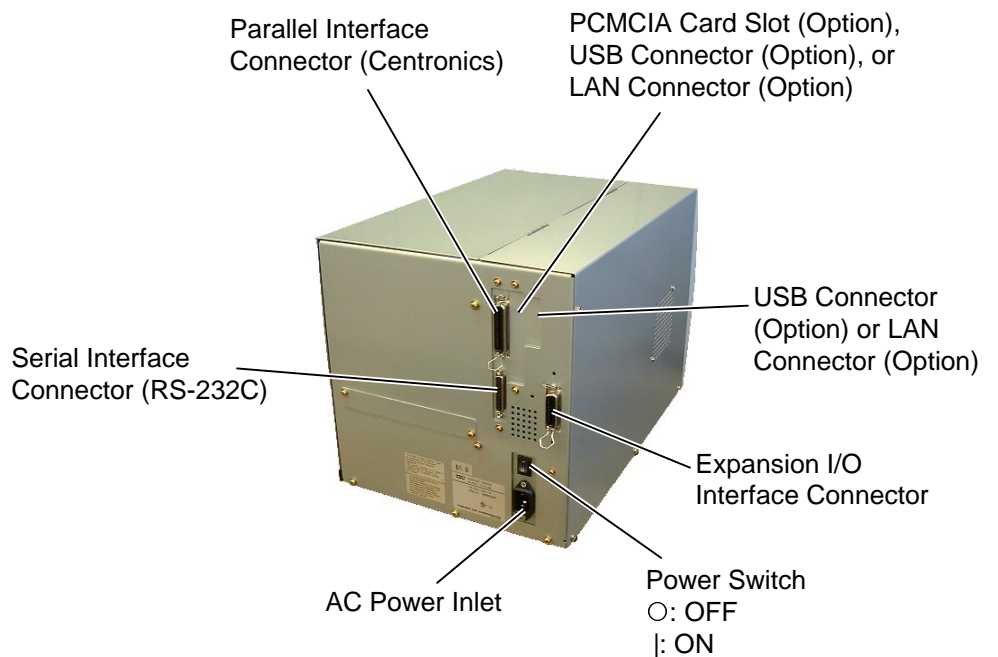


Dimensions in mm (inches)

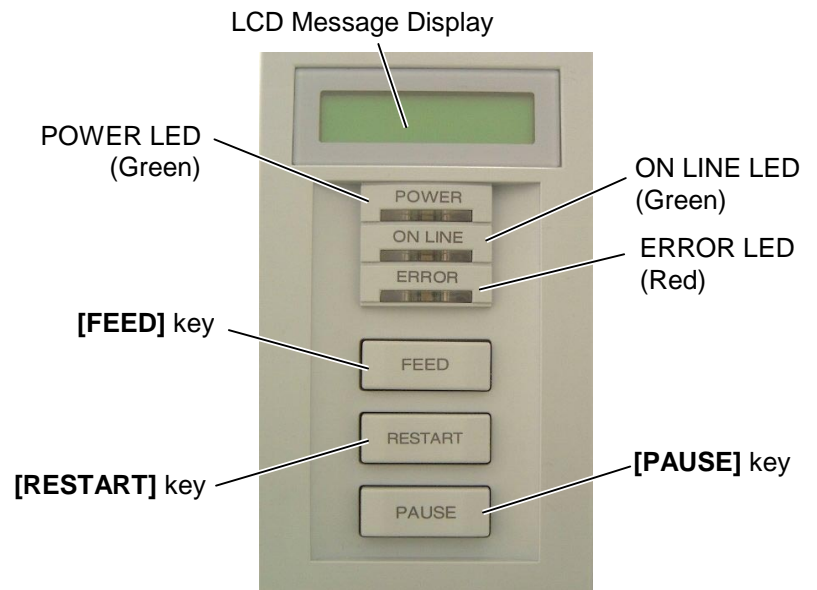
1.5.2 Front View



1.5.3 Rear View

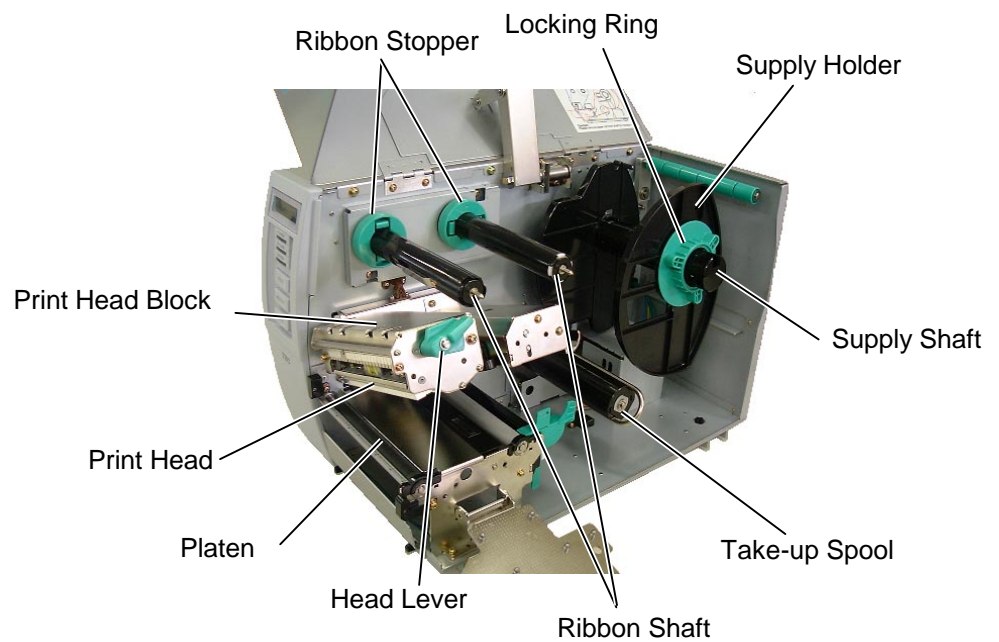


1.5.4 Operation Panel



Please see Section 3.1 for further information about the Operation Panel.

1.5.5 Interior



2. PRINTER SETUP

This section outlines the procedures to setup your printer prior to its operation. The section includes precautions, connecting cables, assembling accessories, loading media and ribbon, inserting the optional memory card, and performing a test print.

2.1 Precautions

To insure the best operating environment, and to assure the safety of the operator and the equipment, please observe the following precautions.

- Operate the printer on a stable, level, operating surface in a location free from excessive humidity, high temperature, dust, vibration or direct sunlight.
- Keep your work environment static free. Static discharge can cause damage to delicate internal components.
- Make sure that the printer is connected to a clean source of AC Power and that no other high voltage devices that may cause line noise interference are connected to the same mains.
- Assure that the printer is connected to the AC mains with a three-prong power cable that has the proper ground (earth) connection.
- Do not operate the printer with the cover open. Be careful not to allow fingers or articles of clothing to get caught into any of the moving parts of the printer especially the optional cutter mechanism.
- Make sure to turn off the printer power and to remove the power cord from the printer whenever working on the inside of the printer such as changing the ribbon or loading the media, or when cleaning the printer.
- For best results, and longer printer life, use only TOSHIBA TEC recommended media and ribbons.
- Store the media and ribbons in accordance with their specifications.
- This printer mechanism contains high voltage components; therefore you should never remove any of the covers of the machine as you may receive an electrical shock. Additionally, the printer contains many delicate components that may be damaged if accessed by unauthorised personnel.
- Clean the outside of the printer with a clean dry cloth or a clean cloth slightly dampened with a mild detergent solution.
- Use caution when cleaning the thermal print head as it may become very hot while printing. Wait until it has had time to cool before cleaning. Use only the TOSHIBA TEC recommended print head cleaner to clean the print head.
- Do not turn off the printer power or remove the power plug while the printer is printing or while the ON LINE lamp is blinking.

2.2 Procedure before Operation

This section describes the outline of the printer setup.

1. Unpack the accessories and printer from the box.
2. Refer to Safety Precautions in this manual and set up the printer at a proper location.
3. Fit the Fan Filter to the printer. (Refer to Section 2.3.)
4. The host computer must have a serial, Centronics parallel, USB or LAN port. (Refer to Section 2.4.)
5. Be sure to insert the power cord plug into an AC outlet. (Refer to Section 2.5.)
6. Load the media. (Refer to Section 2.7.)
7. Adjust the position of the Feed Gap Sensor or Black Mark Sensor depending on the media being used. (Refer to Section 2.7.)
8. Load the ribbon. (Refer to Section 2.8.)
9. Turn the power ON. (Refer to Section 2.6.)
10. Perform a test print. (Refer to Section 2.10.)
11. Install the Printer Drivers. (Refer to the Printer Driver Manual.)

NOTE:

To communicate with the host computer, one of the following cables is required.

- (1) RS-232C cable: 25 pins
- (2) Centronics cable: 36 pins
- (3) USB: B plug (Option)
- (4) LAN: 10 Base-T or 100 Base-TX (Option)

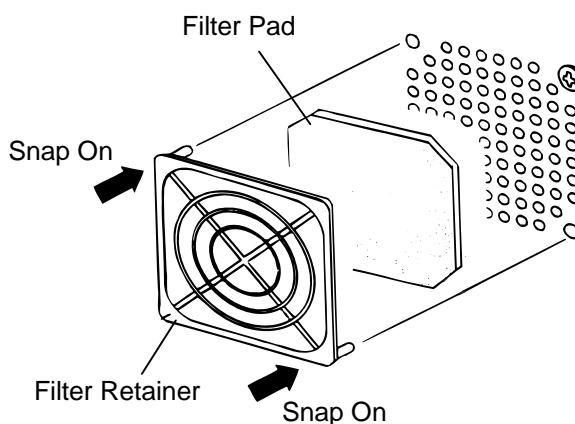
2.3 Fitting the Fan Filter

When installing the printer, it is important to ensure that the Fan Filter is attached before using the printer.

The Fan Filter consists of 2 parts:

- (1) Filter Pad
- (2) Filter Retainer

To fit the Fan Filter, put the Filter Pad inside the Filter Retainer and simply press into place as shown in the diagram below, ensuring connecting pins are aligned with the connecting holes.



2.4 Connecting the Cables to Your Printer

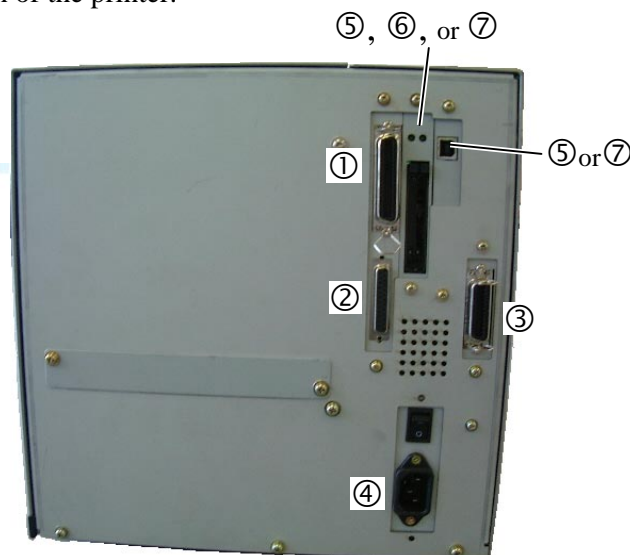
The following paragraphs outline how to connect the cables from the printer to your host computer, and will also show how to make cable connections to other devices. Depending on the application software you use to print labels, there are 4 possibilities for connecting the printer to your host computer. These are:

- A serial cable connection between the printer's RS-232 serial connector and one of your host computer's COM ports. (Refer to APPENDIX 3.)
- A parallel cable connection between the printer's standard parallel connector and your host computer's parallel port (LPT).
- An Ethernet connection using the optional LAN board.
- A USB cable connection between the printer's optional USB connector and your host computer's USB port. (Conforming to USB 1.1)

NOTES:

1. The picture on the right shows the layout of the interface connectors when the options are fully installed. It may be different depending on your system configuration.
2. The USB interface and LAN interface cannot be used at the same time.

The diagram below shows all the possible cable connections to the current version of the printer.



- ① Parallel Interface Connector (Centronics)
- ② Serial Interface Connector (RS-232C)
- ③ Expansion I/O Interface Connector
- ④ Power Inlet
- ⑤ USB Interface Connector (Option)
- ⑥ PCMCIA Card Slot (Option)
- ⑦ LAN Interface Connector (Option)

2.5 Connecting the Power Cord

CAUTION!

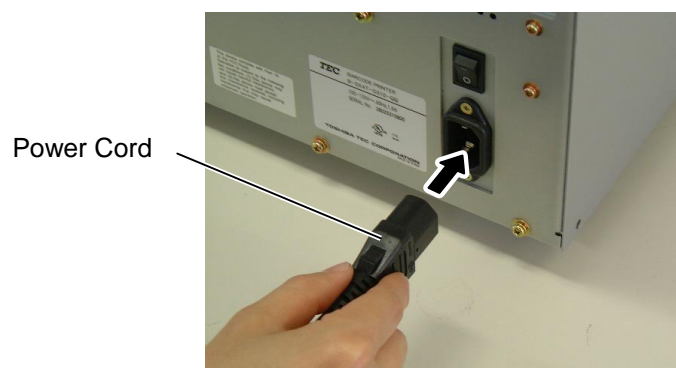
1. Make sure that the printer Power Switch is turned to the OFF (O) position before connecting the Power Cord to prevent possible electric shock or damage to the printer.
2. Use only the Power Cord supplied with the printer. Use of any other cord may cause electric shock or fire.
3. Connect the Power Cord to a supply outlet with a properly grounded (earthed) connection.

1. Make sure that the printer Power Switch is in the OFF (O) position.



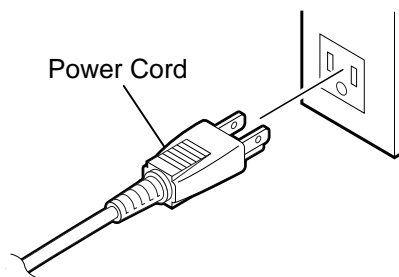
Power Switch

2. Connect the Power Cord to the printer as shown in the figure below.

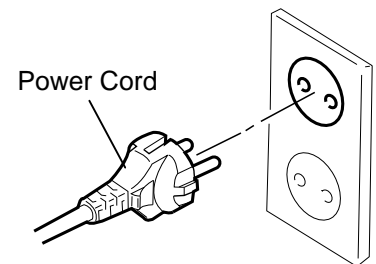


Power Cord

3. Plug the other end of the Power Cord into a grounded outlet as shown in the figure below.



[QQ Type]



[QP Type]

2.6 Turning the Printer ON/OFF

When the printer is connected to your host computer it is good practice to turn the printer ON before turning on your host computer and turn OFF your host computer before turning off the printer.

2.6.1 Turning ON the Printer

CAUTION!

Use the power switch to turn the printer On/Off. Plugging or unplugging the Power Cord to turn the printer On/Off may cause fire, an electric shock, or damage to the printer.

NOTE:

If a message other than ON LINE appears on the display or the ERROR LED lamp is illuminated, go to Section 5.1, Error Messages.

1. To turn ON the printer power, press the Power Switch as shown in the diagram below. Note that (|) is the power ON side of the switch.



Power Switch

2. Check that the ON LINE message appears in the LCD Message Display and that the ON LINE and POWER LED lights are illuminated.

2.6.2 Turning OFF the Printer

CAUTION!

1. Do not turn off the printer power while the media is being printed as this may cause a paper jam or damage to the printer.
2. Do not turn off the printer power while the ON LINE lamp is blinking as this may cause damage to your computer.

1. Before turning off the printer Power Switch verify that the ON LINE message appears in the LCD Message Display and that the ON LINE LED light is on and is not flashing.
2. To turn OFF the printer power press the Power Switch as shown in the diagram below. Note that (O) is the power OFF side of the switch.



Power Switch

2.7 Loading the Media

WARNING!

1. Do not touch any moving parts. To reduce the risk of fingers, jewellery, clothing, etc., being drawn into the moving parts, be sure to load the media once the printer has stopped moving completely.
2. The Print Head becomes hot immediately after printing. Allow it to cool before loading the media.
3. To avoid injury, be careful not to trap your fingers while opening or closing the cover.

CAUTION!

Be careful not to touch the Print Head Element when raising the Print Head Block. Failure to do this may cause missing dots by static electricity or other print quality problems.

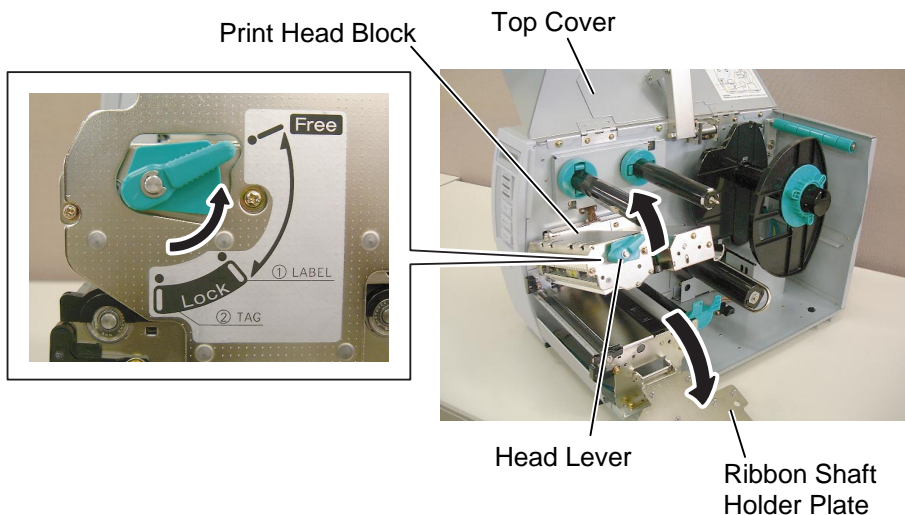
NOTES:

1. When the Head Lever is turned to **Free** position, the Print Head is raised.
2. To allow printing the Head Lever must be set to **Lock** position. (This ensures that the Print Head is closed.) There are two head pressure levels in the **Lock** position. Set the Head Lever depending on the media type:
 Position ①: Labels
 Position ②: Tags
 However, proper position may differ depending on media. For details, refer to TOSHIBA TEC authorised service representative.
3. Do not turn the Locking Ring counterclockwise too far or it may come off the Supply Holder.

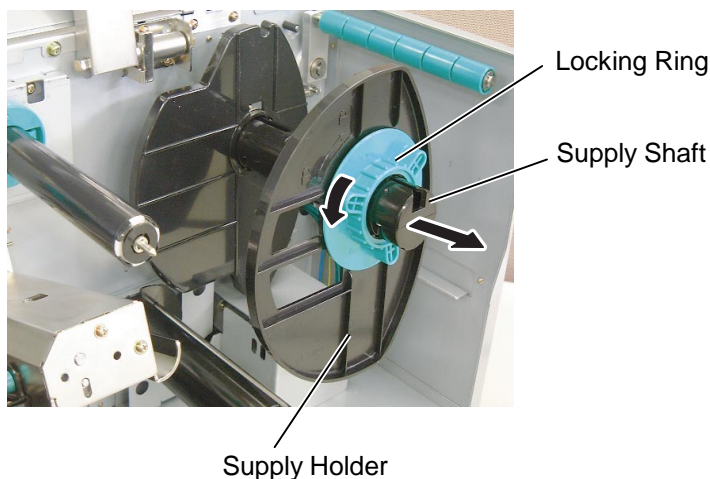
The following procedure shows the steps to properly load the media into the printer so that it feeds straight and true through the printer.

The printer prints both labels and tags.

1. Turn off the power and open the Top Cover.
2. Turn the Head Lever to **Free** position, then release the Ribbon Shaft Holder Plate.
3. Open the Print Head Block.



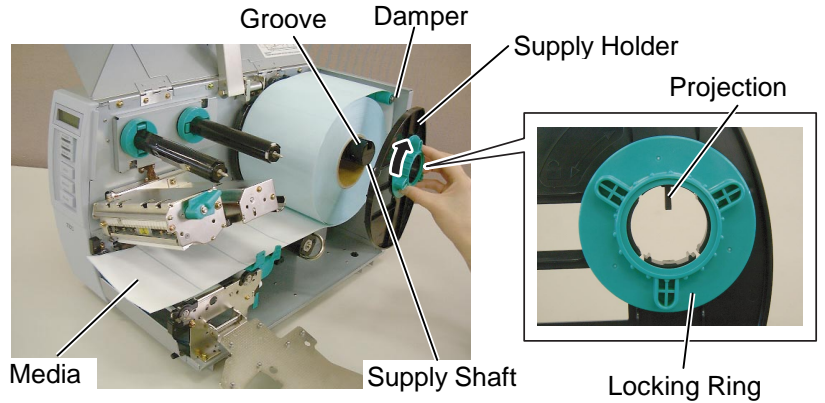
4. Turn the Locking Ring counterclockwise and remove the Supply Holder from the Supply Shaft.



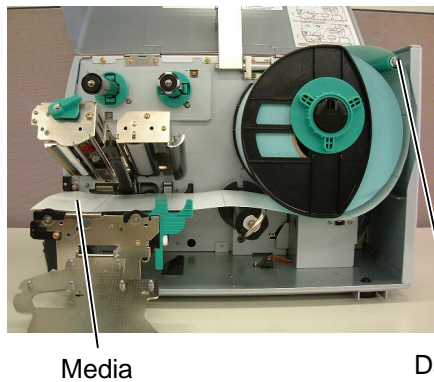
2.7 Loading the Media (Cont.)

NOTE:
Do not over-tighten the Locking Ring of the Supply Holder.

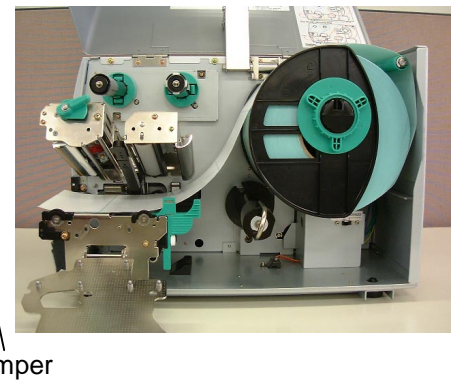
5. Put the media on the Supply Shaft.
6. Pass the media around the Damper, then pull the media towards the front of the printer.
7. Align the projection of the Supply Holder with the groove of the Supply Shaft, and push the Supply Holder against the media until the media is held firmly in place. This will centre the media automatically. Then turn the Locking Ring clockwise to secure the Supply Holder.



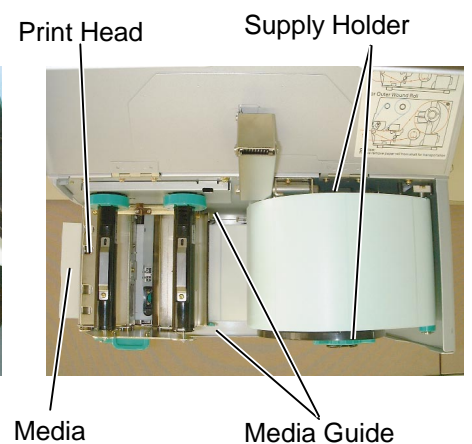
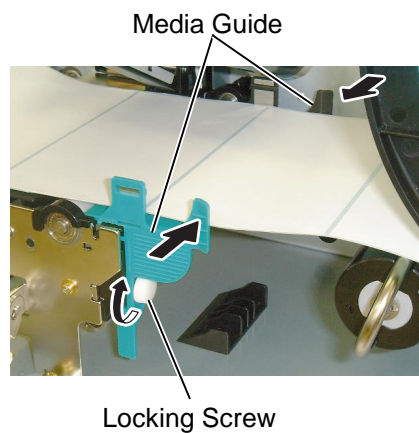
In case of a label rolled with the print side facing inside.



In case of a label rolled with the print side facing outside.



8. Place the media between the Media Guides, adjust the Media Guides to the media width, and tighten the Locking Screw.
9. Check that the media path through the printer is straight. The media should be centred under the Print Head.

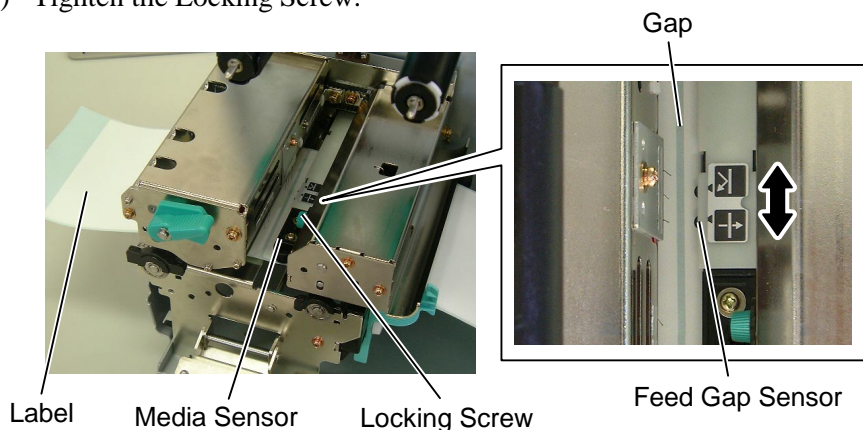


2.7 Loading the Media (Cont.)

10. Lower the Print Head Block until it stops.
11. After loading the media, it may be necessary to set the Media Sensors used to detect the print start position for label or tag printing.

Setting the Feed Gap Sensor position

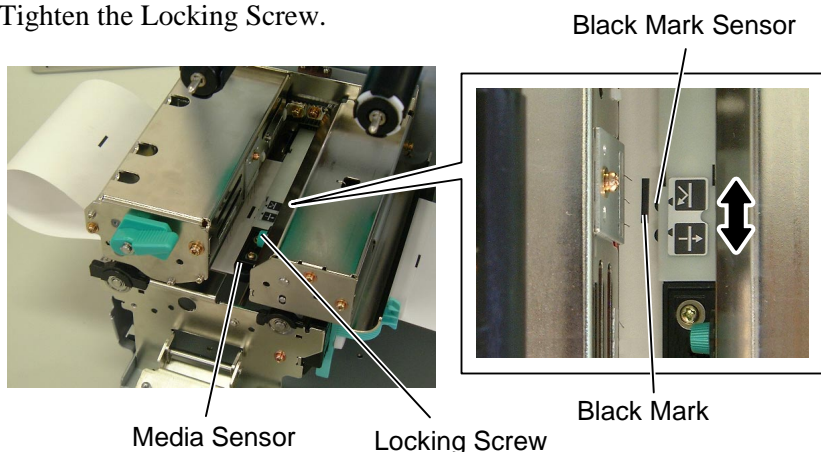
- (1) Remove the Locking Screw that secures the Media Sensor.
- (2) Manually move the Media Sensor so that the Feed Gap Sensor is positioned at the centre of the labels. (↕ indicates the position of the Feed Gap Sensor).
- (3) Tighten the Locking Screw.



Setting the Black Mark Sensor position

- (1) Remove the Locking Screw that secures the Media Sensor.
- (2) Pull about 500 mm of media out of the front of the printer, turn the media back on itself and feed it under the Print Head past the sensor so that the black mark can be seen from above.
- (3) Manually move the Media Sensor so that the Black Mark Sensor is in line with the centre of the black mark on the media. (↕ indicates the position of the Black Mark Sensor).
- (4) Tighten the Locking Screw.

NOTE:
Be sure to set the black mark sensor to detect the centre of the black mark, otherwise a paper jam or no paper error may occur.

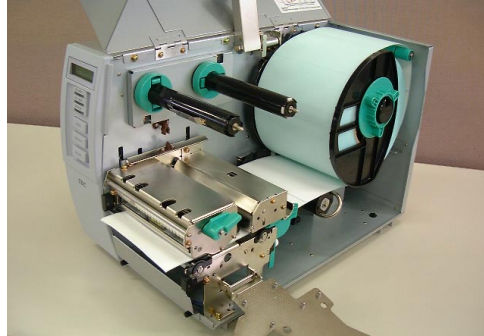


2.7 Loading the Media (Cont.)

12. There are four issue modes available on this printer. How to set the media for each mode is provided below.

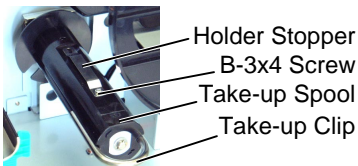
Batch mode

In the batch mode, the media is continuously printed and fed until the number of labels/tags specified in the issue command have been printed.



NOTES:

1. Be sure to set the Selection Switch to **STANDARD/PEEL OFF** position.
2. The backing paper is easier to feed back to the Take-Up Spool if the Front Plate is removed.
3. Fit the Take-Up Clip so that the longer side of the clip is fitted into the shallow groove in the Take-Up Spool.
4. 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-3x4 screw. Otherwise, it may be difficult to pull out the wound backing paper roll. .

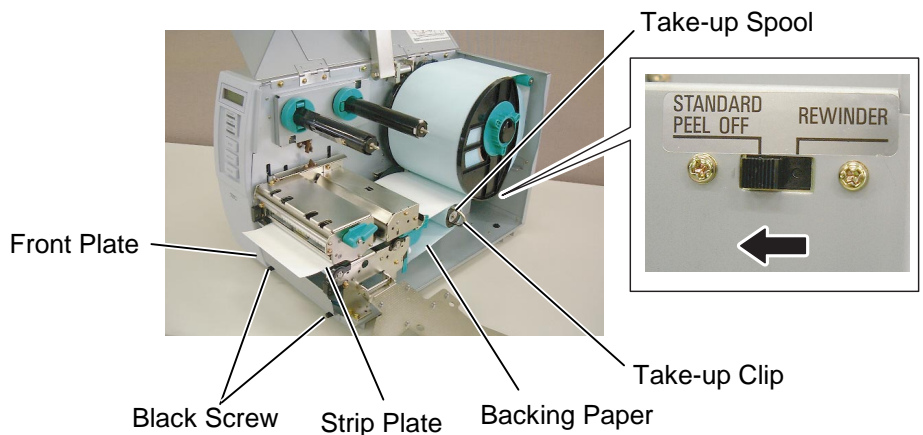


When using a paper core, put the core on the Take-up Spool with the Holder Stopper on it, and attach the top edge of the backing paper to the core with adhesive tape. The Take-up Clip is not necessary. This winding method is applicable to the Built-in Rewinder mode.

Strip mode

In the strip mode, the backing paper is automatically removed from the label at the Strip Plate as each label is printed.

- (1) Remove enough labels from the leading edge of the media to leave 500mm of backing paper free.
- (2) Insert the backing paper under the Strip Plate.
- (3) Wind the backing paper onto the Take-up Spool and fix it in position with the Take-up Clip. (Wind the paper counterclockwise around the spool as this is the direction it rotates.)
- (4) Rotate the Take-up Spool anti-clockwise a few times to remove any slack in the backing paper.
- (5) Set the Selection Switch mounted on the Rewinder Assembly to **STANDARD/PEEL OFF** position.

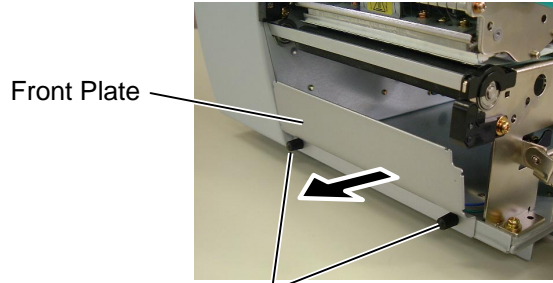


2.7 Loading the Media (Cont.)

Build-in rewinder mode

When the Rewinder Guide Plate is attached, the Take-up Spool can be used as a Built-in Rewinder to take up the printed media.

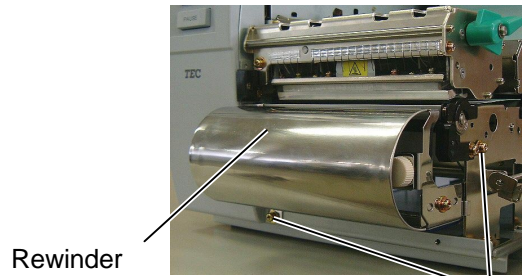
- (1) Remove the two Black Screws to detach the Front Plate.



Front Plate

Black Screw

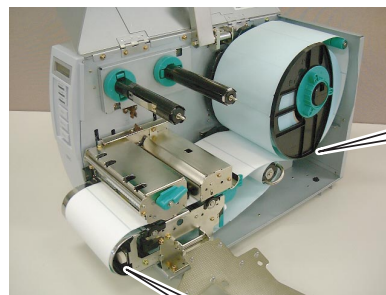
- (2) Attach the Rewinder Guide Plate to the Strip Plate with the SMW-4x8 sems screws.



Rewinder Guide Plate

SMW-4x8 Screw

- (3) Insert the media under the Rewinder Guide Plate.
- (4) Wind the media onto the Take-up Spool and fix it in position with the Take-up Clip.
- (5) Rotate the Take-up Spool counterclockwise a few times to remove any slack in the media.
- (6) Set the Selection Switch mounted on the Rewinder Assembly to **REWINDER** position.



Rewinder Guide Plate



Adjustment Knob

SM-4x8 Screw

NOTE:
Be sure to set the Selection Switch to **REWINDER** position.

ADJUSTMENT:
If the media skews when using the Built-in Rewinder, turn the Adjustment Knob of the Rewinder Guide Plate to correct the media feed. Clockwise turn moves the Rewinder Guide Plate forward and counter-clockwise moves it backward.

When the media skews to the right:
Loosen the SM-4x8 screw, turn the Adjustment Knob clockwise, and then tighten the SM-4x8 screw when the Rewinder Guide Plate is positioned correctly.

When the media skews to the left:
Loosen the SM-4x8 screw, turn the Adjustment Knob counterclockwise, and tighten the SM-4x8 screw when the Rewinder Guide Plate is positioned correctly.

2.7 Loading the Media (Cont.)

WARNING!

The cutter is sharp, so care must be taken not to injure yourself when handling the cutter.

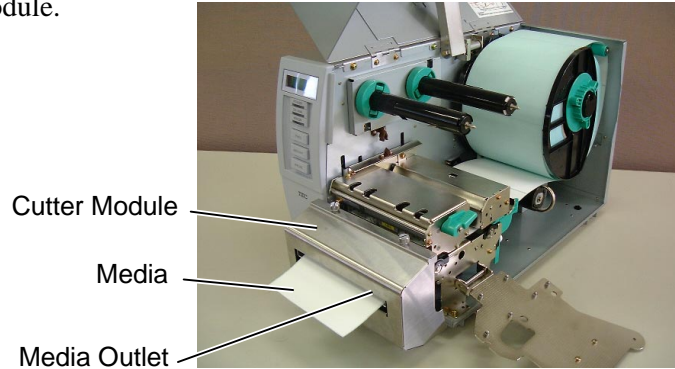
CAUTION!

1. *Be sure to cut the backing paper of the label. Cutting labels will cause the glue to stick to the cutter which may affect the cutter quality and shorten the cutter life.*
2. *Use of tag paper when the thickness exceeds the specified value may affect the cutter life.*

Cut mode

When the optional Cutter Module is fitted, the media is automatically cut. A swing cutter and a rotary cutter are available as an option, but they are used in the same way.

Insert the leading edge of the media into the Media Outlet of the Cutter Module.



13. If the loaded media is direct thermal media (a chemically treated surface), the media loading procedure is now completed. Close the Ribbon Shaft Holder Plate, and turn the Head Lever to **Lock** position to close. Then, close the Top Cover.

If the media is thermal transfer media, it is also necessary to load a ribbon. Refer to Section 2.8 Loading the Ribbon.

2.8 Loading the Ribbon

WARNING!

1. Do not touch any moving parts. To reduce the risk of fingers, jewellery, clothing, etc., being drawn into the moving parts, be sure to load the ribbon once the printer has stopped moving completely.
2. The print head becomes hot immediately after printing. Allow it to cool before loading the ribbon.
3. To avoid injury, be careful not to trap your fingers while opening or closing the cover.

CAUTION!

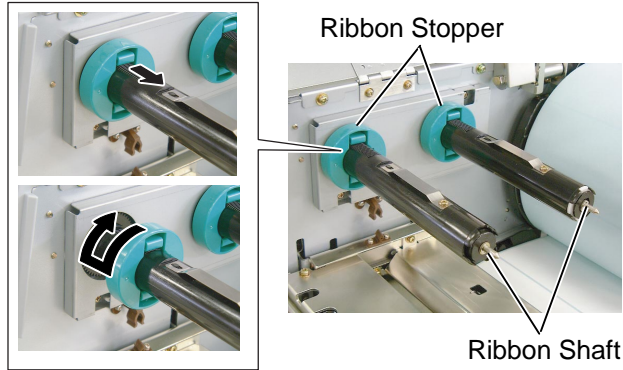
Be careful not touch the Print Head Element when raising the Print Head Block. Failure to do this may cause missing dots by static electricity or other print quality problems.

NOTES:

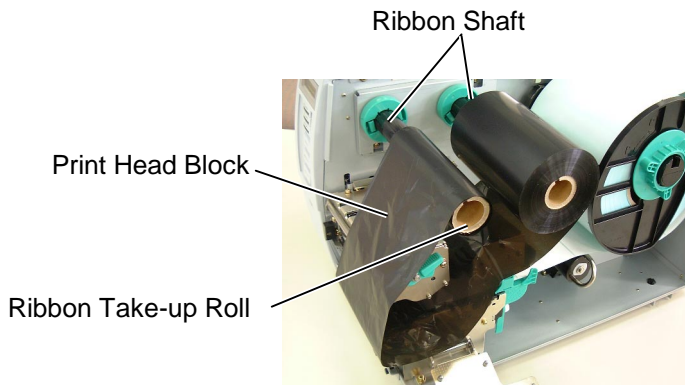
1. Be sure to remove any slack in the ribbon when printing. Printing with a wrinkled ribbon will lower the print quality.
2. The Ribbon Sensor is mounted on the rear of the Print Head Block to detect a ribbon end. When a ribbon end is detected, "NO RIBBON" message will appear on the display and the ERROR LED will illuminate.

There are two types of media available for printing on: these are thermal transfer media and direct thermal media (a chemically treated surface). DO NOT LOAD a ribbon when using a direct thermal media.

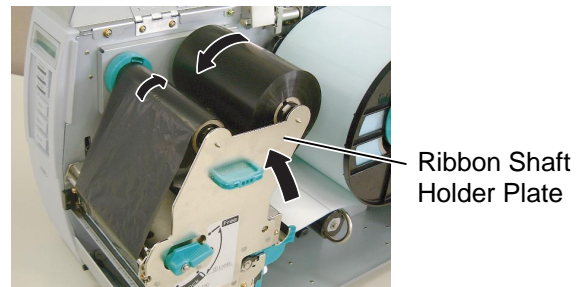
1. Rotate the Ribbon Stoppers counterclockwise by 90° and move them back to the end of the Ribbon Shafts. Restore the Ribbon Stoppers to the former orientation by turning them clockwise.



2. Leaving plenty of slack between the ribbon spools, place the ribbon onto the Ribbon Shafts as shown below.



3. Slide the Ribbon Stoppers along the Ribbon Shafts to a position where the ribbon is centred when fitted.
4. Lower the Print Head Block and set the Ribbon Shaft Holder Plate aligning its holes with the Ribbon Shafts.
5. Take up any slack in the ribbon. Wind the leading tape onto the ribbon take-up roll until the ink ribbon can be seen from the front of the printer.



6. Turn the Head Lever to **Lock** position to close the Print Head.
7. Close the Top Cover.

2.8 Loading the Ribbon (Cont.)

NOTE:

Ribbon loss per ribbon saving varies according to the relation between the outer roll diameter of the used ribbon and the print speed.

Print speed	Ribbon loss/Ribbon saving
3"/sec.	Approx. 5 mm
5"/sec.	Approx. 8 mm
8"/sec.	Approx. 17 mm

■ Auto Ribbon Saving Mode

When the auto ribbon saving function is selected, it will be activated to reduce ribbon loss when a no print area extends more than 20 mm. For further information on this function, please ask a TOSHIBA TEC authorised service representative.

2.9 Inserting the Optional PCMCIA Cards

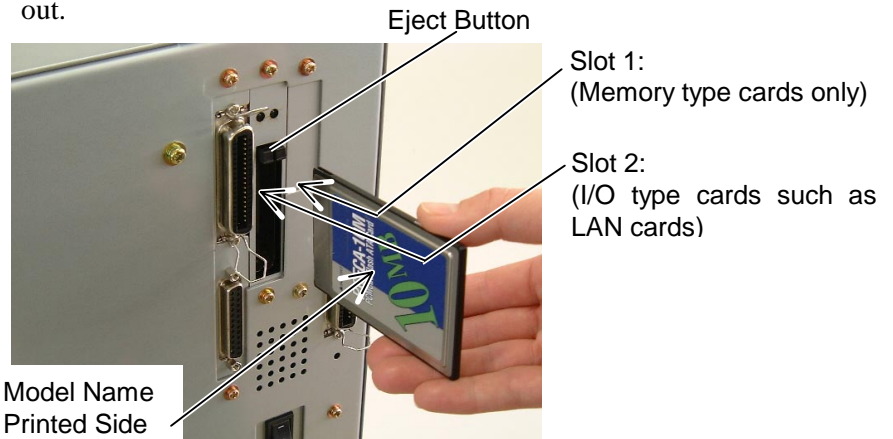
When the optional PCMCIA Interface Board is installed into the printer, there will be two PCMCIA slots available as shown in the figure below. This allows the use of Flash Memory type Cards or I/O Cards such as LAN Cards. The following paragraphs outline how to insert PCMCIA cards.

- CAUTION!**
1. To protect PC cards, discharge static electricity from your body by touching the metal cabinet of the printer before touching the card.
 2. Before inserting or removing a PCMCIA card make sure that the printer's power is turned off.
 3. Be sure to protect PCMCIA Cards when not in use by putting them into their protective covers.
 4. Do not subject the card to any shocks or excessive force nor expose the card to extremes in temperature or humidity.
 5. The card may be inserted into the slot halfway even in the wrong orientation. However, the slot is safety designed so that the card will not seat against the connector pins.

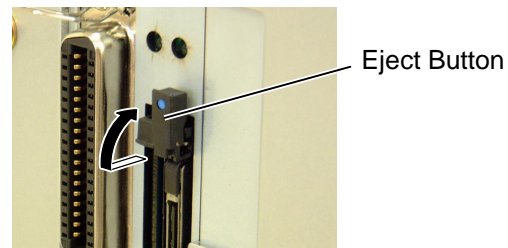
NOTE:

Reading a read-only-type flash memory is possible if it has been used on the TOSHIBA TEC printer, such as B-472 and B-572.

1. Make sure that the printer's Power Switch is in the OFF position.
2. Hold the PCMCIA Card so that the side with the model name faces left. Insert the card into the proper slot until the Eject Button pops out.



3. Slightly pull and fold the Eject Button upward.



4. The following PCMCIA cards can be used.

Type	Maker	Description	Remarks
ATA Card	San Disk, Hitachi	A card conforming to the PC card ATA standard	-----
LAN Card	3 COM	3CCE589ET Series	Install into the slot (2) only. (This card installed into the slot (1) will not work.)
Flash Memory Card (4 MB)	Maxell	EF-4M-TB CC	Read/Write
	Maxell	EF-4M-TB DC	
	Centennial Technologies INC.	FL04M-15-11119-03	Read (See NOTE.)
	INTEL	IMC004FLSA	
	Simple TECHNOLOGY	STI-FL/4A	
	Mitsubishi	MF84M1-G7DAT01	
	PC Card KING MAX	FJN-004M6C	
	Centennial Technologies Inc.	FL04M-20-11138-67	
	PC Card	FJP-004M6R	
Flash Memory Card (1 MB)	Mitsubishi	MF84M1-GMCAV01	Read (See NOTE.)
	Maxell	EF-1M-TB AA	
	Mitsubishi	MF81M1-GBDAT01	

2.10 Test Print

A print test should be performed to check that the printer is operating correctly.

The following paragraphs guide you through the diagnostic procedure for test label printing. Please follow the step-by-step procedures exactly for best results.

1. Use label stock for the test print. For best results, use labels that are 76 mm or longer in length.
2. Press and hold the **[FEED]** and **[PAUSE]** keys while turning on the printer power switch. The LCD Message Display will show the following message.

```
<1>DIAG.    1.0A
```

3. Press the **[FEED]** key three times to advance to the test print mode as indicated by the following message in the LCD Message Display.

```
<4>TEST PRINT
```

4. Press the **[PAUSE]** key and the print condition setting display will appear.

```
<4>TEST PRINT  
PRINT CONDITION
```

5. Press the **[PAUSE]** key and the issue count setting display will appear. Set the issue count with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
ISSUE COUNT    1
```

6. Press the **[PAUSE]** key and the print speed setting display will appear. Set the print speed with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
PRINT SPEED 5"/s
```

7. Press the **[PAUSE]** key and the sensor type setting display will appear. Select the sensor type with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
SENSOR TRANS.
```

8. Press the **[PAUSE]** key and the print mode setting display will appear. Select the print mode with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT  
PRT TYPE TRANSFR
```

NOTES:

1. Select the sensor type which matches the media being used. Basically, the Reflective Sensor (Black Mark Sensor) is for tag paper, and the Transmissive Sensor (Feed Gap Sensor) is for labels.
2. Select the print mode which matches the media being used. Basically, the thermal transfer is with ribbon, and the thermal direct is without ribbon.

2.10 Test Print (Cont.)

NOTE:
When PAPER FEED is selected, the printer feeds the media to the correct print start position. If the print start position adjustment is unnecessary, select PAPER NO FEED and save the media.

9. Press the **[PAUSE]** key and the issue mode setting display will appear. Select the issue mode with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
TYPE [S]NO CUT
```

10. Press the **[PAUSE]** key and the media size setting display will appear. Select the media size with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
LABEL LEN. 76mm
```

11. Press the **[PAUSE]** key and the paper feed setting display will appear. Select whether or not a paper feed is performed with the **[FEED]** or **[RESTART]** key.

```
<4>TEST PRINT
PAPER FEED
```

12. When the **[PAUSE]** key is pressed, one blank media will be issued. Then the LCD Message Display will return to showing the test print start message.

```
<4>TEST PRINT
```

13. Press the **[PAUSE]** key and then **[FEED]** key. When pressing the **[PAUSE]** key, the printer will print the specified issue counts of the slant lines (1 dot).

```
<4>TEST PRINT
SLANT LINE (1DOT)
```

14. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the slant lines (3 dots).

```
<4>TEST PRINT
SLANT LINE (3DOT)
```

15. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the characters of various sizes.

```
<4>TEST PRINT
CHARACTERS
```

16. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of the bar codes.

```
<4>TEST PRINT
BARCODE
```

17. Press the **[FEED]** key and **[PAUSE]** key, and the printer will print the specified issue counts of blank labels.

```
<4>TEST PRINT
NON PRINTING
```

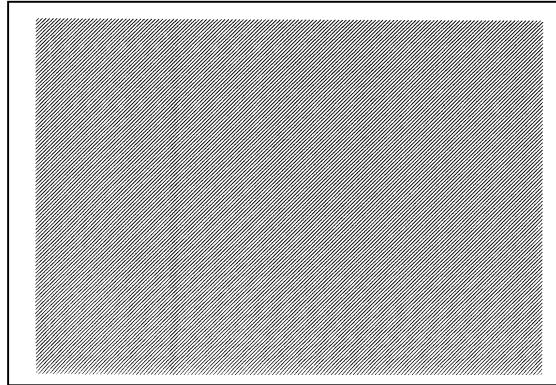
18. Press the **[PAUSE]** key and the LCD Message Display will return to showing the test print start message.

NOTE:
If the **[FEED]** key is pressed after the blank labels are printed, the printer will enter the Factory Test mode. To exit from the Factory Test mode, press the **[PAUSE]** key.

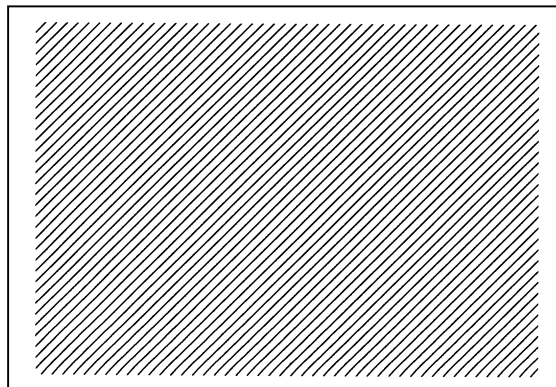
2.10 Test Print (Cont.)

- 19. When you have finished performing the test print operation, turn the printer's power OFF then back to ON and check that the LCD Message Display shows ON LINE and that the ON LINE and POWER LED lights are illuminated.

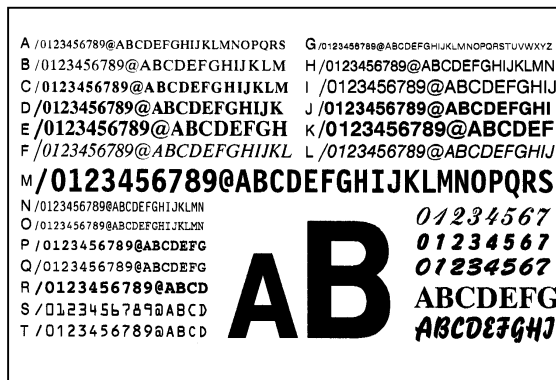
Sample of the slant line (1 dot) test print label



Sample of the slant line (3 dots) test print label



Sample of the character test print label

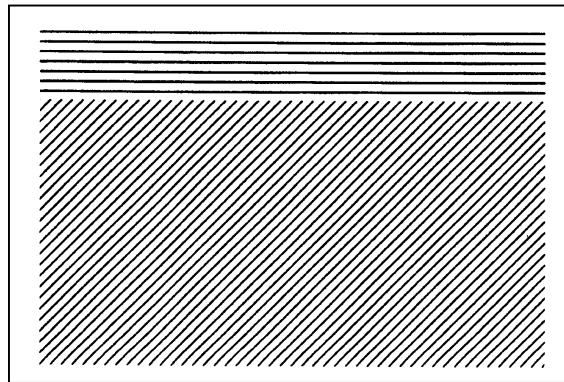


2.10 Test Print (Cont.)

Sample of the bar code test print label



Sample of the factory test label



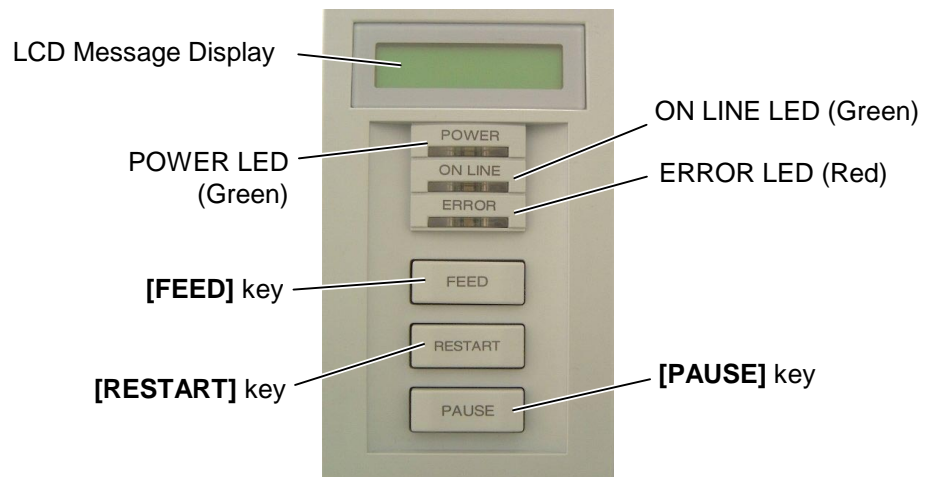
3. ON LINE MODE

This chapter describes usage of the keys on the Operation Panel in On Line mode.

When the printer is in On Line mode and connected to a host computer, the normal operation of printing images on labels or tags can be accomplished.

3.1 Operation Panel

- The figure below illustrates the operation panel and key functions.



The LCD Message Display shows messages in alphanumeric characters and symbols to indicate the printer's current status. Up to 32 characters can be displayed on two lines.

There are three LED lights on the operation panel.

LED	Illuminates when...	Flashes when...
POWER	The printer is turned on.	-----
ON LINE	The printer is ready to print.	The printer is communicating with your computer.
ERROR	Any error occurs with the printer.	The ribbon is nearly over. (See NOTE.)

NOTE:
Flashes only when the Ribbon Near End Detection function is selected.

NOTE:
Use the **[RESTART]** key to resume printing after a pause, or after clearing an error.

There are three keys on the operation panel.

PAUSE	Used to stop printing temporarily.
RESTART	Used to restart printing.
FEED	Used to feed the media.

3.2 Operation

When the printer is turned on, the "ON LINE" message appears on the LCD Message Display. It is shown during standby or normal printing.

1. The printer is turned on, standing by, or printing.

```
ON LINE
B-SX5T      V1.0A
```

2. If any error occurs during printing, an error message appears. The printer stops printing automatically. (The number on the right side shows the remaining number of media to be printed.)

```
NO PAPER    125
B-SX5T      V1.0A
```

3. To clear the error, press the **[RESTART]** key. The printer resumes printing.

```
ON LINE
B-SX5T      V1.0A
```

4. If the **[PAUSE]** key is pressed during printing, the printer stops printing temporarily. (The number on the right side shows the remaining number of media to be printed.)

```
PAUSE       52
B-SX5T      V1.0A
```

5. When the **[RESTART]** key is pressed, the printer resumes printing.

```
ON LINE
B-SX5T      V1.0A
```

3.3 Reset

A reset operation clears the print data sent from the computer to the printer, and returns the printer to an idle condition.

1. The printer is turned on, standing by, or printing.

```
ON LINE
B-SX5T      V1.0A
```

2. To stop printing, or clear the data sent from the computer, press the **[PAUSE]** key. The printer stops printing.

```
PAUSE       52
B-SX5T      V1.0A
```

3. Press and hold the **[RESTART]** key for 3 seconds or longer.

```
<1>RESET
```

4. Press the **[PAUSE]** key. The data sent from the computer will be cleared, and the printer returns to an idle condition.

```
ON LINE
B-SX5T      V1.0A
```

NOTE:

If the **[RESTART]** key is held for less than 3 seconds when the printer is in an error or pause state, the printer restarts printing. However, when a communication error or command error occurs, the printer returns to an idle condition.

3.4 Dump Mode

In Dump mode, any characters sent from the host computer will be printed. Received characters are expressed in hexadecimal values. This allows the user to verify programming commands and debug the program.

For details, please refer to your nearest TOSHIBA TEC service representative.

4. MAINTENANCE

WARNING!

1. Be sure to disconnect the power cord before performing maintenance. Failure to do this may cause an electric shock.
2. To avoid injury, be careful not to pinch your fingers while opening or closing the cover and print head block.
3. The print head becomes hot immediately after printing. Allow it to cool before performing any maintenance.
4. Do not pour water directly onto the printer.

This chapter describes how to perform routine maintenance.

To ensure the continuous high quality operation of the printer, you should perform a regular maintenance routine. For high throughput it should be done on a daily basis. For low throughput it should be done on a weekly basis.

4.1 Cleaning

To maintain the printer performance and print quality, please clean the printer regularly, or whenever the media or ribbon is replaced.

4.1.1 Print Head/Platen/Sensors

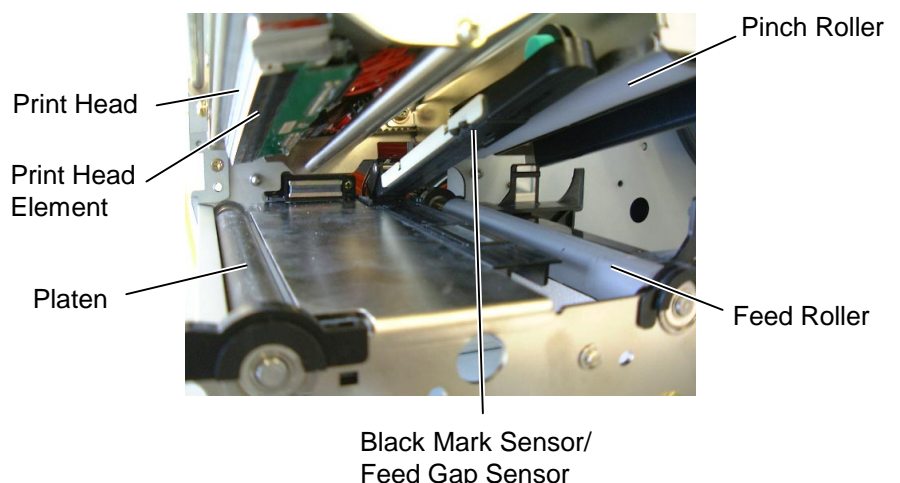
CAUTION!

1. Do not allow any hard objects to touch the Print Head or Platen, as this may cause damage to them.
2. Do not use any volatile solvent including thinner and benzene, as this may cause discoloration to the cover, print failure, or breakdown of the printer.
3. Do not touch the Print Head Element with bare hands, as static may damage the Print Head.
4. Be sure to use the Print Head Cleaner enclosed with this printer. Failure to do this may shorten the Print Head life.

NOTE:

Please purchase the Print Head Cleaner (P/No. 24089500013) from your authorised TOSHIBA TEC service representative.

1. Turn off the power and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to **Free** position, then release the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.
6. Clean the Print Head Element with a Print Head Cleaner or a cotton swab or soft cloth slightly moistened with alcohol.



7. Wipe the Platen, Feed Roller, and Pinch Roller with a soft cloth slightly moistened with alcohol. Remove dust or foreign substances from the internal part of the printer.
8. Wipe the Feed Gap Sensor and Black Mark Sensor with a dry soft cloth.

4.1.2 Covers and Panels

CAUTION!

1. *DO NOT POUR WATER directly onto the printer.*
2. *DO NOT APPLY cleaner or detergent directly onto any cover or panel.*
3. *NEVER USE THINNER OR OTHER VOLATILE SOLVENT on the plastic covers.*
4. *DO NOT clean the panel, covers, or the supply window with alcohol as it may cause them to discolour, loose their shape or develop structural weakness.*

Wipe the covers and panels with a dry soft cloth or a cloth slightly moistened with mild detergent solution.



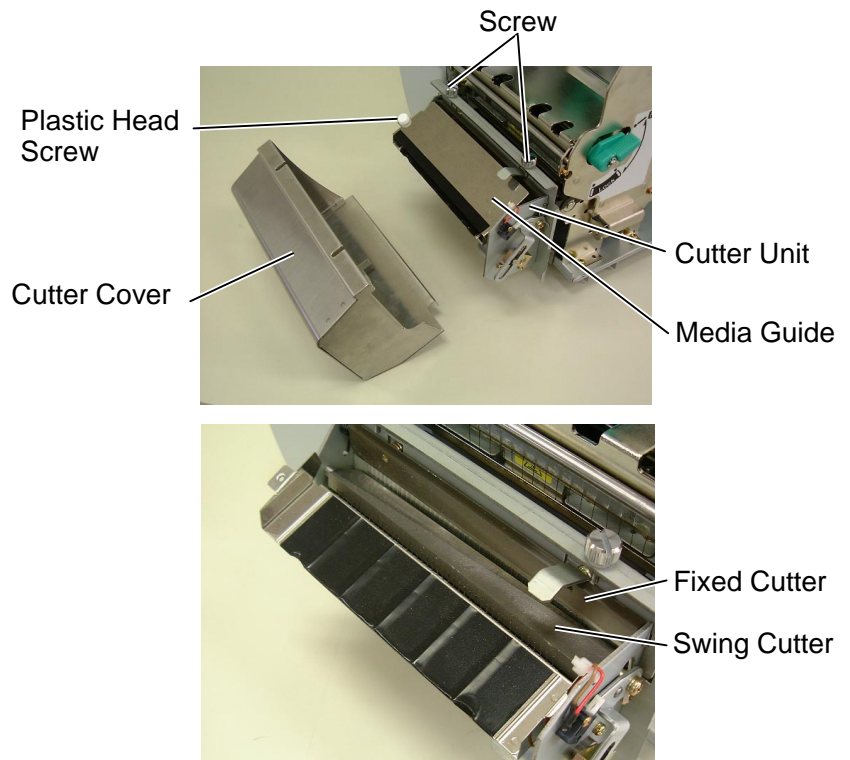
4.1.3 Optional Cutter Module

WARNING!

1. *Be sure to turn the power off before cleaning the Cutter Module.*
2. *As the cutter blade is sharp, care should be taken not to injure yourself when cleaning.*

The swing cutter and rotary cutter are available as an option. They are both cleaned in the same way. When removing the Cutter Cover of the rotary cutter unit, remove the screws from the bottom of the cover.

1. Loosen the two screws to remove the Cutter Cover.
2. Remove the Plastic Head Screw to detach the Media Guide.
3. Remove the jammed paper.
4. Clean the Cutter with a soft cloth slightly moistened with alcohol.
5. Reassemble the Cutter Module in the reverse order of removal.



4.2 Care/Handling of the Media and Ribbon

CAUTION!

Be sure to carefully review and understand the Supply Manual. Use only media and ribbons that meet specified requirements. Use of non-specified media and ribbons may shorten the head life and result in problems with bar code readability or print quality. All media and ribbons should be handled with care to avoid any damage to the media, ribbons or printer. Read the guidelines in this section carefully.

- Do not store the media or ribbon for longer than the manufacturer's recommended shelf life.
- Store media rolls on the flat end. Do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media and ribbon in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.
- The thermal paper used for direct thermal printing must not have specifications which exceed Na^+ 800 ppm, K^+ 250 ppm and Cl^- 500 ppm.
- Some ink used on pre-printed media may contain ingredients which shorten the print head's product life. Do not use labels pre-printed with ink which contain hard substances such as carbonic calcium (CaCO_3) and kaolin ($\text{Al}_2\text{O}_3, 2\text{SiO}_2, 2\text{H}_2\text{O}$).

For further information, please contact your local distributor or your media and ribbon manufacturers.

5. TROUBLESHOOTING

This chapter lists the error messages, possible problems, and their solutions.

WARNING!

If a problem cannot be solved by taking the actions described in this chapter, do not attempt to repair the printer. Turn off and unplug the printer, then contact an authorised TOSHIBA TEC service representative for assistance.

5.1 Error Messages

NOTES:

- If an error is not cleared by pressing the **[RESTART]** key, turn the printer off and then on.
- After the printer is turned off, all print data in the printer is cleared.
- "****" indicates the number of unprinted media. Up to 9999 (in pieces).

Error Messages	Problems/Causes	Solutions
HEAD OPEN	The Print Head Block is opened in Online mode.	Close the Print Head Block.
HEAD OPEN ****	Feeding or printing has been attempted with the Print Head Block open.	Close the Print Head Block. Then press the [RESTART] key.
COMMS ERROR	A communication error has occurred.	Make sure the interface cable is correctly connected to the printer and the host, and the host is turned on.
PAPER JAM ****	<ol style="list-style-type: none"> 1. The media is jammed in the media path. The media is not fed smoothly. 2. A wrong Media Sensor is selected for the media being used. 3. The Black Mark Sensor is not correctly aligned with the Black Mark on the media. 4. Size of the loaded media is different from the programmed size. 5. The Feed Gap Sensor cannot distinguish the print area from a label gap. 	<ol style="list-style-type: none"> 1. Remove the jammed media, and clean the Platen. Then reload the media correctly. Finally press the [RESTART] key. 2. Turn the printer off and then on. Then select the Media Sensor for the media being used. Finally resend the print job. 3. Adjust the sensor position. Then press the [RESTART] key. 4. Replace the loaded media with one that matches the programmed size then press the [RESTART] key, or turn the printer off and then on, select a programmed size that matches the loaded media. Finally resend the print job. 5. Refer to Section 5.4 to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.
CUTTER ERROR **** (Only when the cutter module is installed on the printer.)	The media is jammed in the cutter.	Remove the jammed media. Then press the [RESTART] key. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

5.1 Error Messages (Cont.)

Error Messages	Problems/Cause	Solutions
NO PAPER ****	<ol style="list-style-type: none"> The media has run out. The media is not loaded properly. The media is slack. 	<ol style="list-style-type: none"> Load new media. Then press the [RESTART] key. Reload the media correctly. Then press the [RESTART] key. Take up any slack in the media.
RIBBON ERROR ****	The ribbon is not fed properly.	Remove the ribbon, and check the status of the ribbon. Replace the ribbon, if necessary. If the problem is not solved, turn off the printer, and call a TOSHIBA TEC authorised service representative.
NO RIBBON ****	The ribbon has run out.	Load a new ribbon. Then press the [RESTART] key.
REWIND FULL ****	The Built-In Rewinder Unit is full.	Remove the backing paper from the Built-In Rewinder Unit. Then press the [RESTART] key.
EXCESS HEAD TEMP	The Print Head has overheated.	Turn off the printer, and allow it to cool down (about 3 minutes). If this does not solve the problem, call a TOSHIBA TEC authorised service representative.
HEAD ERROR	There is a problem with the Print Head.	Replace the Print Head.
Other error messages	A hardware or software problem may have occurred.	Turn the printer off and then on. If this does not solve the problem, turn off the printer again, and call a TOSHIBA TEC authorised service representative.

5.2 Possible Problems

This section describes problems that may occur when using the printer, and their causes and solutions.

Possible Problems	Causes	Solutions
The printer will not turn on.	<ol style="list-style-type: none"> The Power Cord is disconnected. The AC outlet is not functioning correctly. The fuse has blown, or the circuit breaker has tripped. 	<ol style="list-style-type: none"> Plug in the Power Cord. Test with a power cord from another electric appliance. Check the fuse or breaker.
The media is not fed.	<ol style="list-style-type: none"> The media is not loaded properly. The printer is in an error condition. 	<ol style="list-style-type: none"> Load the media properly. Solve the error in the message display. (See Section 5.1 for more detail.)
Nothing is printed on the media.	<ol style="list-style-type: none"> The media is not loaded properly. The ribbon is not loaded properly. The print head is not installed properly. The ribbon and media are not matched. 	<ol style="list-style-type: none"> Load the media properly. Load the ribbon properly. Install the print head properly. Close the Print Head Block. Select an appropriate ribbon for the media type being used.
The printed image is blurred.	<ol style="list-style-type: none"> The ribbon and media are not matched. The Print Head is not clean. 	<ol style="list-style-type: none"> Select an appropriate ribbon for the media type being used. Clean the print head using the Print Head Cleaner or a cotton swab slightly moistened with ethyl alcohol.
The cutter does not cut.	<ol style="list-style-type: none"> The Cutter Cover is not attached properly. The media is jammed in the Cutter. The cutter blade is dirty. 	<ol style="list-style-type: none"> Attach the Cutter Cover properly. Remove the jammed paper. Clean the cutter blade.

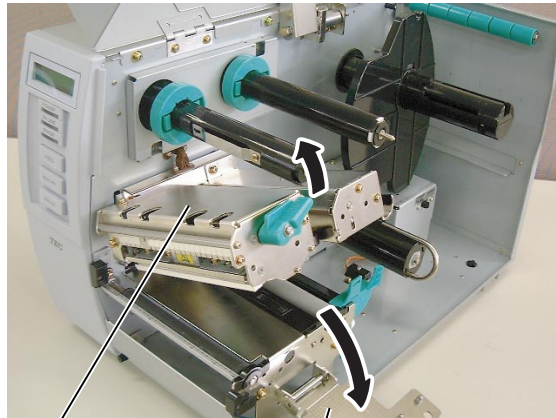
5.3 Removing Jammed Media

This section describes in detail how to remove jammed media from the printer.

CAUTION!

Do not use any tool that may damage the Print Head.

1. Turn off and unplug the printer.
2. Open the Top Cover.
3. Turn the Head Lever to **Free** position, then open the Ribbon Shaft Holder Plate.
4. Open the Print Head Block.
5. Remove the ribbon and media.



Print Head Block

Ribbon Shaft Holder Plate

6. Remove the jammed media from the printer. **DO NOT USE** any sharp implements or tools as these could damage the printer.
7. Clean the Print Head and Platen, then remove any further dust or foreign substances.
8. Paper jams in the Cutter Unit can be caused by wear or residual glue from label stock on the cutter. Do not use non-specified media in the cutter.

NOTE:

If you get frequent jams in the cutter, contact a TOSHIBA TEC authorised service representative.

5.4 Threshold Setting

NOTES:

1. If the **[PAUSE]** key is released within 3 seconds while in the pause state, the paper will not feed.
2. Failure to feed more than 1.5 labels may result in an incorrect threshold setting.
3. While the Print Head Block is raised, the **[PAUSE]** key does not work.
4. A paper end error cannot be detected during paper feed.
5. Selecting the Transmissive Sensor (for pre-printed labels) within software commands allows the printer to detect the proper print start position even when using pre-printed labels.
6. If using the Transmissive Sensor and the printer continues to print out of position even after setting the threshold, contact a TOSHIBA TEC service representative.

To maintain a constant print position the printer uses the Transmissive Sensor to detect the gap between labels by measuring the amount of light passing through the media. When the media is pre-printed, the darker (or more dense) inks can interfere with this process causing paper jam errors. To get around this problem a minimum threshold can be set for the sensor in the following way.

■ Threshold setting procedure

1. Turn the power ON. The printer is in stand by mode.

```
ON LINE
B-SX5T      V1.0A
```

2. Load a pre-printed media roll.

3. Press the **[PAUSE]** key.

```
PAUSE
B-SX5T      V1.0A
```

4. The printer enters the pause mode.

5. Press and hold the **[PAUSE]** key for at least 3 seconds in the pause state.

```
TRANSMISSIVE
B-SX5T      V1.0A
```

6. The sensor type is displayed.

7. Select the sensor to be adjusted by pressing the **[FEED]** key.

```
REFLECTIVE
B-SX5T      V1.0A
```

Black mark sensor

↑
[FEED] key

```
TRANSMISSIVE
B-SX5T      V1.0A
```

↓
Feed gap sensor

8. Press and hold the **[PAUSE]** key until more than 1.5 labels (tags) have been issued.

The media will continue to be fed until the **[PAUSE]** key is released. (Threshold setting for the selected sensor is completed by this operation.)

```
PAUSE
B-SX5T      V1.0A
```

9. Press the **[RESTART]** key.

```
ON LINE
B-SX5T      V1.0A
```

10. The printer is in stand-by.

11. Send an issue command from the PC to the printer.

```
ON LINE
B-SX5T      V1.0A
```

APPENDIX 1 SPECIFICATIONS

Appendix 1 describes the printer specifications and supplies for use on the B-SX5T printer.

A1.1 Printer

The following is the printer specifications.

Item	Model	B-SX5T-TS10-QQ	B-SX5T-TS10-QP
Supply voltage		AC100 – 120V, 50/60 Hz±10%	AC220 – 240V, 50 Hz±10%
Power consumption			
During a print job		1.7 A, 130 W maximum	0.7 A, 124 W maximum
During standby		0.19 A, 15 W maximum	0.16 A, 16 W maximum
Operating temperature range		5°C to 40°C (40°F to 104°F)	
Relative humidity		25% to 85% RH (no condensation)	
Resolution		12 dots/mm (306 dpi)	
Printing method		Thermal transfer or Thermal direct	
Printing speed		76.2 mm/sec. (3 inches/sec.) 127.0 mm/sec (5 inches/sec.) 203.2 mm/sec (8 inches/sec.)	
Available media width (including backing paper)		30.0 mm to 140.0 mm (1.2 inches to 5.5 inches)	
Effective print width (max.)		128.0 mm (5 inches)	
Issue mode		Batch Strip Cut (Cut mode is enabled only when the optional Cutter Module is installed.)	
LCD Message display		16 characters × 2 lines	
Dimension (W × D × H)		291 mm × 460 mm × 308 mm (11.5" × 18.1" × 12.1")	
Weight		44.1 lb (20 kg) (Media and ribbon are not included.)	
Available bar code types		JAN8, JAN13, EAN8, EAN8+2 digits, EAN8+5 digits, EAN13, EAN13+2 digits, EAN13+5 digits, UPC-E, UPC-E+2 digits, UPC-E+5 digits, UPC-A, UPC-A+2 digits, UPC-A+5 digits, MSI, ITF, NW-7, CODE39, CODE93, CODE128, EAN128, Industrial 2 to 5, Customer Bar Code, POSTNET, KIX CODE, RM4SCC (ROYAL MAIL 4STATE CUSTOMER CODE), RSS14	
Available two-dimensional code		Data Matrix, PDF417, QR code, Maxi Code, Micro PDF417, CP Code	
Available font		Times Roman (6 sizes), Helvetica (6 sizes), Presentation (1 size), Letter Gothic (1 size), Prestige Elite (2 sizes), Courier (2 sizes), OCR (2 types), Gothic (1 size), Outline font (4 types), Price font (3 types)	
Rotations		0°, 90°, 180°, 270°	
Standard interface		Serial interface (RS-232C) Parallel interface (Centronics) Expansion I/O interface	
Optional interface		PCMCIA interface (B-9700-PCM-QM) USB interface (B-9700-USB-QM) LAN interface (B-9700-LAN-QM)	

NOTES:

- Data Matrix™ is a trademark of International Data Matrix Inc., U.S.
- PDF417™ is a trademark of Symbol Technologies Inc., US.
- QR Code is a trademark of DENSO CORPORATION.
- Maxi Code is a trademark of United Parcel Service of America, Inc., U.S.

A1.2 Options

Option Name	Type	Description
Swing cutter module	B-4205-QM	A stop and cut swing cutter.
Rotary cutter module	B-8204-QM	Rotary cutter
PCMCIA interface board	B-9700-PCM-QM	This board enables the use of the following PCMCIA cards. LAN card: 3 COM 3CCE589ET (recommended) ATA card: Conforming to PC card ATA standard Flash memory card: 1MB and 4MB cards (See Section 2.9.)
Built-in LAN interface board	B-9700-LAN-QM	This board enables the printer to be used in a LAN network.
USB interface board	B-9700-USB-QM	Installing this board enables a connection to a PC which has a USB interface.

NOTE:

To purchase the optional kits, please contact the nearest authorised TOSHIBA TEC representative or TOSHIBA TEC Head Quarters.

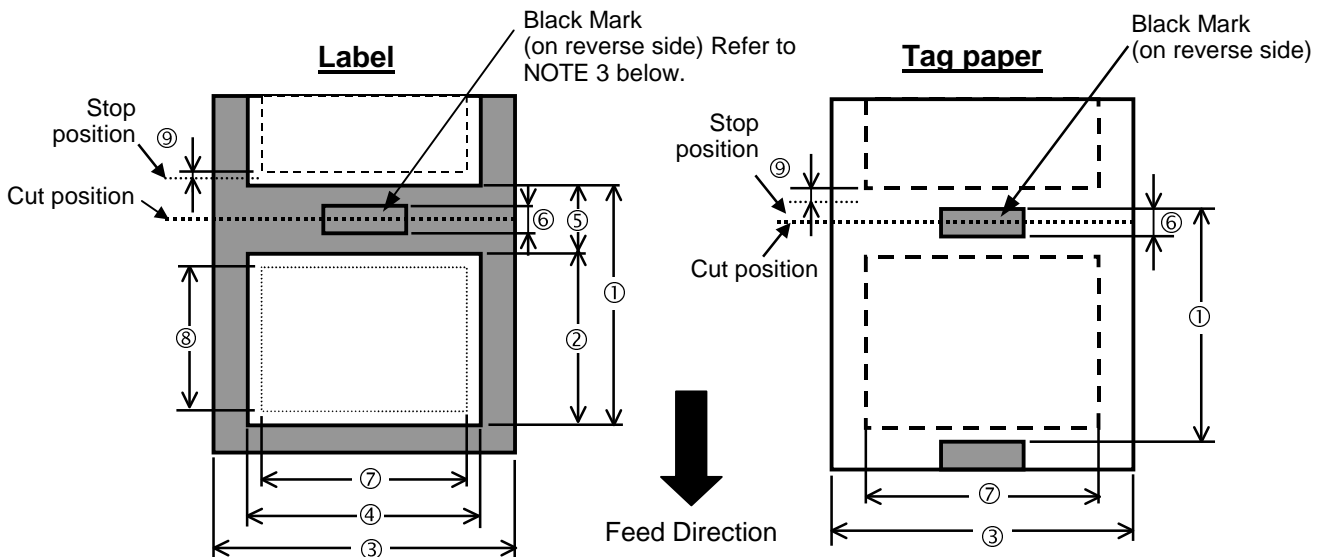
A1.3 Media

Please make sure that the media being used is approved by TOSHIBA TEC. The warranty does not apply when a problem is caused by using media that is not approved by TOSHIBA TEC.

For information regarding TOSHIBA TEC approved media, please contact a TOSHIBA TEC authorised service representative.

A1.3.1 Media Type

Two types of media can be loaded for this thermal transfer and direct thermal printer: label or tag. The table below shows size and shape of the media available for this printer.



A1.3.1 Media Type (Cont.)

[Unit: mm]

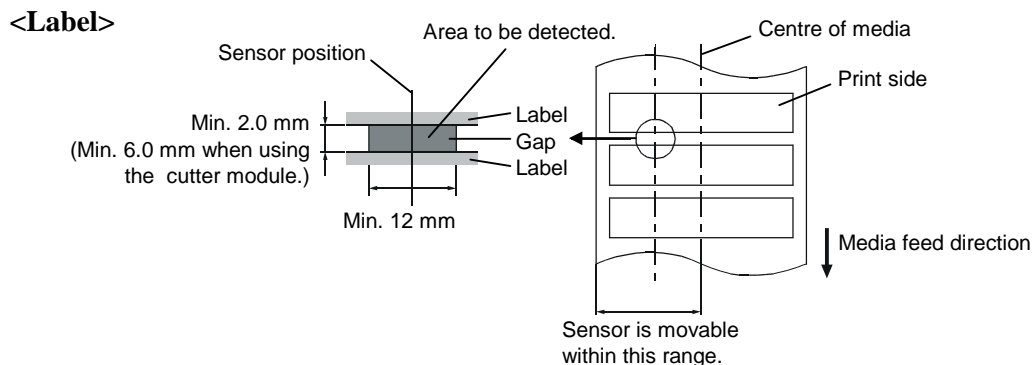
Item	Label dispensing mode	Batch mode	Strip mode	Cut mode	
				Rotary cutter	Swing cutter
① Media pitch	Label	10.0 – 1500.0	25.4 – 1500.0	38.0 - 1500.0	38.0 – 1500.0
	Tag	10.0 – 1500.0	----	3"/sec., 5"/sec.: 30.0 – 1500.0 8"/sec.: 38.0 – 1500.0	25.4 – 1500.0
② Label length		8.0 – 1498.0	23.4 – 1498.0	25.0 – 1494.0	25.0 – 1494.0(*1)
③ Width including backing paper (See NOTE 5.)		30.0 – 140.0	50.0 – 140.0	30.0 – 112.0	30.0 – 140.0
④ Label width (See NOTE 5.)		27.0 – 137.0	47.0 – 137.0	27.0 – 109.0	27.0 – 137.0
⑤ Gap length		2.0 – 20.0		6.0 – 20.0	
⑥ Black mark length (Tag paper)		2.0 – 10.0			
⑦ Effective print width		10.0 – 128.0			
⑧ Effective print length	Label	6.0 – 1496.0	21.4 – 1496.0	23.0 - 1492.0	23.0 – 1492.0
	Tag	8.0 – 1498.0	----	3"/sec., 5"/sec.: 28.0 – 1496.0 8"/sec.: 36.0 – 1496.0	23.0 – 1496.0
⑨ Print speed up/slow down area		1.0			
Thickness	Label	0.13 – 0.17			
	Tag	0.15 – 0.29			
Maximum effective length for on the fly issue		749.0			
Maximum outer roll diameter		Ø200			
Roll direction		Inside			
Inner core diameter		Ø76.2±0.3			

NOTES:

- To ensure print quality and print head life use only TOSHIBA TEC specified media.
- The media length specifications for use of the cutter are:
*1: When issuing a label using the swing cutter, label length should be 35.0 mm – (Gap length/2).
- When marking black marks on the label rolls, they should be marked at the gaps.
- “On the fly issue” means that the printer can feed and print without stopping between labels.
- There are restrictions in use of the media which is narrower than 50 mm. For details, refer to TOSHIBA TEC service representative.

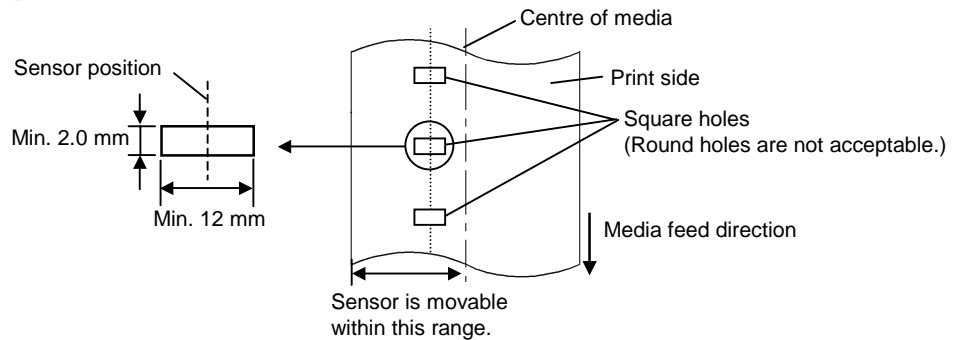
A1.3.2 Detection Area of the Transmissive Sensor

The Transmissive Sensor is movable from the centre to the left edge of media.
The Transmissive Sensor detects a gap between labels, as illustrated below.



A1.3.2 Detection Area of the Transmissive Sensor (Cont.)

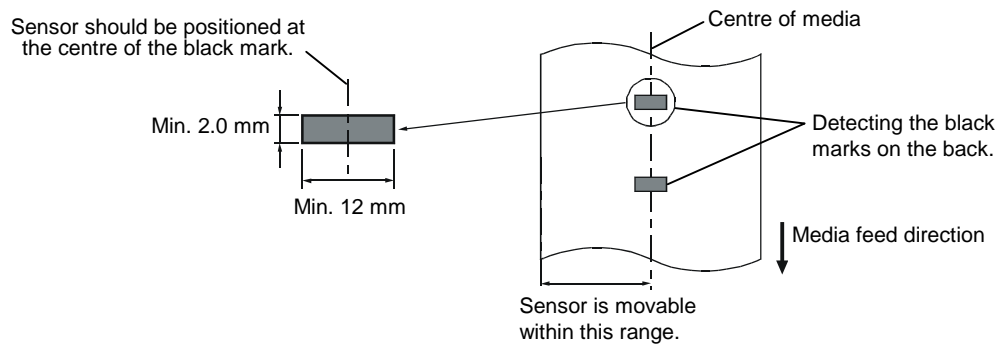
<Tag paper with square holes>



NOTE:
Round holes are not acceptable.

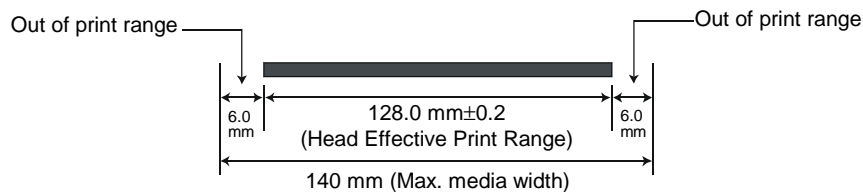
A1.3.3 Detection Area of the Reflective Sensor

The Reflective Sensor is movable from the centre to the left edge of media.
The reflection factor of the Black Mark must be 10% or lower with a waveform length of 950 nm.
The Reflective Sensor should be aligned with the centre of the Black Mark.



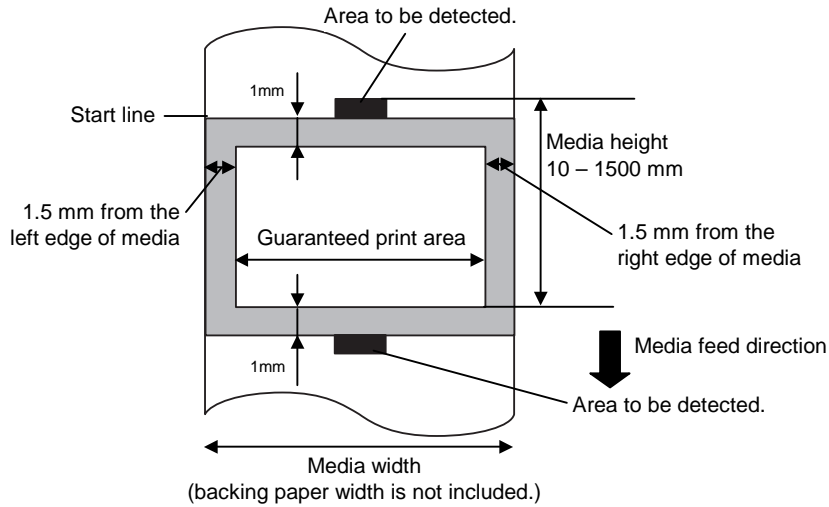
A1.3.4 Effective Print Area

The figure below illustrates the relation between the head effective print width and media width.



A1.3.4 Effective Print Area (Cont.)

The figure below shows the effective print area on the media.



NOTES:

1. Be sure not to print on the 1.5-mm wide area from the media edges (shaded area in the above figure). Printing this area may cause ribbon wrinkles, resulting in a poor print quality of the guaranteed print area.
2. The centre of media is positioned at the centre of the Print Head.
3. Print quality in the 3-mm area from the print head stop position (including 1-mm non-printable area for print speed slow down) is not guaranteed.

A1.4 Ribbon

Please make sure that the ribbon being used is approved by TOSHIBA TEC. The warranty does not apply to any problem caused by using non-approved ribbons.

For information regarding TOSHIBA TEC approved ribbon, please contact a TOSHIBA TEC service representative.

Type	Spool type
Width	68 – 134 mm Recommended width is 41, 50, 68, 102, and 134 mm.
Length	600 m
Outside Diameter	φ90 mm (max.)

The table below shows the correlation between ribbon width and media width (backing paper is not included.)

Ribbon width	Media width	Ribbon width	Media width
41 mm	30 – 36 mm	102 mm	63 – 97 mm
50 mm	36 – 45 mm	134 mm	97 – 140 mm
68 mm	45 – 63 mm		

NOTES:

1. To ensure print quality and print head life use only TOSHIBA TEC specified ribbons.
2. To avoid ribbon wrinkles use a ribbon that is wider than the media by 5 mm or more. However, too much difference in width between the two may cause wrinkles.
3. When using a 134 mm wide media, be sure to use a 130 mm wide ribbon. Use of other ribbons may cause ribbon wrinkles.

APPENDIX 2 MESSAGES AND LEDS

Appendix 2 describes the LCD messages displayed on the operation panel.

Symbols in the message

- 1: ○: The LED is illuminated. ⊙: The LED is flashing. ●: The LED is unlit.
- 2: ****: the number of unprinted media. Up to 9999 (in pieces)
- 3: %%% %%%: ATA Card's remaining memory 0 to 9999999 (in K bytes)
- 4: ###: Flash memory card remaining memory for PC save area: 0 to 895 (in K bytes)
- 5: &&&&: Remaining flash memory capacity for storing writable characters 0 to 3147 (in K bytes)

No.	LCD Message	LED Indication			Printer Status	Restoration by RESTART key Yes/No	Acceptance of Status Request Reset Command Yes/No
		POWER	ONLINE	ERROR			
1	ON LINE	○	○	●	In online mode	----	Yes
	ON LINE	○	⊙	●	In online mode (The printer in communication)	----	Yes
2	HEAD OPEN	○	●	●	The print head block is opened in online mode.	----	Yes
3	PAUSE ****	○	●	●	The printer is paused.	Yes	Yes
4	COMMS ERROR	○	●	○	A parity, overrun, or framing error has occurred during communication through the RS-232C.	Yes	Yes
5	PAPER JAM ****	○	●	○	The media is jammed during paper feed.	Yes	Yes
6	CUTTER ERROR****	○	●	○	A problem has occurred with the cutter module.	Yes	Yes
7	NO PAPER ****	○	●	○	The media has run out, or the media is not loaded properly.	Yes	Yes
8	NO RIBBON ****	○	●	○	The ribbon has run out.	Yes	Yes
9	HEAD OPEN ****	○	●	○	Feed or printing was attempted with the print head block open.	Yes	Yes
10	HEAD ERROR	○	●	○	There is a problem with the print head.	Yes	Yes
11	EXCESS HEAD TEMP	○	●	○	The print head is overheated.	No	Yes
12	RIBBON ERROR****	○	●	○	The ribbon has been torn. A problem has occurred with the sensor that determines the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL ****	○	●	○	An overflow error has occurred in the rewinder unit.	Yes	Yes
14	SAVING%% %%% %%% %%% or SAVING ###&&&&	○	○	●	In writable character or PC command save mode	----	Yes
15	FLASH WRITE ERR.	○	●	○	An error has occurred while writing to flash memory or ATA card.	No	Yes
16	FORMAT ERROR	○	●	○	An erase error has occurred in formatting the flash memory or ATA card.	No	Yes
17	FLASH CARD FULL	○	●	○	Data cannot be stored because the flash memory or ATA card is full.	No	Yes
18	Display of error message (See Notes.)	○	●	○	A command error has occurred in analyzing the command.	Yes	Yes
19	POWER FAILURE	○	●	○	A power failure has occurred.	No	No
20	INITIALIZING...	○	●	●	A flash memory card is being initialised.	----	----
21	100BASE LAN INITIALIZING...	○	●	●	100 Base LAN Board is being initialized.	----	----

NOTES:

- If a command error is found in the command received, 16 bytes of the command error, starting from the command code, will be displayed. (However, [LF] and [NUL] will not be displayed.)

Example 1

[ESC] T20 G30 [LF] [NUL]
 └─── Command error

The following message appears.

```

T20G30
B-SX5T      V1.0A
    
```

Example 2

[ESC] XR; 0200, 0300, 0450, 1200, 1, [LF] [NUL]
 └─── Command error

The following message appears.

```

XR;0200,0300,045
B-SX5T      V1.0A
    
```

Example 3

[ESC] PC001; 0A00, 0300, 2, 2, A, 00, B [LF] [NUL]
 └─── Command error

The following message appears.

```

PC001;0A00,0300,
B-SX5T      V1.0A
    
```

- When the error command is shown, “? (3FH)” appears for codes other than codes 20H to 7FH and A0H to DFH.

APPENDIX 3 INTERFACE

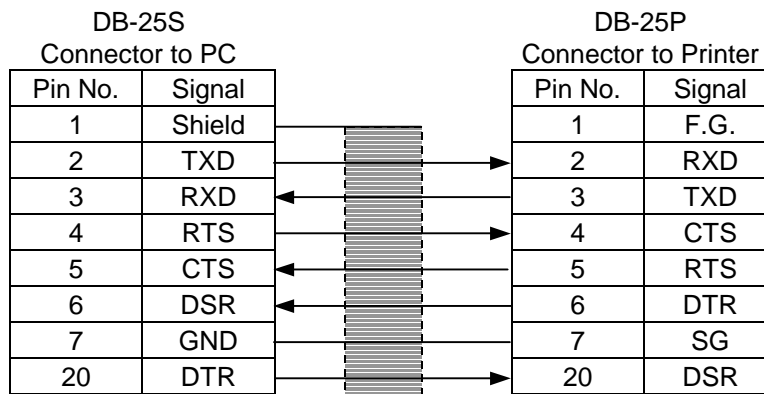
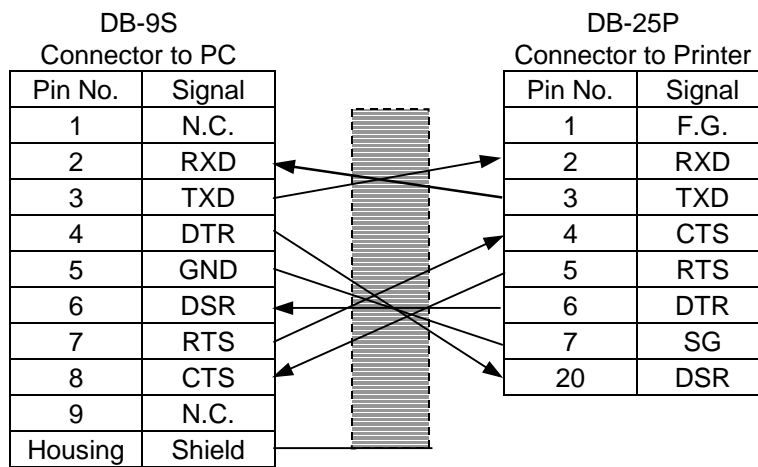
■ Interface Cables

To prevent radiation and reception of electrical noise, the interface cables must meet the following requirements:

- Fully shielded and fitted with metal or metallised connector housings.
- Keep as short as possible.
- Should not be bundled tightly with power cords.
- Should not be tied to power line conduits.

■ RS-232C Cable description

The serial data cable used to connect the printer to the host compute should be one of the following two types:



NOTE:

Use an RS-232C cable with the connector including inch type securing screws for the QQ model or metric type securing screws for the QP model.

APPENDIX 4 PRINT SAMPLES

■ Font

<A>Times Roman medium

Times Roman medium

<C>Times Roman bold

<D>Times Roman bold

<E>Times Roman bold

<F>*Times Roman italic*

<G>Helvetica medium

<H>Helvetica medium

<I>Helvetica medium

<J>Helvetica bold

<K>Helvetica bold

<L>*Helvetica italic*

<M>**PRESENTATION BOLD**

<N>Letter Gothic medium

<O>Prestige Elite medium

<P>Prestige Elite bold

<Q>Courier medium

<R>Courier bold

<S>OCR-A

<T>OCR-B

<q>Gothic 725 Black

<Outline Font:A> **H e l v e t i c a b o l d**

<Outline Font:B> **Helvetica bold(P)**

<Outline Font:E> *0 1 2 3 4 5 6 7 8 9, ¥ \$*

<Outline Font:F> **0 1 2 3 4 5 6 7 8 9, ¥ \$**

<Outline Font:G> **0 1 2 3 4 5 6 7 8 9, ¥ \$**

<Outline Font:H> **Dutch 801 bold**

<Outline Font:I> *Brush 738 regular*

<Outline Font:J> **Gothic 725 Black**

APPENDIX 4 PRINT SAMPLES (Cont.)

■ Bar codes

JAN8, EAN8



Interleaved 2 of 5



NW7



UPC-E



EAN13+5 digits



CODE39 (Full ASCII)



UPC-E+2 digits



EAN8+2 digits



UPC-A



MSI



CODE39 (Standard)



JAN13, EAN13



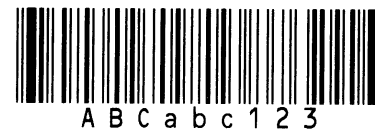
EAN13+2 digits



CODE128



CODE93



UPC-E+5 digits



EAN8+5 digits



UPC-A+2 digits



APPENDIX 4 PRINT SAMPLES (Cont.)

UPC-A+5 digits



UCC/EAN128



Industrial 2 of 5



POSTNET



Customer bar code



Customer bar code of high priority



KIX Code



RM4SCC



RSS-14



RSS-14 Stacked



RSS-14 Stacked Omnidirectional



RSS Limited



RSS Expanded



Data Matrix



PDF417



QR code



Micro PDF417



MaxiCode



CP Code



GLOSSARIES

Bar code

A code which represents alphanumeric characters by using a series of black and white stripes in different widths. Bar codes are used in various industrial fields: Manufacturing, Hospitals, Libraries, Retail, Transportation, Warehousing, etc. Reading bar codes is a fast and accurate means of capturing data while keyboard entry tends to be slow and inaccurate.

Batch mode

Issue mode that continuously prints media until the specified number of media has been printed.

Black mark

A mark printed on the media so that the printer can maintain a constant print position by detecting this mark.

Black mark sensor

A reflective sensor which detects the difference of potential between the black mark and print area to find the print start position.

Built-in rewinder mode

Printer mode of operation where a strip module is installed to take up printed media onto the built-in rewinder.

Cut mode

Printer mode of operation where an optional cutter module is installed to automatically cut media from the supply roll after they are printed. The print command can specify to cut every media or to cut after a set number of media have been printed.

Cutter module

A device used to cut the media.

DPI

Dot Per Inch

The unit used to express print density.

Expansion I/O interface

An interface circuit that may be installed into printer to allow the printer to be connected to an external device such as a wrapping machine and to receive feed, print start, and pause signals from the external device and to send back print, pause, and error status signals to the external device.

Feed gap sensor

A transmissive sensor which detects the difference of potential between the gap between labels and the label to find the print position of the label.

Font

A complete set of alphanumeric characters in one style of type. E.g. Helvetica, Courier, Times

Gap

Clearance between labels

IPS

Inch per second

The unit used to express print speed.

Label

A type of media with adhesive backing.

LCD

Liquid Crystal Display

Installed on the operation panel and displays operation modes, error message and so on.

Media

Material on which data is printed by the printer. Label, tag paper, fanfold paper, perforated paper, etc.

PCMCIA interface

An optional interface circuit that may be installed into the printer to allow the use of the small credit card sized PC cards such as flash memory cards and LAN cards. PCMCIA is the acronym for Personal Computer Memory Card International Association.

Pre-printed media

A type of media on which characters, logos, and other designs have been already printed.

Print head element

The thermal print head consists of a single line of tiny resistive elements and when current is allowed to flow through each element it heats up causing a small dot to be burned onto thermal paper or a small dot of ink to be transferred from a thermal ribbon to ordinary paper.

Print speed

The speed at which printing occurs. This speed is expressed in units of ips (inches per second).

Reflective sensor

See Black mark sensor.

Resolution

The degree of detail to which an image can be duplicated. The minimum unit of divided image is called a pixel. As the resolution becomes higher, the number of pixels increased, resulting in more detailed image

Ribbon

An inked film used to transfer an image onto the media. In the thermal transfer printing, it is heated by the thermal print head, causing an image to be transferred onto the media

Strip mode

A device used to remove labels from the backing paper.

Supply

Media and ribbon

Tag

A type of media with no adhesive. Usually tags are made of cardboard or other durable material.

Thermal direct printing

A printing method using no ribbon, but thermal media which reacts to heat. The thermal print head heats the thermal media directly, causing print image to be printed on the media.

Thermal print head

A print head using thermal transfer or thermal direct printing method.

Thermal transfer printing

A printing method that the thermal print head heats an ink or resin coating on the ribbon against the media, causing the ink/resin to transfer onto the media.

Threshold setting

A sensor setting operation to have the printer maintain a constant print position of pre-printed media.

Transmissive sensor

See Feed gap sensor.

USB (Universal Serial Bus)

An interface that is used to connect peripherals, such as a printer, keyboard, mouse. The USB allows disconnection of a USB device without turning off the power.

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SUPPLEMENT FOR OWNER'S MANUAL TEC B-SX4T and B-SX5T SERIES

This supplement is applicable to the following Owner's Manuals:

- **B-SX4T Series (EO1-33034)**
- **B-SX5T Series (EO1-33036)**

Precautions for using the Ribbon Saving Function

The ribbon saving module is standard on the B-SX5T series, but not on the B-SX4T series. Also, the ribbon saving function has been set to off by the parameter setting when the printer is delivered.

Therefore, to use the ribbon saving function on the B-SX4T series, it is necessary to install the B-9904-R-QM optional ribbon saving module and to enable the ribbon saving function by the parameter setting.

Regarding the B-SX5T series, you only need to enable the ribbon saving function by the parameter setting.

When enabling the ribbon saving function, it must be set depending on the head lever position. For details, please contact the nearest TOSHIBA TEC service representative or sales agent.

Printer model and option	Head lever position	Parameter setting	Ribbon saving function
B-SX5T-TS12-QQ B-SX5T-TS12-QP B-SX4T-TS10-QQ B-SX4T-TS10-QP	Position ①: Label or Position ②: Tag	RBN SAVE OFF (Default)	Disabled
B-SX5T-TS12-QQ B-SX5T-TS12-QP	Position ①: Label	RBN SAVE ON(Label)	Enabled for label
B-SX4T-TS10-QQ + B-9904-R-QM B-SX4T-TS10-QP + B-9904-R-QM	Position ②: Tag	RBN SAVE ON(TAG)	Enabled for tag paper

NOTES:

1. Be sure to match the parameter setting to the head lever position according to the media type. Mismatching may cause a failure of the ribbon saving module.
2. The amount of the saved ribbon differs depending on the print pattern and print speed.
3. When the head lever position is set to Position ②: Tag and "RBN SAVE ON(TAG)" is selected, the amount of the saved ribbon is a little less than that of "RBN SAVE ON(Label)" with the head lever position ①: Label due to a control of the mechanism.



TEC

TOSHIBA TEC CORPORATION

M EO1-33036



TEC Thermal Printer

B-SX4T/SX5T SERIES

Product Description

Document No. **EO10-33013A**

Original **Jan., 2003**
(Revised **Feb., 2003)**

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This manual is intended for both B-SX4T series and B-SX5T series. Please note that the illustrations and pictures provided are of the B-SX4T series.

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.*
3. *Please refer to your local Authorised Service representative with regard to any queries you may have in this manual.*

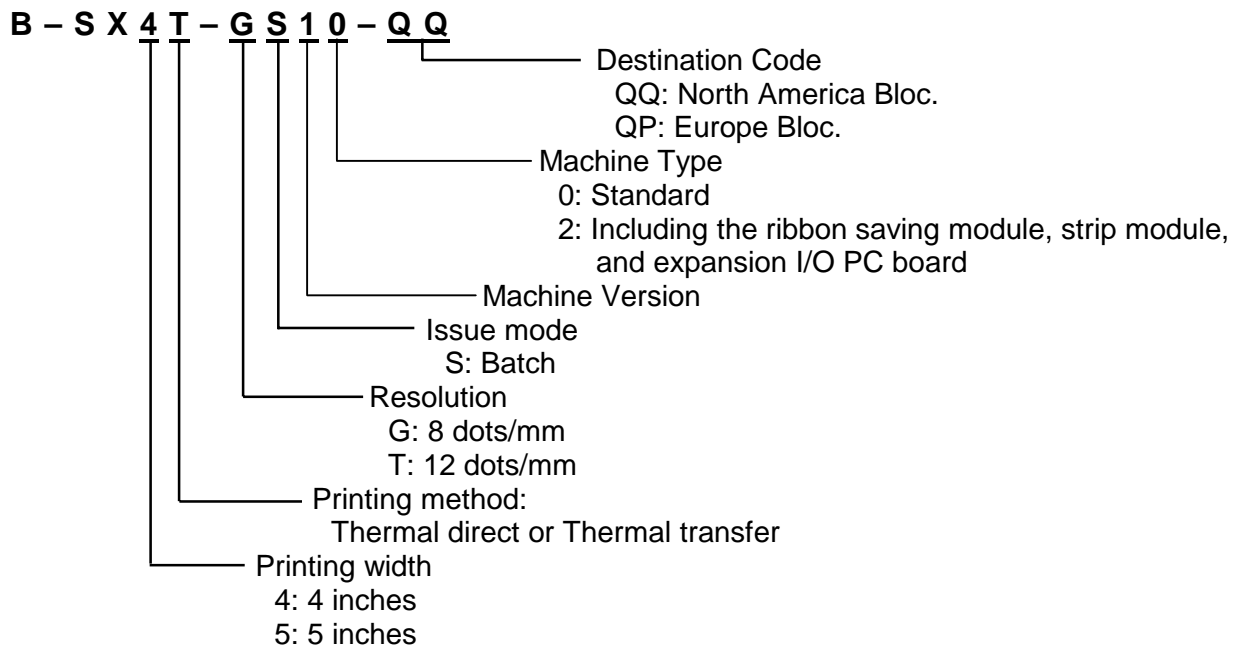
1. OUTLINE

1.1 PRINTER SPECIFICATIONS

- 1) Various bar codes, characters and graphic data can be printed using both thermal transfer and thermal direct methods. This printer can also print writable characters and logos at designated coordinates by using a graphic command.
- 2) The Centronics and RS-232C are available as standard interfaces between the printer and a PC. In addition, optional interfaces such as PCMCIA interface, USB interface, and LAN interface are available. The expansion I/O interface, which is an option for the B-SX4T series, is provided on the B-SX5T series as standard.
- 3) A 32-bit CPU and a Field Programmable Gate Array (FPGA) equipped with several peripheral LSIs realizes high system performance.
- 4) With the element positioned at the edge of the print head, print quality is improved because the media passes straight through.
- 5) The B-SX4T series accommodates a max. format size of 104.0 mm wide by 1498.0 mm long and a max. printing speed of 10"/sec.
The B-SX5T series accommodates a max. format size of 128.0 mm wide by 1498.0 mm long and a max. printing speed of 8"/sec.
- 6) High throughput can be obtained with "on-the-fly" formatting.
- 7) Installation space is minimized because the media is loaded internally.
- 8) The metal cover and damper provide a heavy-duty enclosure.
- 9) Various optional devices, including the Strip module including the rewinder, the ribbon saving module which economizes ribbon usage, rotary cutter module, and swing cutter module are available on the B-SX4T series.
The strip module and the ribbon saving module are standard on the B-SX5T series.

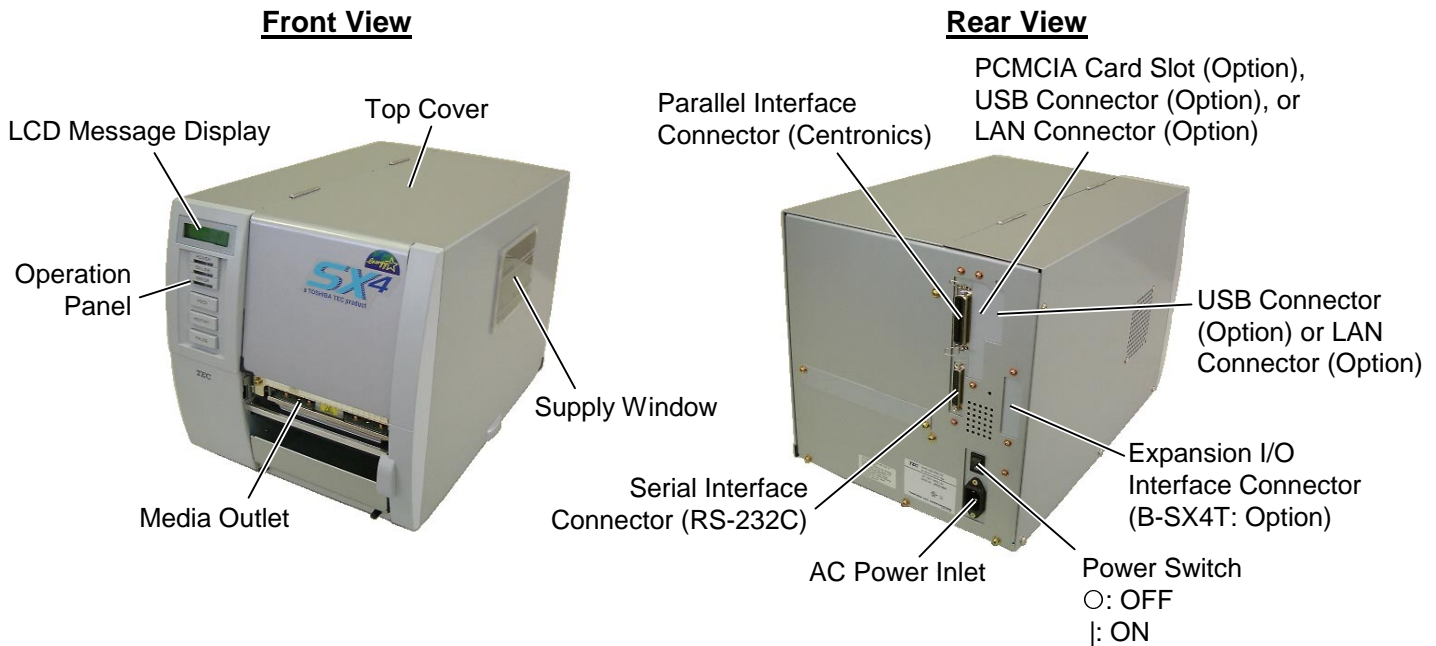
NOTE: Every size is written in millimeter (mm) in this manual. To obtain the size in inch, divide by 25.4.

1.2 DESCRIPTION OF MODEL NUMBER

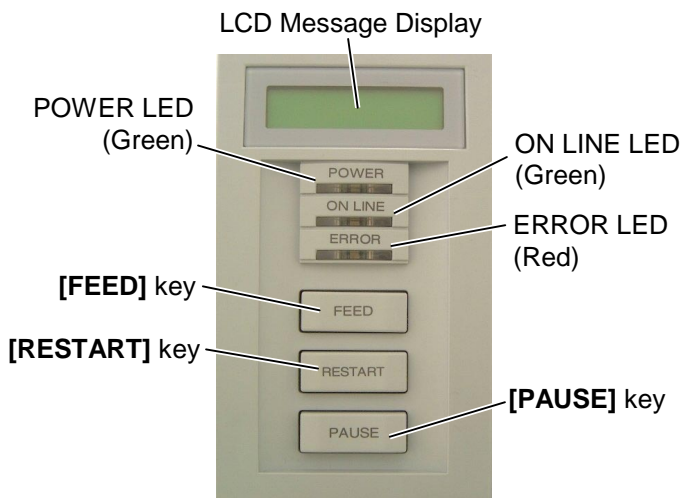


1.3 APPEARANCE AND DIMENSIONS (APPROXIMATE)

1.3.1 Front View/Rear View



1.3.2 Operation Panel



LCD Message Display

When the power is turned on and it is ready to print, ON LINE is displayed.

POWER LED (Green)

Lights when the power is turned on.

ON-LINE LED (Green)

- 1) Flashes when communicating with a host PC.
- 2) Lights while printing.

ERROR LED (Red)

Lights when the printer does not operate correctly.

FEED key

Feeds paper.

RESTART key

Resets the printer when paused or when an error occurs. Used to set the threshold. (Refer to the Owner's Manual.)

PAUSE key

Pauses printing.

Message display shows PAUSE and a remaining count. Used to set the threshold (Refer to the Owner's Manual.)

1.3.3 Dimensions (Approximate)

Standard: 291 mm (W) x 460 mm (D) x 308 mm (H)
 With cutter module: 291 mm (W) x 521 mm (D) x 308 mm (H)

1.4 BASIC SPECIFICATIONS

1) Printing method Thermal direct printing or thermal transfer printing

2) Print head

[B-SX4T: 4 inches]

(1) Total number of dots 832 dots (3) Effective print width 104.0 mm
 (2) Dot density 8 dots/mm (4) Thermal pitch 0.125 mm

[B-SX5T: 5 inches]

(1) Total number of dots 1536 dots (3) Effective print width 128.0 mm
 (2) Dot density 12 dots/mm (4) Thermal pitch 0.083 mm

3) Print speed

B-SX4T 3"/sec., 6"/sec., 10"/sec.

B-SX5T 3"/sec., 5"/sec., 8"/sec.

NOTE: *These print speeds are available when printing ratio is less than 15% of the entire label or tag paper.*

4) Format size (W) x (L)

B-SX4T Max. 104.0 mm x 1498.0 mm

B-SX5T Max. 128.0 mm x 1498.0 mm

5) Issue mode Batch

Auto cut (Auto cut mode is available only when the optional cutter is attached.)

Strip (In case of the B-SX4T, the strip mode is available only when the optional strip module is attached.)

6) Type of bar code/two dimensional code

(1) JAN8, EAN8, JAN13, EAN13, UPC-A, UPC-E	(13) PDF417
(2) EAN8, EAN13, UPC-A, UPC-E + 2digit	(14) QR Code
(3) EAN8, EAN13, UPC-A, UPC-E + 5digit	(15) Industrial 2 of 5
(4) NW-7	(16) Customer Bar Code
(5) CODE39 (STANDARD)	(17) POSTNET
(6) CODE39 (FULL ASCII)	(18) RM4SCC (Royal Mail 4 State Customer Code)
(7) ITF	
(8) MSI	(19) KIX CODE
(9) CODE93	(20) Maxi Code
(10) CODE128	(21) Micro PDF417
(11) EAN128	(22) CP CODE
(12) Data Matrix	(23) RSS14

7) Bar code rotation 0°, 90°, 180°, 270°

8) Magnification of bar code

- UPC/EAN/JAN/CODE93/128/PDF417.....Up to 6 modules can be automatically calculated using 1-module width designation (1 to 15 dots).

Bar code		Dots/Module		2	3	4	5	6	7	8
		Min. Module Width (mm)	Magnification (times)	0.25	0.38	0.50	0.63	—	—	—
UPC-A/E EAN8/13 JAN8/13				0.76	1.14	1.51	1.91	—	—	—
CODE93 EAN128 CODE128 PDF417				0.25	0.38	0.50	0.63	0.75	0.88	1.00

Bar code		Dots/Module		9	10	11	12	13	14	15
		Min. Module Width (mm)	Magnification (times)	—	—	—	—	—	—	—
UPC-A/E EAN8/13 JAN8/13				—	—	—	—	—	—	—
CODE93 EAN128 CODE128				1.13	1.25	1.38	1.50	1.63	1.75	1.88
PDF417				1.13	1.25	—	—	—	—	—

- NW-7/CODE39/ITF/MSI/Industrial 2 of 5The width of narrow bars, wide bars and spaces can be optionally changed in a range of 1 to 99 dots.
- Data MatrixThe width of one cell can be changed in a range of 1 to 99 dots.

9) Type of characters

[B-SX4T]

- | | |
|---|---|
| (1) Times Roman medium (12, 15 point) | (9) Prestige Elite medium (10.5 point) |
| (2) Times Roman bold (15, 18, 21 point) | (10) Prestige Elite bold (15 point) |
| (3) Times Roman Italic (18 point) | (11) Courier medium (15 point) |
| (4) Helvetica medium (9, 15, 18 point) | (12) Courier bold (18 point) |
| (5) Helvetica bold (18, 21 point) | (13) OCR-A, B (12 point) |
| (6) Helvetica Italic (18 point) | (14) Outline font (Helvetica bold, Helvetica bold proportional, Price Font (1,2,3), Times roman proportional, Pop Proportional, Proportional) |
| (7) Presentation bold (27 point) | (15) Writable characters (2-byte character is available.) |
| (8) Letter Gothic medium (14.3 point) | |

[B-SX5T]

- | | |
|---|---|
| (1) Times Roman medium (8, 10 point) | (9) Prestige Elite medium (7 point) |
| (2) Times Roman bold (10, 12, 14 point) | (10) Prestige Elite bold (10 point) |
| (3) Times Roman Italic (12 point) | (11) Courier medium (10 point) |
| (4) Helvetica medium (6, 10, 12 point) | (12) Courier bold (12 point) |
| (5) Helvetica bold (12, 14 point) | (13) OCR-A, B (12 point) |
| (6) Helvetica Italic (12 point) | (14) Outline font (Helvetica bold, Helvetica bold proportional, Price Font (1,2,3), Times roman proportional, Pop Proportional, Proportional) |
| (7) Presentation bold (18 point) | (15) Writable characters (2-byte character is available.) |
| (8) Letter Gothic medium (9.5 point) | |

10) Character code

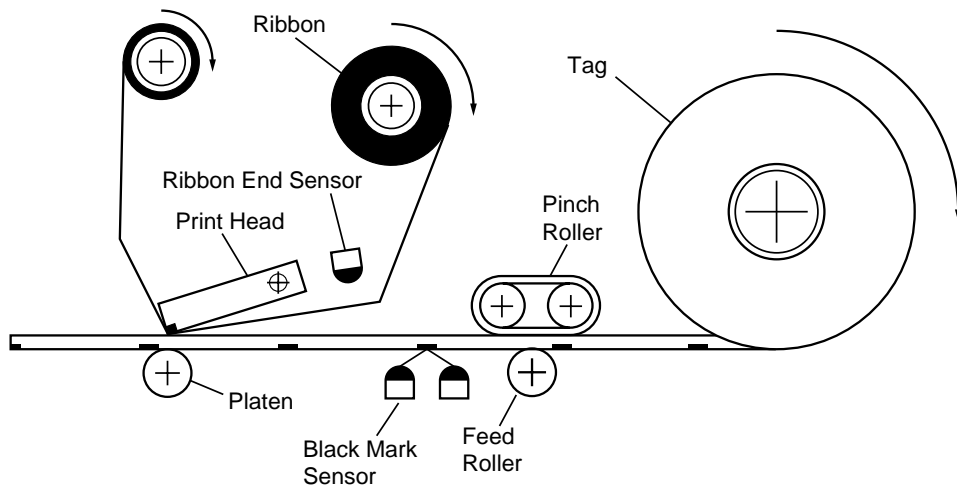
- (1) PC-850 (2) PC-8 (3) PC-852 (4) PC-857 (5) Arabic (6) LATIN 9 (7) PC-1257 (8) PC-1254 (9) PC-1253 (10) PC-1252 (11) PC-1251 (12) PC-1250 (13) PC-855 (14) PC-851

11) Character magnification

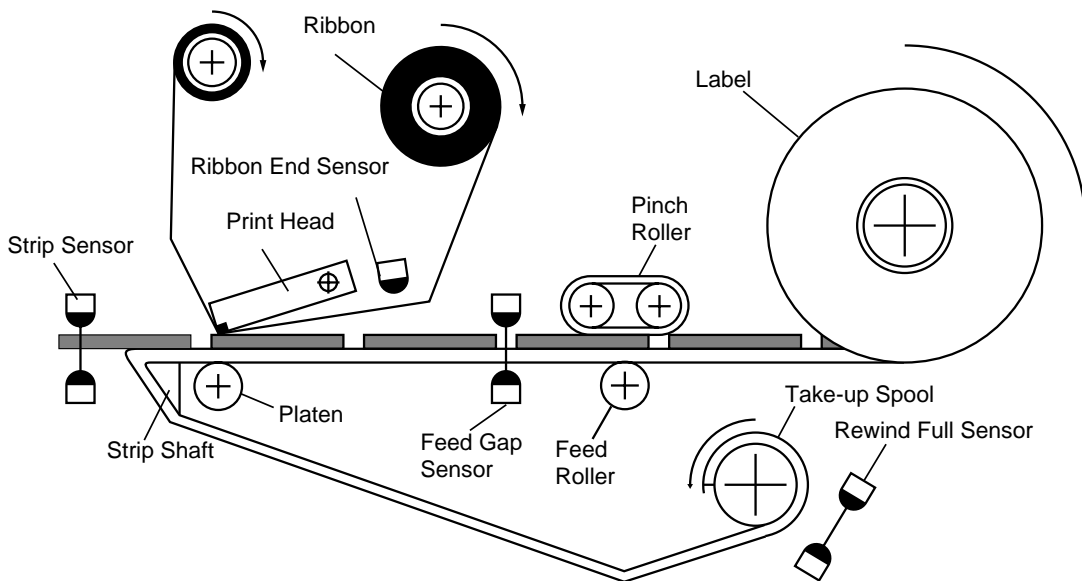
- (1) Regular font: 0.5 ~ 9.5 times (magnified by 0.5 times in each direction)
 (2) Outline font: 2.0 ~ 85.0 mm (magnified 0.1 mm in each direction)

NOTE: When the outline font size is large, the ribbon may wrinkle according to the quality of the ribbon or print tone.

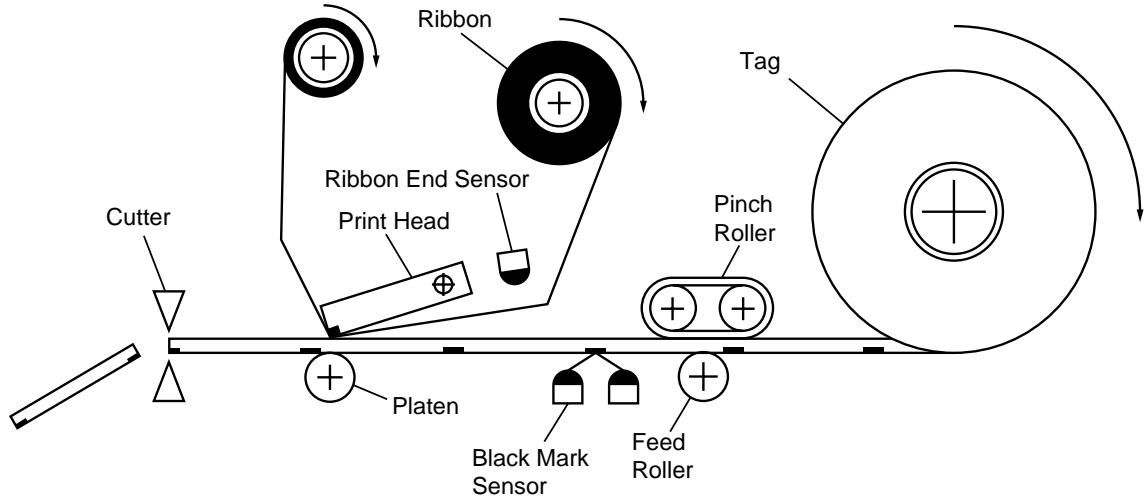
- 12) White or black background all types of characters are available.
- 13) Character rotation 0°, 90°, 180°, 270°
- 14) Character strings rotation 0°, 90°, 180°, 270°
- 15) Type of line
 (1) Horizontal line (2) Vertical line (3) Slant line (4) Square (5) Rounded Rectangle (6) Circle
- 16) Line Width 0.1 to 0.9 mm can be specified (in unit of 0.1 mm)
- 17) Mechanism
 (1) Batch mechanism
 This is the standard mechanism which lets the printer print continuously without winding the label or tag paper.



- (2) Strip mechanism (B-SX4T series: Option)
 When the strip module is attached, labels are stripped from the backing paper by the strip shaft. The next label will not be printed until the preceding label is taken away. The backing paper is wound onto the take-up spool. By installing the rewinder guide plate the tag paper and label can be wound onto the take-up spool.



- (3) Auto cut mechanism (Option)
When the cutter module is installed, the backing paper of the label stock or tag paper is cut individually (stop and cut).



- 18) Power supply
 QQ model: AC100 ~ 120 V ±10%, 50/60Hz
 QP model: AC220 ~ 240 V ±10%, 50Hz

- 19) Current consumption

[B-SX4T]

	QQ model	QP model
Printing	133 W, 1.6A	134W, 1.0A
Stand-by	14W, 0.18A	14W, 0.13A

[B-SX5T]

	QQ model	QP model
Printing	130 W, 1.7A	124W, 0.7A
Stand-by	15W, 0.19A	16W, 0.16A

NOTE: Be sure to provide an exclusive AC outlet for this machine.

- 20) Rush current
 QQ model: 11A
 QP model: 14A

1.5 ELECTRONICS SPECIFICATIONS

- 1) CPU HD6417709SF100B
- 2) Memory
 - (1) Program 4MB Flash ROM
 - (2) Backup 512 Byte EE-PROM
 - (3) Image buffer + Work
 - B-SX4T 8MB SD-RAM
 - B-SX5T 16MB SD-RAM
- 3) Interface
 - (1) RS-232C interface
 - ① Communication mode: Full-duplex
 - ② Transmission speed: 2400,4800,9600,19200, 38400, 115200 bps (selectable)
 - ③ Synchronization: start-stop synchronization
 - ④ Transmission parameter
 - Parity: None, EVEN, ODD
 - Start bit: 1-bit
 - Stop bit: 1-bit or 2-bit
 - Word length: 7-bit or 8-bit

- ⑤ Error detection
 - Parity check: VRC (Vertical Redundancy Checking)
 - Framing error: This error occurs when no stop bit is found in the frame specified starting with the start bit.
- ⑥ Data entry code: ASCII, 8-bit code for European characters, 8-bit code for graphic
- ⑦ Receiving buffer: B-SX4T: 1MB, B-SX5T: 6MB
- ⑧ Protocol
 - XON/XOFF (DC1/DC3) protocol
 - When initialized after power on, this printer becomes ready to receive data and sends an XON code (11H). (Transmission or non-transmission of XON code is selectable by means of the parameter setting.)
 - The printer sends an XOFF code (13H) when the free area in the receive buffer becomes 10K Bytes or less.
 - The printer sends an XON code (11H) when the free area in the receive buffer are 512KB or more.
 - When there is no free area in the receive buffer, the printer discards received data which exceeds the receive buffer capacity without storing it in the buffer. (After detecting the XOFF code, the host computer must stop transmission before the printer receive buffer becomes full.)
 - The printer sends an XOFF code (13H) at power off time. (Transmission or non-transmission of XOFF code is selectable with the parameter setting.)
 - The DTR signal is always "High" level (Ready).
 - The RTS signal is always "High" level (Ready).
 - READY/BUSY (DTR) protocol
 - When initialized after power on, this printer becomes ready to receive data and converts the DTR signal to "High" level (READY).
 - The printer converts the DTR signal to "Low" level (BUSY) when the free area in the receive buffer amount to 10K bytes or less.
 - The printer converts the DTR signal to "High" level (READY) when the free area in the receive buffer amount to 512KB or more.
 - When there is no free area in the receive buffer, the printer discards received data which exceeds the receive buffer capacity without storing it in the buffer. (After detecting a BUSY signal, the host computer must stop transmission before the printer receive buffer becomes full.)
 - The RTS signal is always "High" level.
 - XON/XOFF (DC1/DC3) protocol + READY/BUSY (DTR) protocol
 - When initialized after power on, this printer becomes ready to receive data and converts the DTR signal to "High" level (READY). The printer sends an XON code (11H).
 - When the free area in the receive buffer are 10K bytes or less, the printer converts the DTR signal to "Low" level (BUSY) and sends an XOFF code (13H).
 - When the free area in the receive buffer are 512KB or more, the printer converts the DTR signal to "High" level (READY) and sends an XON code (11H).
 - When there is no free area in the receive buffer, the printer discards received data which exceeds the receive buffer capacity without storing it in the buffer. (After detecting the XOFF code or BUSY signal, the host computer must stop transmission before the printer receive buffer becomes full.)
 - The printer sends an XOFF code (13H) at power off time.
 - The RTS signal is always "High" level.

■ READY/BUSY (RTS) Protocol

- When initialized after power on, this printer becomes ready to receive data and converts the RTS signal to "High" level (READY).
- The printer converts the RTS signal to "Low" level (BUSY) when the free area in the receive buffer amount to 10K bytes or less.
- The printer converts the RTS signal to "High" level (READY) when the free area in the receive buffer amount to 512KB or more.
- When there is no free area in the receive buffer, the printer discards received data which exceed the receive buffer capacity without storing it in the buffer. (After detecting a BUSY signal, the host computer must stop transmission before the printer receive buffer becomes full.)
- The DTR signal is always "High" level (READY).
- The host should keep the DSR signal "High" level.

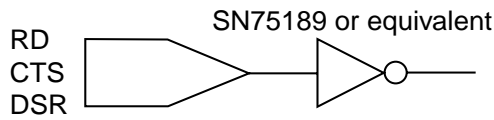
NOTE: Be sure to select the READY/BUSY (RTS) protocol when controlling the flow between the Windows. Also, be sure to select "Hardware" for the flow control in the Windows communication port setting.

⑨ Pin description

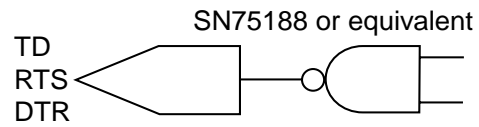
Pin No.	Signal	I/O	Description
1	FG (Frame Ground)	---	Ground line for circuit protection.
2	RD (Received Data)	Input	Data line from which the printer receives data from the host (receive data line). Logic "1" is "Low", and "0" is "High". It is LOW (MARK) while no data is being sent.
3	TD (Transmit Data)	Output	Data line from which the printer sends data to the host (send data line). Logic "1" is "low", and "0" is "High". It is LOW (MARK) while no data is being sent.
4	CTS (Clear to Send)	Input	Input signal from the host. This printer ignores this signal.
5	RTS (Request to Send)	Output	Output signal to the host. When READ/BUSY (RTS) protocol is selected, this signal means READY to receive data. When the receive buffer is nearly full, the signal turns to "Low", and "High" when nearly empty. In case of other protocol is selected, this signal is always "High" level after the power is turned on.
6	DTR (Data Terminal Ready)	Output	Output signal from the printer. When READY/BUSY (DTR) or XON/XOFF (DC1/DC3)+READY/BUSY (DTR) is selected, this signal means READY to receive data. When the receive buffer is nearly full, the signal turns to "Low", and "High" when nearly empty. In case of XON/XOFF (DC1/DC3) or READY/BUSY (RTS), this signal is always "High" level after the power is turned on.
7	SG (Signal Ground)	---	Ground line for all data and control signals.
20	DSR (Data Set Ready)	Input	Input signal from the host. It must be "High" for the printer to receive data.

⑩ Interface circuit

■ Input circuit



■ Output circuit



■ Signal level

Input voltage: "H" .. +3V ~ +15V
"L" ... -3V ~ -15V

Output voltage: "H" .. +6V ~ +13V
"L" ... -6V ~ -13V

(2) Centronics interface

① Data input method: 8-bit parallel (DATA 1~8)

② Control signals

Compatibility mode: nStrobe, nAck, Busy, PError, Select, nAutoFd, nInit, nFault, nSelectIn

ECP mode: HostClk, PeriphClk, PeriphAck, nAckReverse, XFlag, HostAck, nReverseRequest, nPeriphRequest, IEEE1284Active

③ Data input code: ASCII, JIS 8-bit code for European characters, 8-bit code for graphic

④ Receiving buffer: 1MB

⑤ Input/Output circuit configuration and Input/Output conditions

Type	Signal Name	Configuration
Input/ Output	Data 1 ~ 8	<p>+5V 1K SN74LS14 or equivalent</p>
Input	nStrobe/HostClk nInit/nReverseRequest nAutoFd/HostAck nSelectIn/IEEE1284Active	<p>+5V 1K 100P SN74LS14 or equivalent</p>
Output	Busy/PeriphAck nFault/nPeriphRequest nAck/PeriphClk Select/XFlag PError/nAckReverse	<p>+5V 1K 100P SN7406 or equivalent</p>

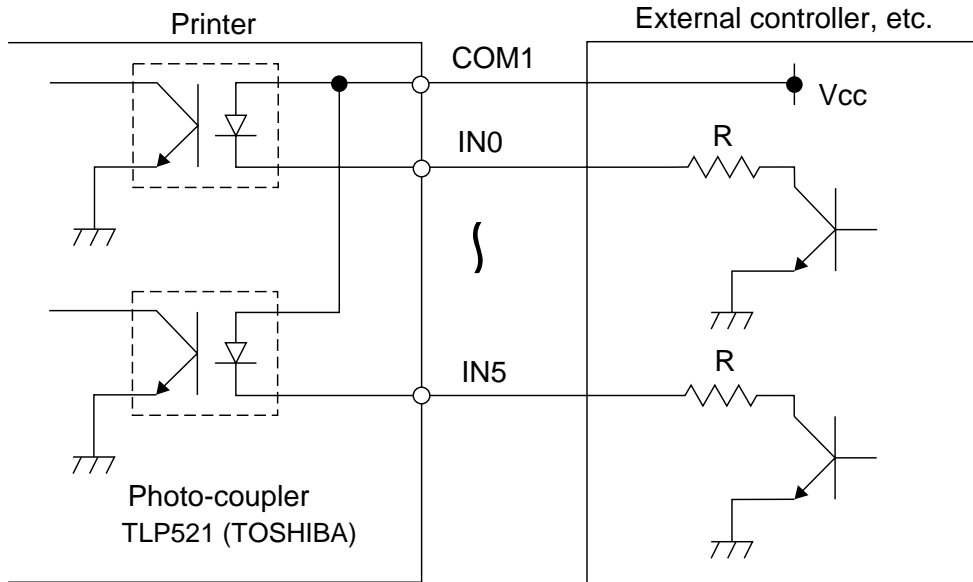
Logical level (input)
"1" = 2~5V
"0" = 0~0.4V

Logical level (input)
"1" = 2.4~5V
"0" = 0~0.4V

(3) Expansion I/O interface (B-SX4T: Option)

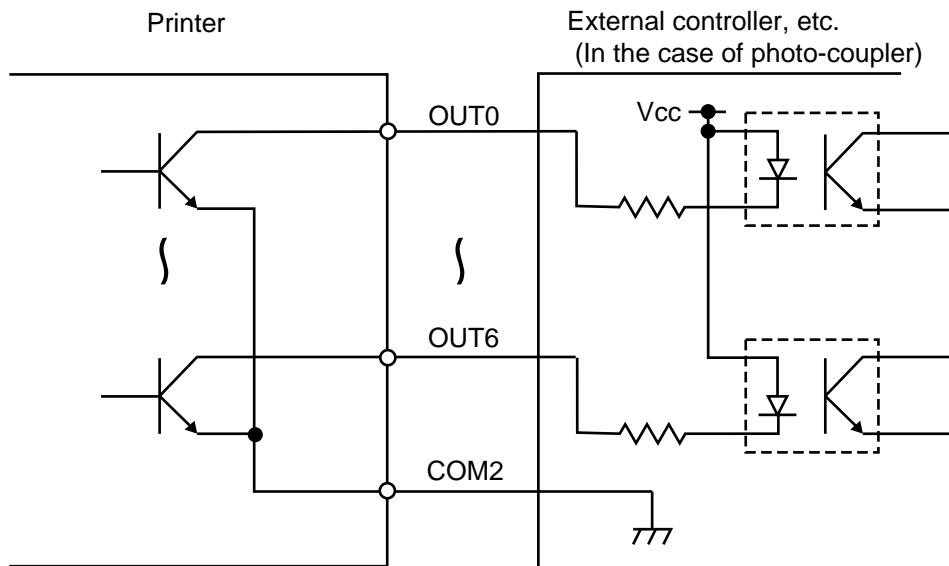
Interface circuit

■ Input circuit



There are six input circuits, and each input is a current loop using a photo-coupler. The anode of the photo-coupler is connected to common pin COM1 in each of the six circuits. Each cathode is independent. The voltage of Vcc is 24 V (max.) while the diode operating current is 16 mA.

■ Output circuit



There are seven output circuits, and each output is an open collector. The voltage of Vcc is 24V (max.) while the operating current is 150 mA. For other details, please refer to the Expansion I/O specifications stored in the enclosed CD-ROM or posted on the web site with the URL, <http://barcode.toshibatec.co.jp>.

(4) USB

- | | |
|------------------|---------------------------------|
| ① Standard: | Conforming to Rev. 1.1 |
| ② Transfer type: | Control transfer, Bulk transfer |
| ③ Transfer rate: | Full speed (12M bps) |

(5) Network interface (LAN, PCMCIA)

- | | |
|---------------------------|--|
| ① Constitution: | <ul style="list-style-type: none"> • PCMCIA board + LAN card • 10 Base-T or 100 Base-TX LAN board |
| ② Protocol: | TCP/IP |
| ③ Network specifications: | <ul style="list-style-type: none"> • LPR server function • WEB printer function • Socket communication function • FTP server function • E-mail function |

4) Sensor/switch

(1) Head up sensor (Transmissive sensor)

This sensor, located on the left front of the printer inside as viewed from the media outlet, detects whether the print head is in position or not. When the head lever is turned to the Free position, the arm on the edge of the head lever shaft turns the sensor on.

(2) Head block position switch (Transmissive sensor)

This sensor, located on the left side of the print head block, detects whether the print head block is in position or not. According to the position of the print head block, the arm on it turns the sensor on/off.

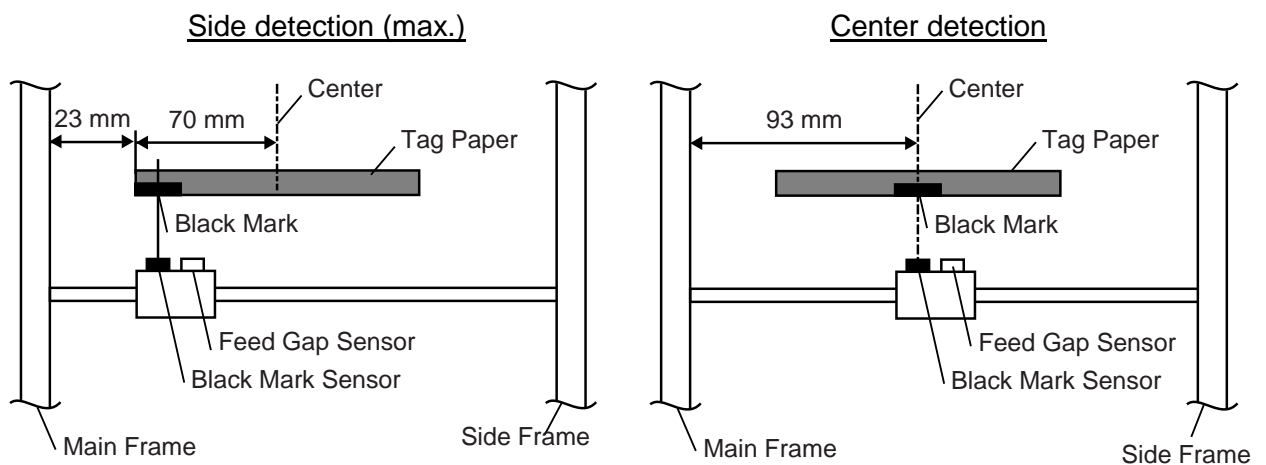
(3) Media sensor

This sensor is comprised of the black mark sensor and feed gap sensor. It is positioned 92.1 mm from the platen.

The sensor position is adjustable according to the black mark position. It can be manually moved from the center to the left edge of media.

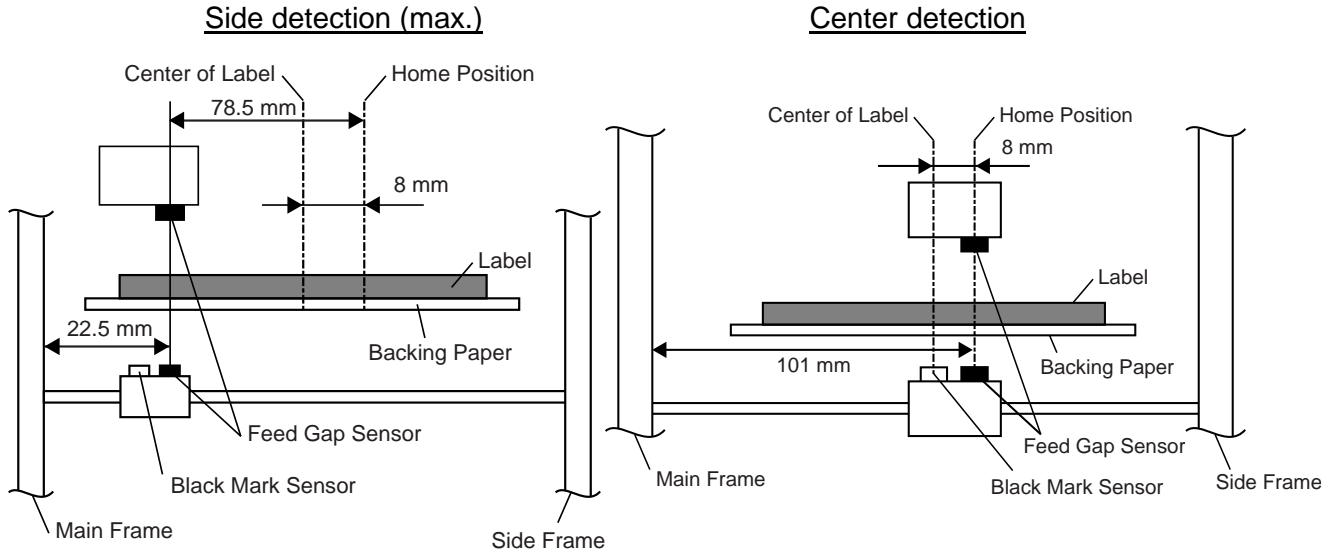
■ Black mark sensor (Reflective sensor)

This sensor detects the difference of potential between the black mark and tag paper to find the print position of the tag paper.



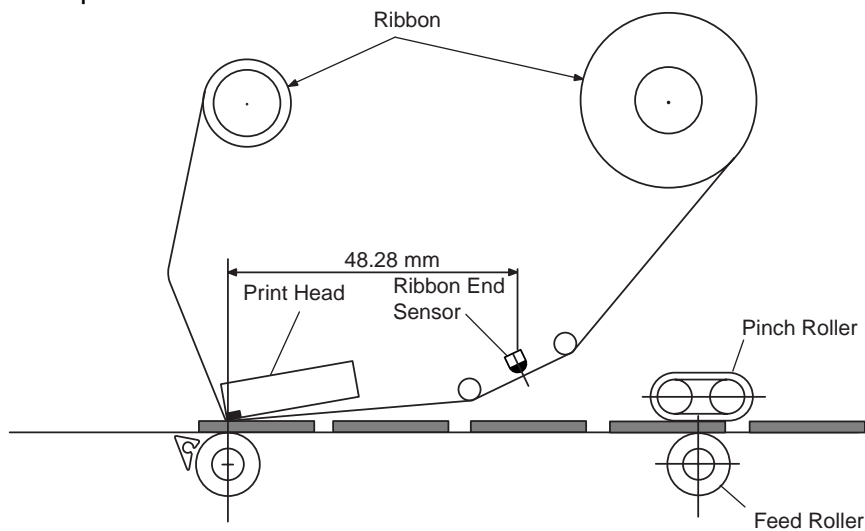
■ Feed gap sensor (Transmissive sensor)

This sensor detects the difference in potential between the backing paper and the label to find the print position of the label. The feed gap sensor is located at 8 mm to the right of the black mark sensor.



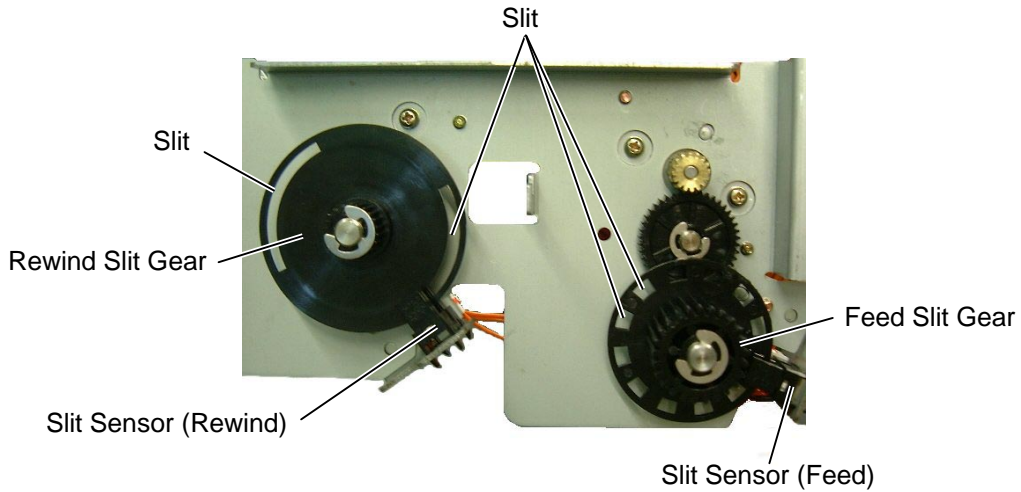
(4) Ribbon end sensor (Reflective sensor)

When printing in thermal transfer mode (using the ribbon), this sensor detects the difference in potential between the ribbon and the ribbon end to indicate the ribbon end. It is positioned at 48.28 mm from the platen.



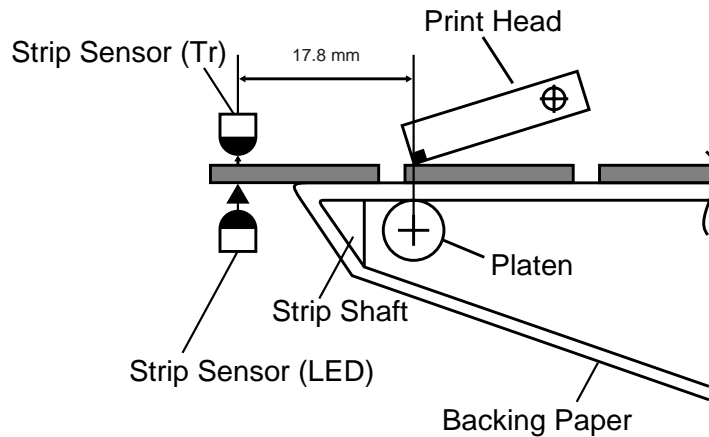
(5) Slit sensor (Transmissive sensor)

This sensor detects the rotation count of the ribbon shaft and the ribbon motors. The ribbon motors torque works to take up slack in the ribbon and is dependent on the detected count. The slit sensor is a photo coupler combining an LED and a transistor.



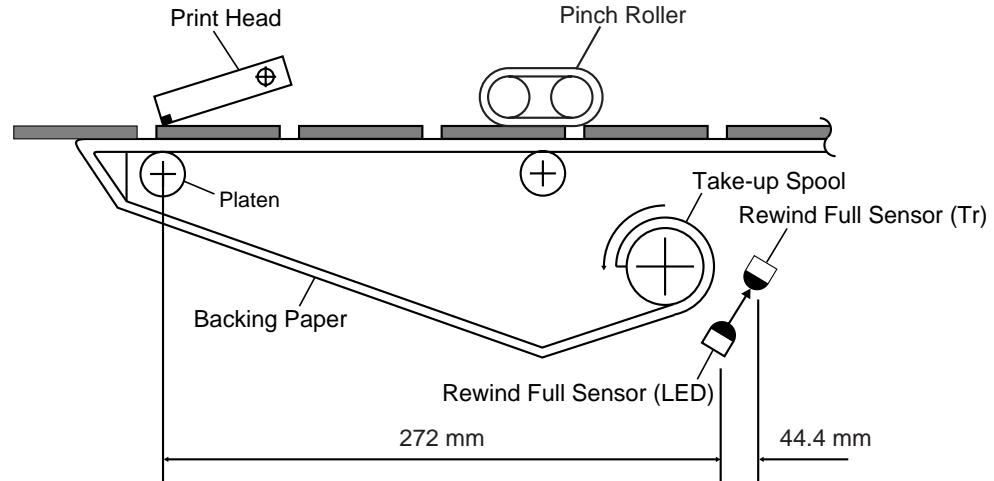
(6) Strip sensor (Transmissive sensor)

This sensor detects whether or not the label has been taken away from the media outlet and controls the label feed. It is positioned 17.8 mm from the platen.



(7) Rewind full sensor (Transmissive sensor)

This sensor detects that the built-in rewinder is full when winding backing paper or printed media onto the take-up spool. It is positioned at 316.4 mm (Tr side) and 272 mm (LED side) from the platen. A rewinder full status is detected when the backing paper blocks the light from the LED.



(8) Cutter home position switch (micro switch) for Swing Cutter

A cam positioned at the end of the cutter motor arm turns the micro switch on/off in accordance with the cutter motion cycle (one rotation). The micro switch status indicates if the cutter is in the home position.

2. SUPPLY SPECIFICATIONS

Information regarding the supply specifications contained in Product Description is essential to service engineers. Detail specifications and other information on the media and ribbon are described in Supply Manual by model. It is issued by and sent from TOSHIBA TEC H.Q (Sales Division) upon release of new model or manual's revision. When purchasing the supplies locally, be sure to refer to the Supply Manual for details. Use of non-specified media may shorten the print head life and result in problems with bar code readability or print quality. Be sure to read carefully and understand the Supply Manual since it also includes the details about notes, precision of the print start position, limitations on printing, etc. When selling the products to VARs, instruct them to buy media and ribbons that the substances described in the following precautions are not included

2.1 MEDIA

[B-SX4T]

(Unit: mm)

Item	Label dispensing mode	Batch mode	Strip mode	Cut mode	
				Rotary cutter (*2)	Swing cutter
Media pitch	Label	10.0 – 1500.0	25.4 – 1500.0	3"/sec., 6"/sec.: 38.0 - 1500.0	38.0 – 1500.0
	Tag	10.0 – 1500.0	----	3"/sec., 6"/sec.: 30.0 – 1500.0	25.4 – 1500.0
Label length		8.0 – 1498.0	23.4 – 1498.0	3"/sec., 6"/sec.: 32.0 – 1494.0	25.0 – 1494.0(*1)
Width including backing paper (See NOTE 5.)		30.0 – 112.0	50.0 – 112.0	30.0 – 112.0	
Label width (See NOTE 5.)		27.0 – 109.0	47.0 – 109.0	27.0 – 109.0	
Gap length		2.0 – 20.0		6.0 – 20.0	
Black mark length (Tag paper)		2.0 – 10.0			
Effective print width		10.0 – 104.0			
Effective print length	Label	6.0 – 1496.0	21.4 – 1496.0	3"/sec., 6"/sec.: 30.0 - 1492.0	23.0 – 1492.0
	Tag	8.0 – 1498.0	----	3"/sec., 6"/sec.: 28.0 – 1496.0	23.0 – 1496.0
Print speed up/slow down area		1.0			
Thickness	Label	0.13 – 0.17			
	Tag	0.15 – 0.29			
Max. effective length for on the fly issue		1361.0			
Maximum outer roll diameter		Ø200 (See NOTE 9.)			
Roll direction		Inside			
Inner core diameter		Ø76.2±0.3			

[B-SX5T]

(Unit: mm)

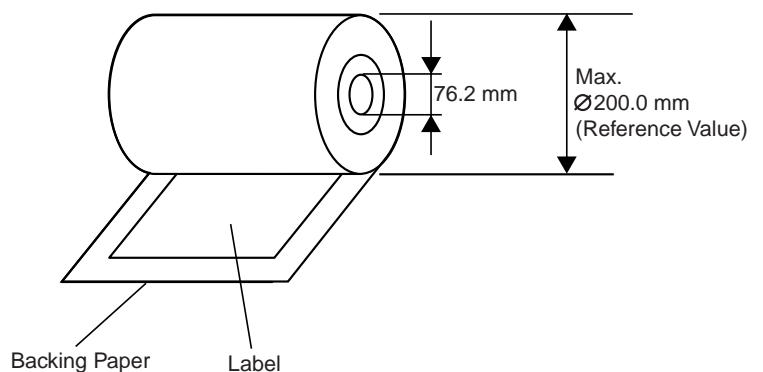
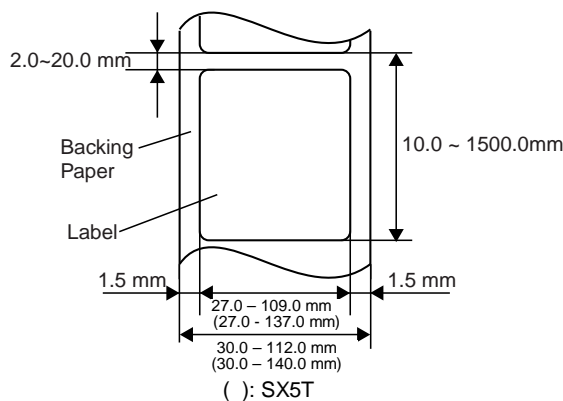
Item	Label dispensing mode	Batch mode	Strip mode	Cut mode	
				Rotary cutter	Swing cutter
Media pitch	Label	10.0 – 1500.0	25.4 – 1500.0	38.0 - 1500.0	38.0 – 1500.0
	Tag	10.0 – 1500.0	----	3"/sec., 5"/sec.: 30.0 – 1500.0 8"/sec.: 38.0 – 1500.0	25.4 – 1500.0
Label length		8.0 – 1498.0	23.4 – 1498.0	25.0 – 1494.0	25.0 – 1494.0(*1)
Width including backing paper (See NOTE 5.)		30.0 – 140.0	50.0 – 140.0	30.0 – 112.0	30.0 – 140.0
Label width (See NOTE 5.)		27.0 – 137.0	47.0 – 137.0	27.0 – 109.0	27.0 – 137.0
Gap length		2.0 – 20.0		6.0 – 20.0	
Black mark length (Tag paper)		2.0 – 10.0			
Effective print width		10.0 – 128.0			
Effective print length	Label	6.0 – 1496.0	21.4 – 1496.0	23.0 - 1492.0	23.0 – 1492.0
	Tag	8.0 – 1498.0	----	3"/sec., 5"/sec.: 28.0 – 1496.0 8"/sec.: 36.0 – 1496.0	23.0 – 1496.0
Print speed up/slow down area		1.0			
Thickness	Label	0.13 – 0.17			
	Tag	0.15 – 0.29			
Max. effective length for on the fly issue		749.0			
Maximum outer roll diameter		Ø200 (See NOTE 9.)			
Roll direction		Inside			
Inner core diameter		Ø76.2±0.3			

NOTES:

1. To ensure print quality and print head life use only TOSHIBA TEC specified media.
2. The media length specifications for use of the cutter are:
 - *1: When issuing a label using the swing cutter, label length should be 35.0 mm – (Gap length/2).
 - *2: The rotary cutter does not support the print speed of 10"/sec.
3. When marking black marks on the label rolls, they should be marked at the gaps.
4. "On the fly issue" means that the printer can feed and print without stopping between labels.
5. There are restrictions in use of the media which is narrower than 50 mm. For details, refer to TOSHIBA TEC Head Quarters.
6. When perforating the media, it should be done from the print side to the reverse side.
7. The reflectance of the black mark should be 10% or less when the wavelength is 950nm.
8. The label length should be at least three times as long as the gap.
9. When taking up the printed media onto the take-up spool in batch mode, the outer roll diameter must not exceed 180mm.
10. When cutting the thermal label, secure a gap of 6 mm or more, and cut in the middle of the gap.
11. For the backing paper Glassine paper 7K white or equivalent should be used. Also, the light transmission rate of the backing paper should be 22% or above.
12. Ink used for pre-printing the media should not contain hard substances such as carbonic calcium (CaCO₃) and Kaolin (Al₂O₃, 2SiO₂, 2H₂O).
13. Thermal paper used for the direct thermal printing must not have the specifications which exceed Ca²⁺, K⁺, Na⁺ 800 ppm, K⁺ 250 ppm, and Cl⁻ 500 ppm.
14. Avoid using media containing SiO₂ or talc which wears the print head protection layer.

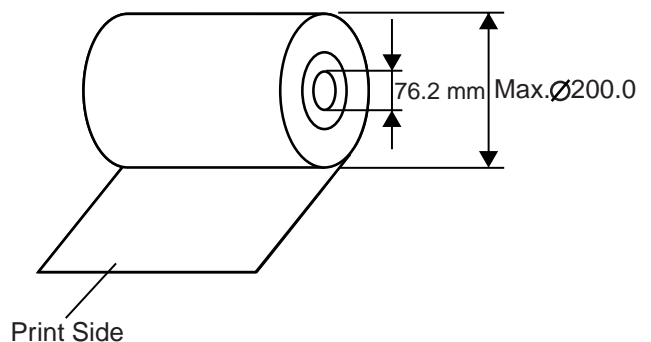
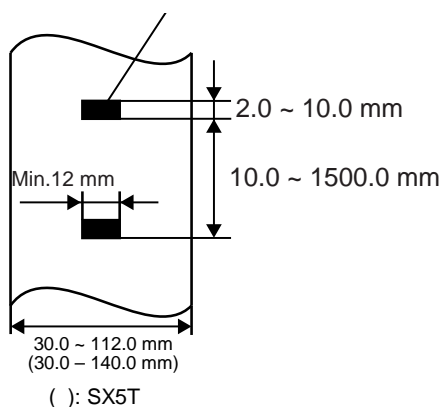
1) Label

< Design >



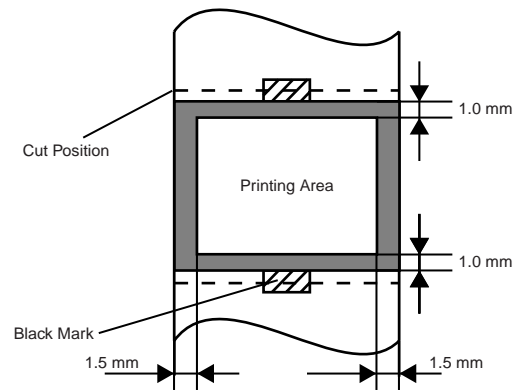
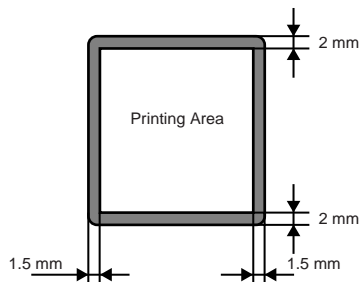
2) Tag paper

Black mark or Square holes
(Round holes are not acceptable.)



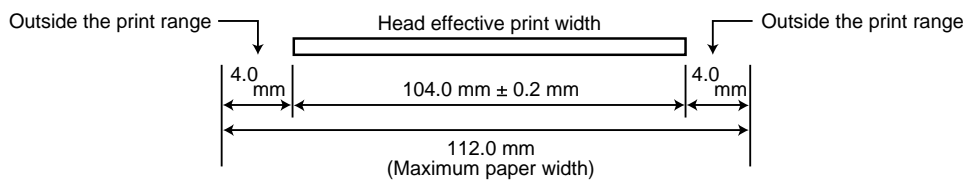
NOTE: The reflection rate of the black mark is 10% or less at wavelength of 950nm. A square hole can substitute for the black mark. When the square hole is used, no printing is allowed on the black side.

< Non Print Area >

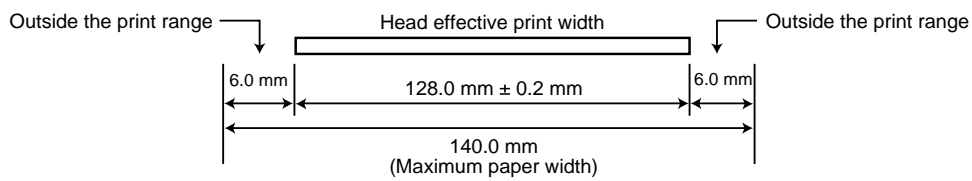


3) Relationship between the head effective print width and paper.

[B-SX4T]



[B-SX5T]



NOTE: The specifications differ depending on the issue mode. For details, refer to the media specification table on page 2-1.

2.2 RIBBON

No.	Item		Specification
1	Shape		Spool type
2	Width	B-SX4T	41 to 112 mm
		B-SX5T	41 to 134 mm
3	Max. length		600 m
4	Max. OD		∅ 90 mm
5	Back treatment		Coated
6	Core	Material	Cardboard
		Shape	See the following figures.
7	Leader tape		Polyester film (Opaque), 300 ± 5 mm long
8	End tape		Polyester film (Opaque), 250 ± 5 mm long
9	Winding method		The ink side faces outside of ribbon winding

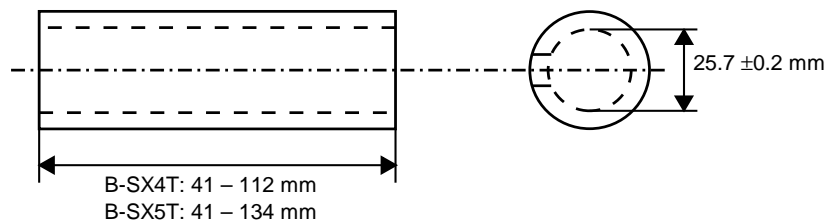
- NOTES:**
1. To ensure print quality and print head life use only TOSHIBA TEC specified ribbons.
 2. To avoid ribbon wrinkles use a ribbon which is wider than the media by 5 mm or more. However, too much difference in width between the two may cause wrinkles.
 3. When using a 112 mm wide media, be sure to use a 108 mm wide ribbon. Use of other ribbons may cause ribbon wrinkles.
 4. When using a 134 mm wide media, be sure to use a 130 mm wide ribbon. Use of other ribbons may cause ribbon wrinkles.

[B-SX4T]

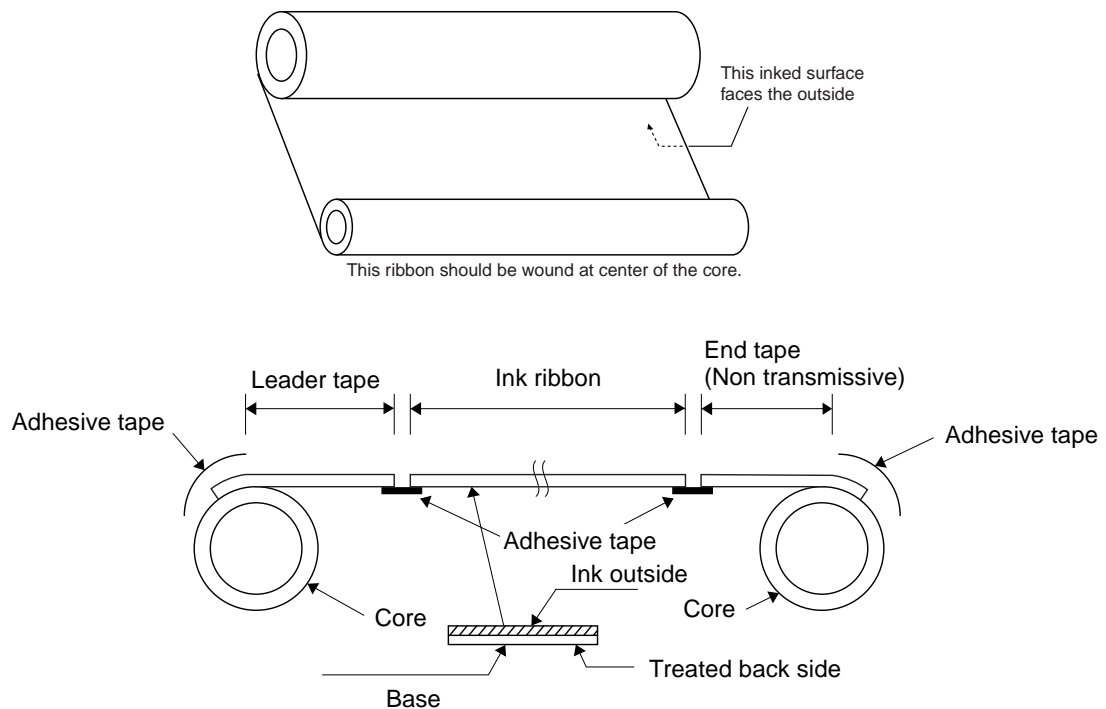
Ribbon width	41 mm	50 mm	68 mm	84 mm	112 mm ^(NOTE 3)
Proper media width	30 to 36 mm	36 to 45 mm	45 to 63mm	63 to 79 mm	71 to 112mm

[B-SX5T]

Ribbon width	41 mm	50 mm	68 mm	102 mm	134 mm ^(NOTE 4)
Proper media width	30 to 36 mm	36 to 45 mm	45 to 63mm	63 to 97 mm	97 to 140 mm



NOTE: When purchasing ribbon locally, they must meet the above size. There may be TOSHIBA TEC-approved ribbons which do not fall within the above size, however, they have no functional problem.



2.3 CARE AND HANDLING OF THE MEDIA AND RIBBON

CAUTION!

Be sure to read carefully and understand the Supply Manual. Use only media and ribbon which meet specified requirements. Use of non-specified media and ribbon may shorten the head life and result in problems with bar code readability or print quality. All media and ribbon should be handled with care to avoid any damage to the media, ribbon or printer. Read the following guideline carefully.

- Do not store the media and ribbon for longer than the manufactures recommended shelf life.
- Store media rolls on the flat end, do not store them on the curved sides as this might flatten that side causing erratic media advance and poor print quality.
- Store the media in plastic bags and always reseal after opening. Unprotected media can get dirty and the extra abrasion from the dust and dirt particles will shorten the print head life.
- Store the media and ribbon in a cool, dry place. Avoid areas where they would be exposed to direct sunlight, high temperature, high humidity, dust or gas.

For further information please contact your local distributor or your media and ribbon manufacturer.

3. OPTIONAL KIT

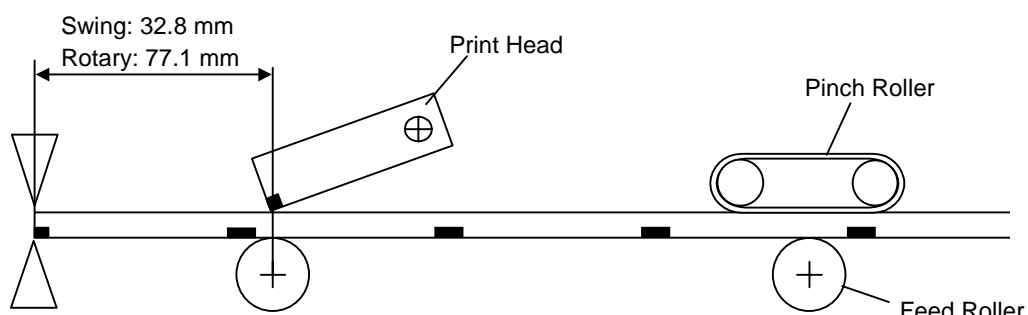
Option Name	Type	Use
Swing cutter module	B-4205-QM	This cutter module uses a swing or rotary cutter. It cuts backing paper of labels and tag paper automatically in "Stop and cut" mode.
Rotary cutter module	B-8204-QM	
Strip module (B-SX4T only)	B-9904-H-QM	This strip module strips the label from the backing paper with the take-up block and strip block. When the rewinder guide plate is attached, the tag paper and label with backing paper are wound.
Ribbon saving module (B-SX4T only)	B-9904-R-QM	The ribbon saving module moves the print head up and down by using a solenoid to save the ribbon loss as far as possible.
PCMCIA interface board	B-9700-PCM-QM	This board enables use of the following PCMCIA cards. LAN card: 3 COM EtherLink® III (recommended) ATA card: Conforming to PC card ATA standard Flash memory card: 1MB and 4MB card
Expansion I/O interface board (B-SX4T only)	B-7704-IO-QM	Installing this board allows connection to external devices.
Built-in LAN interface board	B-9700-LAN-QM	This board enables the printer to be used in a LAN network.
USB interface board	B-9700-USB-QM	Installing this board enables a connection with a PC which has a USB interface.

NOTE: To purchase the optional kits, please contact the TOSHIBA TEC Head Quarters.

3.1 CUTTER MODULE: B-4205-QM (Swing Cutter), B-8204-QM (Rotary Cutter)

This compact cutter module uses a built-in swing/rotary cutter. The specification is provided below:

Cutter Type		B-4205-QM	B-8204-QM
Cut method		Stop and cut	Rotary cut
Media width		30.0 mm – 112.0 mm	
		B-SX4T	30.0 mm – 140.0 mm
		B-SX5T	30.0 mm – 112.0 mm
Media pitch	B-SX4T	Tag	25.4 mm – 1500.0 mm
		Label	38.0 mm – 1500.0 mm
	B-SX5T	Tag	25.4 mm – 1500.0 mm
		Label	38.0 mm – 1500.0 mm
Media thickness		Tag	0.15 – 0.29 mm
		Label	0.13 – 0.17 mm
Cutter life		300000 cuts (0.274-mm thick tag paper) 1000000 cuts (0.160-mm thick tag paper)	
Home position detection		Micro switch	Photo coupler



3.2 STRIP MODULE: B-9904-H-QM (option for the B-SX4T)

This strip module consists of the take-up block and the strip block. Installing the strip module enables the printer to not only remove labels from the backing paper, but wind the tag paper or label with backing paper onto the take-up spool by using the rewinder guide plate. The rewind full sensor is provided to detect the overflow if the wound tag paper or label exceeds the specified amount is provide.

3.3 RIBBON SAVING MODULE: B-9904-R-QM (option for the B-SX4T)

By moving the print head up and down with a solenoid, the ribbon saving module saves loss of the ribbon as far as possible. It is small enough to be put into the print block.

3.4 PCMCIA INTERFACE BOARD: B-9700-PCM-QM

The PCMCIA Interface board allows use of the following ATA card, LAN card, or flash memory card when connected to the CPU PC board.

- Number of slots: Type II slot - 2 slots

Type	Maker	Description	Remarks	
ATA Card	San Disk, Hitachi	A card conforming to the PC card ATA standard	-----	
LAN Card	3 COM	3CCE589ET Series	Install into the slot (2) only. (This card installed into the slot (1) will not work.)	
Flash Memory Card (4 MB)	Maxell	EF-4M-TB [CC]	Read/Write	
	Maxell	EF-4M-TB [DC]		
	Centennial Technologies INC.	FL04M-15-11119-03		
	Flash Memory Card (1 MB)	INTEL	IMC004FLSA	Read (See NOTE.)
		Simple TECHNOLOGY	STI-FL/4A	
		Mitsubishi	MF84M1-G7DAT01	
		PC Card KING MAX	FJN-004M6C	
		Centennial Technologies Inc.	FL04M-20-11138-67	
		PC Card	FJP-004M6R	
Flash Memory Card (1 MB)	Mitsubishi	MF84M1-GMCAV01		
	Maxell	EF-1M-TB [AA]		
	Mitsubishi	MF81M1-GBDAT01		

NOTE: Reading a read-only-type flash memory is possible if it has been used on the TOSHIBA TEC printer, such as B-472 and B-572.

3.5 EXPANSION I/O INTERFACE BOARD: B-7704-IO-QM (option for the B-SX4T)

This interface board is used to connect the printer to external devices, such as a labeler. The input/output signals from the connected external devices can control label feeding or printing and indicate the print status.

3.6 BUILT-IN LAN INTERFACE BOARD: B-9700-LAN-QM

This board enables the printer to connect to the host by means of Local Area Network.

- Supporting 10/100M bps
- Internal 32 bit wide data pass (for the packet buffer memory)
- Conforming to IEEE 802.3/802.3u, 100 Base-Tx/10Base-T physical layer
- Auto negotiation: 10/100M bps, Full/Half Duplex

3.7 USB INTERFACE BOARD: B-9700-USB-QM

Installing this board enables a connection to a PC which has a USB interface.

- Conforming to USB 1.1
- Supporting Full-speed (12M bps) transmission
- Supporting the two types of data transmission types, Control transmission and Bulk transmission.

TEC

TEC Thermal Printer

B-SX4T/SX5T SERIES

Maintenance Manual

Document No. **EO18-33012A**

Original **Jan., 2003**
(Revised **Feb., 2003**)

PRINTED IN JAPAN

TOSHIBA TEC CORPORATION

WARNING!

Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.

- NOTES:**
- 1. Manual instructions must be followed when installing option kits or adding cables to avoid system failures and to insure proper performance and operation.*
 - 2. Failure to follow manual instructions or any unauthorized modification, substitution or change to this product will void the limited product warranty.*

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This manual is intended for both B-SX4T series and B-SX5T series. Please note that the illustrations and pictures provided are of the B-SX4T series.

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.*
- 3. Please refer to your local Authorised Service representative with regard to any queries you may have in this manual.*

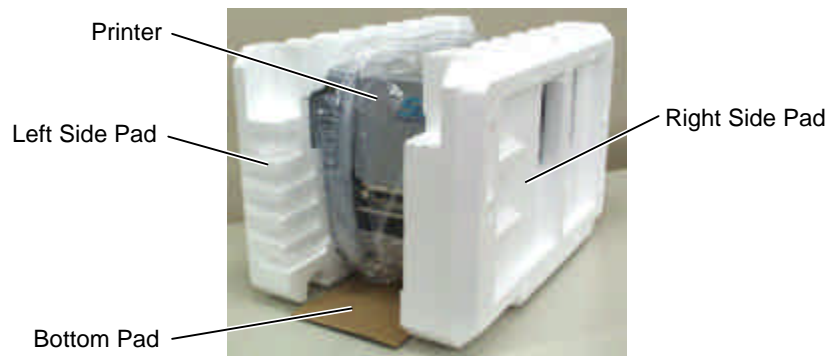
1. UNPACKING

1.1 PROCEDURE

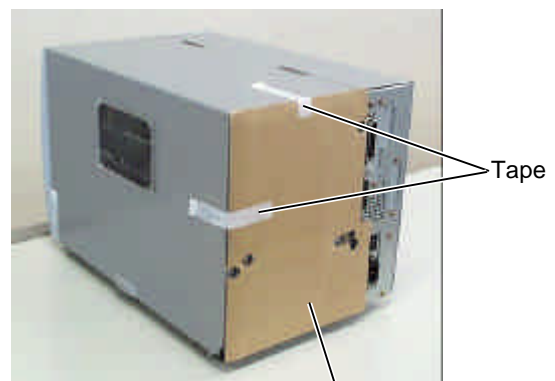
- 1) Open the carton.
- 2) Unpack the accessories and the front pad from the carton.



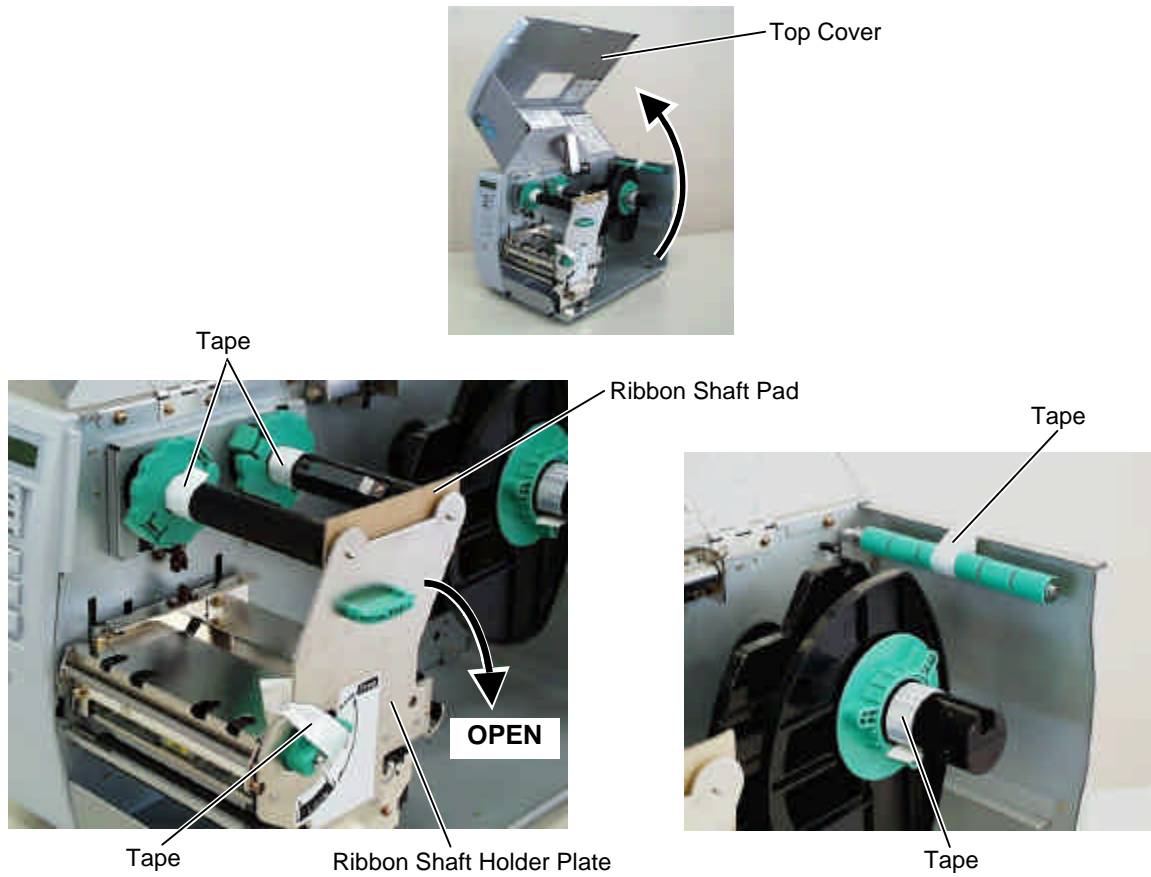
- 3) Unpack the pads and the printer from the carton.



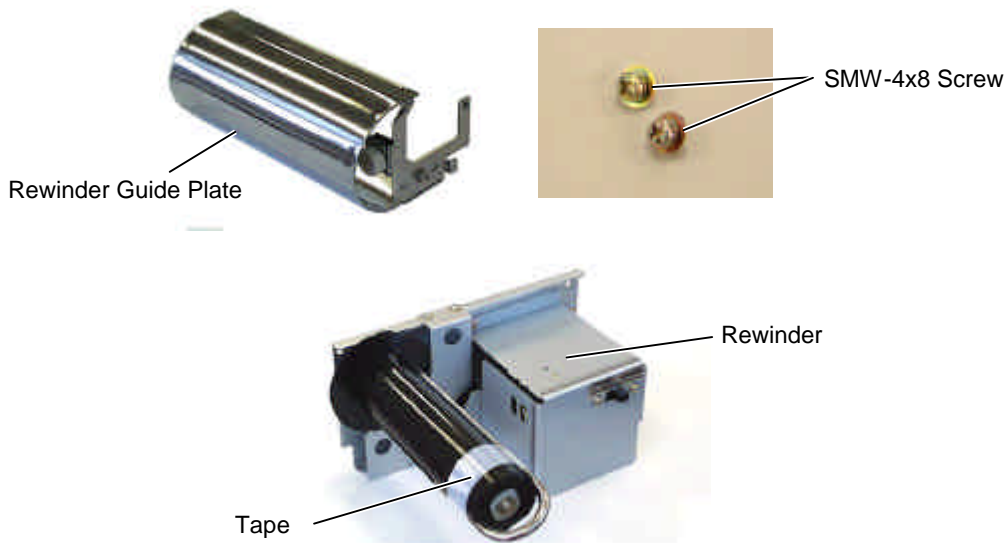
- 4) Remove the four pieces of tape and the rear pad from the printer.



- 5) Open the top cover and remove the five pieces of tape. And then, open the ribbon shaft holder plate to remove the ribbon shaft pad from the printer.



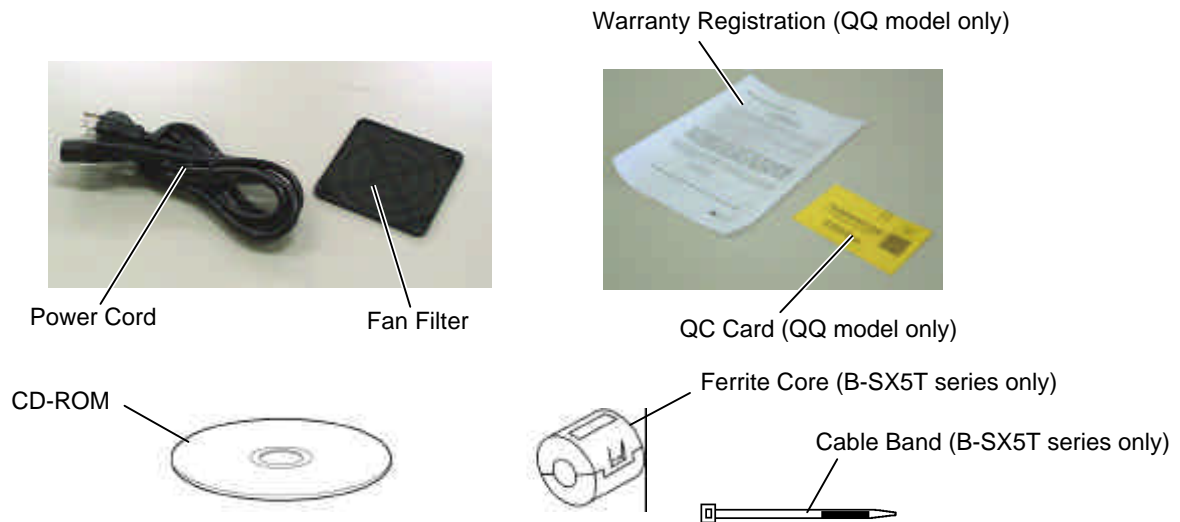
- 6) In case of the B-SX5T series, take out the rewriter guide plate and two SMW-3x8 screws from the printer inside. Also, remove the tape from the rewriter unit in the printer.



NOTE: For the installation procedure of the rewriter guide plate, refer to Section 4.3.

1.2 CHECKS

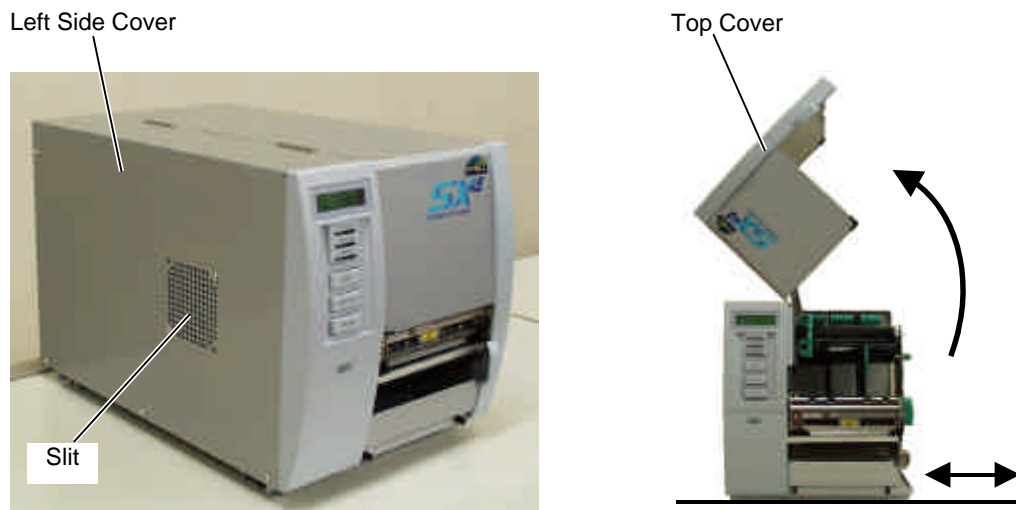
- 1) Check for damage or scratches on the printer.
- 2) Confirm that none of the accessories are missing. The parts below are provided as accessories.



NOTE: 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.



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

WARNING!

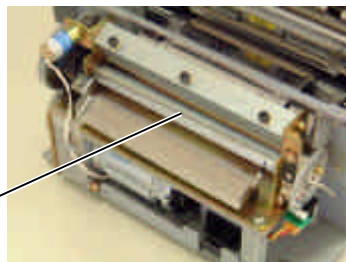
1. Turn the power off and disconnect the power cord before replacing the main parts.



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.

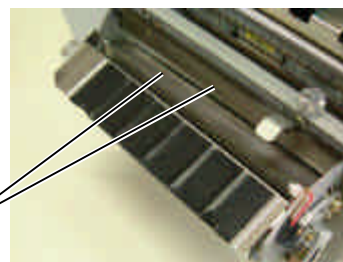
3. When cleaning the cutter, be careful not to be injured by the cutter blade.

B-8204-QM



Cutter Blade

B-4205-QM

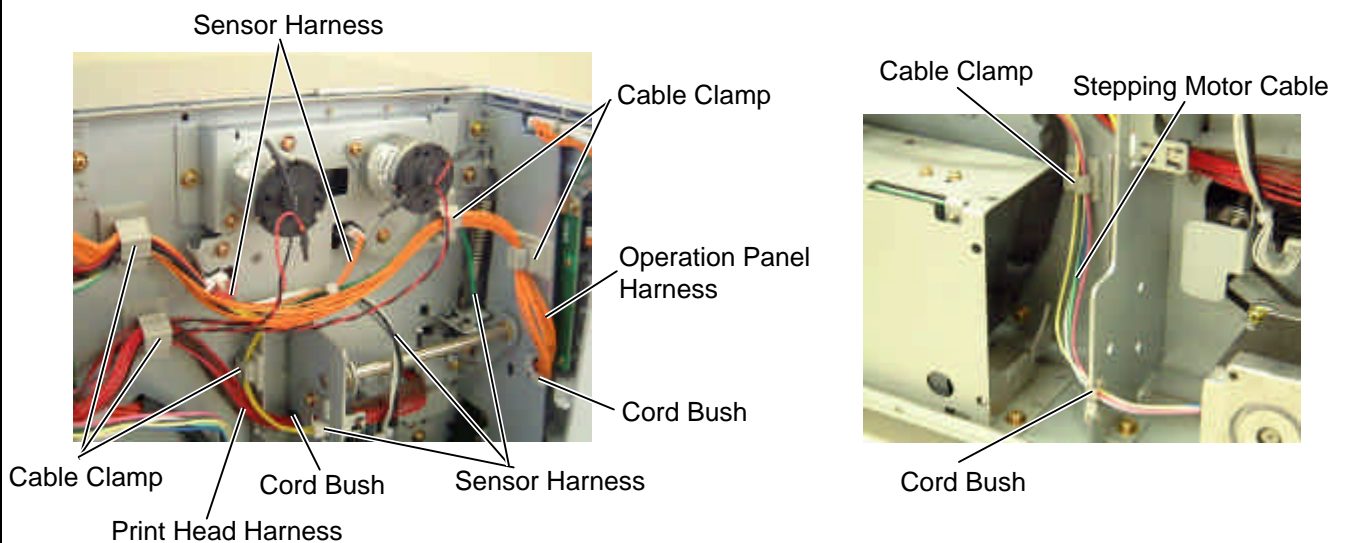


Cutter Blade

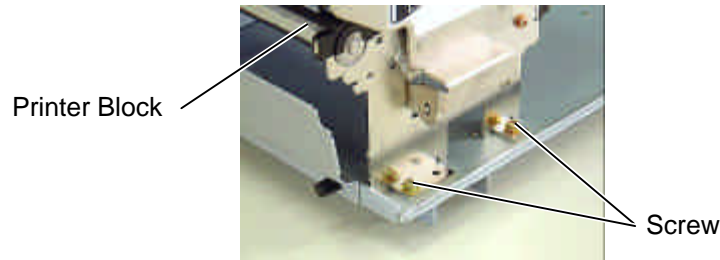
4. Be careful not to pinch your fingers or hands with the covers.

CAUTION!

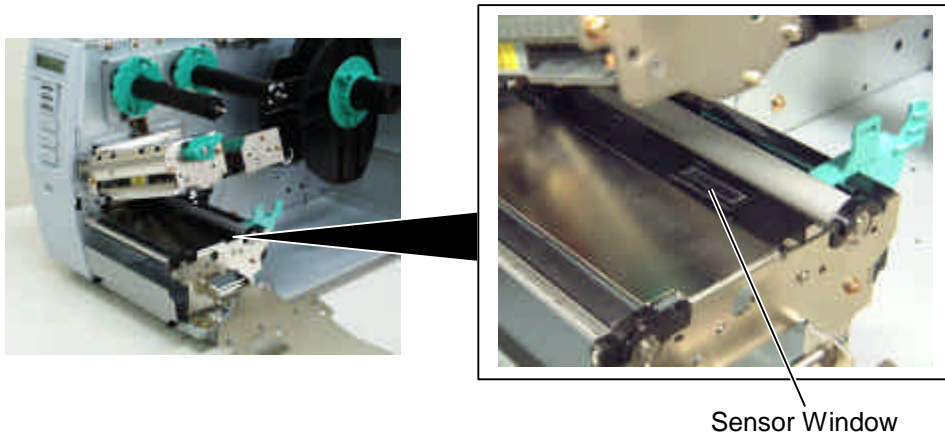
1. Fix the harnesses and the cord bushes with the cable clamp. Failure to do this may cause the covers to catch them.



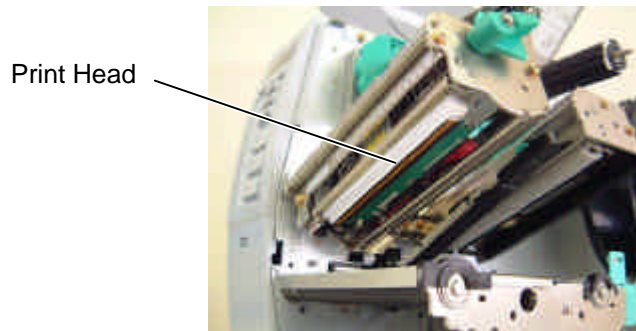
2. Do not remove the screws below. Doing so will require the printer block position adjustment with the jig.



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.

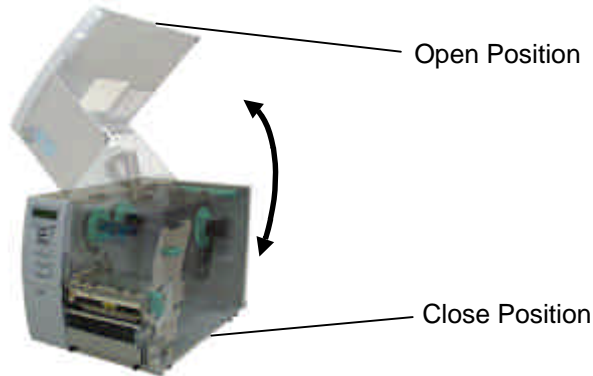


4. Be careful not to damage the print head element. Doing so will cause improper printing.



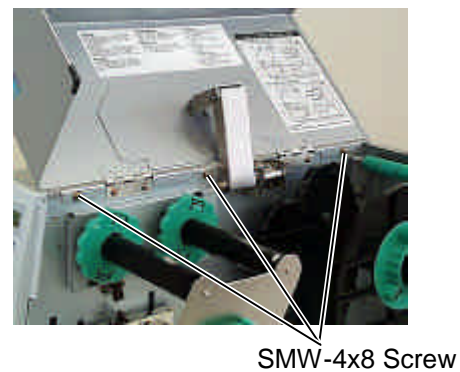
3.1 OPENING/CLOSING THE TOP COVER

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

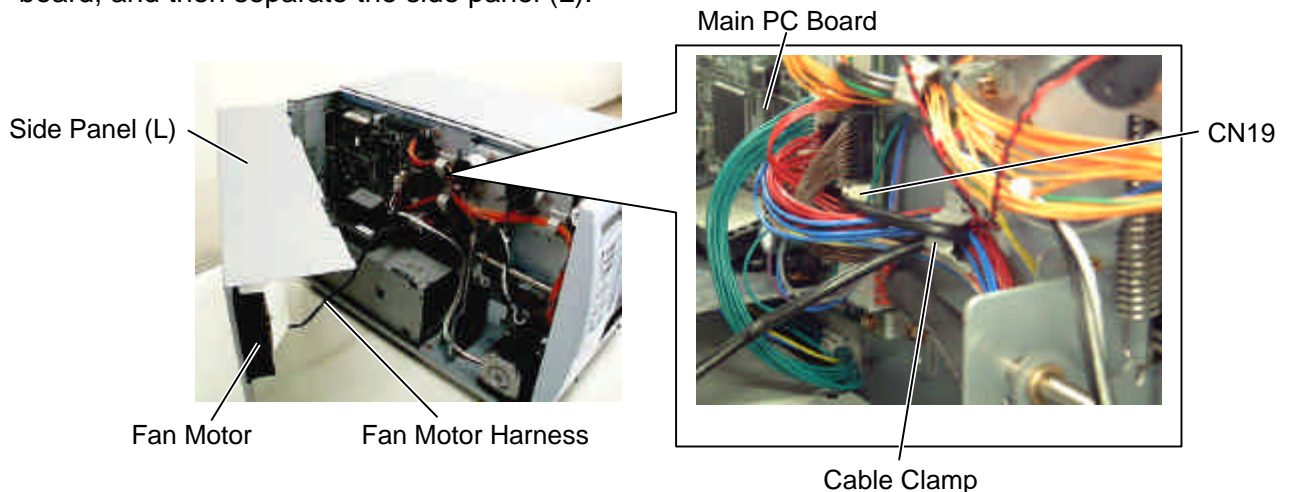


3.2 REMOVING THE SIDE PANEL (L)

- 1) Remove the four B-4x5 screws from the side panel (L).
- 2) Open the top cover and remove the three SMW-4x8 screws that secure the side panel (L).

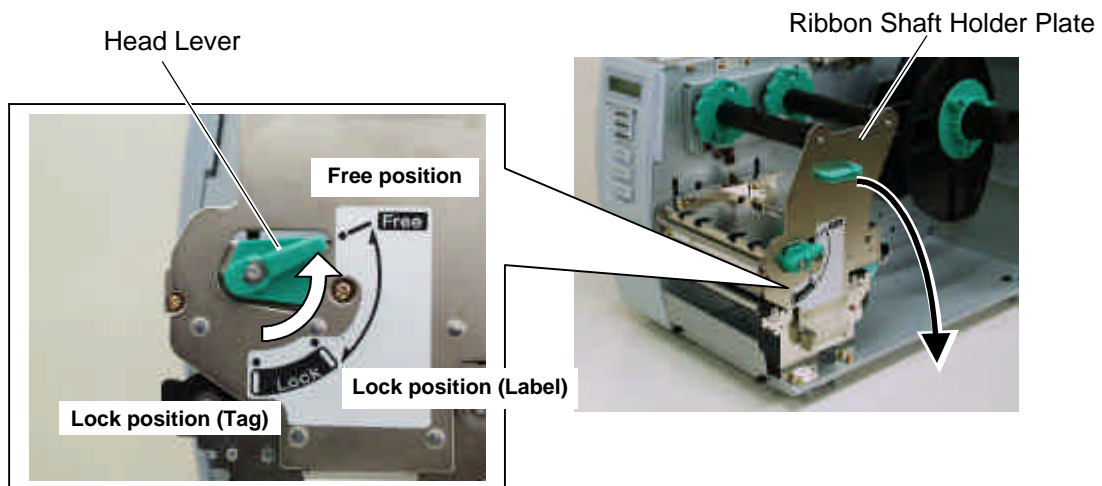


- 3) Close the top cover.
- 4) Lift the side panel (L) and put it aside.
- 5) Release the fan motor harness from the cable clamp, disconnect it from CN19 on the Main PC board, and then separate the side panel (L).

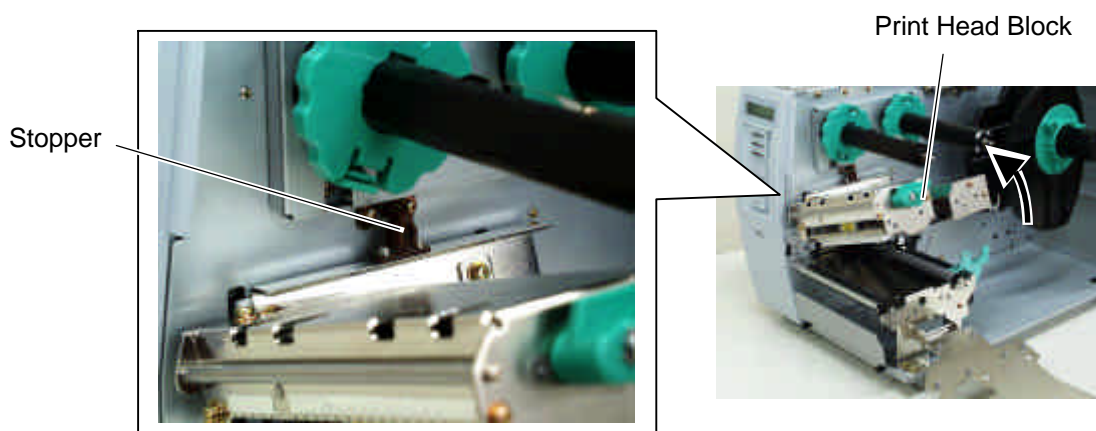


3.3 OPENING/CLOSING THE PRINTER BLOCK

- 1) Open the top cover.
- 2) Turn the head lever counterclockwise to **Free** position.
- 3) Open the ribbon shaft holder plate.



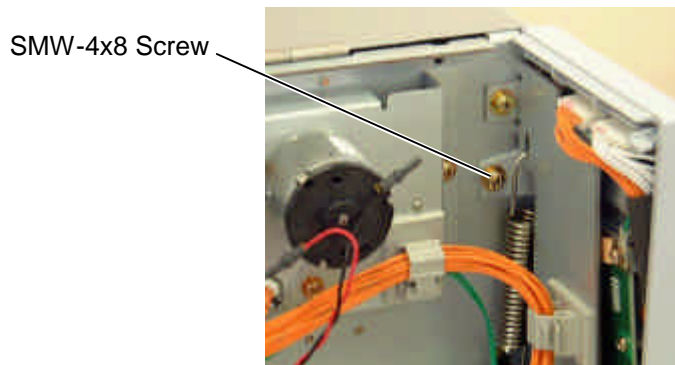
- 4) Raise the print head block until it stops.



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.

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) Remove the SMW-4x8 screw that secures the operation panel ass'y.

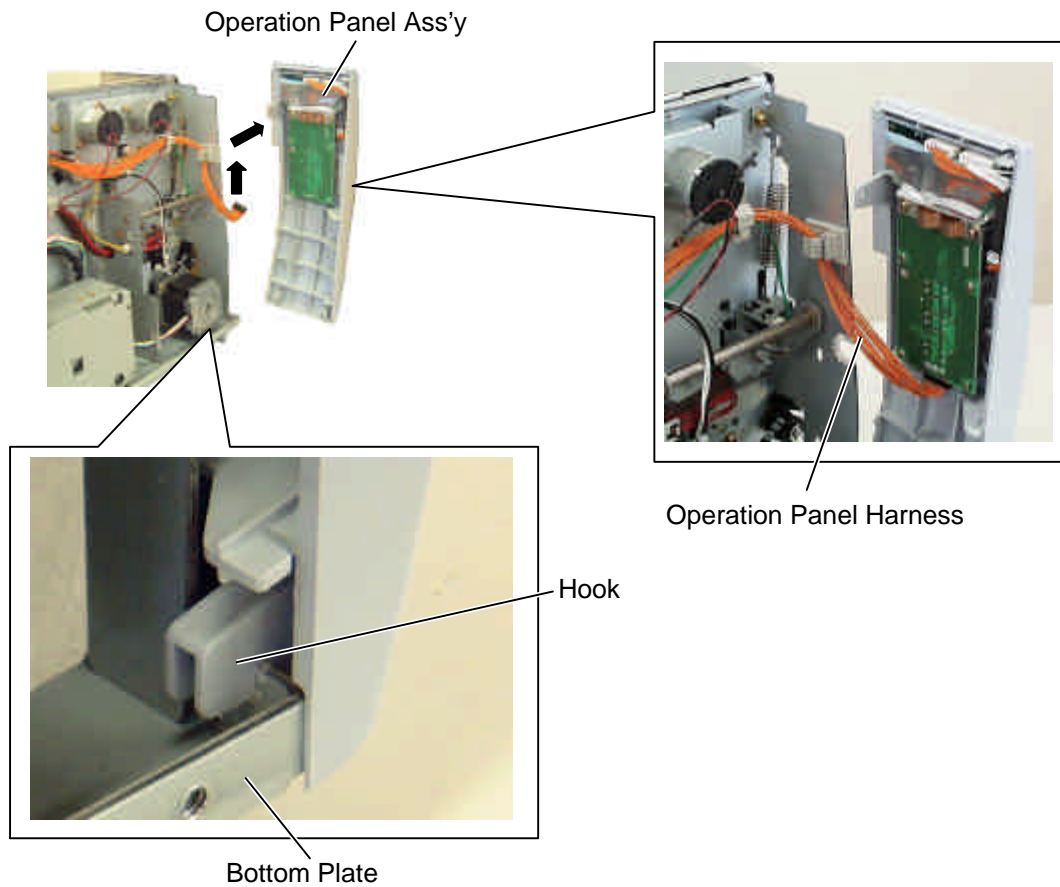


- 4) Half open the top cover, otherwise the operation panel ass'y cannot be removed from the printer.

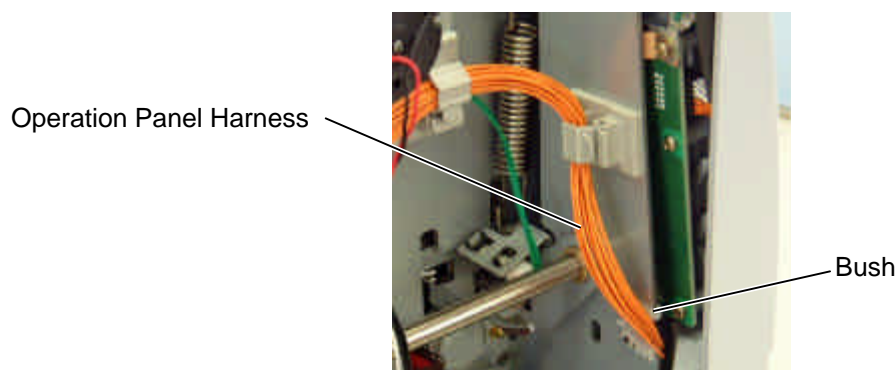


- 5) Lift the operation panel ass'y to release the hook, and then remove the operation panel ass'y by moving it forward.

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



- 7) Reassemble in the reverse order of removal. Lead the operation panel harness through the bush so that the side panel (L) does not catch it.



4. INSTALLATION PROCEDURE FOR OPTIONAL EQUIPMENT

WARNING!

1. Make sure to unplug the power cord before installing the optional equipment.
2. Be careful not to pinch your fingers or hands with the covers.

The following optional equipments are provided for this printer.

B-4205-QM:	Swing Cutter	B-9700-PCM-QM:	PCMCIA Interface Board
B-8204-QM:	Rotary Cutter	B-9700-LAN-QM:	LAN Interface Board
B-9904-H-QM:	Strip Module	B-9700-USB-QM:	USB Interface Board
B-9904-R-QM:	Ribbon Saving Module	B-7704-IO-QM:	Expansion I/O Interface Board

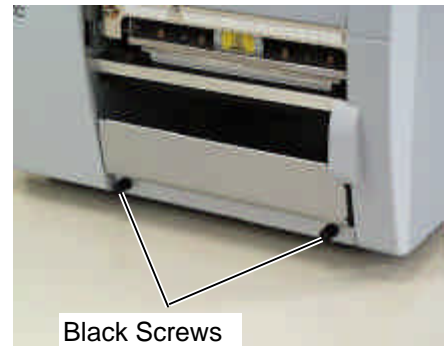
In this section, installation procedures for these optional equipments are described.

NOTES:

1. The B-4205-QM, B-8204-QM, and B-9904-H-QM cannot be used together.
2. The B-9700-LAN-QM and the B-9700-USB-QM cannot be used together.
3. When using the B-9700-PCM-QM together with the B-9700-LAN-QM or the B-9700-USB-QM, attach the B-9700-PCM-QM onto the Main PC board.
4. The strip module, ribbon saving module, and expansion I/O interface board are standard on the B-SX5T series.
5. When installing the B-4205-QM swing cutter module or B-8204-QM rotary cutter module on the B-SX5T series, it is necessary to remove the strip sensor, rewinder harness, rewind full sensor harness, expansion I/O interface board, etc. Follow the procedure below.

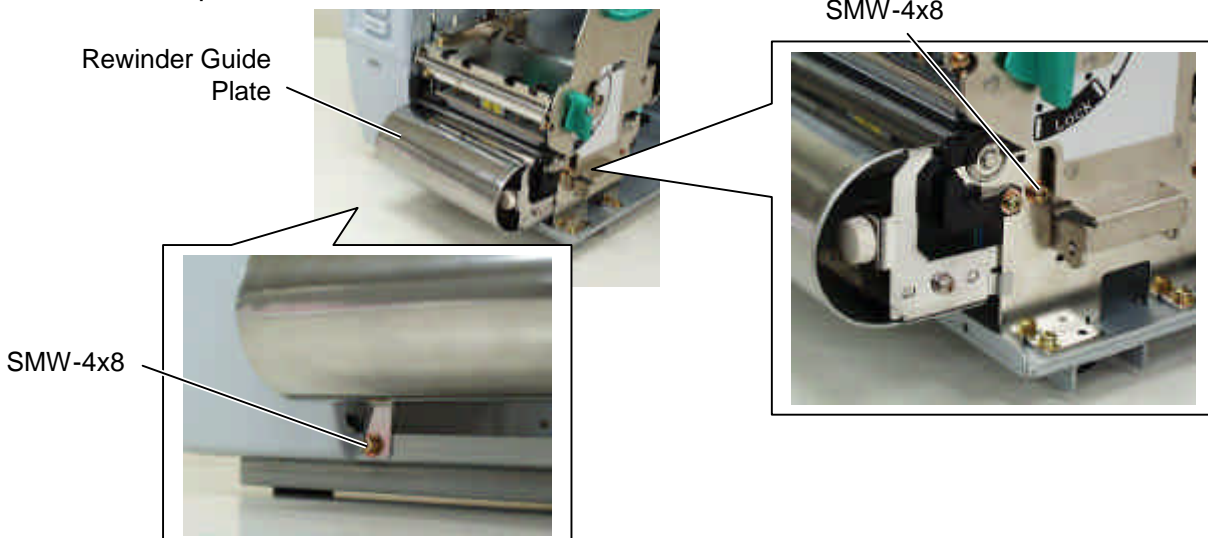
- 1) Turn the power off and disconnect the power cord.
- 2) When the printer is used in the batch or strip mode:
Remove the two black screws to detach the front plate.

NOTE: Retain the two black screws and front plate.

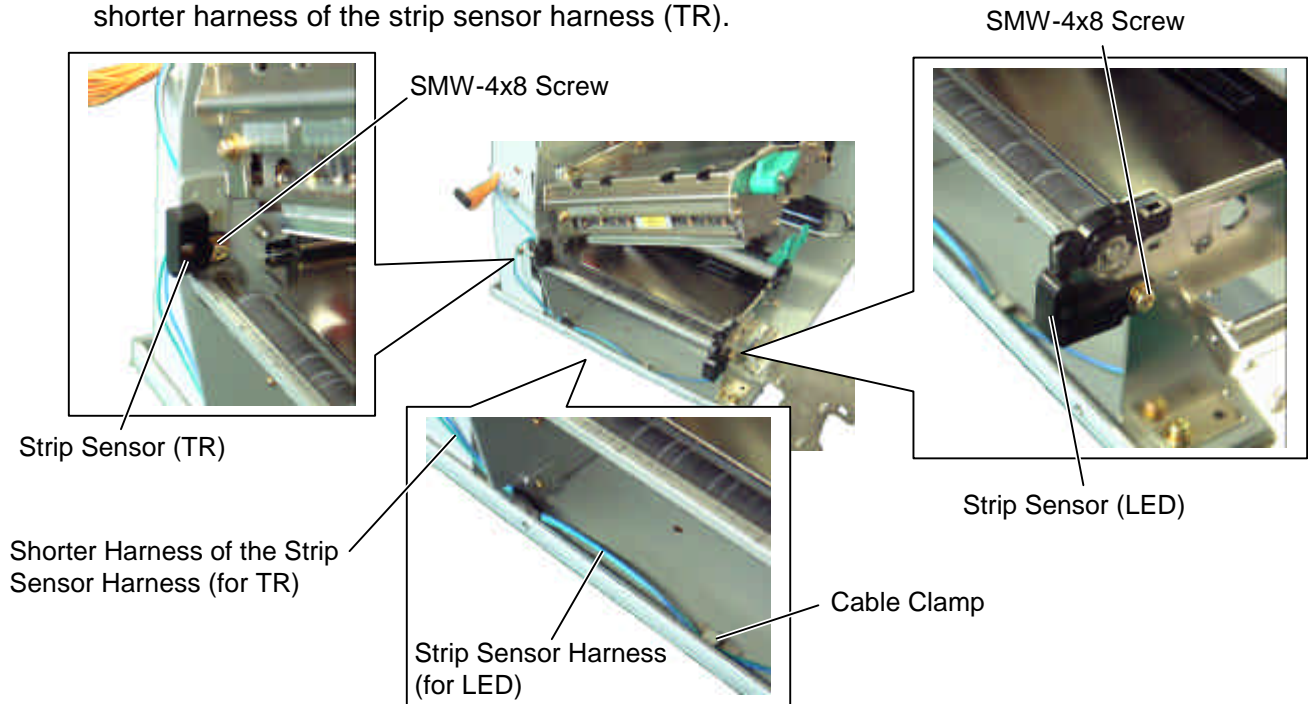


When the printer is used in the built-in rewinder mode:

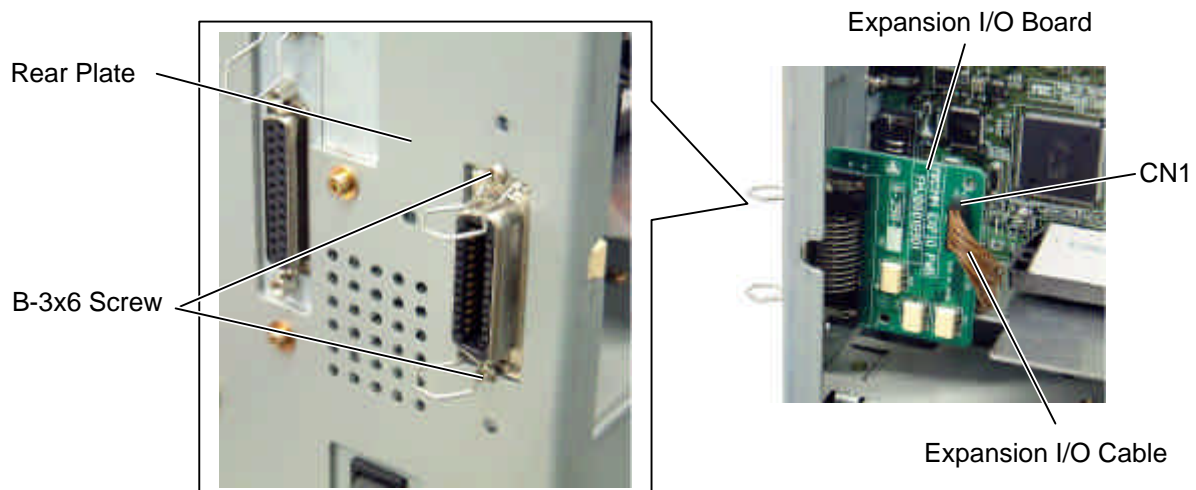
Open the top cover, remove the two SMW-4x8 screws, and detach the rewinder guide plate from the printer.



- 3) Remove the side panel (L). (Refer to Section 3.2.)
- 4) Remove the operation panel ass'y. (Refer to Section 3.4.)
- 5) Open the print head block. (Refer to Section 3.3.)
- 6) Remove the two SMW-4x8 screws that secure the strip sensors (TR) and (LED).
- 7) Release the strip sensor (LED) harness from the cable clamp, and disconnect it from the shorter harness of the strip sensor harness (TR).



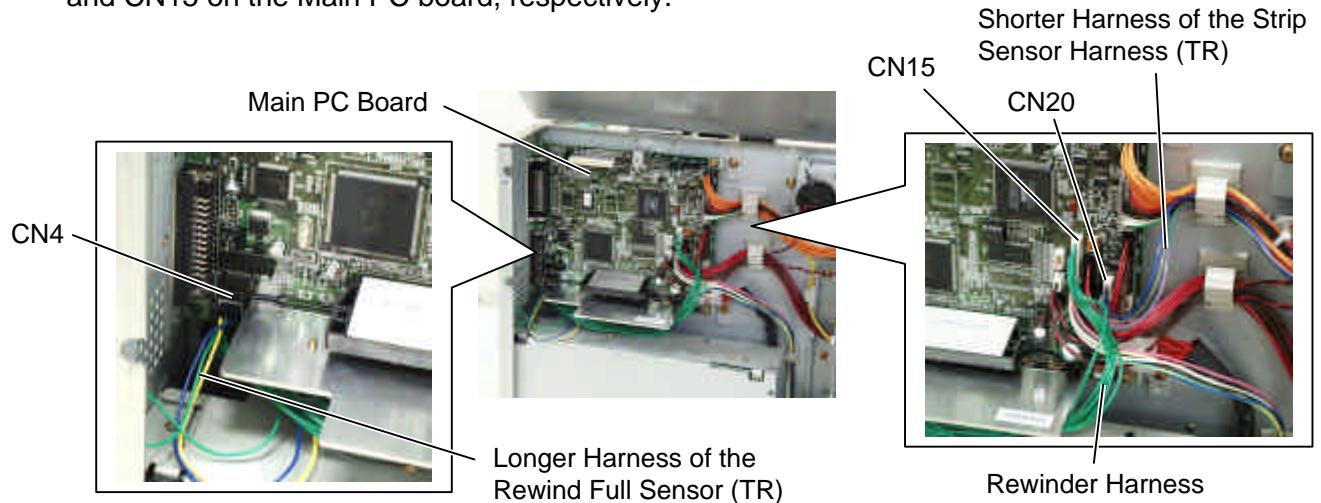
- 8) Remove the expansion I/O board from the printer temporarily using the following procedure:
 - (1) Disconnect the expansion I/O cable from CN1 on the Expansion I/O board.
 - (2) Remove the two B-3x6 screws to detach the expansion I/O board from the printer.



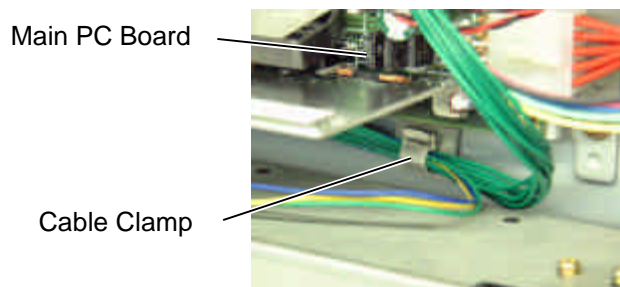
- 9) Disconnect the shorter harness of the strip sensor harness (TR) from CN20 on the Main PC board. Then remove the strip sensor (TR) from the printer.

NOTE: Retain the strip sensors (TR) and (LED), and the strip sensor harness.

- 10) Disconnect the longer harness of the rewind full sensor (TR) and rewriter harness from CN4 and CN15 on the Main PC board, respectively.



NOTE: Secure the rewriter harness and the longer harness of the rewind full sensor (TR) to the space under the Main PC board with the cable clamp so that they are not pinched by the covers or printer's internal components.

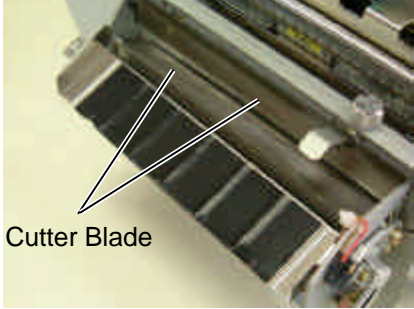


- 11) Reassemble the operation panel ass'y and the expansion I/O board in the reverse order of removal.

4.1 SWING CUTTER (B-4205-QM)

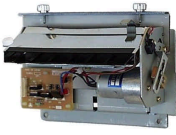





WARNING!

Be careful not to injure your fingers when installing the cutter unit.

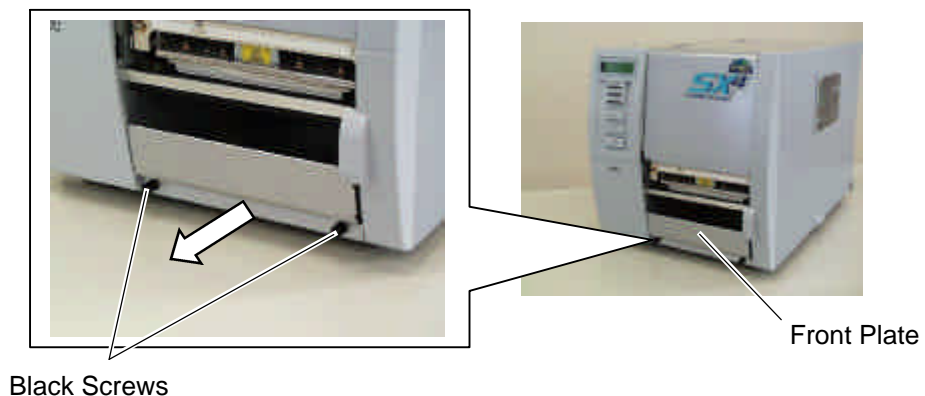


This optional device is used for cut print, which cannot be used together with either B-8204-QM or B-9904-H-QM.

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

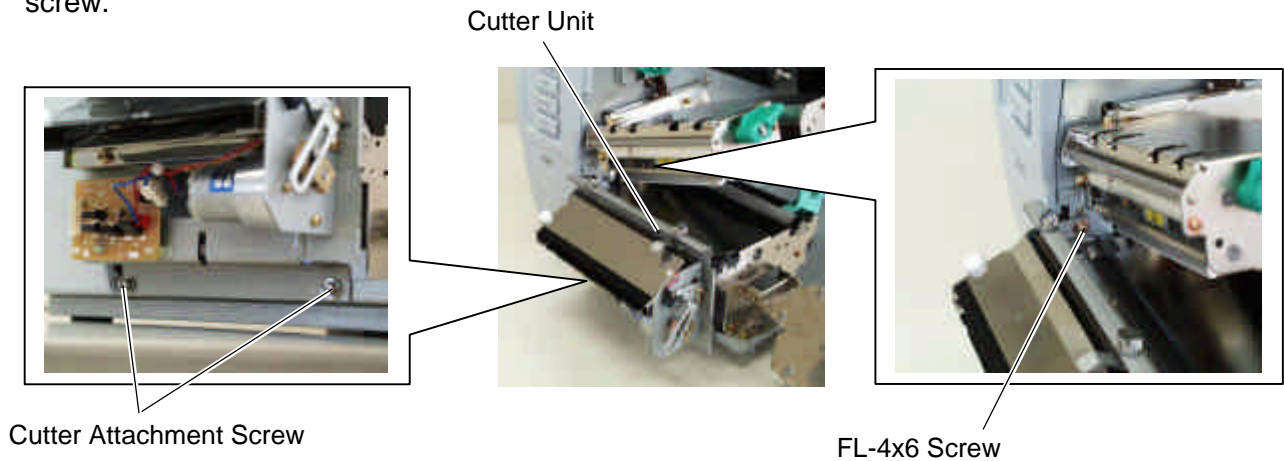
<p>Cutter Unit (1 pc.)</p> 	<p>Cutter Cover (1 pc.)</p> 	<p>Cutter Harness (1 pc.)</p> 	<p>Print Head Cleaner (1 pc.) (P/No.: FMQB0051601)</p> 
<p>Cutter Attachment Screw (2 pcs.)</p> 	<p>Bush (1 pc.)</p> 	<ul style="list-style-type: none"> • Installation manual (1 copy) • FL-4x6 Screw (1 pc.) 	

1) Remove the two black screws to detach the front plate.

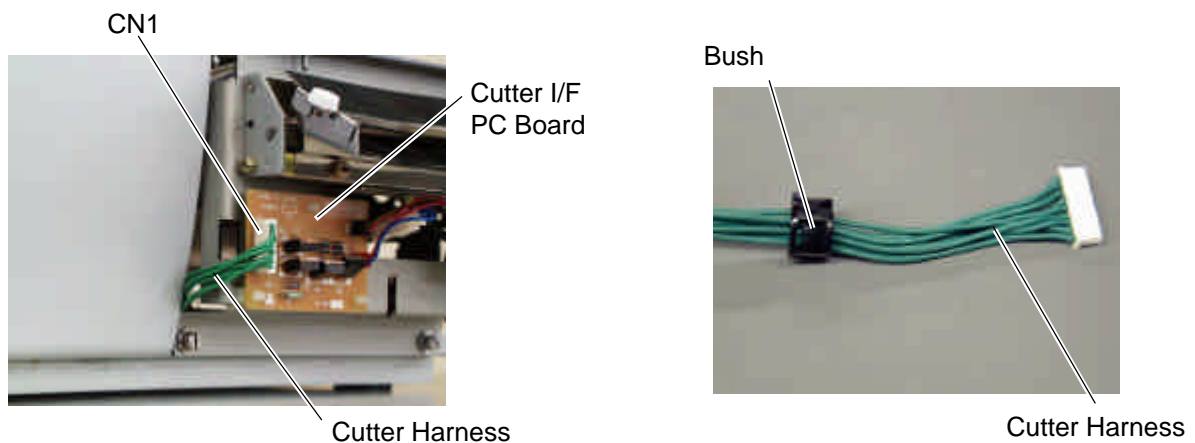


NOTE: Retain the two black screws and front plate.

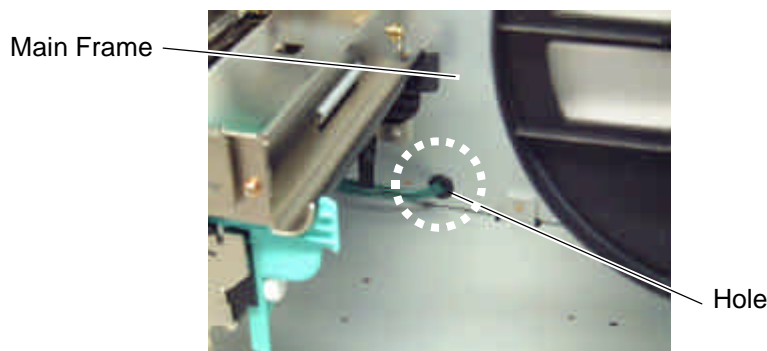
- 2) Open the top cover. (Refer to Section 3.1.)
- 3) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 4) Open the printer block. (Refer to Section 3.3.)
- 5) Attach the cutter unit to the front of the printer with the cutter attachment screws and the FL-4x6 screw.



- 6) Connect the cutter harness to CN1 on the cutter I/F PC board.
- 7) Fit the bush to the cutter harness in the orientation shown below.



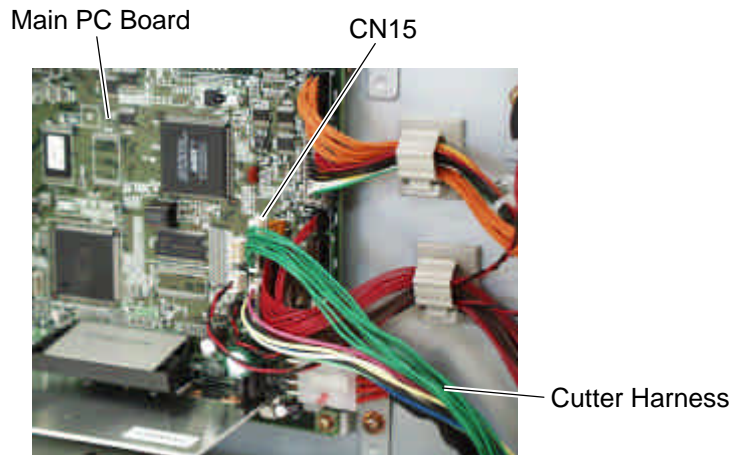
- 8) Insert the cutter harness into the gap between the cutter unit and the printer, and then into the hole in the main frame. Fit the bush into the hole.



- 9) Close the print head block and the ribbon shaft holder plate.

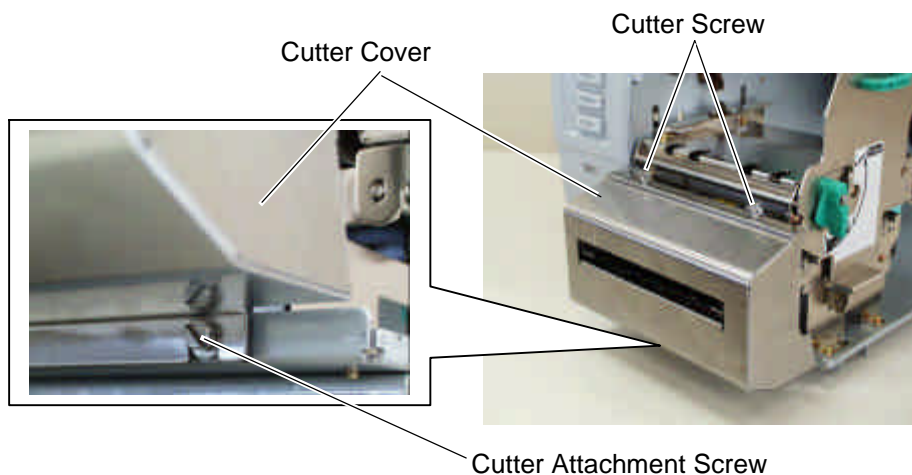
NOTE: *DO NOT* excessively push down the print head block to close it. Doing so may cause a failure of the print head block or damage to the print head.

- 10) Connect the cutter harness to CN15 on the Main PC Board.



- 11) Fit the cutter cover on the cutter attachment screws, and fix it to the cutter unit with the two cutter screws.

NOTE: *Be careful not to pinch the cutter harness by the cutter cover.*



- 12) Reassemble the side panel (L) and close the top cover. Finally check the cutter operation.

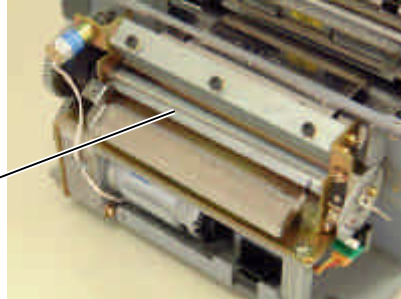
NOTE: *For cleaning the cutter, refer to section 8.*

4.2 ROTARY CUTTER (B-8204-QM)

WARNING!

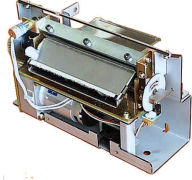

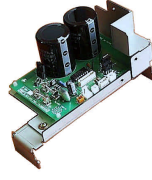



Be careful not to injure your fingers when installing the cutter unit.

Cutter Blade

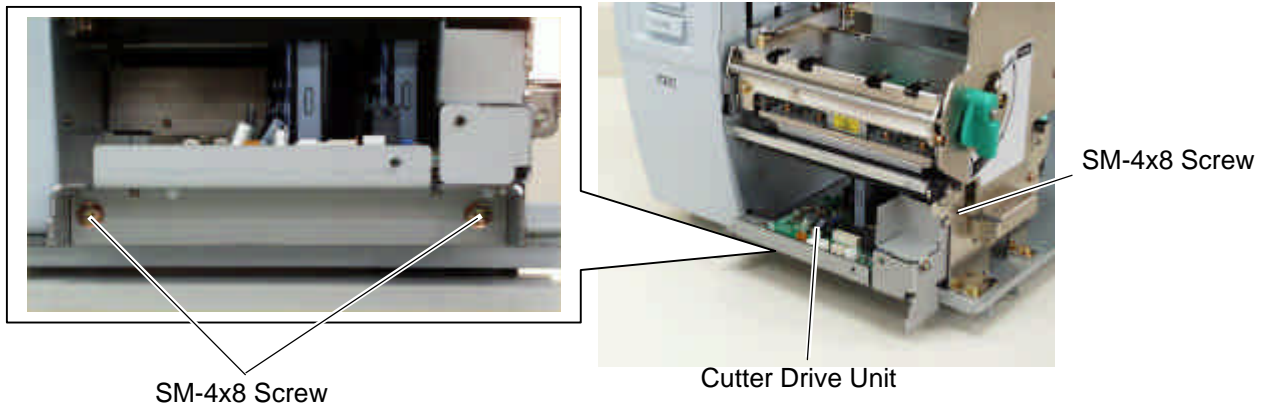


This optional device is used for cut print, which cannot be used together with either B-4205-QM or B-4905-H-QM.

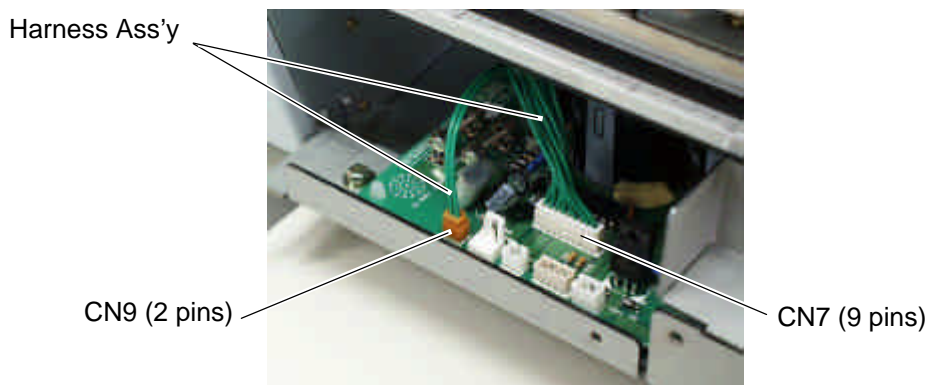
All the following parts are supplied with the kit. Make sure you have all items shown below.

<p>Cutter Unit (1 pc.)</p> 	<p>Cutter Cover (1 pc.)</p> 	<p>Cutter Drive Unit (1 pc.)</p> 	<p>Harness Ass'y (2-pin & 9-pin) (1 pc.)</p> 
<p>Cord Bush (1 pc.)</p> 	<p>Print Head Cleaner (1 pc.) (P/No.: FMQB0051601)</p> 	<ul style="list-style-type: none"> • Installation Manual (1 copy) • SM-4x8 Screw (6 pcs.) 	

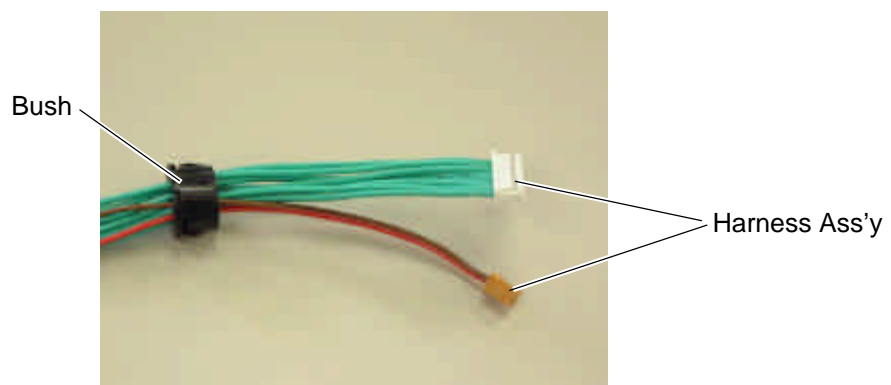
- 1) Remove the two black screws to detach the front plate. (Refer to section 4.1.)
- 2) Open the top cover. (Refer to Section 3.1.)
- 3) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 4) Fix the cutter drive unit to the printer with the three SM-4x8 screws.



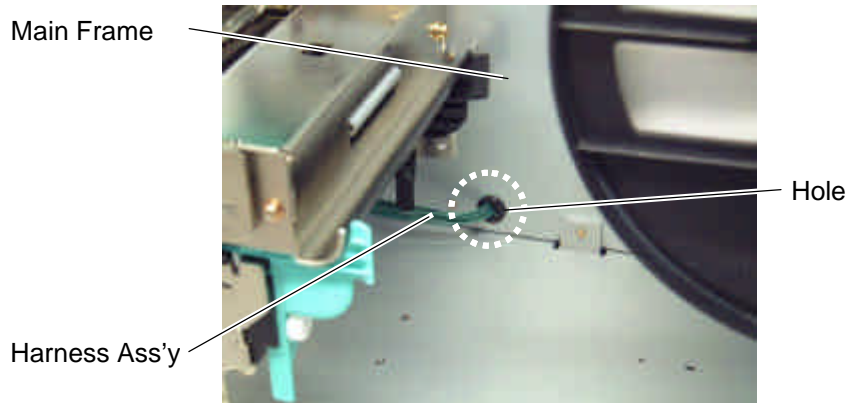
- 5) Connect the 9-pin connector of the harness ass'y to CN7 and 2-pin connector to CN9 on the cutter driver unit, respectively.



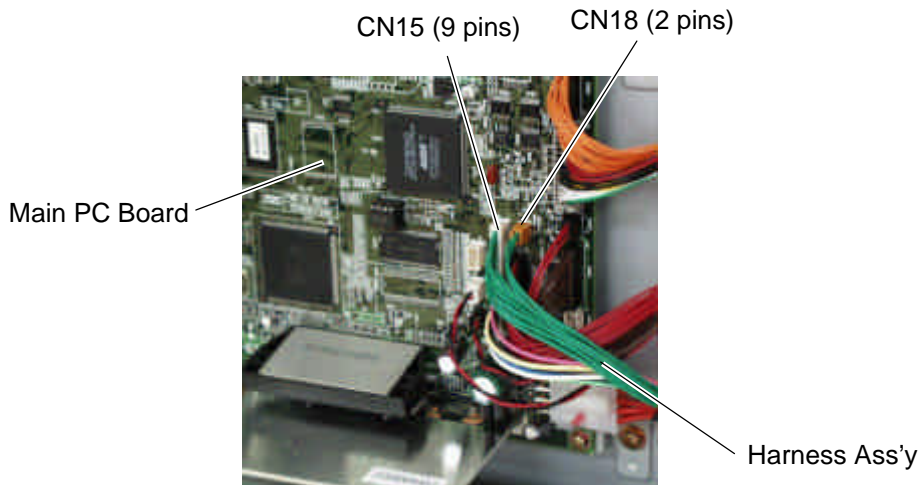
- 6) Fit the bush to the harness ass'y in the orientation as shown below.



- 7) Insert the harness ass'y into the hole in the main frame. Fit the bush into the hole.

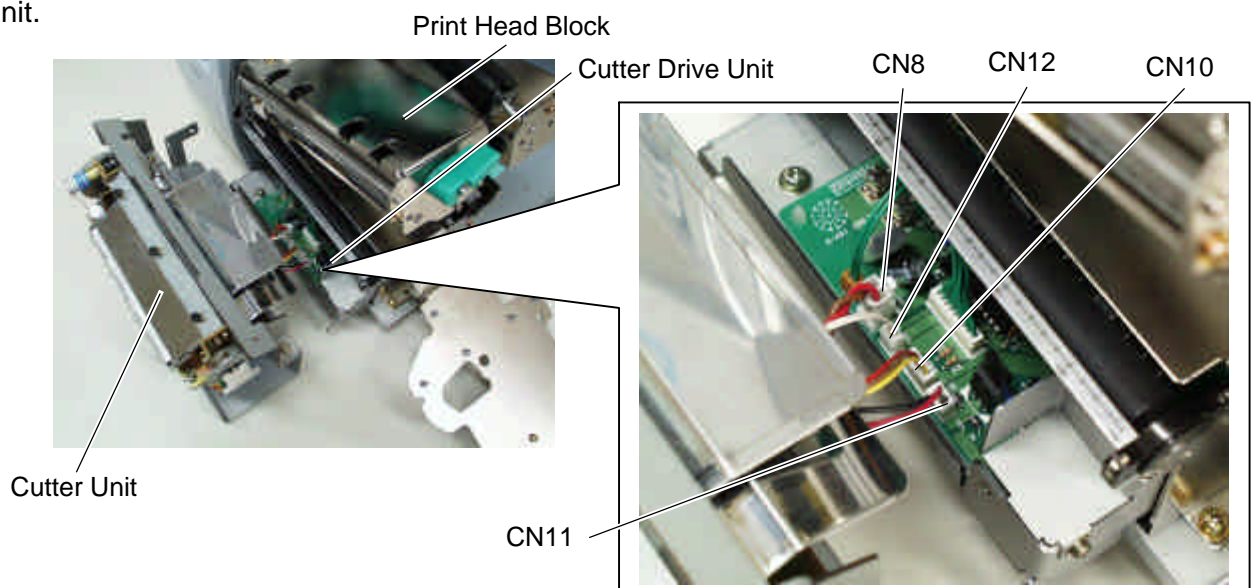


- 8) Connect the 9-pin connector of the harness ass'y to CN15, and 2-pin connector to CN18 on the Main PC board, respectively.

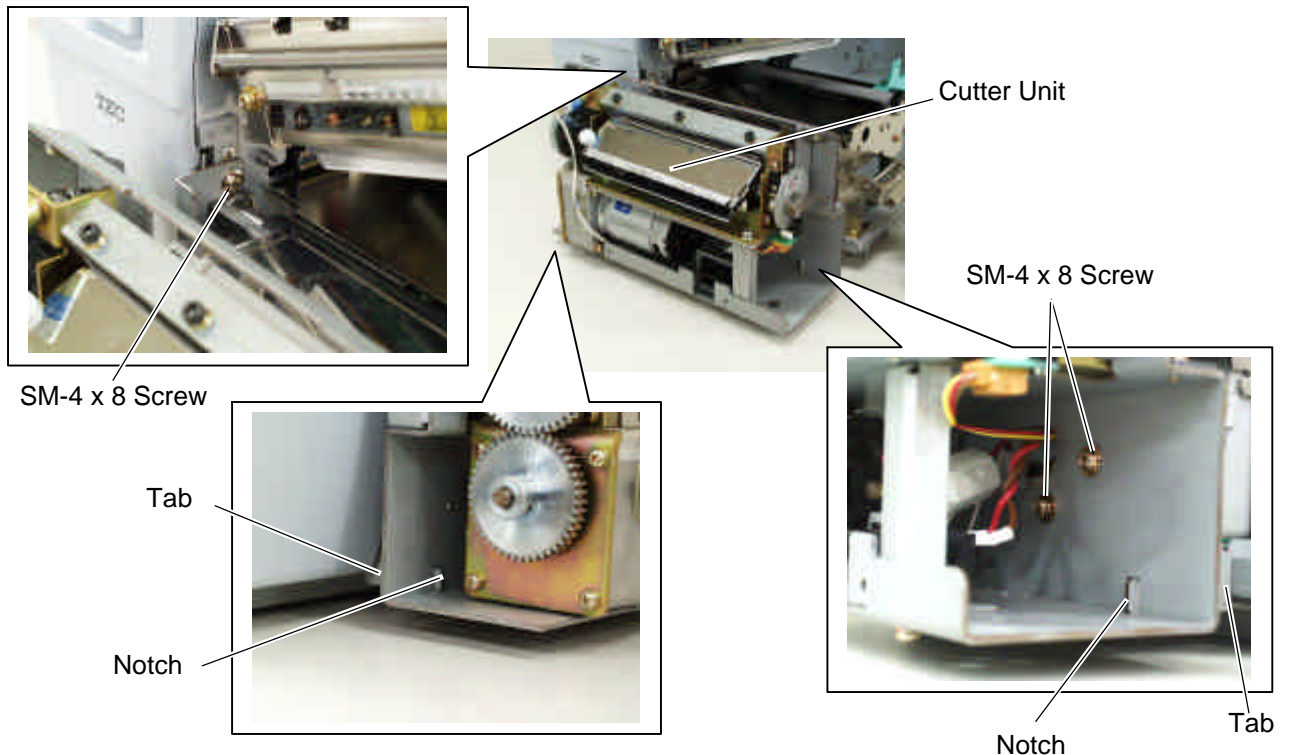


- 9) Open the printer block. (Refer to section 3.3.)

- 10) Connect the four harnesses of the cutter unit to CN8, CN10, CN11 and CN12 on the cutter drive unit.

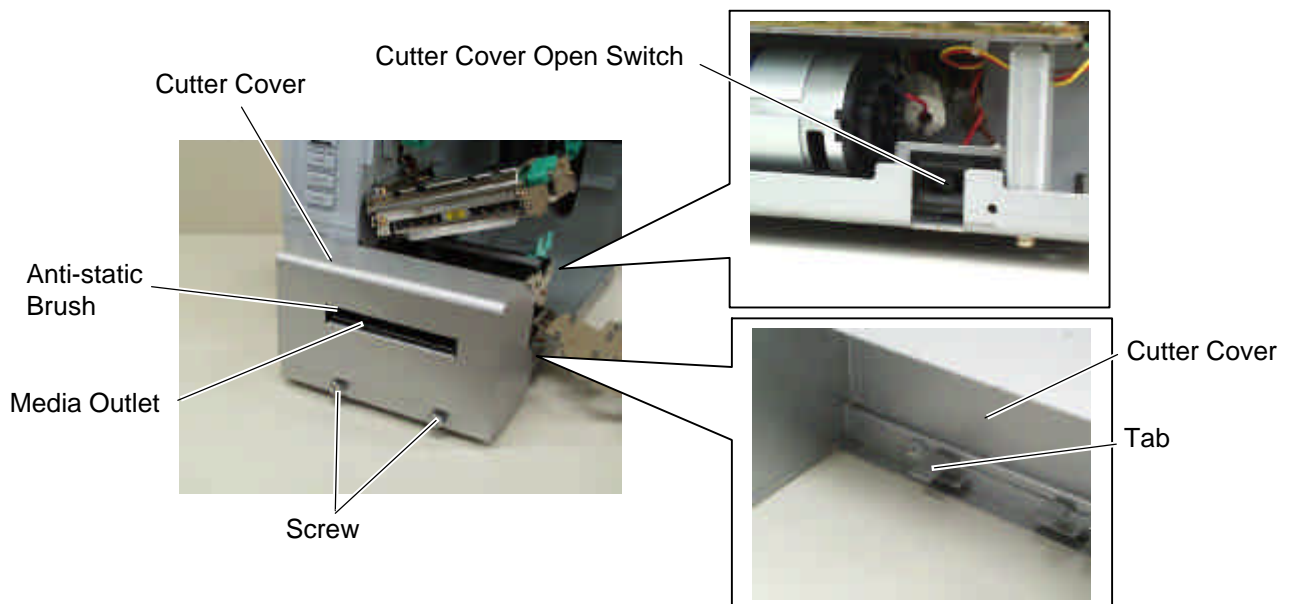


- 11) Fit the two tabs of the cutter drive unit into the notches, and then fix the cutter unit with the three SM-4x8 screws.



- 12) 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.









- 13) 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.
- 14) Reassemble the side panel (L) and close the top cover. Finally check the cutter operation.

4.3 STRIP MODULE (B-9904-H-QM)

This optional device is used for strip print, which cannot be used together with either B-4205-QM or B-8204-H-QM.

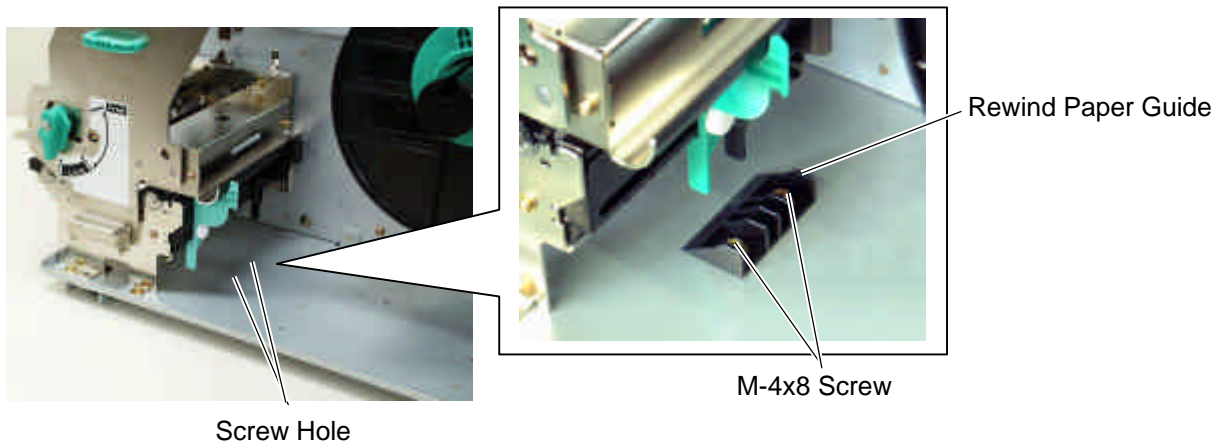
NOTE: The strip module is standard on the B-SX5T series.

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

Rewinder Ass'y (1 pc.) 	Rewinder Guide Plate (1 pc.) 	Bush (1 pc.) 
Strip Sensor (TR) (1 pc.) 	Strip Sensor (LED) (1 pc.) 	Rewind Paper Guide (1 pc.) 

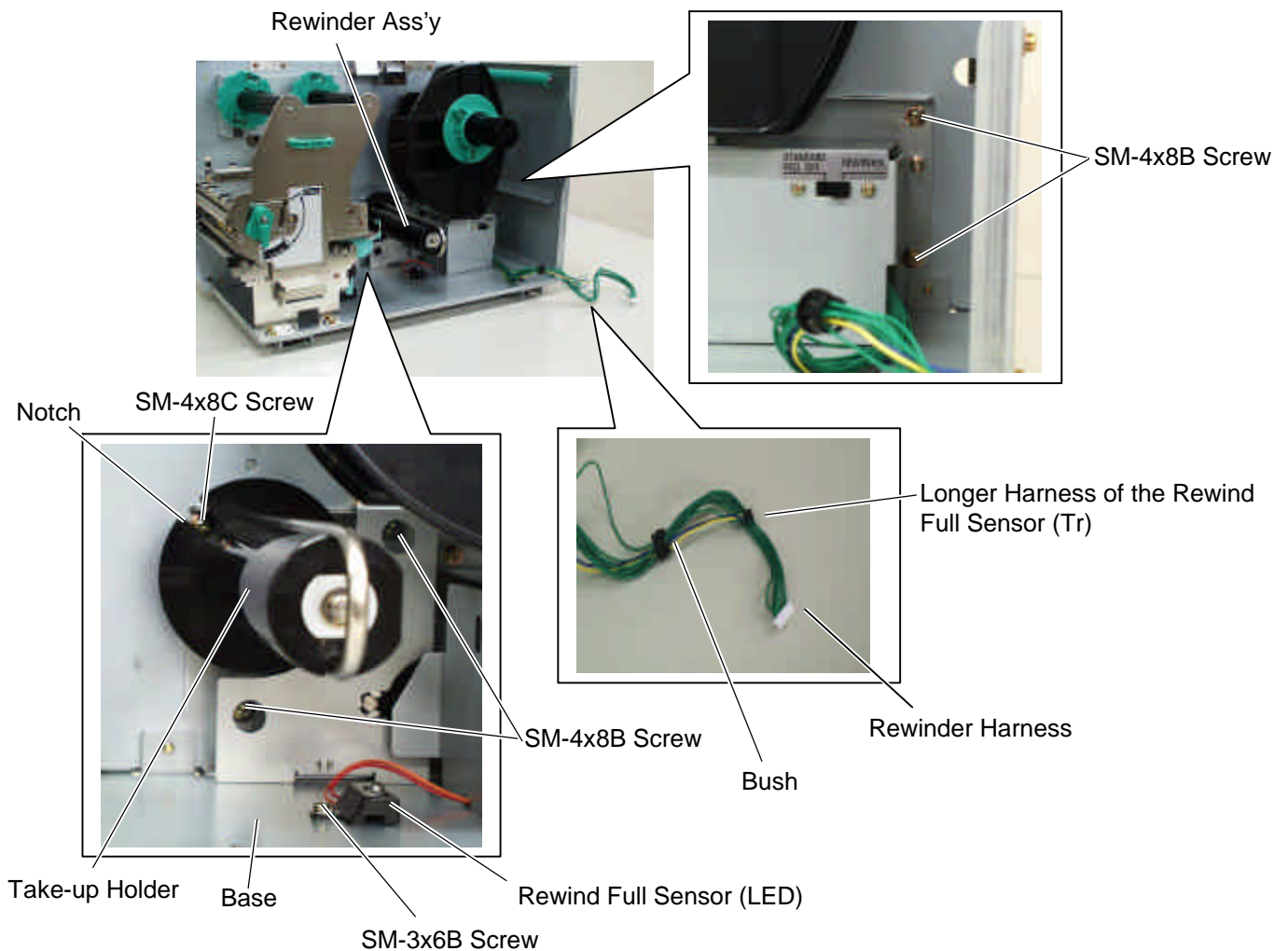
- Installation Manual (1 copy)
- SM-4x8B Screw (10 pcs.)
- SM-3x6B Screw (1 pc.)
- SM-4x8C Screw (1 pc.)

- 1) Remove the two black screws to detach the front plate. (Refer to section 4.1.)
- 2) Open the top cover. (Refer to Section 3.1.)
- 3) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 4) Remove the operation panel ass'y from the printer. (Refer to section 3.4.)
- 5) Attach the rewind paper guide to the base with the two M-4x8 screws.

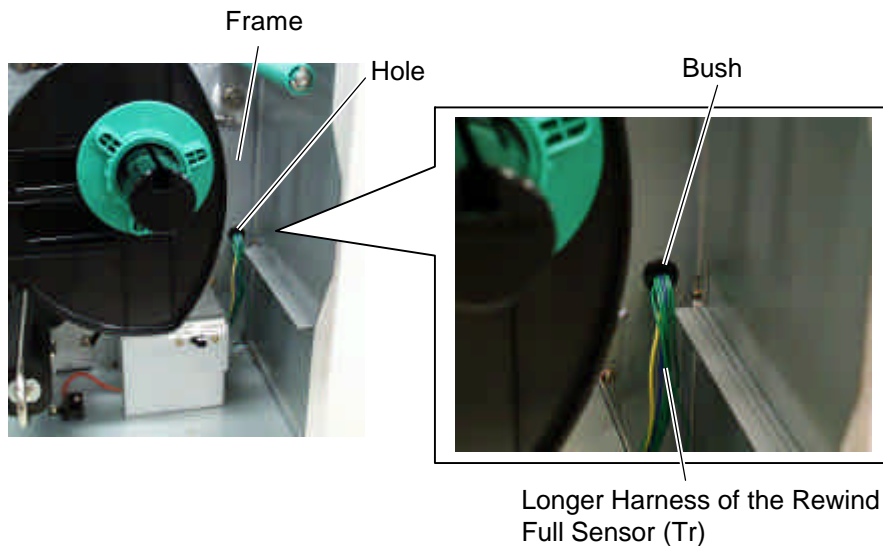


- 6) Align the notch of the take-up holder with the screw hole of the rewinder ass'y, and attach them to the printer with the four SM-4x8B screws and the SM-4x8C screw.
- 7) Attach the rewind full sensor (LED) to the base with the SM-3x6B screw.

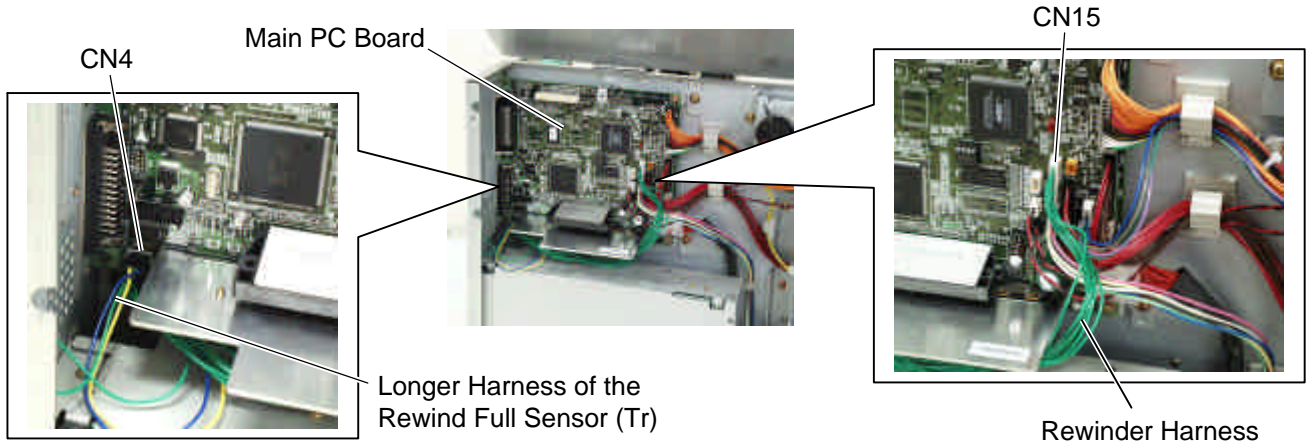
- 8) Fit the bush to the longer harness of the rewind full sensor (Tr) and the rewriter harness in the orientation shown below.



- 9) Insert the longer harness of the rewind full sensor (Tr) into the hole in the printer frame. Fit the bush into the hole.



- 10) Connect the longer harness of the rewind full sensor (Tr) and the rewinder harness to CN4 and CN15 on the Main PC board, respectively.



NOTES:

1. You should change the selection switch setting depending on the issue mode. Improper setting may affect the print quality.

STANDARD/PEEL OFF (STRIP): Batch or strip mode
REWINDER: Built-in rewinder mode

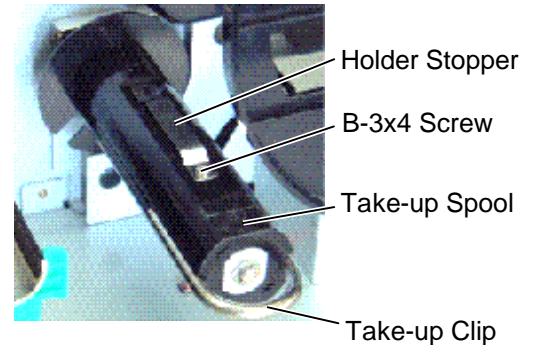
For the cut mode, the selection switch can be set to either position.

Selection Switch

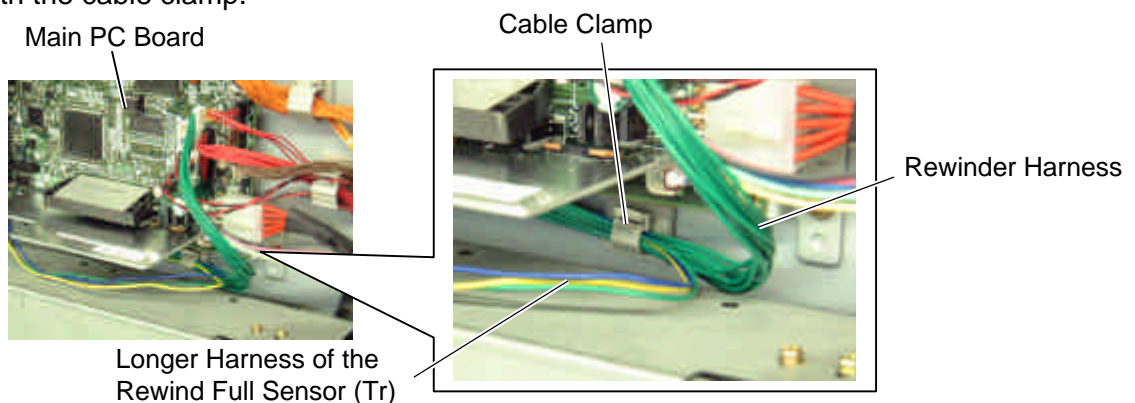


2. The backing paper can be wound directly onto the Take-up Spool or a paper core.

When using the Take-up Spool, detach the Holder Stopper by removing the B-3x4 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. This winding method is applicable to the Built-in Rewinder mode.

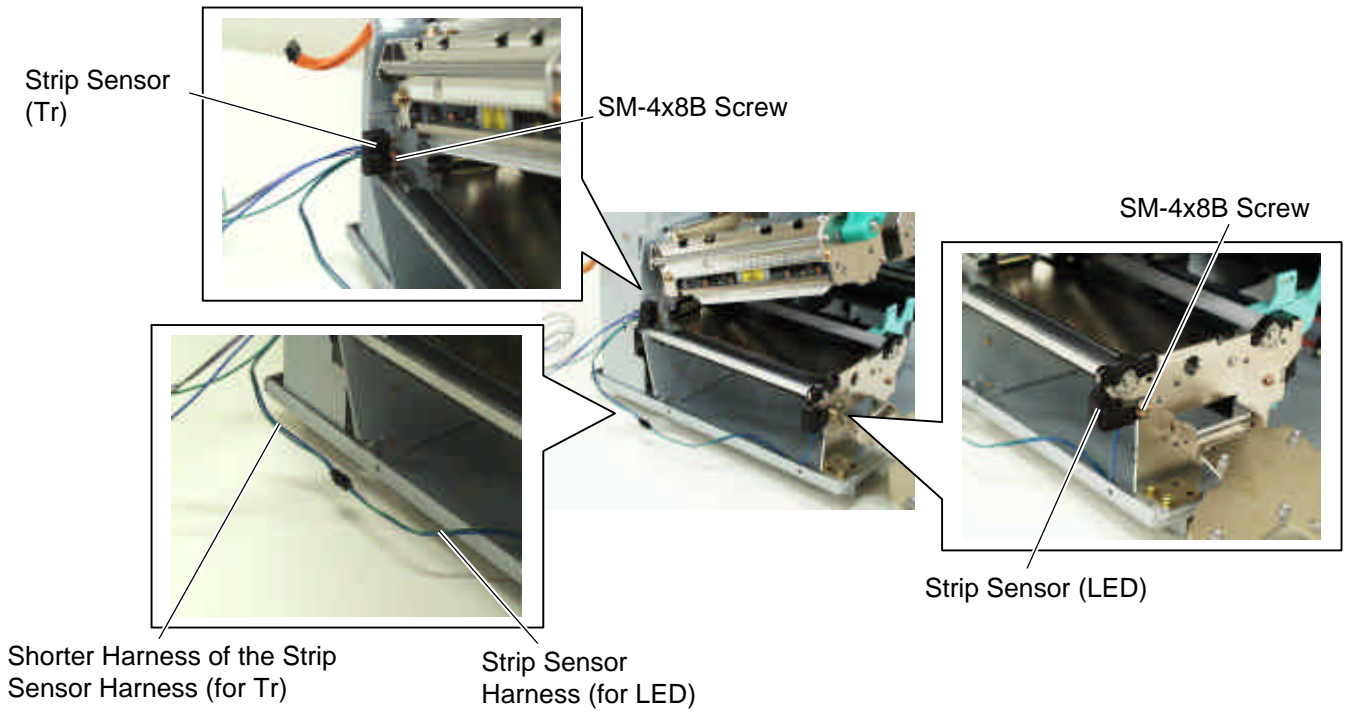


- 11) Open the printer block. (Refer to section 3.3.)
 12) Fix the longer harness of the rewind full sensor and the rewinder harness under the Main PC board with the cable clamp.

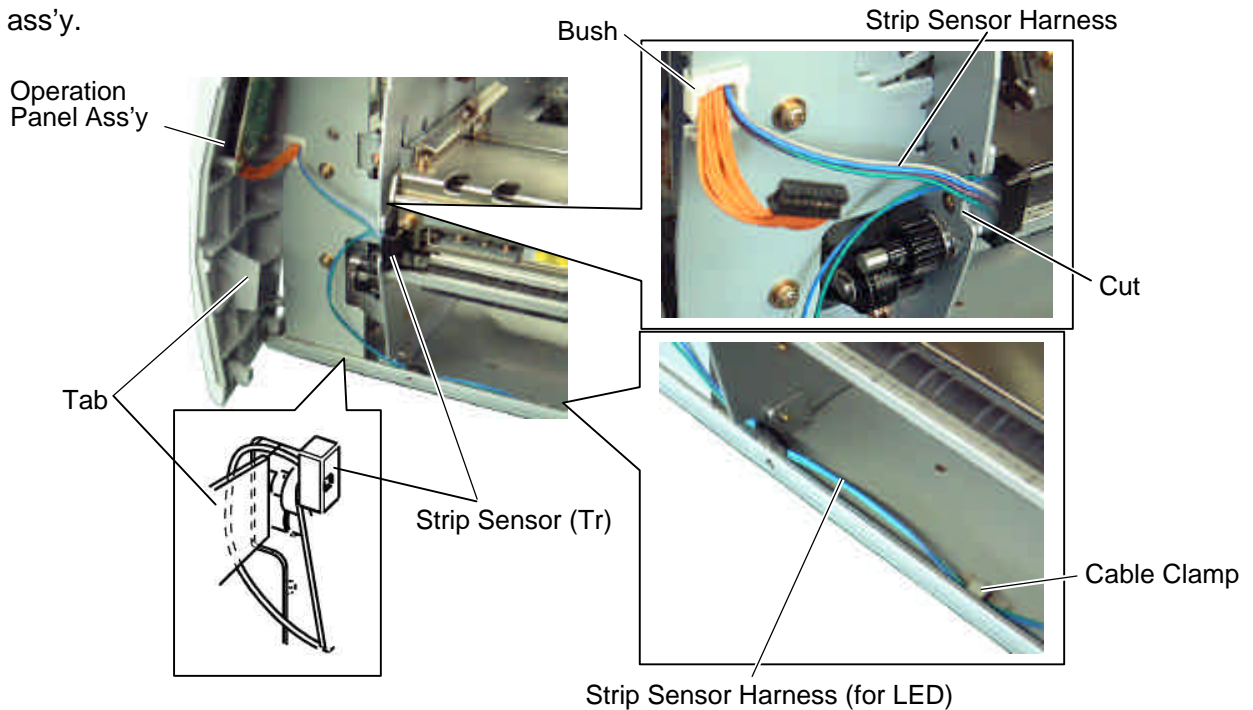


13) Secure the strip sensor (LED) and strip sensor (Tr) to the printer with the SM-4x8B screws.

14) Connect the shorter harness of the strip sensor (Tr) to the strip sensor harness (for LED).

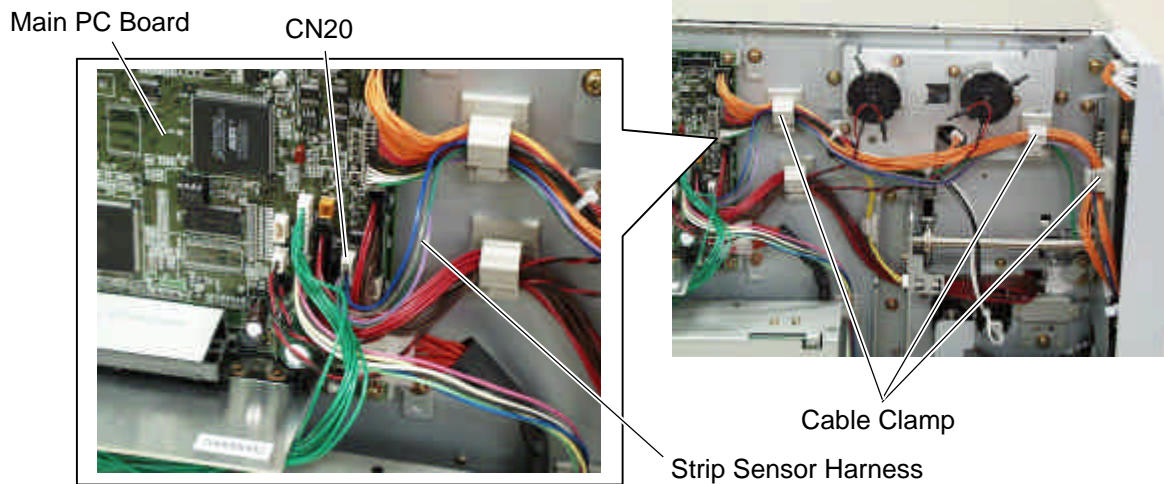


15) Fix the connected strip sensor harness (for LED) to the base with the cable clamp. While passing the other strip sensor harness through the cut and the bush, reassemble the operation panel ass'y to the printer. Then pass the strip sensor harness over the tab on the back of the operation panel ass'y.



NOTE: Be careful not to pinch the strip sensor harnesses by the operation panel.

- 16) Fix the strip sensor harness with the three cable clamps and connect it to CN20 on the Main PC board.



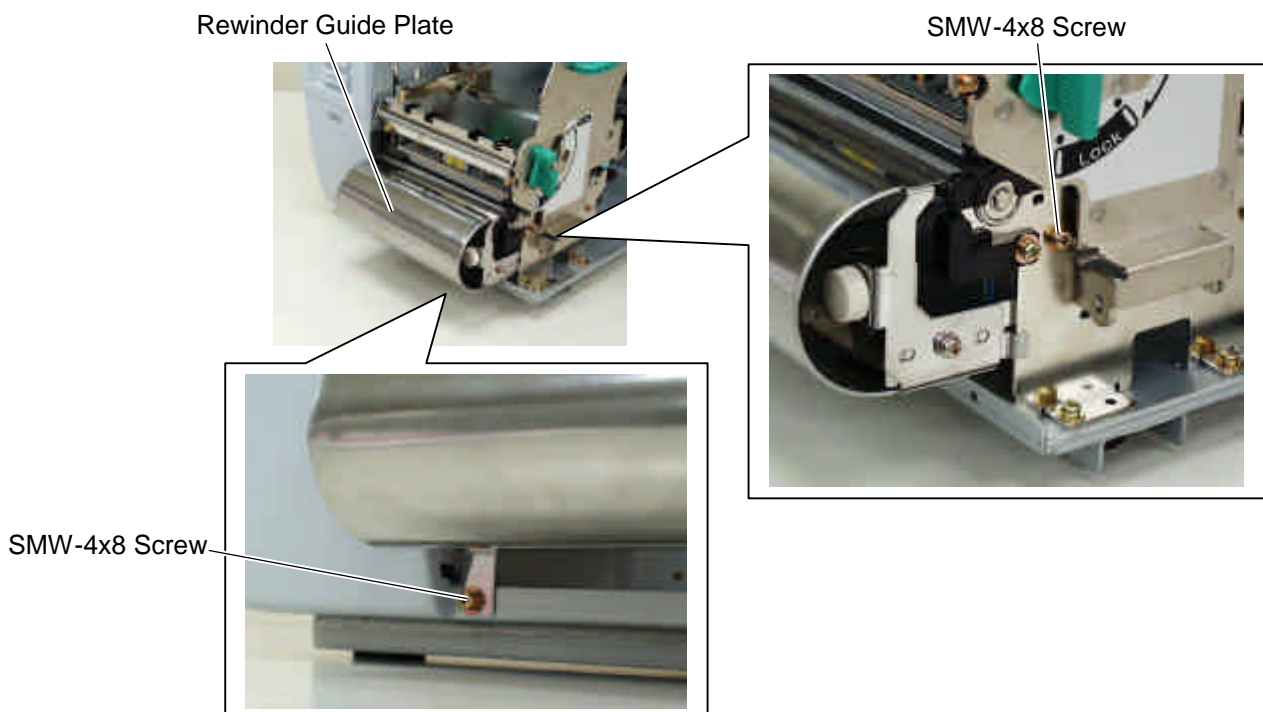
- 17) Reassemble the side panel (L) in the reverse order of removal.

- 18) 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.

- 19) When using the printer in batch mode or strip mode, attach the front plate removed in step 1).

- 20) When using the printer in built-in rewinder mode, attach the rewinder guide plate to the front of the printer with the two SMW-4x8 screws.








- 21) Make a test print to check for proper strip issue.

NOTE: If the label skews, refer to section 8.

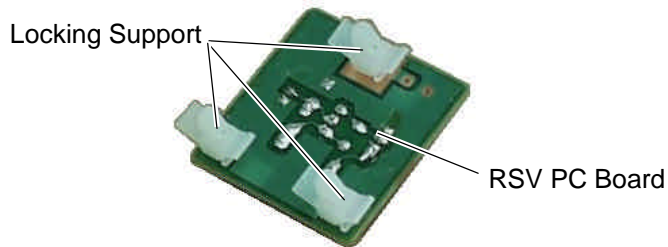
4.4 RIBBON SAVING MODULE (B-9904-R-QM)

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

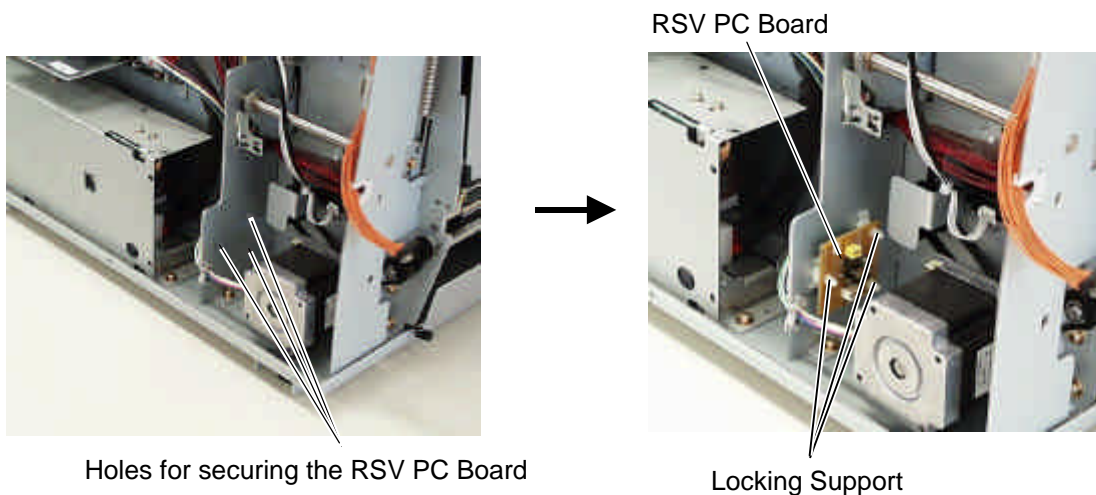
NOTE: The ribbon saving module is standard on the B-SX5T series.

<p>Solenoid (1 pc.)</p> 	<p>RSV PC Board (1 pc.)</p> 	<p>Solenoid Harness (1 pc.)</p> 
<p>Cable Clamp (1 pc.)</p> 	<p>Locking Support (3 pcs.)</p> 	<ul style="list-style-type: none"> • Installation Manual (1 copy) • SM-4x8 Screw (2 pcs.)

- 1) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 2) Remove the operation panel ass'y from the printer. (Refer to section 3.4.)
- 3) Fit the three locking supports into the RSV PC board.

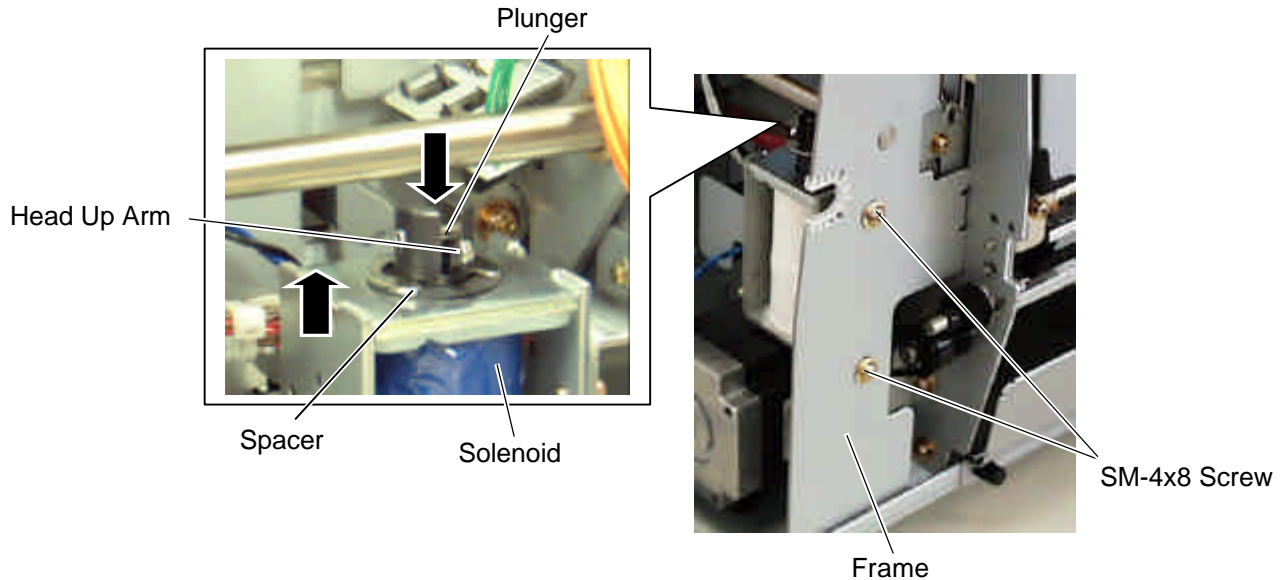


- 4) Secure the RSV PC board to the printer with the locking support.

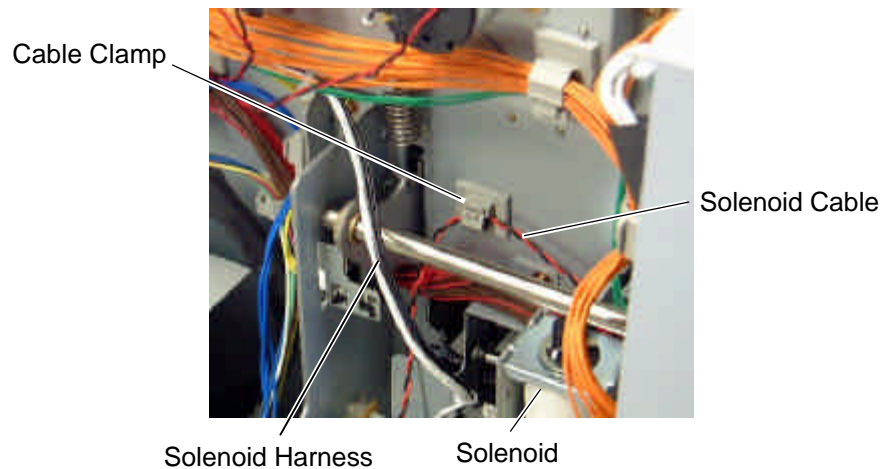


NOTE: Do not push the center of the RSV PC board when attaching it to the printer. Doing so may break the PC board. Hold the locking supports and push them into the holes for securing the RSV PC board.

- 5) Insert folded tag paper (1.5-mm thick) between the print head and the platen, and then turn the head lever to **Lock** position. Insert the head up arm into the plunger of the solenoid. While holding down the head up arm slightly, lift the solenoid. Secure the solenoid to the frame with the two SM-4x8 screws keeping the solenoid in contact with the spacer.

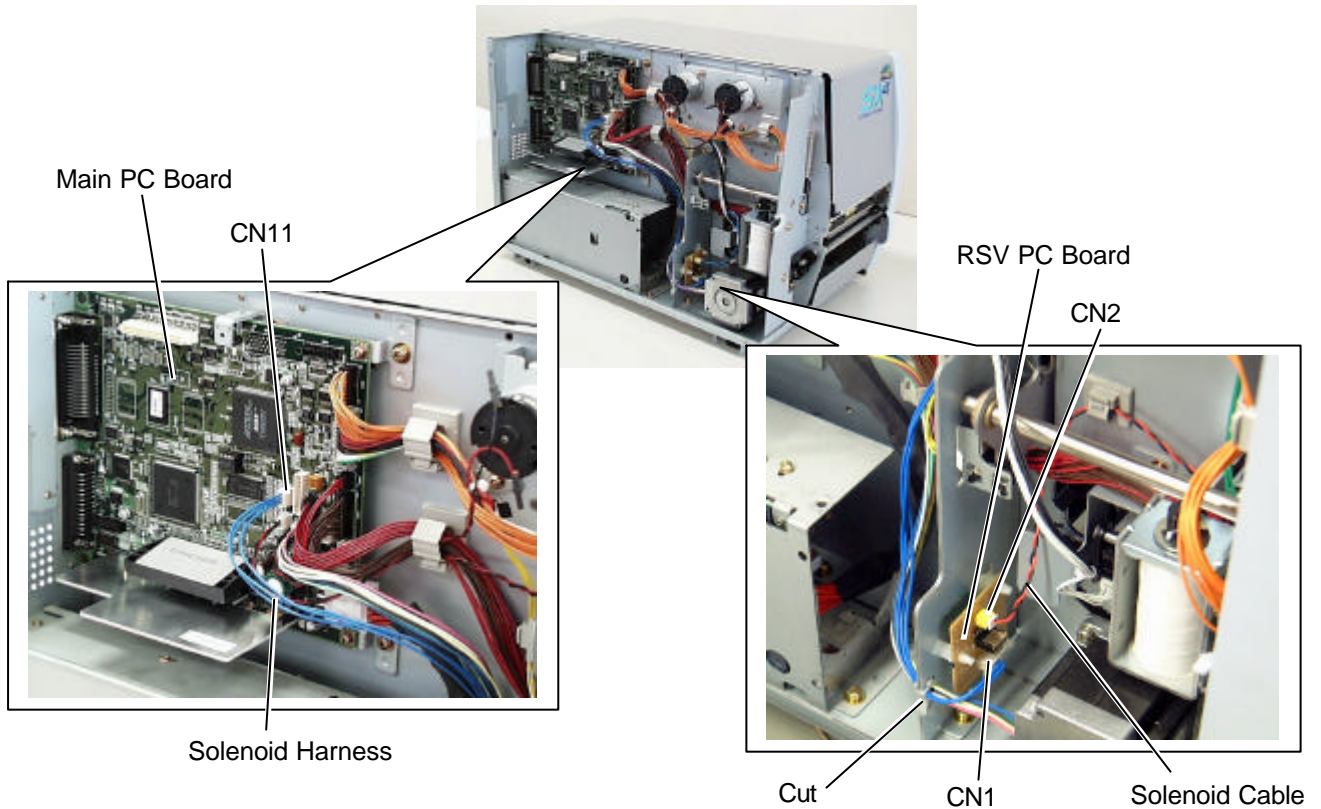


- 6) Attach the cable clamp to the frame of the printer. Fix the solenoid cable with this cable clamp.



NOTE: Be careful not to snag the solenoid harness when running it.

- 7) Connect the solenoid harness to CN1 on the RSV PC board and CN11 on the Main PC board.
Pass the solenoid harness through the cut.
- 8) Connect the solenoid cable to CN2 on the RSV PC board.



- 9) After attaching the solenoid, reassemble the operation panel ass'y and the side panel (L) in the reverse order of removal.

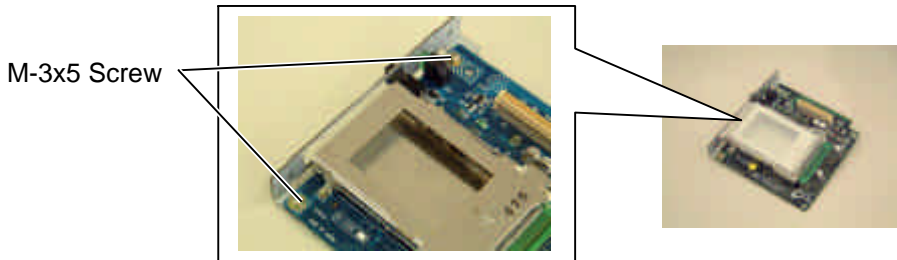
NOTE: Perform "<9> FOR FACTORY" of system mode to make sure the solenoid performs properly.

4.5 PCMCIA INTERFACE BOARD (B-9700-PCM-QM)

This optional interface board is provided with the two slots, which allows for the use of the two TYPE II PC cards. However, it is not applied to TYPE III PC cards.

CAUTION!

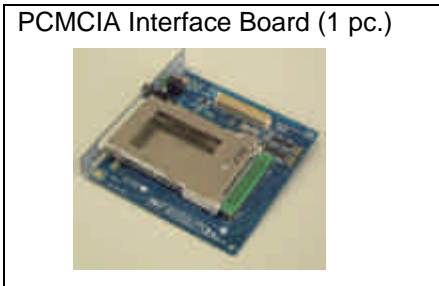
1. Loosen the two M-3x5 screws of the PCMCIA interface board before installing it. Failure to do this may cause damage to the connector.



2. When using the LAN interface board or USB interface board together, install the PCMCIA interface board first.

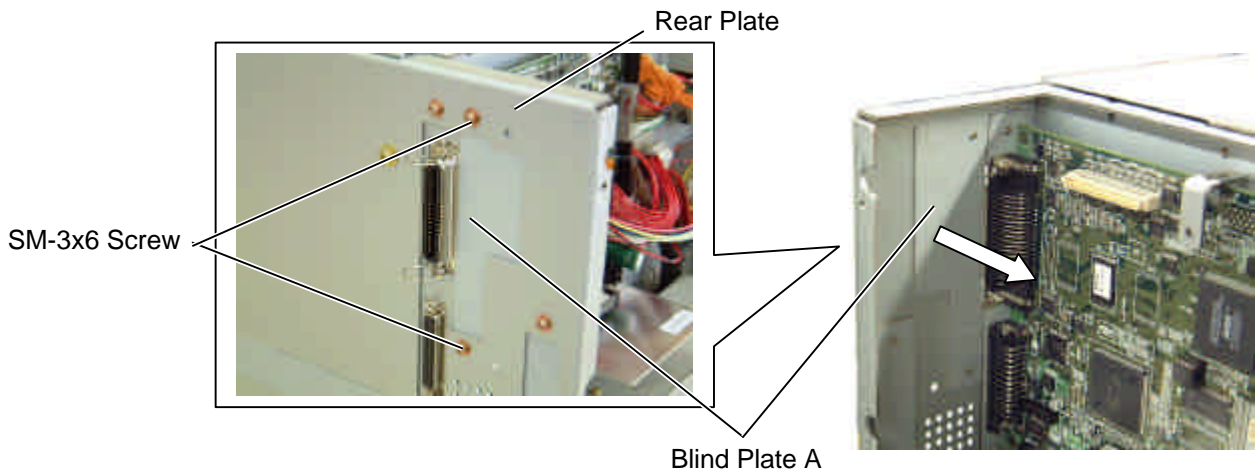
NOTE: When both B-9700-PCM-QM and B-9700-LAN-QM are installed, inserting a LAN PC card into the slot of the B-9700-PCM-QM disables the B-9700-LAN-QM.

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



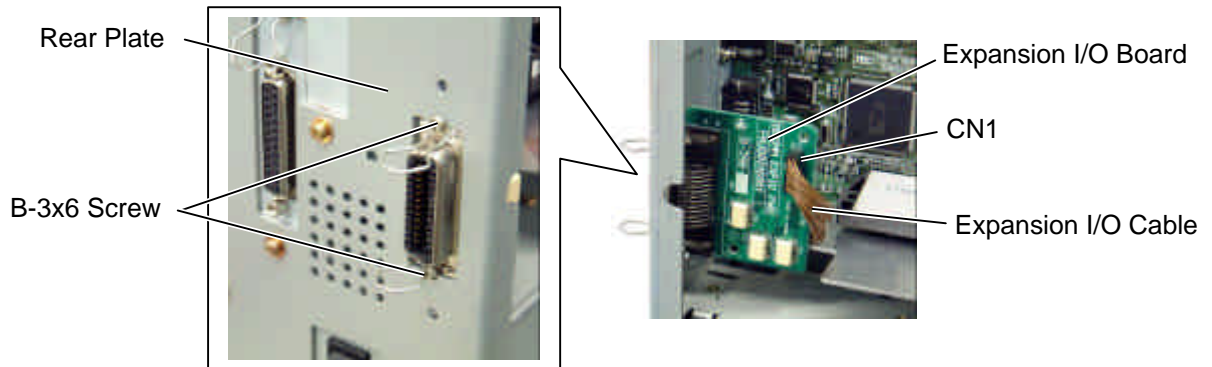
- Installation Manual (1 copy)
- SM-3x6 Screw (3 pcs.)

- 1) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 2) Loosen the two M-3x5 screws of the PCMCIA interface board. (Refer to Caution above.)
- 3) Remove the two SM-3x6 screws to detach the blind plate A from the back.

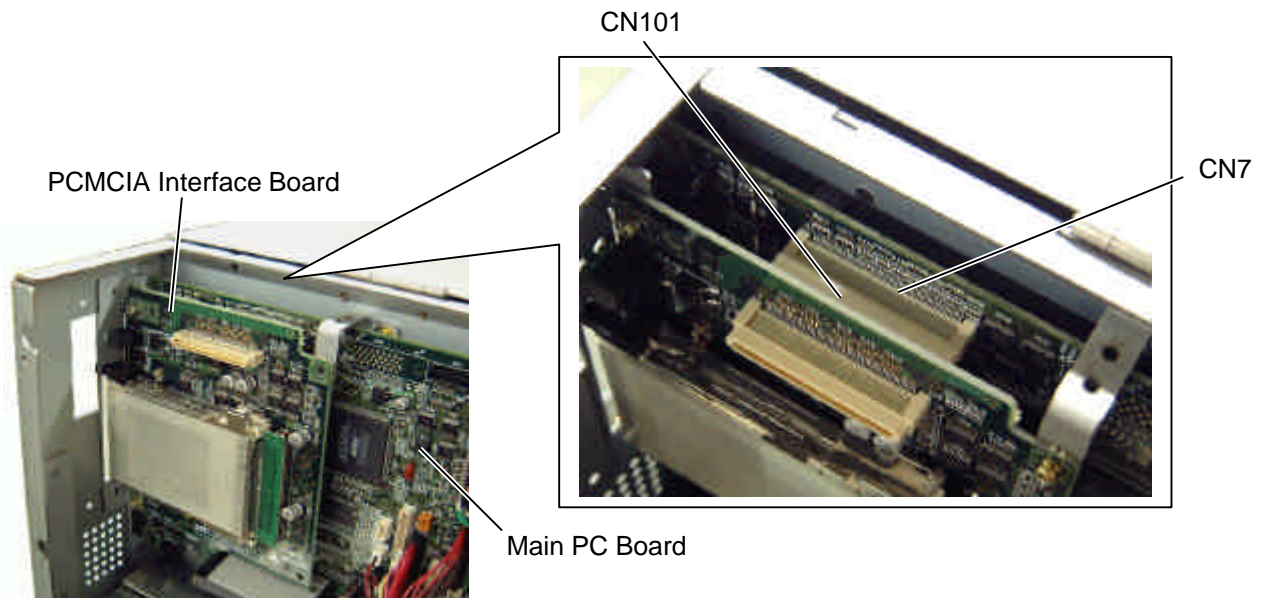


NOTE: In case of the B-SX5T or the B-SX4T that the optional Expansion I/O board (B-7704-IO-QM) has been installed in, remove the expansion I/O board from the printer temporarily using the following procedure.

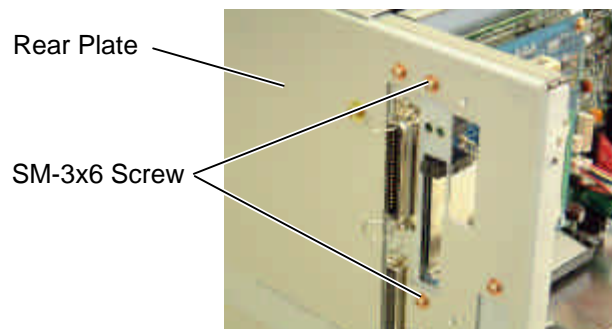
- (1) Disconnect the Expansion I/O cable from CN1 on the Expansion I/O board.
- (2) Remove the two B-3x6 screws to detach the Expansion I/O board from the printer.



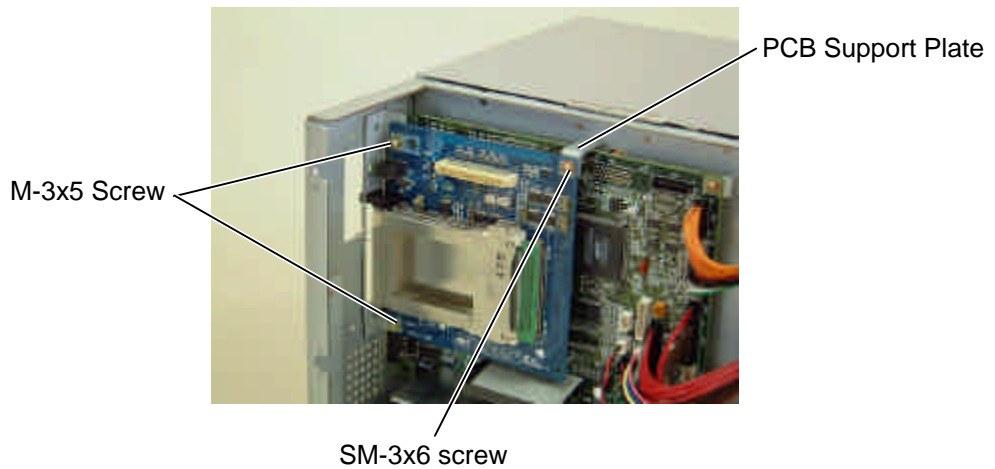
- 4) Firmly connect CN101 on the PCMCIA interface board directly to CN7 on the Main PC board.



- 5) Secure the PCMCIA interface board to the rear plate with the two SM-3x6 screws.

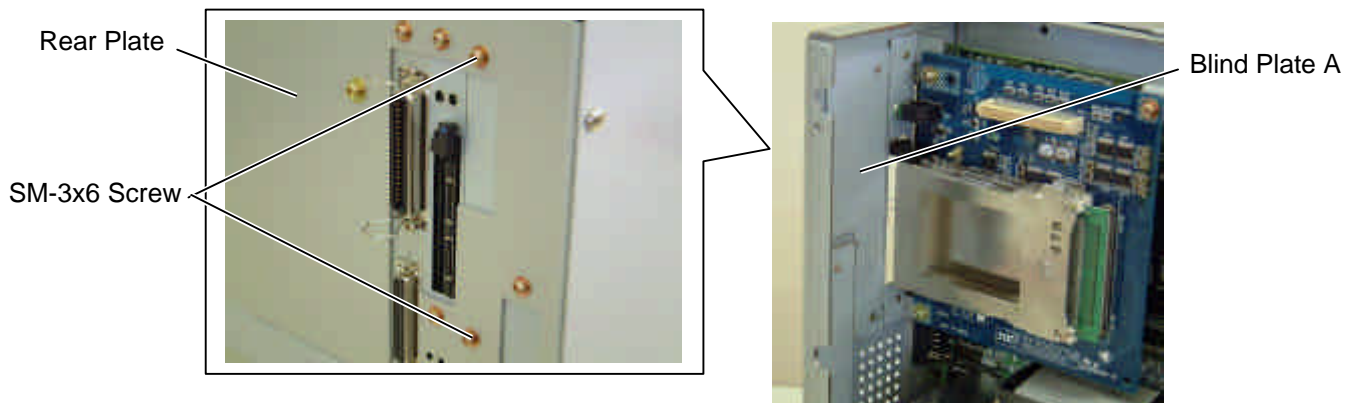


- 6) Secure the PCMCIA interface board to the PCB support plate with the SM-3x6 screw. Tighten the two M-3x5 screws that were loosened previously. (Refer to Caution)



- 7) Attach the blind plate A to the rear plate with the two SM-3x6 screws that were removed in step 6). If the LAN interface board or USB interface board is also installed, go to the next step.

NOTE: Keep the two SM-3x6 screws and blind plate A safe when the LAN interface board or USB interface board is installed.



- 8) Reassemble the side panel (L) in the reverse order of removal. If the Expansion I/O board was removed at the beginning, reassemble it.

NOTE: For inserting, removing, and handling the PC card, refer to the Owner's Manual.

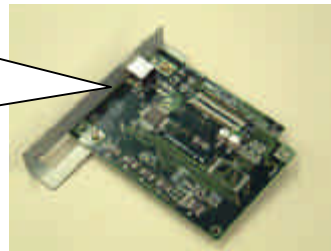
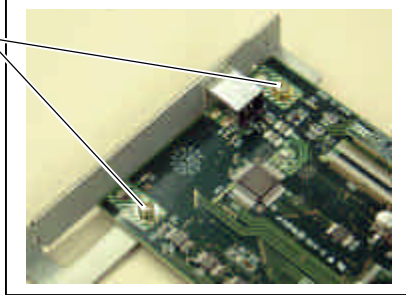
4.6 USB INTERFACE BOARD (B-9700-USB-QM)

This optional interface board is provided with the interface port, which allows for the installation of USB devices.

CAUTION!



1. Loosen the two M-3x5 screws of the USB interface board before installing it. Failure to do this may cause damage to the connector.

M-3x5 Screw



2. When using the PCMCIA interface board together, first install the PCMCIA PC board, and then USB interface board.

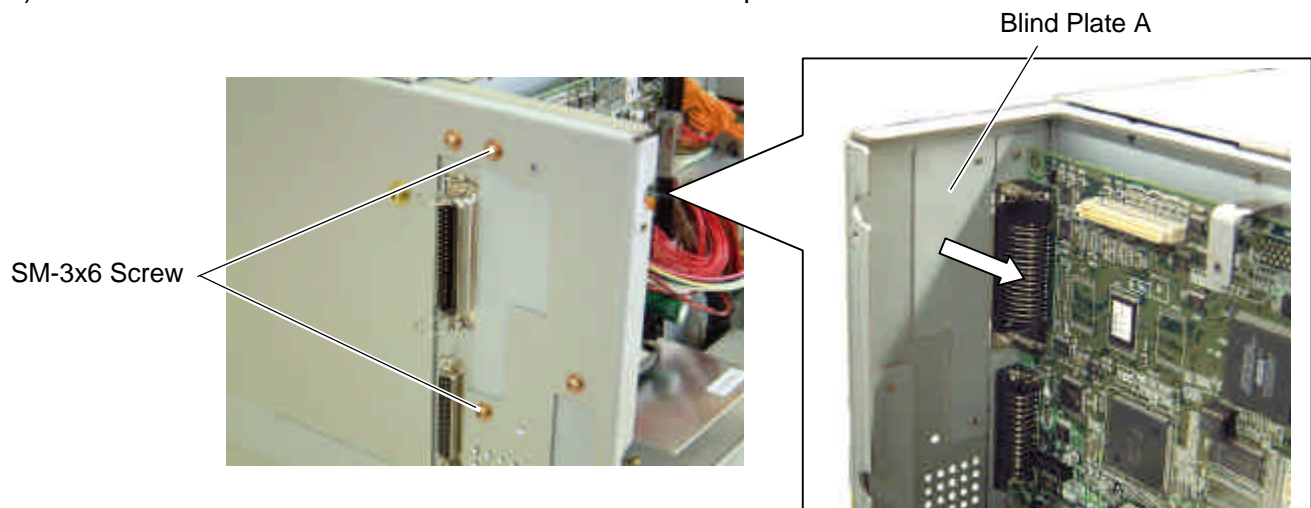
All the following parts are supplied with the kit. Make sure you have all items shown below.

<p>USB Interface Board (1pc.)</p> 	<p>PCB Attachment Plate (1 pc.)</p> 
---	---

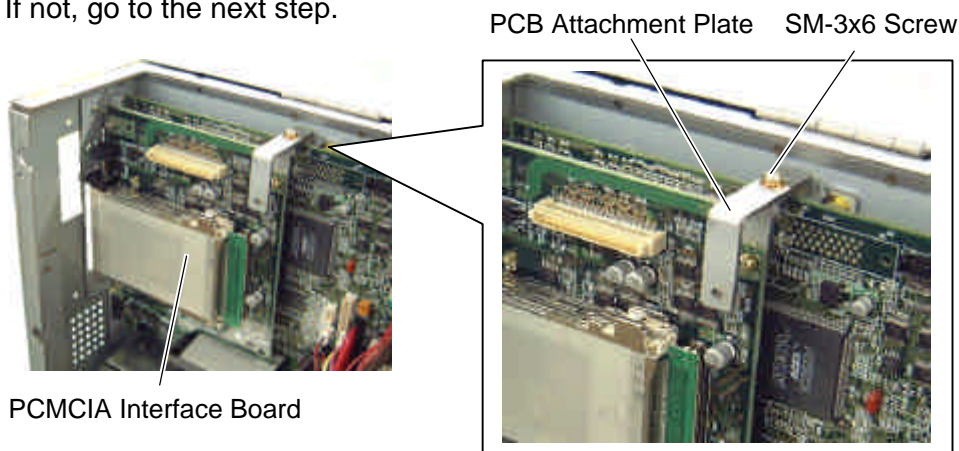
- Installation Manual (1 copy)
- SM-3x6 Screw (4 pcs.)

NOTE: When using the PCMCIA interface board (B-9700-PCM-QM) together, the PCB attachment plate will be used.

- 1) Turn the power off and disconnect the power cord.
- 2) Loosen the two M-3x5 screws of the USB interface board. (Refer to Caution above.)
- 3) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 4) Remove the two SM-3x6 screws to detach the blind plate A from the back.

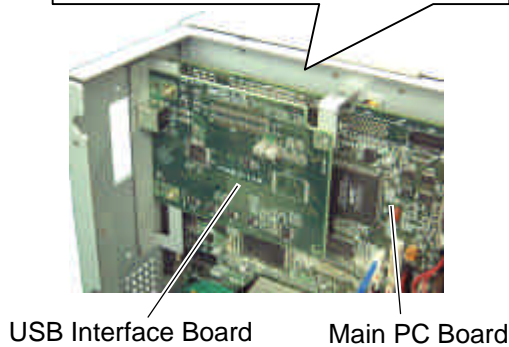
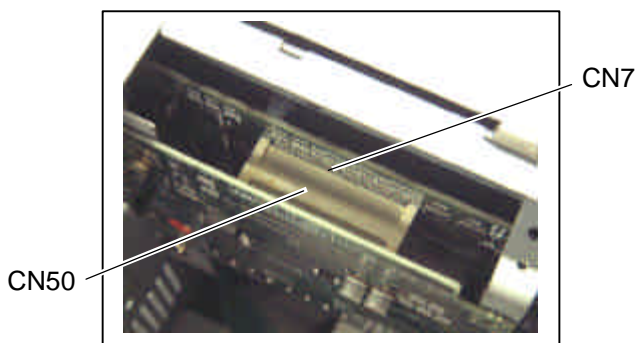


- 5) If the PCMCIA interface board is used together with the USB interface board, attach the PCB attachment plate to the plate to which the PCMCIA interface board is secured with the SM-3x6 screw. If not, go to the next step.

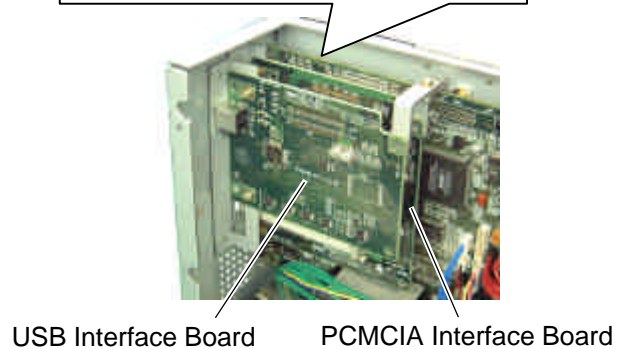
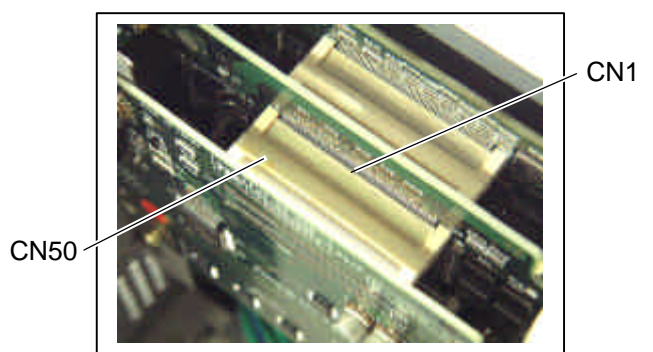


- 6) Firmly connect CN50 connector on the USB interface board directly to CN7 on the Main PC board or CN1 on the PCMCIA interface board.

When connecting to the Main PC Board:



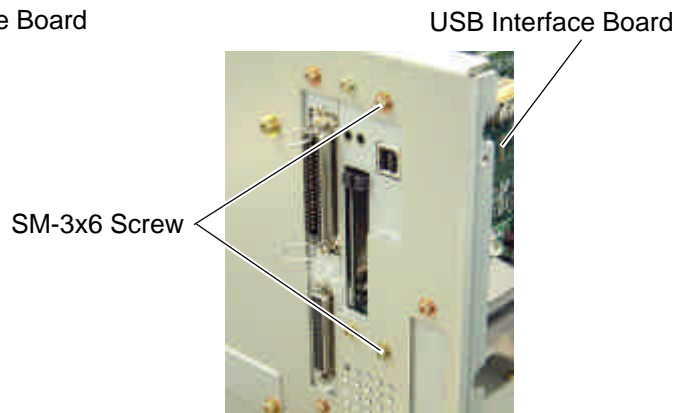
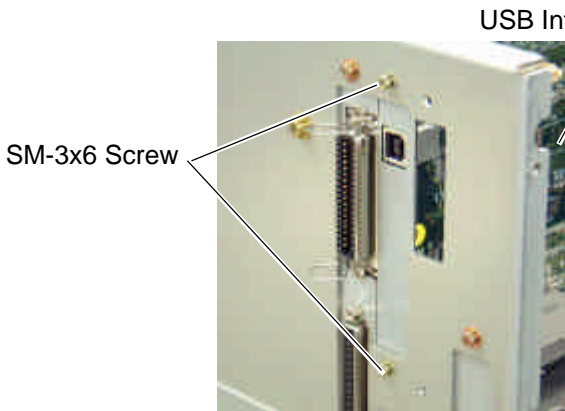
When connecting the PCMCIA Interface Board:



7) Secure the USB interface board to the rear plate with the two SM-3x6 screws.

When connecting to the Main PC Board:

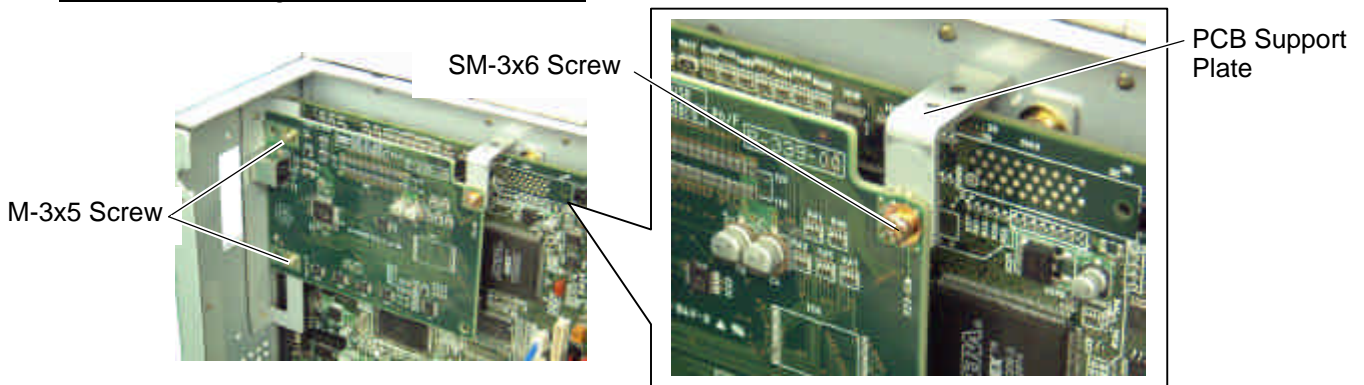
When connecting to the PCMCIA Interface Board:



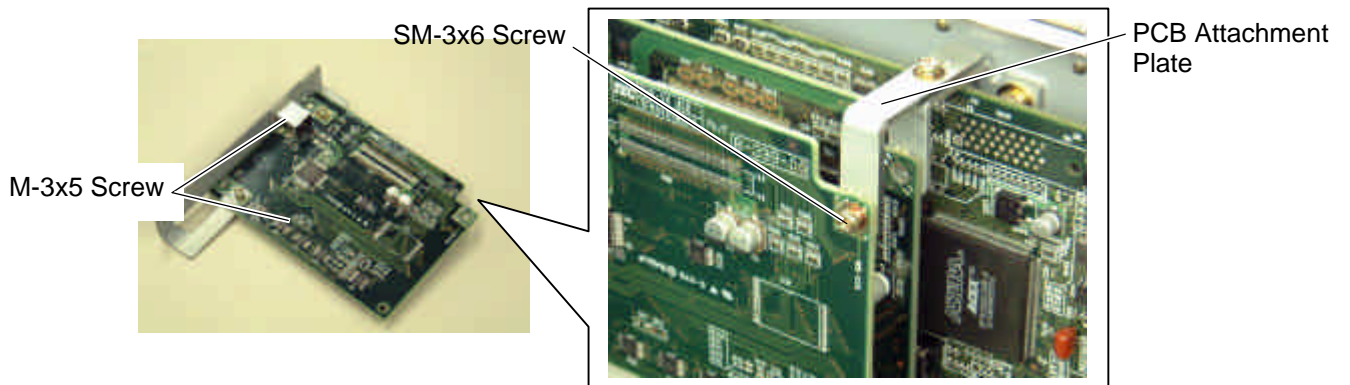
8) Tighten the two M-3x5 screws of the USB interface board that were loosened previously. (Refer to Caution)

9) Secure the USB interface board to the PCB support plate (when connecting to the Main PC board) or PCB attachment plate (when connecting to the PCMCIA interface board) with the SM-3x6 screw.

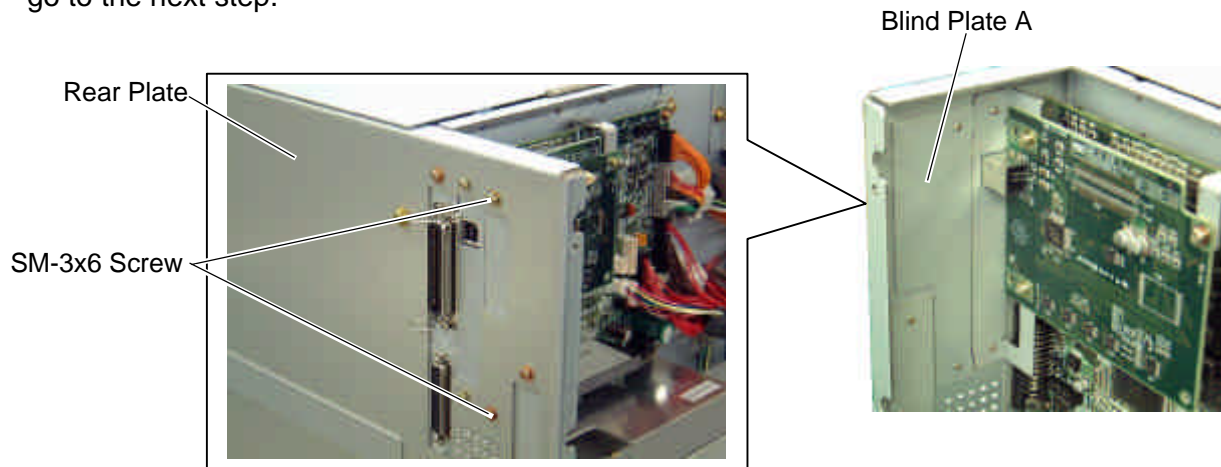
When connecting to the Main PC Board:



When connecting to the PCMCIA Interface Board:



- 10) Attach the blind plate A to the rear plate. If the PCMCIA interface board has been installed, go to the next step.



NOTE: In case that the PCMCIA interface board has been installed, retain the blind plate A.

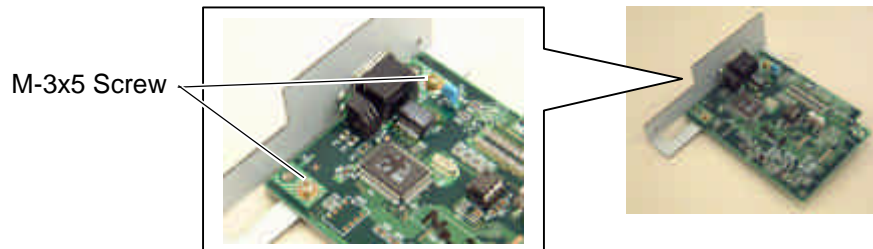
- 11) Reassemble the side panel (L) to the printer in the reverse order of removal.

4.7 LAN INTERFACE BOARD (B-9700-LAN-QM)

This optional interface board enables the printer to be used in a LAN network.

CAUTION!

1. Loosen the two M-3x5 screws of the LAN interface board before installing it. Failure to do this may cause damage to the connector.





2. When using the PCMCIA interface board together, first install the PCMCIA PC board, and then LAN interface board.

License Agreement

Please be sure to read the License Agreement before opening the sealed LAN Interface Board. If you do not agree with the License Agreement, please do not use this product. Your unpacking the product indicates your approval for the License Agreement.

NOTE: When both B-9700-LAN-QM and B-9700-PCM-QM are installed, inserting a LAN PC card into the slot of the B-9700-PCM-QM disables the B-9700-LAN-QM.

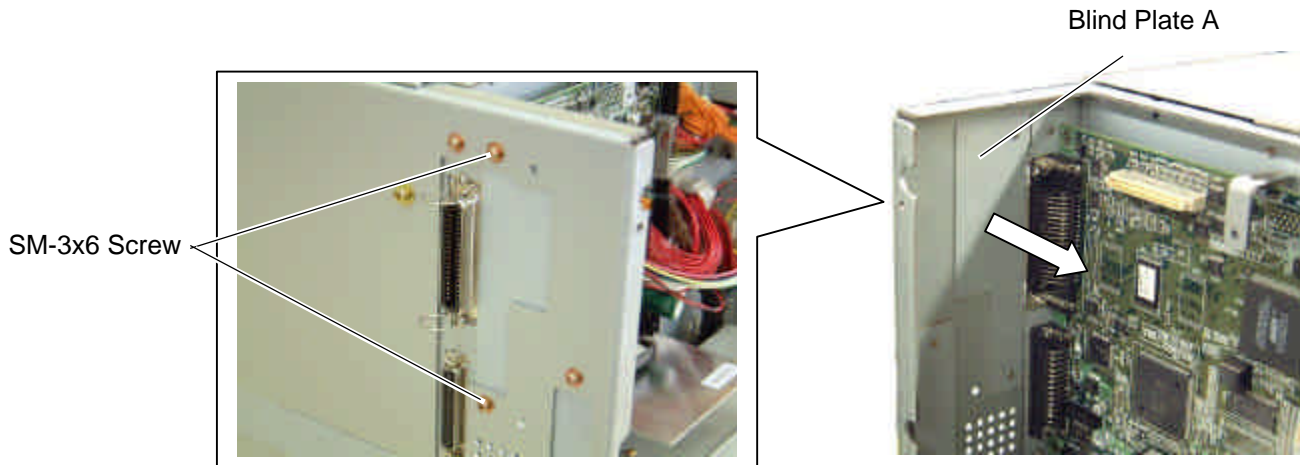
All the following parts are supplied with the kit. Make sure you have all items shown below.

<p>LAN Interface Board (1pc.)</p> 	<p>PCB Attachment Plate</p> 
---	---

- Installation Manual (1 copy)
- License Agreement (1 copy)
- SM-3x6 Screw (4 pcs.)

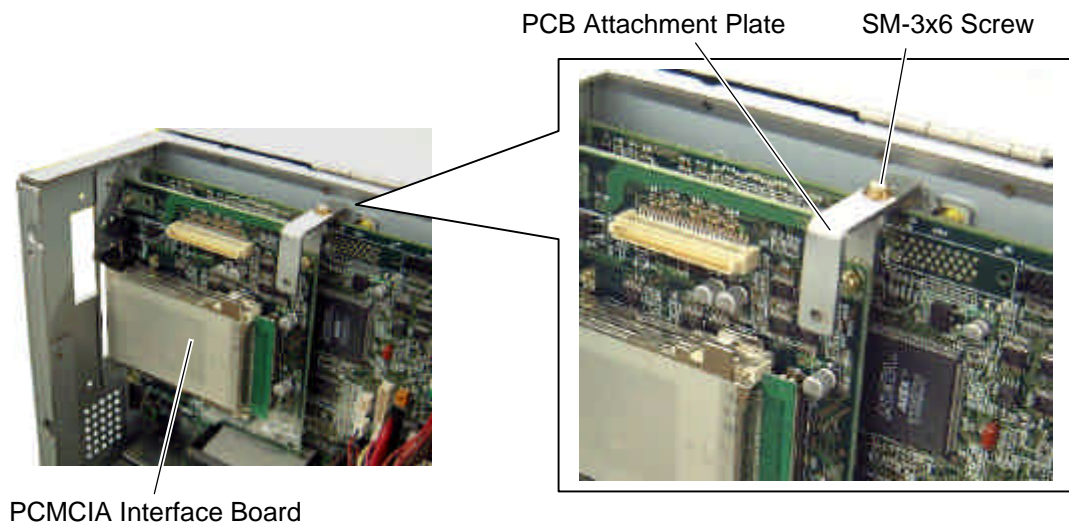
NOTE: When using the PCMCIA interface board (B-9700-PCM-QM) together, the PCB attachment plate will be used.

- 1) Loosen the two M-3x5 screws of the LAN interface board. (Refer to Caution above.)
- 2) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 3) Remove the two SM-3x6 screws to remove the blind plate A from the back.



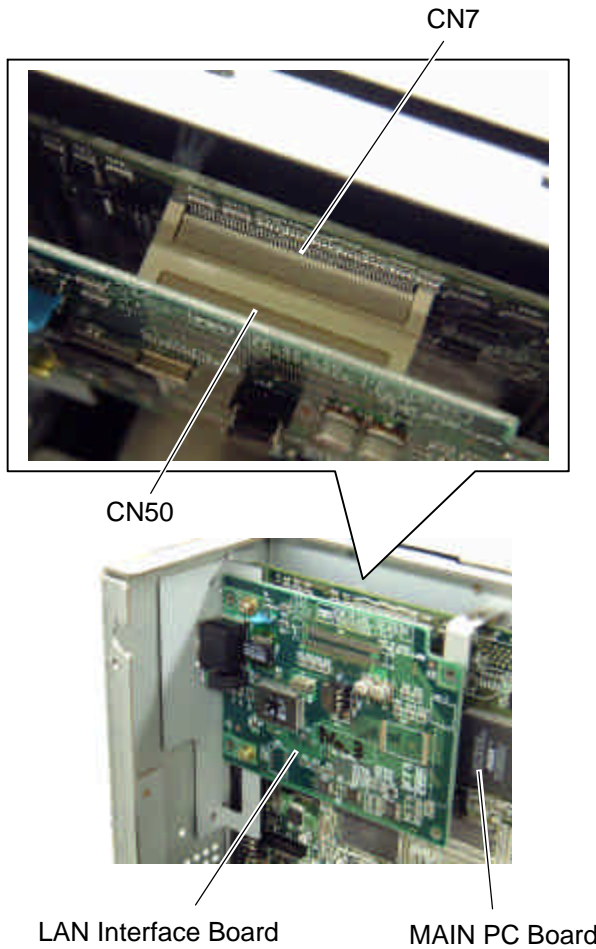
NOTE: Keep the blind plate A safe as this will be necessary when the machine is modified to the standard type.

- 4) If the PCMCIA interface board is also installed, attach the PCB attachment plate to the plate to which the PCMCIA interface board is secured with the SM-3x6 screw. If not, go to the next step.

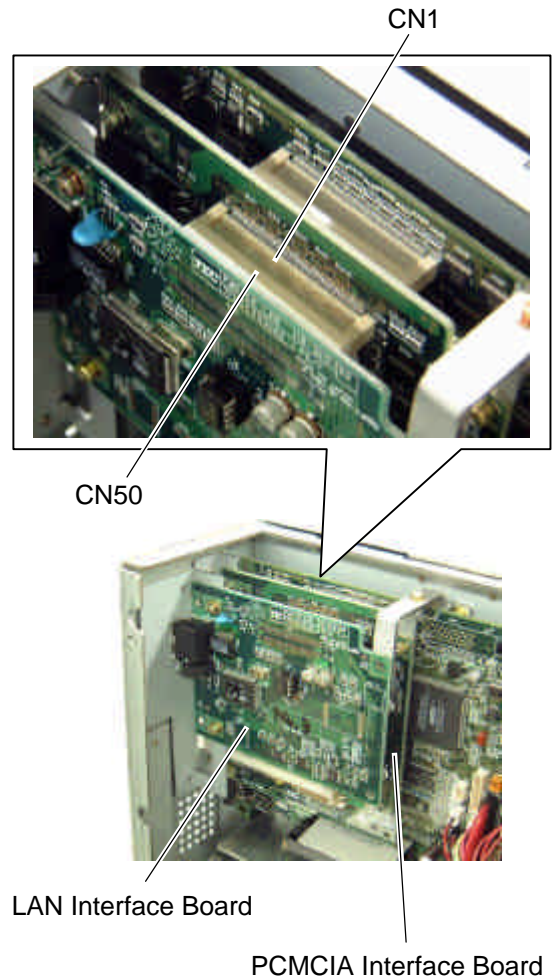


- 5) Firmly connect CN50 on the LAN interface board directly to CN7 on the Main PC board or CN1 on the PCMCIA interface board.

When connecting to the Main PC Board

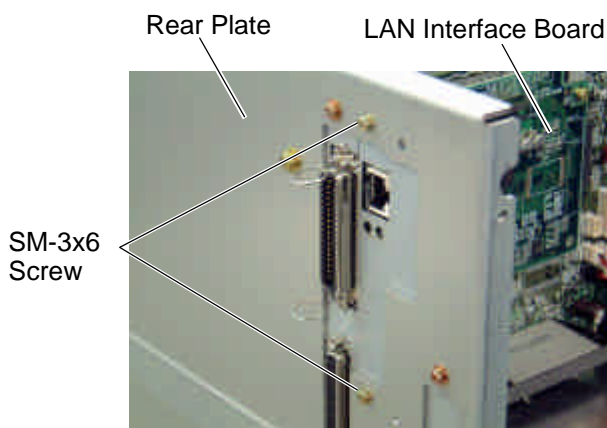


When connecting to the PCMCIA Interface Board

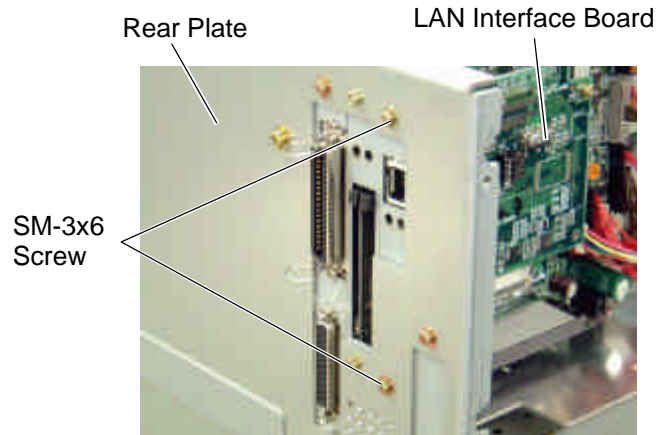


- 6) Secure the LAN interface board to the rear plate with the two SM-3x6 screws.

When connecting to the Main PC Board

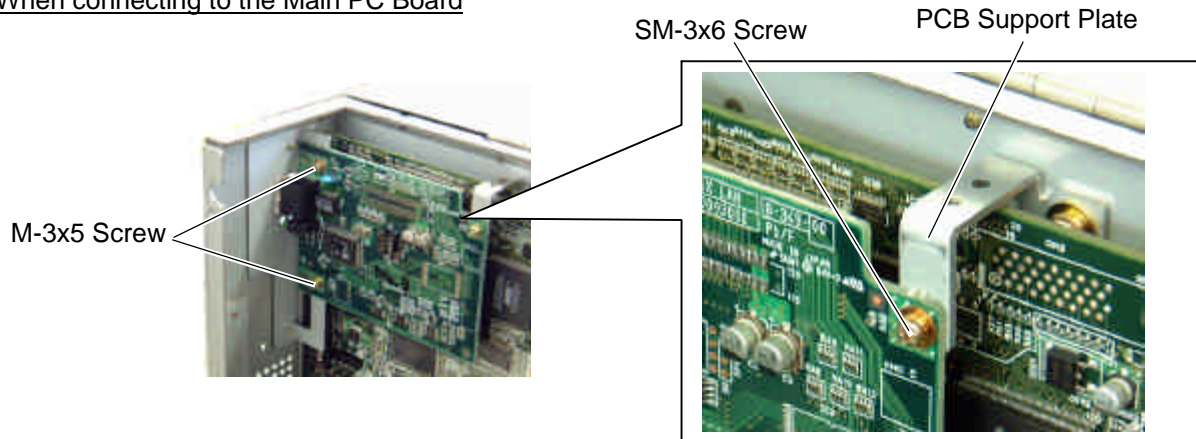


When connecting to the PCMCIA Interface Board

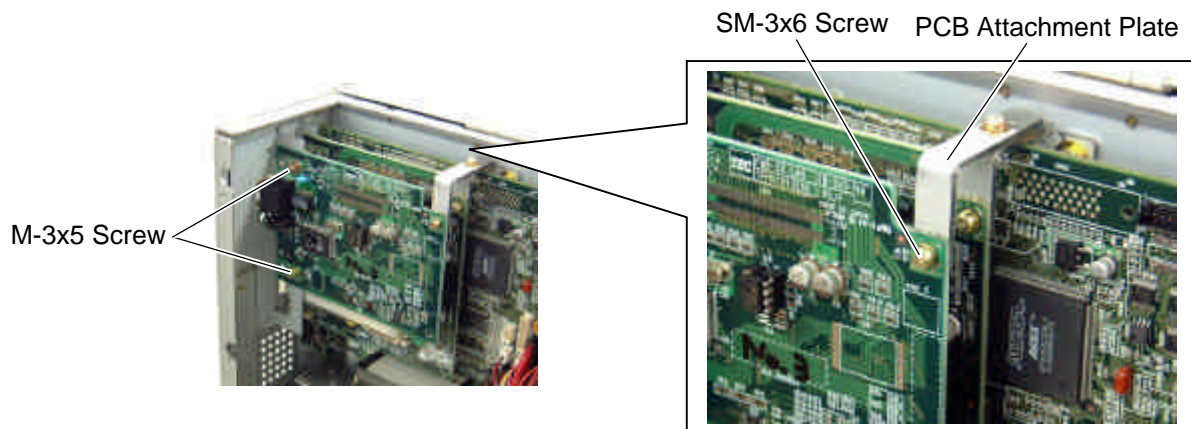


- 7) Tighten the two M-3x5 screws on the LAN interface board that were loosened previously. (Refer to Caution.)
- 8) Secure the LAN interface board to the PCB support plate (when connecting to the Main PC board) or PCB attachment plate (when connecting to the PCMCIA interface board) with the SM-3x6 screw.

When connecting to the Main PC Board



When connecting to the PCMCIA Interface Board



- 9) Reassemble the side panel (L) in the reverse order of removal.

NOTE: *Precaution for the LAN cable connection*

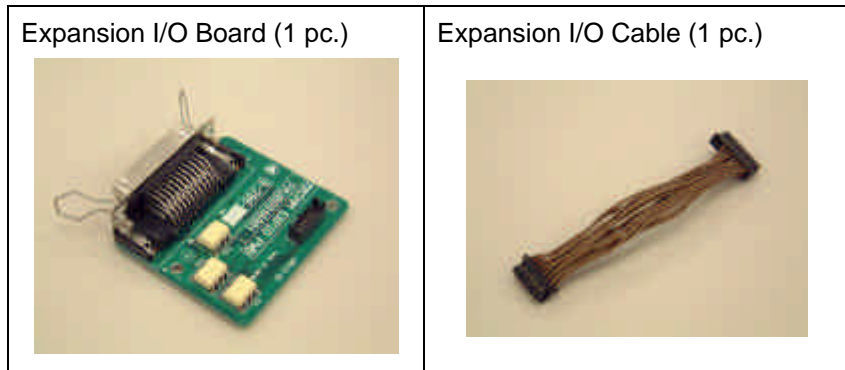
When connecting a LAN cable with the hooded connectors to the LAN interface board, it may not be connected depending on the shape of the hood. In this case, move aside the hood, connect the cable, and return the hood to the former position.

4.8 EXPANSION I/O INTERFACE BOARD (B-7704-IO-QM)

This optional interface board is provided with an expansion I/O interface.

NOTE: The expansion I/O interface board is standard on the B-SX5T series.

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

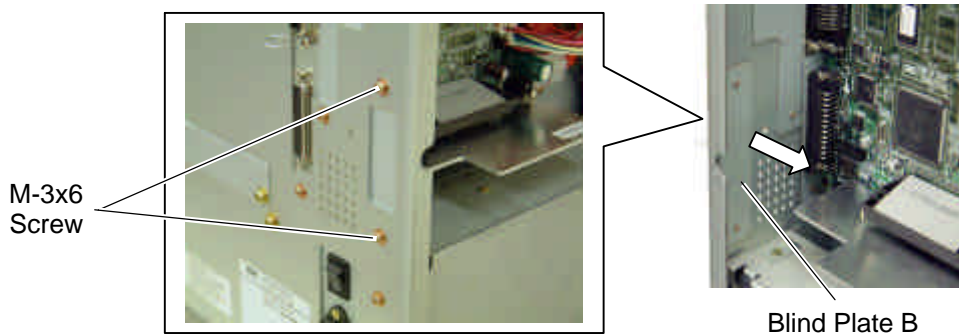


Installation Manual (1 copy)

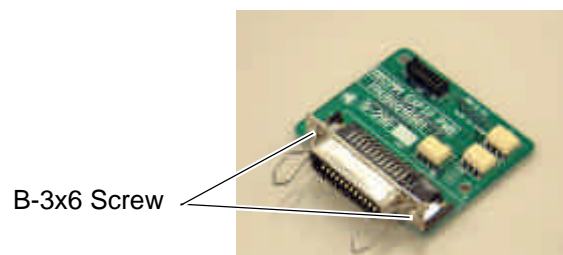
Locking Support WLS-16-0 (1 pc.)

NOTE: The locking support is not used on this printer.

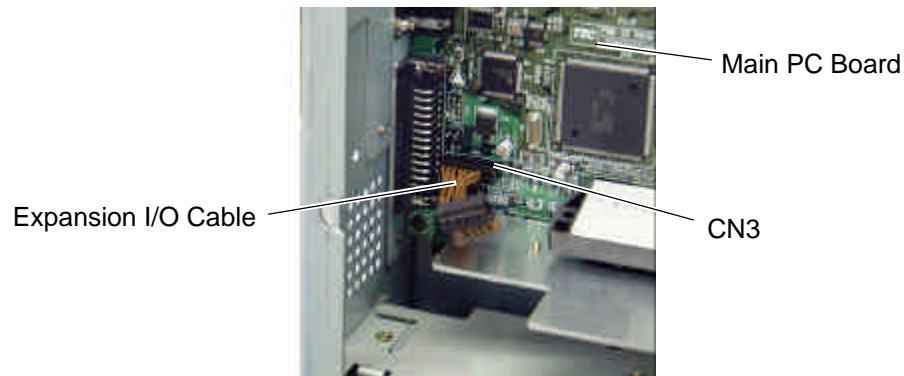
- 1) Turn the power off and disconnect the power cord.
- 2) Remove the side panel (L) from the printer. (Refer to section 3.2.)
- 3) Remove the two M-3x6 screws and detach the blind plate B from the back.



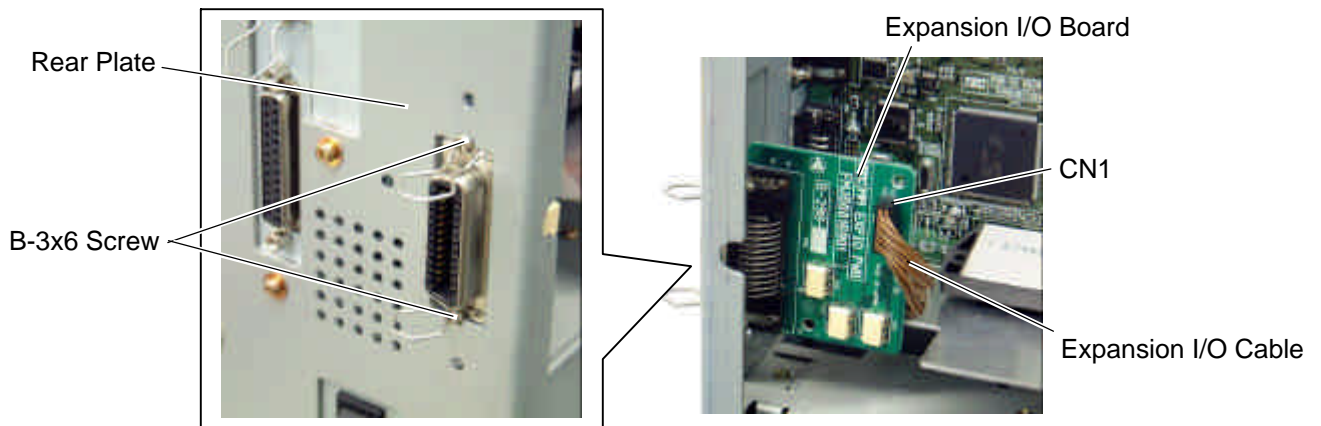
- 4) Remove the two B-3x6 screws from the expansion I/O board.



- 5) Connect the expansion I/O cable to CN3 on the Main PC board.



- 6) Secure the expansion I/O board to the rear plate with the two B-3x6 screws removed in Step 4.
7) Connect the expansion I/O cable to CN1 on the expansion I/O board.



- 8) Reassemble the side panel (L) in the reverse order of removal.
9) Perform a loop back check to confirm that the expansion I/O board functions properly.

5. SYSTEM MODE

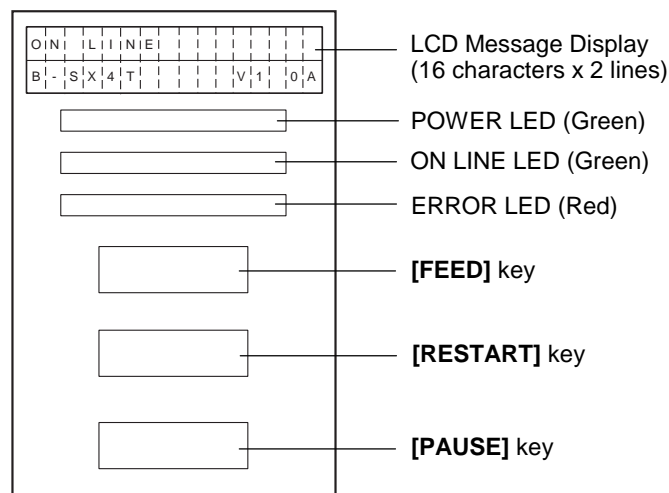
This chapter describes usage and purpose of the keys on the Operation Panel in System Mode.

For service personnel, System Mode should be used for the following eight purposes:

- To check and print the system status, the Maintenance Counter, and the Print Head Element.
- To set the parameters for the communication with the host computer, and the printer functions such as the keys and LCD Message Display.
- To make fine adjustment related to the media issue.
- To perform a test print for checking print quality.
- To check the status of the sensors and to set the threshold of the media sensors.
- To perform a Maintenance Counter clear and Parameter clear.
- To set the IP Address.
- To set the Basic setting.
- To perform the factory mode.

5.1 OPERATION PANEL

The figure below illustrates the Operation Panel and key functions.



The LCD Message Display shows messages in alphanumeric characters and symbols to indicate the printer's status. Up to 16 characters in 2 lines can be displayed.

There are three LEDs on the Operation Panel.

LED	Illuminates when...
POWER	The printer is turned on.
ON LINE	The printer is ready to print.
ERROR	Any error occurs with the printer.

In System Mode, the **[FEED]**, **[RESTART]** and **[PAUSE]** keys function as described below.

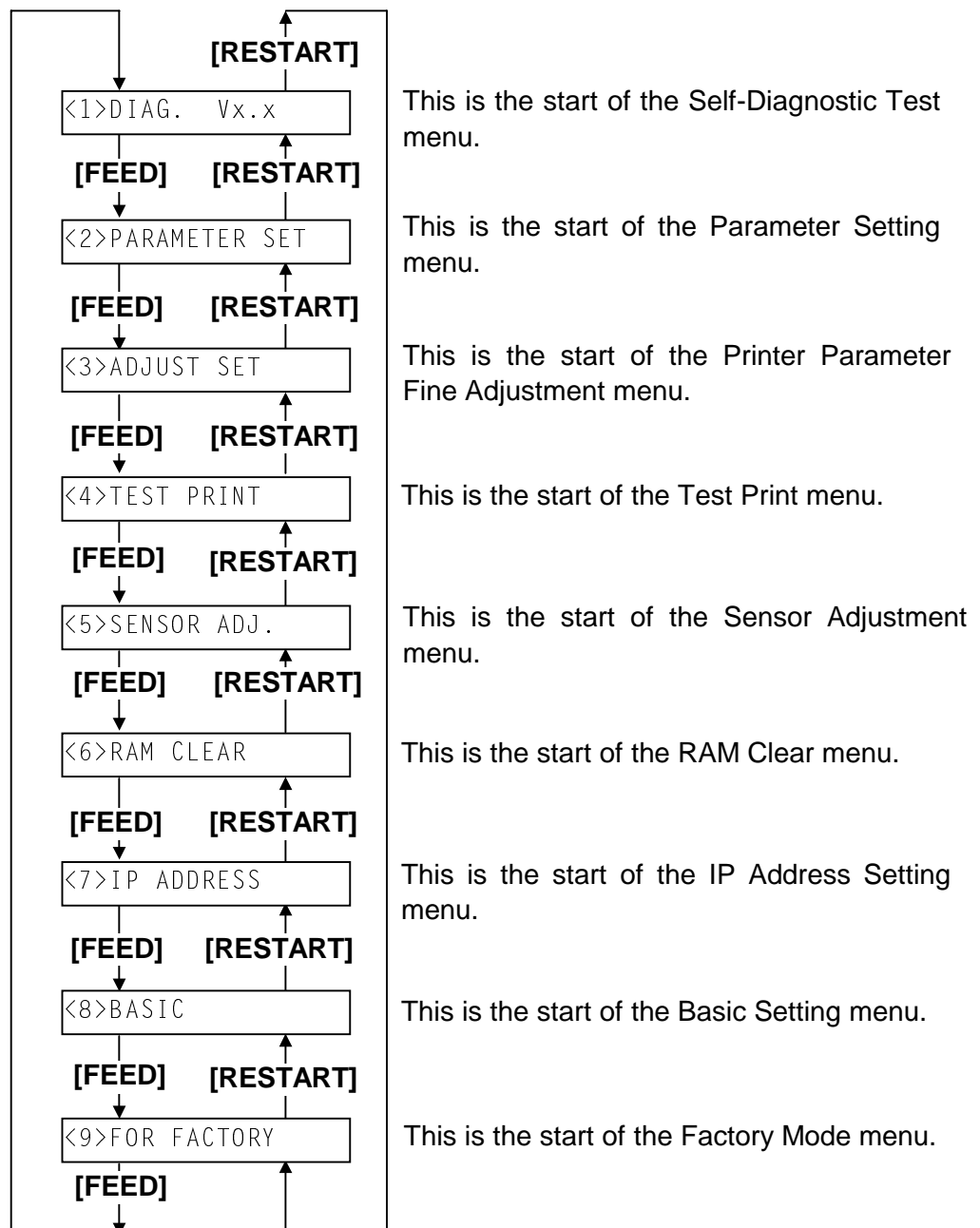
FEED	Used to start the system mode as a [PAUSE] key does. Used to select the parameter mode or to fine adjust the parameters in the negative direction (-).
RESTART	Used to select the parameter mode or to fine adjust the parameters in the positive direction (+).
PAUSE	Used to start the system mode as a [FEED] key does and to select the parameter mode. Used as an enter key.

NOTE: Use the **[RESTART]** key to resume printing after a pause condition, or after clearing an error.

5.2 OVERVIEW

System Mode consists of nine main menus: Self-Diagnostic Test, Parameter Setting, Printer Parameter Fine Adjustment, Test Print, Sensor Adjustment, RAM Clear, IP Address Setting, Basic Setting, and Factory Mode.

While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until “<1>DIAG. Vx.x” message appears on the display.



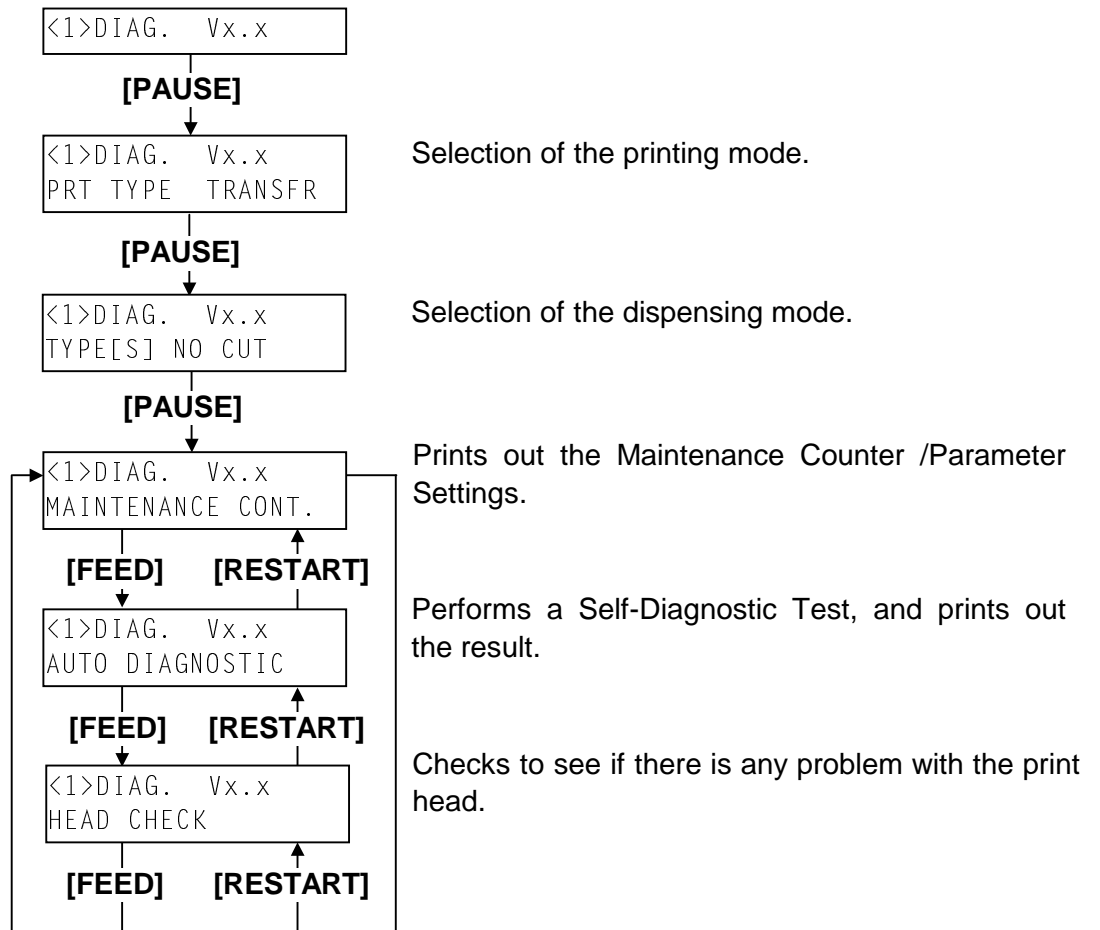
- NOTES:**
1. System Mode menus can be selected with the **[RESTART]** or **[FEED]** key.
 2. Pressing the **[PAUSE]** key allows you to enter the sub menus of each System Mode menu. Flowcharts of each menu's sub menus are provided on the following pages.
 3. "x.x" of "DIAG. Vx.x" indicates firmware version and revision.

5.3 SELF-DIAGNOSTIC TEST

■ Outline of Self-Diagnostic Test

In the Self-Diagnostic Test mode ,the printer checks and prints out the printer system information such as the sensor or interface, and the Maintenance Counter. Also it makes the print head broken element check.

The **Self-Diagnostic Test** contains the following sub menus:



NOTE: Use the **[FEED]** or **[RESTART]** key to select a desired option.

While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the “<1>DIAG. Vx.x” message appears in the display.

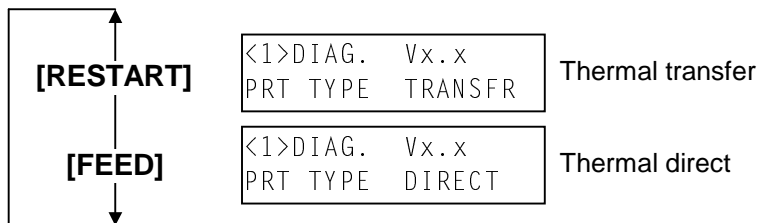
<1>DIAG. Vx.x

5.3.1 Printing Mode Selection

Press the **[PAUSE]** key. The type of printing mode can be selected:

“TRANSFR” (Thermal transfer) or “DIRECT” (Thermal direct).

After selecting the printing mode to be used, press the **[PAUSE]** key.



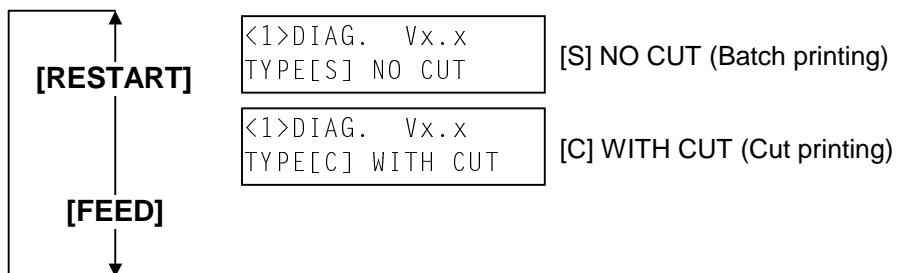
NOTE: When using the ribbon, be sure to select “Thermal Transfer”. When using the thermal media, be sure to select the “Thermal Direct”.

5.3.2 Dispensing Mode Selection

When “TYPE[S] NO CUT” is displayed, press the **[PAUSE]** key. The type of dispensing mode can be selected:

“[S] NO CUT” (Batch printing), “[C] WITH CUT” (Cut printing) or “[H] PEEL OFF” (Strip printing).

After selecting the dispensing mode to be used, press the **[PAUSE]** key.



NOTE: When using the cutter module, be sure to select “[C] WITH CUT”. When using neither cutter module nor strip module, be sure to select “[S] NO CUT”.

5.3.3 Maintenance Counter/Parameter Settings Print Out

The printer is ready to print out the Maintenance Counter/Parameter Settings. Press the [PAUSE] key to start.

```
<1>DIAG. Vx.x
MAINTENANCE CONT
```

The printer starts printing out the Maintenance Counter/Parameter Settings. During printing, the message below appears on the display.

```
<1>DIAG. Vx.x
CHECKING & PRINT
```

After printing is completed, the display returns to "<1>DIAG. Vx.x".

• Print Sample	(1)	TOTAL FEED	1.1km		
	(2)	FEED	1.1km		
	(3)	PRINT	0.5km		
	(4)	CUT	96		
	(5)	HEAD U/D	32		
	(6)	RIBBON	3h		
	(7)	SOLENOID	0h		
	(8)	232C ERR	255		
	(9)	SYSTEM ERR	0		
	(10)	POWER FAIL	0		
		[PC]		[KEY]	
	(11)	FEED +2.0mm		FEED +0.0mm	
	(12)	CUT +0.0mm		CUT +1.0mm	
	(13)	BACK +0.0mm		BACK +0.0mm	
	(14)	TONE(T) +0 step		TONE(T) +0 step	
	(15)	TONE (D) +0 step		TONE(D) +0 step	
	(16)	RBN(FW) -10		RBN (FW) -8	
	(17)	RBN (BK) +0		RBN (BK) +0	
	(18)	X ADJ. +0.0mm			
	(19)	THRESHOLD (R)	1.0V		
	(20)	THRESHOLD (T)	1.4V		
	(21)	FONT	[PC-850] [0]		
	(22)	SPEED	[9600]		
	(23)	DATA LENG.	[8]		
	(24)	STOP BIT	[1]		
	(25)	PARITY	[EVEN]		
	(26)	CONTROL	[XON+READY AUTO]		
	(27)	MESSAGE	[ENGLISH]		
	(28)	FORWARD WAIT	[ON]+0.0mm		
	(29)	HU CUT/RWD.	[OFF]		
	(30)	RIBBON SAVE	[ON]		
	(31)	CODE	[AUTO]		
	(32)	PEEL OFF STATUS	[ON]		
	(33)	FEED KEY	[FEED]		
	(34)	KANJI	[TYPE1]		
	(35)	EURO CODE	[B0]		
	(36)	AUTO HD CHK	[OFF]		
	(37)	ACK/BUSY	[TYPE1]		
	(38)	WEB PRINTER	[OFF]		
	(39)	INPUT PRIME	[ON]		
	(40)	RIBBON NEAR END	[OFF]		
	(41)	EX. I/O MODE	[TYPE1]		
	(42)	CENTRO MODE	[SPP]		
	(43)	PLUG & PLAY	[OFF]		

- NOTES:**
1. Item from (2) through (10) are initialized to "0" after RAM clear.
 2. If the print distance is 8.2m or less (B-SX4T) or 5.5m or less (B-SX5T), it is rounded down and no data is added to the memory at power off.
 3. If the count is 31 or less, it is rounded down and no data is added to the memory at power off.
 4. If the driving time is 32 sec. or less (B-SX4T) or 27sec. or less (B-SX5T), it is rounded down and no data is added to the memory at power off.
 5. When a sent command results in an error, the same number as the data capacity of the command is counted by byte.
 6. If the media distance covered is 50.0 cm or less, it is rounded down and no data is added to the memory at power off.

• **Descriptions of the Parameters**

#	Item	Contents
(11)	Feed length fine adjustment (PC), (KEY)	-50.0 mm to +50.0 mm (See NOTE below.)
(12)	Cut/strip position fine adjustment (PC), (KEY)	-50.0 mm to +50.0 mm (See NOTE below.)
(13)	Back feed length fine adjustment (PC), (KEY)	-9.9 mm to +9.9 mm (PC) -9.5 mm to +9.5 mm (Key) (See NOTE below.)
(14)	Print tone fine adjustment (Thermal transfer), (PC), (KEY)	-10 step to +10 step
(15)	Print tone fine adjustment (Thermal direct), (PC), (KEY)	-10 step to +10 step
(16)	Ribbon take-up motor driving voltage fine adjustment (PC), (KEY)	-15 step to +0 step
(17)	Ribbon feed motor driving voltage fine adjustment (PC), (KEY)	-15 step to +0 step
(18)	X axis fine adjustment	-99.5 mm to +99.5 mm
(19)	Threshold manual fine adjustment for the black mark sensor	0.0V to 4.0V
(20)	Threshold manual fine adjustment for the feed gap sensor	0.0V to 4.0V
(21)	Character	PC-850 PC-851 PC-1252 LATIN9 PC-852 PC-855 PC-1253 Arabic PC-857 PC-1250 PC-1254 PC-8 PC-1251 PC-1257
(22)	Baud rate	2400: 2400 bps 38400: 38400 bps 4800: 4800 bps 115200: 115200 bps 9600: 9600 bps 19200: 19200 bps
(23)	Data length	7: 7 bits 8: 8 bits
(24)	Stop bit length selection	1: 1 bit 2: 2 bits
(25)	Parity	NON: None ODD: ODD EVEN: EVEN
(26)	Transmission control code	XON/XOFF: XON/XOFF READY/BUSY: READY/BUSY (DTR) XON+READY AUTO: XON/XOFF+READY/BUSY (DTR) XON/XOFF AUTO: XON/XOFF READY/BUSY RTS: RTS

NOTE: Since the resolution of the B-SX4T's print head is 8 dots/mm, setting the fine adjustment value to "X.2mm" and "X.3mm" will become the same result. Therefore, "X.3mm" will be printed regardless of "X.2 mm" settings. In the same way, "X.7mm" setting will be printed as "X.8mm".

#	Item	Contents
(27)	Language selection for LCD message	ENGLISH: English GERMAN: German FRENCH: French DUTCH: Dutch SPANISH: Spanish JAPANESE: Japanese ITALIAN: Italian
(28)	Auto forward wait	ON: Available OFF: Unavailable NOTE: <i>The stop position fine adjustment value is also printed out.</i>
(29)	Head up on in cut mode ----- Rewinder selection	ON: Available OFF: Unavailable ON: Rewinder is used. OFF: Rewinder is not used.
(30)	Ribbon saving module	ON: Available OFF: Unavailable
(31)	Transmission control code selection	AUTO: Automatic selection ESC LF NUL: ESC LF NUL mode { | }: Mainframe mode xx xx xx: Optional code (The values are given in HEX.)
(32)	Strip wait status selection	ON: Available OFF: Unavailable
(33)	Feed key function	FEED: Feeds one label PRINT: Prints image buffer on one label
(34)	Kanji code type (Not supported QQ/QP models)	TYPE 1: Windows code TYPE 2: Original code
(35)	Euro font code	20H to FFH
(36)	Auto print head broken element check	ON: Available OFF: Unavailable
(37)	Centronics interface ACK/BUSY timing setting	TYPE1: The timing of ACK signal going up matches with that of the release of BUSY status. TYPE2: The timing of ACK signal going down matches with that of the release of BUSY status.
(38)	Web printer function	ON: Available OFF: Unavailable
(39)	Input prime selection _____ (Reset operation when $\overline{\text{INIT}}$ signal is ON)	ON: Available OFF: Unavailable
(40)	Ribbon near end detect setting	30m: Near end is detected when the remains of the ribbon is 30m long. 70m: Near end is detected when the remains of the ribbon is 70m long. OFF: Near end is not detected.
(41)	Expansion I/O interface operating mode	TYPE1: Standard mode TYPE2: Inline mode

#	Item	Contents
(42)	Centronics interface operating mode	SPP: Compatible mode ECP: ECP mode
(43)	Plug & Play setting	ON: Available OFF: Unavailable
(44)	Print processing setting at the label end detection	TYPE1: Printing is paused while the label is issued. TYPE2: Printing is paused after the label is issued.
(45)	Pre-Strip setting	ON: Available OFF: Unavailable
(46)	Back Feed Speed setting	STD: 3"/second LOW: 2"/second
(47)	Printer IP address	*** ** *
(48)	Gateway IP address	*** ** *
(49)	Subnet mask	*** ** *
(50)	True type font registration area size	0 KB to 896 KB (unit of 64 KB)
(51)	External character registration area size	0 KB to 896 KB (units of 64 KB)
(52)	BASIC file store area size	0 KB to 896 KB (units of 64 KB)
(53)	PC saving area size	0 KB to 896 KB (units of 64 KB)
(54)	Socket port number	ON: Available OFF: Unavailable Port No. 0 to 65535
(55)	BASIC interpreter setting	ON: Available OFF: Unavailable
(56)	BASIC interpreter trace setting	ON: Available OFF: Unavailable
(57)	DHCP function setting	ON: Available OFF: Unavailable
(58)	DHCP ID setting	Max. 16 characters
(59)	ESS ID (ESS ID for wireless LAN)	Max. 32 characters
(60)	CONNECTION (Wireless LAN connecting method)	INFRASTRUCTURE: Infrastructure mode ADHOC: Adhoc mode
(61)	CHANNEL (Channel No. setting to connect wireless LAN)	Channel No. 00 to 14
(62)	AUTH (Wireless LAN authorization method)	OPEN SYSTEM: Open system method SHARED KEY: Shared key method
(63)	WEP (Wired Equivalent Privacy) (Wireless LAN coding setting)	ON: Available OFF: Unavailable
(64)	WEP TYPE (Wireless LAN coding key setting)	40 bits: 40-bit coding key 128 bits: 128-bit coding key
(65)	SEND KEY (Wireless LAN coding key No. at the data sending)	1 to 4
(66)	WEP KEY #1 (Wireless LAN coding key No.1)	13 bytes fixed (Only the top 5 bytes are valid for 40-bit coding key.)
(67)	WEP KEY #2 (Wireless LAN coding key No.2)	13 bytes fixed (Only the top 5 bytes are valid for 40-bit coding key.)
(68)	WEP KEY #3 (Wireless LAN coding key No.3)	13 bytes fixed (Only the top 5 bytes are valid for 40-bit coding key.)
(69)	WEP KEY #4 (Wireless LAN coding key No.4)	13 bytes fixed (Only the top 5 bytes are valid for 40-bit coding key.)

5.3.4 Self-Diagnostic Test and Result Print Out

When the Maintenance Counter/Parameter Settings is printed, the message returns to "<1>DIAG. Vx.x". Press the **[PAUSE]** key twice.

The Self-Diagnostic Test is ready. Press the **[PAUSE]** key to start.

```
<1>DIAG. Vx.x
AUTO DIAGNOSTIC
```

The printer starts printing out the Self-Diagnostic Test, and prints out the result. During printing, the message below appears on the display.

```
<1>DIAG. Vx.x
CHECKING & PRINT
```

After printing is completed, the display returns to "<1>DIAG. Vx.x".

NOTE: If an error occurs, an error message appears, and the printer stops printing. After clearing the error, press the **[PAUSE]** key to return the display to "<1>DIAG.Vx.x". The printer does not restart printing automatically.

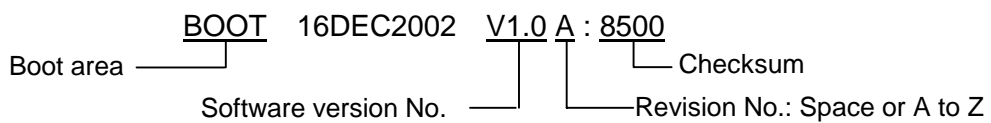
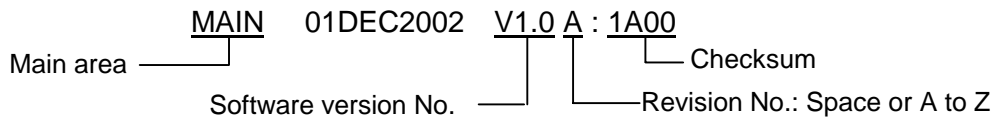
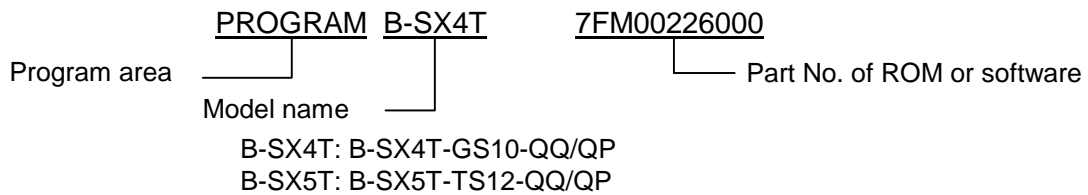
• Print Sample

(1)	PROGRAM	B-SX4T 7FM00226000 MAIN 01DEC2002 V1.0A: 1A00 BOOT 16DEC2002 V1.0: 8500
(2)	FONT	5600
(3)	KANJI	NONE: 0000 NONE: 0000
(4)	EEPROM	OK
(5)	SDRAM	8MB
(6)	CARD	SLOT1 ATA SLOT2 LAN
(7)	SENSOR1	00000000, 00000000
(8)	SENSOR2	[H]20°C [A]22°C [S]25°C [R]4.2V [T]2.5V [E]2.7V [RANK]7
(9)	EXP.I/O	NG
(10)	EX.232C	NG

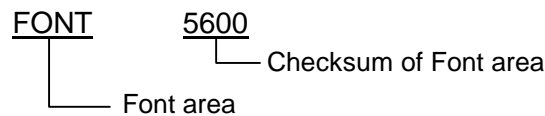
- NOTES:**
1. Print conditions: Preset count: 1, Print speed: 6"/sec. (B-SX4T) or 5"/sec. (B-SX5T), Sensor: No sensor, Printing method: Thermal transfer, Supply length: 87 mm, Issue mode: Batch printing
 2. Software version No., Part No. of ROM and checksum vary according to the software version of PROGRAM ROM.
 3. The last two digits of the checksum are usually "00".
 4. When Kanji ROM is not installed, the checksum becomes "0000".
 5. The symbol "°" of "°C" may not be printed depending on the type of character code.

• **Descriptions**

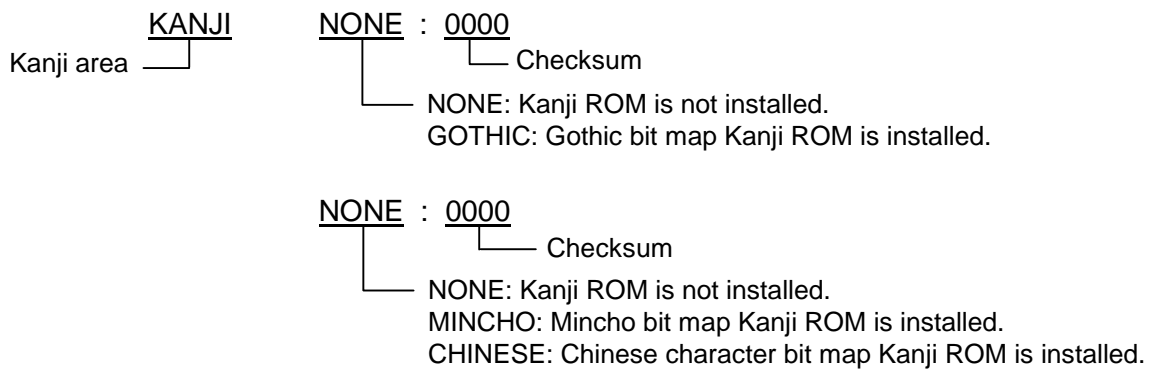
(1) Program ROM Check (Model Name, Date, Version, Part number, Checksum)



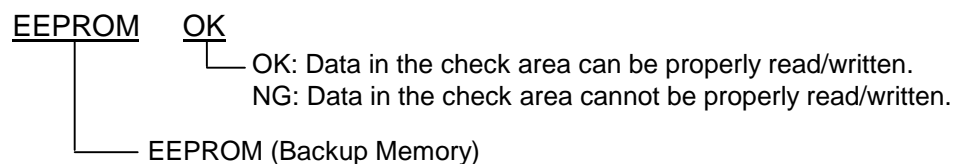
(2) Alphanumeric Font ROM Check



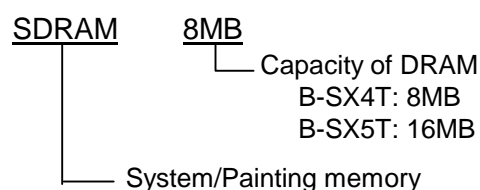
(3) Kanji ROM Check



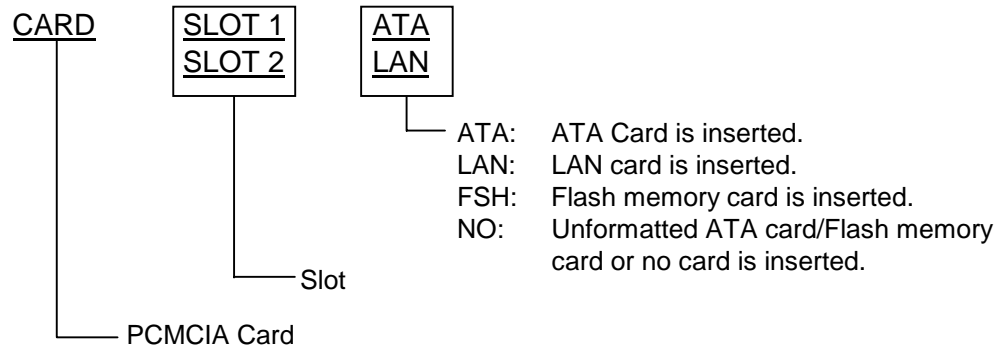
(4) EEPROM Check



(5) SDRAM Capacity

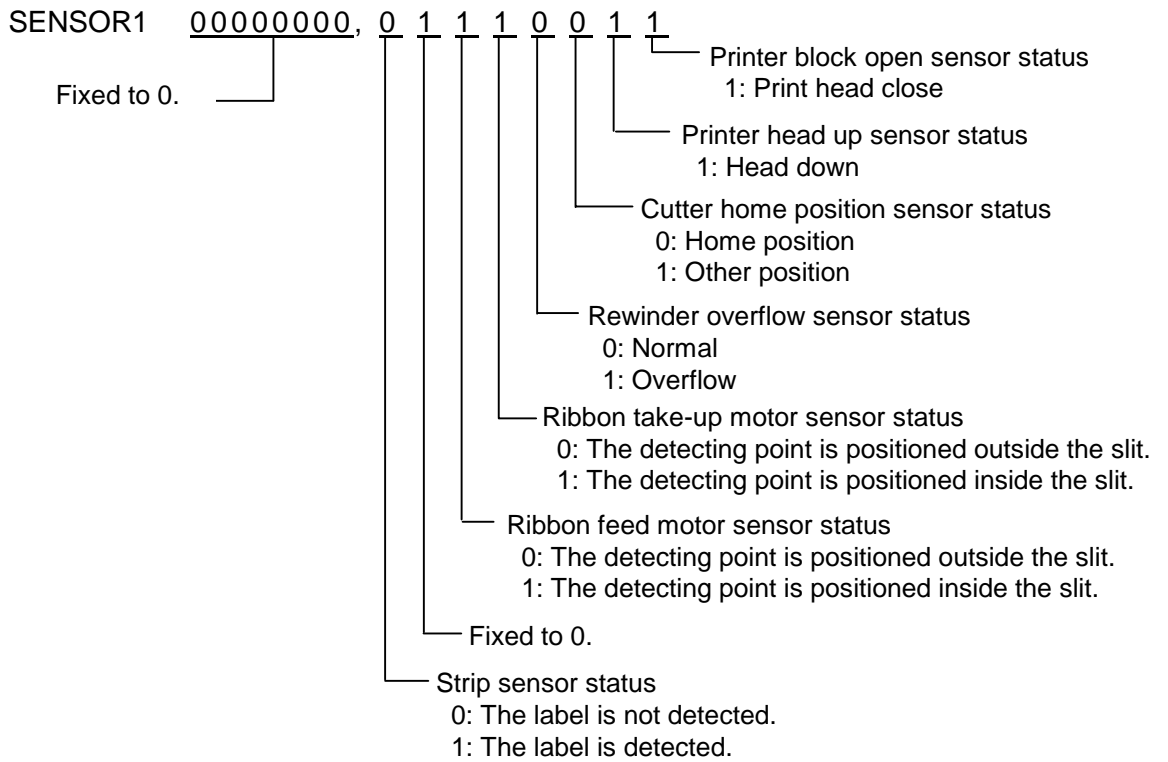


(6) PC Card Slot Check



(7) Sensor 1 Check

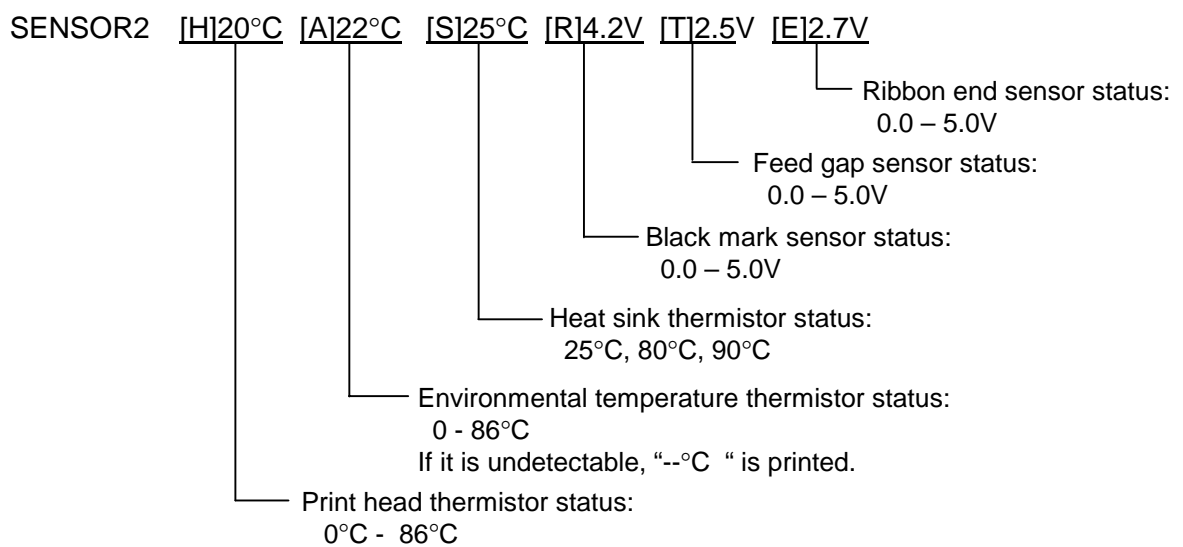
The status of the Strip Sensor, Ribbon Feed Motor Sensor, Ribbon Take-up Motor Sensor, Rewinder Overflow Sensor, Cutter Home Position Sensor, Print Head Up Sensor, and Print Block Open Sensor are printed.



Sensor/Switch	Print status content description
Printer block open sensor	Detects the Open or Close status of the printer block. When the printer block is closed, printing is performed.
Print head up sensor	Detects the Up or Down status of the print head. When the print head is down, printing is performed.
Cutter home position sensor	Indicates whether or not the cutter is at the home position.
Rewinder overflow sensor	Detects the amount of the rewound backing paper in strip printing mode. If the amount overflows the capacity, printing cannot be performed.
Ribbon take-up motor sensor Ribbon feed motor sensor	Controls ribbon motor rotation by detecting the slit on the ribbon take-up motor and the ribbon feed motor. Indicates the position of the slit sensor.
Strip sensor	Detects whether or not the label is at the paper outlet in strip printing mode. When the label is not detected, the printer feeds the label at the print start position.

(8) Sensor 2 Check

The status of the Print Head Thermistor, Environmental Temperature Thermistor, Heat Sink Thermistor, Black Mark Sensor, Feed Gap Sensor, and Ribbon End Sensor are printed.



[RANK] 7
Print head resistance rank:
0 – 15

Print Head Resistance Rank	B-SX4T	B-SX5T
	Average Resistance (ohm)	Average Resistance (ohm)
0	748 ~ 758	1100~ 1116
1	759 ~ 770	1117 ~ 1133
2	771 ~ 782	1134 ~ 1150
3	783 ~ 794	1151 ~ 1168
4	795 ~ 806	1169 ~ 1185
5	807 ~ 818	1186 ~ 1203
6	819 ~ 831	1204 ~ 1222
7	832 ~ 843	1223 ~ 1240
8	844 ~ 856	1241 ~ 1259
9	857 ~ 869	1260 ~ 1279
10	870 ~ 883	1280 ~ 1298
11	884 ~ 896	1299 ~ 1318
12	897 ~ 910	1319 ~ 1338
13	911 ~ 924	1339 ~ 1358
14	925 ~ 938	1359 ~ 1379
15	939 ~ 952	1380 ~ 1400

5.3.5 Print Head Element Check

When the Self-Diagnostic Test result is printed, the message returns to "<1>DIAG. Vx.x". Press the **[PAUSE]** key three times and **[FEED]** key twice.

The printer is ready to check the print head to see if there is any problem with the print head. Press the **[PAUSE]** key to start.

```
<1>DIAG. Vx.x  
HEAD CHECK
```

The printer starts checking the print head.

```
<1>DIAG. Vx.x  
CHECKING
```

If there is no problem with the print head, the print head check is complete. Press the **[PAUSE]** key to return to "<1>DIAG. Vx.x".

```
<1>DIAG. Vx.x  
NORMAL END
```

If there is a problem with the print head, the following message is displayed.

```
<1>DIAG. Vx.x  
HEAD ERROR
```

Press the **[PAUSE]** key to return to "<1>DIAG. Vx.x".

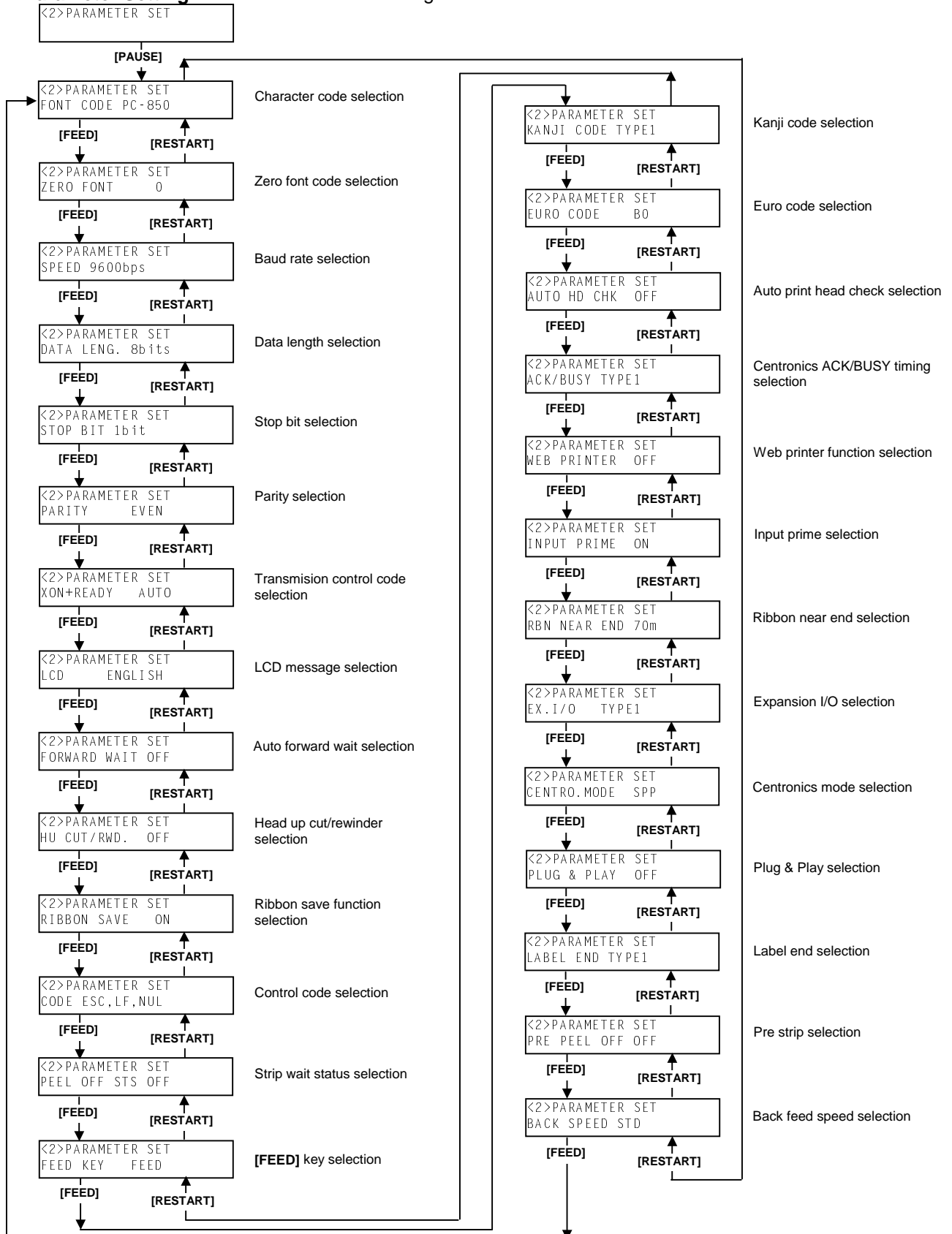
- NOTES:**
1. Make sure that the Top Cover is closed before starting the print head check.
 2. If "HEAD ERROR" appears, the print head element may be damaged. Replace the print head.
 3. The print head element check can be performed at the power on time. For selecting this function, refer to Section 5.4 Parameter Setting.

5.4 PARAMETER SETTING

■ Outline of Parameter Setting

In the Parameter Setting mode, various kinds of parameters, such as communication, key, LCD, etc. can be set. This will allow the use of the printer to comply with your operating conditions.

The **Parameter Setting** menu contains the following:



NOTE: Baud rate, Data length, Parity, and Transmission control code should be set to the same values as those of the host computer. Failure to do this causes improper operation.

While pressing the **[FEED]** and the **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the "<1>DIAG. Vx.x" message appears.

```
<1>DIAG.  Vx.x
```

Press the **[FEED]** key. The printer is at the start of the Parameter Setting menu.

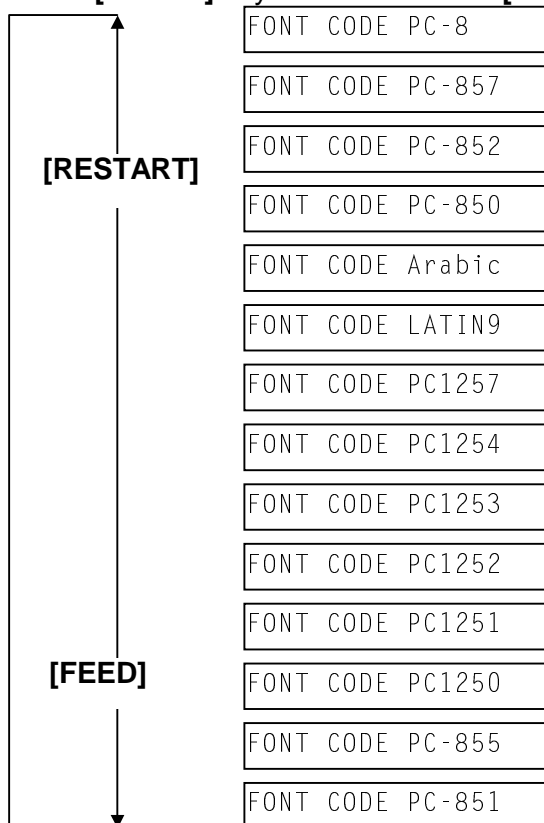
```
<2>PARAMETER SET
```

5.4.1 Character Code Selection

With this parameter you can select a character font code. When "<2>PARAMETER SET" appears, press the **[PAUSE]** key.

```
<2>PARAMETER SET
FONT CODE PC-850
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the character code, press the **[PAUSE]** key.

- NOTES:**
1. When pressing the **[FEED]** and **[RESTART]** keys at the same time in the parameter setting, the message returns to "<2>PARAMETER SET".
 2. If holding the **[FEED]** or **[RESTART]** key for 0.5 seconds or longer in the parameter setting the key is entered continuously.
 3. A changed parameter becomes enabled by pressing the **[PAUSE]**.

Example: Character code table

Printable characters depend on the fonts. The fonts of the following characters are Times New Roman, Helvetica, Letter Gothic, Prestige Elite, Courier, and Gothic 725 Black

PC-850

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç	É	á	€		ó	Ó	-
1		!	1	A	Q	a	q	ü	æ	í				Ð	ß	±
2		"	2	B	R	b	r	é	Æ	ó				È	Ö	=
3		#	3	C	S	c	s	â	ô	ú				Ë	Û	¼
4		\$	4	D	T	d	t	ä	ö	ñ				Ë	ö	¶
5		%	5	E	U	e	u	à	ò	Ñ	Á			v	Õ	§
6		&	6	F	V	f	v	ã	û	~	À	ä	í	µ	+	
7		'	7	G	W	g	w	ç	ù	^	À	Ä	Ï	þ	,	
8		(	8	H	X	h	x	ê	ÿ	¿	©			Ï	þ	°
9		)	9	I	Y	i	y	ë	Û	®				Û	-	
A		*	:	J	Z	j	z	è	Ü	¬				Ü	.	
B		+	;	K	[	k	{	í	ø	½				Ü	¹	
C		,	<	L	\	l	|	î	£	¼				Ý	²	
D		-	=	M	]	m	}	ï	¢	¶				Ý	²	
E		.	>	N	^	n	~	À	×	«	¥			ÿ	-	■
F		/	?	O	_	o	~	À	»	»	¤			ÿ	-	■

PC-8

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç	É	á	€			α	≡
1		!	1	A	Q	a	q	ü	æ	í					β	±
2		"	2	B	R	b	r	é	Æ	ó					Γ	≥
3		#	3	C	S	c	s	â	ô	ú					π	≤
4		\$	4	D	T	d	t	ä	ö	ñ					Σ	∫
5		%	5	E	U	e	u	à	ò	Ñ					σ	∫
6		&	6	F	V	f	v	ã	û	~					μ	+
7		'	7	G	W	g	w	ç	ù	^					τ	≈
8		(	8	H	X	h	x	ê	ÿ	¿					Φ	°
9		)	9	I	Y	i	y	ë	Û	®					⊙	•
A		*	:	J	Z	j	z	è	Ü	¬					Ω	.
B		+	;	K	[	k	{	í	ø	½					δ	√
C		,	<	L	\	l	|	î	£	¼					∞	η
D		-	=	M	]	m	}	ï	¢	¶					φ	²
E		.	>	N	^	n	~	À	×	«	¥				e	■
F		/	?	O	_	o	~	À	»	»	¤				∩	

PC-852

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç	É	á	€			Ó	-
1		!	1	A	Q	a	q	ü		í				Ð	ß	±
2		"	2	B	R	b	r	é		ó				Ö		
3		#	3	C	S	c	s	â	ô	ú				Ë		
4		\$	4	D	T	d	t	ä	ö							
5		%	5	E	U	e	u				Á					§
6		&	6	F	V	f	v				À			í		+
7		'	7	G	W	g	w	ç						Ï		.
8		(	8	H	X	h	x	ê								°
9		)	9	I	Y	i	y	ë		Ö						¬
A		*	:	J	Z	j	z	è		Ü	¬					.
B		+	;	K	[	k	{									
C		,	<	L	\	l	|	î								ý
D		-	=	M	]	m	}									ÿ
E		.	>	N	^	n	~	À	×	«						■
F		/	?	O	_	o	~	À	»	»						■

PC-857

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç	É	á	€		^	Ó	-
1		!	1	A	Q	a	q	ü	æ	í				¬	ß	±
2		"	2	B	R	b	r	é	Æ	ó				È	Ö	
3		#	3	C	S	c	s	â	ô	ú				Ë	Û	¼
4		\$	4	D	T	d	t	ä	ö	ñ				Ë	ö	¶
5		%	5	E	U	e	u	à	ò	Ñ	Á				Õ	§
6		&	6	F	V	f	v	ã	û		À	ä	í	µ	+	
7		'	7	G	W	g	w	ç	ù		À	Ä	Ï		,	
8		(	8	H	X	h	x	ê	ÿ	¿	©			Ï	×	°
9		)	9	I	Y	i	y	ë	Û	®						¬
A		*	:	J	Z	j	z	è	Ü	¬						.
B		+	;	K	[	k	{	í	ø	½						
C		,	<	L	\	l	|	î	£	¼						ì
D		-	=	M	]	m	}		¢	¶						ÿ
E		.	>	N	^	n	~	À	×	«	¥					ÿ
F		/	?	O	_	o	~	À	»	»	¤					ÿ

B-851

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p	Ç			€				
1		!	1	A	Q	a	q	ü								±
2		"	2	B	R	b	r	é								
3		#	3	C	S	c	s	â	ô							
4		\$	4	D	T	d	t	ä	ö							
5		%	5	E	U	e	u	à								§
6		&	6	F	V	f	v	û								
7		'	7	G	W	g	w	ç	ù							.
8		(	8	H	X	h	x	ê								°
9		)	9	I	Y	i	y	ë		Ö						¬
A		*	:	J	Z	j	z	è		Ü						.
B		+	;	K	[	k	{	Ï			½					
C		,	<	L	\	l	|	î	£							
D		-	=	M	]	m	}									
E		.	>	N	^	n	~	À		«						■
F		/	?	O	_	o	~	À		»						■

B-855

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p				€				
1		!	1	A	Q	a	q									
2		"	2	B	R	b	r									
3		#	3	C	S	c	s									
4		\$	4	D	T	d	t									
5		%	5	E	U	e	u									
6		&	6	F	V	f	v									
7		'	7	G	W	g	w									
8		(	8	H	X	h	x									
9		)	9	I	Y	i	y									
A		*	:	J	Z	j	z									
B		+	;	K	[	k	{									
C		,	<	L	\	l	|									
D		-	=	M	]	m	}									§
E		.	>	N	^	n	~				«					■
F		/	?	O	_	o	~				»					■

PC-1250

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				€	À	Ä	à	ä	
1		!	1	A	Q	a	q			i	±	Á	Ñ	á	ñ	
2		"	2	B	R	b	r			¢	²	Â	Ô	â	ô	
3		#	3	C	S	c	s			£	³	Ã	Ó	ã	ó	
4		\$	4	D	T	d	t			€	´	Ä	Ö	ä	ö	
5		%	5	E	U	e	u			¥	µ	Å	Ö	å	ö	
6		&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö	
7		'	7	G	W	g	w			§	·	Ç	×	ç	×	
8		(	8	H	X	h	x					È	Ø	è	ø	
9		)	9	I	Y	i	y			©	¹	É	Ù	é	ù	
A		*	:	J	Z	j	z			¬	∧	Ê	Ú	ê	ú	
B		+	;	K	[	k	[			«	»	Ë	Û	ë	û	
C		,	<	L	\	l	|			¬		Ï	Û	ï	ü	
D		-	=	M	]	m	]					Í	Ý	í	ý	
E		.	>	N	^	n	~			®	¾	Î	Ï	î	ï	
F		/	?	O	_	o	~			¸	¿	Ì	Ë	ì	ë	

PC-1251

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				€					
1		!	1	A	Q	a	q				±					
2		"	2	B	R	b	r									
3		#	3	C	S	c	s									
4		\$	4	D	T	d	t			¤						
5		%	5	E	U	e	u				µ					
6		&	6	F	V	f	v				¶					
7		'	7	G	W	g	w				§					
8		(	8	H	X	h	x									
9		)	9	I	Y	i	y				©					
A		*	:	J	Z	j	z				¬					
B		+	;	K	[	k	[«	»				
C		,	<	L	\	l	|				¬					
D		-	=	M	]	m]									
E		.	>	N	^	n	~				®					
F		/	?	O	_	o	~				¸					

PC-1252

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				€	À	Ä	à	ä	
1		!	1	A	Q	a	q			i	±	Á	Ñ	á	ñ	
2		"	2	B	R	b	r			¢	²	Â	Ô	â	ô	
3		#	3	C	S	c	s	f		£	³	Ã	Ó	ã	ó	
4		\$	4	D	T	d	t			€	´	Ä	Ö	ä	ö	
5		%	5	E	U	e	u			¥	µ	Å	Ö	å	ö	
6		&	6	F	V	f	v				¶	Æ	Ö	æ	ö	
7		'	7	G	W	g	w			§	·	Ç	×	ç	×	
8		(	8	H	X	h	x	^	~			È	Ø	è	ø	
9		)	9	I	Y	i	y			©	¹	É	Ù	é	ù	
A		*	:	J	Z	j	z			¬	∧	Ê	Ú	ê	ú	
B		+	;	K	[	k	[			«	»	Ë	Û	ë	û	
C		,	<	L	\	l	|			¬	¼	Ï	Û	ï	ü	
D		-	=	M	]	m	]				½	Í	Ý	í	ý	
E		.	>	N	^	n	~			®	¾	Î	Ï	î	ï	
F		/	?	O	_	o	~			¸	¿	Ì	Ë	ì	ë	

PC-1253

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				€					
1		!	1	A	Q	a	q				±					
2		"	2	B	R	b	r									
3		#	3	C	S	c	s	f		£	³					
4		\$	4	D	T	d	t			€	´					
5		%	5	E	U	e	u				µ					
6		&	6	F	V	f	v				¶					
7		'	7	G	W	g	w				§					
8		(	8	H	X	h	x									
9		)	9	I	Y	i	y				©					
A		*	:	J	Z	j	z			¬	∧					
B		+	;	K	[	k	[«	»					
C		,	<	L	\	l	|			¬	¼					
D		-	=	M	]	m	]				½					
E		.	>	N	^	n	~			®	¾					
F		/	?	O	_	o	~			¸	¿					

PC-1254

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				€	À	Ä	à		
1		!	1	A	Q	a	q			i	±	Á	Ñ	á	ñ	
2		"	2	B	R	b	r			¢	²	Â	Ô	â	ô	
3		#	3	C	S	c	s	f		£	³	Ã	Ó	ã	ó	
4		\$	4	D	T	d	t			€	´	Ä	Ö	ä	ö	
5		%	5	E	U	e	u			¥	µ	Å	Ö	å	ö	
6		&	6	F	V	f	v				¶	Æ	Ö	æ	ö	
7		'	7	G	W	g	w			§	·	Ç	×	ç	×	
8		(8	H	X	h	x	^	~			È	Ø	è	ø	
9)	9	I	Y	i	y			©	¹	É	Ù	é	ù	
A		*	:	J	Z	j	z			¬	∧	Ê	Ú	ê	ú	
B		+	;	K	[k	[«	»	Ë	Û	ë	û	
C		,	<	L	\	l				¬	¼	Ï	Û	ï	ü	
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PC-1257

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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2		"	2	B	R	b	r				¢	²				
3		#	3	C	S	c	s			£	³		Ó	ó		
4		\$	4	D	T	d	t			€	´	Ä	Ö	ä	ö	
5		%	5	E	U	e	u				µ	Å	Ö	å	ö	
6		&	6	F	V	f	v				¶	Æ	Ö	æ	ö	
7		'	7	G	W	g	w			§	·	Ç	×	ç	×	
8		(8	H	X	h	x				Ø	ø				
9)	9	I	Y	i	y			©	¹	É	é			
A		*	:	J	Z	j	z			¬	∧					
B		+	;	K	[k	[«	»					
C		,	<	L	\	l				¬	¼	Û	ü			
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LATIN9

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p			€	À	Ä	Å	à	å
1		!	1	A	Q	a	q				ı	±	Á	Ñ	á	ñ
2		"	2	B	R	b	r				ø	²	Â	Ò	â	ò
3		#	3	C	S	c	s				£	³	Ã	Ó	ã	ó
4		\$	4	D	T	d	t				€		Ä	Ö	ä	ö
5		%	5	E	U	e	u				¥	μ	Å	Ö	å	ö
6		&	6	F	V	f	v				¶	Æ	Ö	æ	ö	
7		'	7	G	W	g	w			§	·	Ç	×	ç	+	
8		(8	H	X	h	x					È	Ø	è	ø	
9)	9	I	Y	i	y			©	¹	É	Ù	é	ù	
A		*	:	J	Z	j	z			¬	^	Ê	Ú	ê	ú	
B		+	;	K	[k	[«	»	Ë	Û	ë	û	
C		,	<	L	\	l				¬		Ï	Ü	ï	ü	
D		-	=	M]	m]					Í	Ý	í	ý	
E		.	>	N	^	n	~			@		Î	Þ	î	þ	
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Arabic

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p			€					
1		!	1	A	Q	a	q									
2		"	2	B	R	b	r									
3		#	3	C	S	c	s									
4		\$	4	D	T	d	t									
5		%	5	E	U	e	u									
6		&	6	F	V	f	v									
7		'	7	G	W	g	w									
8		(	8	H	X	h	x									
9		)	9	I	Y	i	y									
A		*	:	J	Z	j	z									
B		+	;	K	[	k	[
C		,	<	L	\	l	|									
D		-	=	M	]	m]									
E		.	>	N	^	n	~									
F		/	?	O	_	o	☒									

NOTE: Euro font codes are changeable. For details, refer to Euro Code Selection of Section 5.4 Parameter Setting.

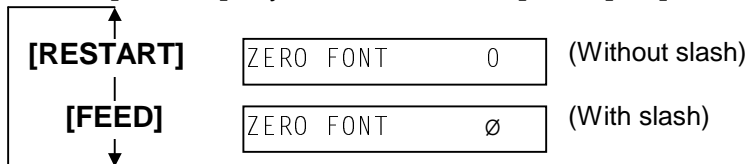
5.4.2 Zero Font Code Selection

With this parameter you can select the way to indicate zero between “0” and “ø”.
When “<2>PARAMETER SET” appears, press the [PAUSE] key and the [FEED] key.

```

<2>PARAMETER SET
ZERO FONT      0
    
```

Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.



After selecting the zero font code, press the [PAUSE] key.

NOTE: The following fonts do not support a zero with slash.
 Bit Map Font: OCR-A, OCR-B, GOTHIC 725 Black
 Outline Font: Price Font 1, Price Font 2, Price Font 3, DUTCH 801 Bold, BRUSH 738 Regular, GOTHIC 725 Black, True Type Font

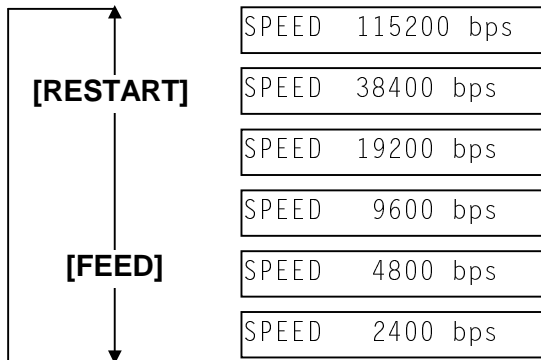
5.4.3 Baud Rate Selection

With this parameter you can select the baud rate of the RS-232C interface.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key twice.

```
<2>PARAMETER SET
SPEED  9600bps
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the baud rate, press the **[PAUSE]** key.

5.4.4 Data Length Selection

With this parameter you can select the communication data length of the RS-232C interface.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 3 times.

```
<2>PARAMETER SET
DATA LENG. 8bits
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the data length, press the **[PAUSE]** key.

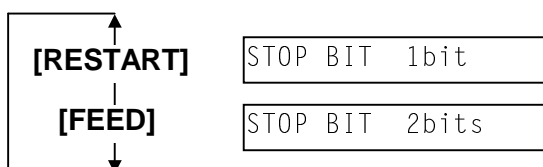
5.4.5 Stop Bit Selection

With this parameter you can select the stop bit of the RS-232C interface.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 4 times.

```
<2>PARAMETER SET
STOP BIT  1bit
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the stop bit, press the **[PAUSE]** key.

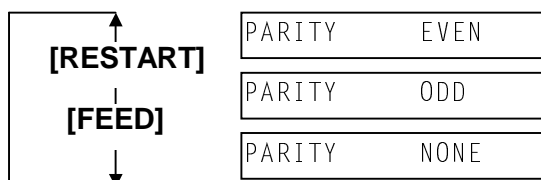
5.4.6 Parity Selection

With this parameter you can select the parity of the RS-232C interface.

When "<2>PARAMETER SET" appears, press the [PAUSE] key and the [FEED] key 5 times.

```
<2>PARAMETER SET
PARITY    NONE
```

Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.



After selecting the parity, press the [PAUSE] key.

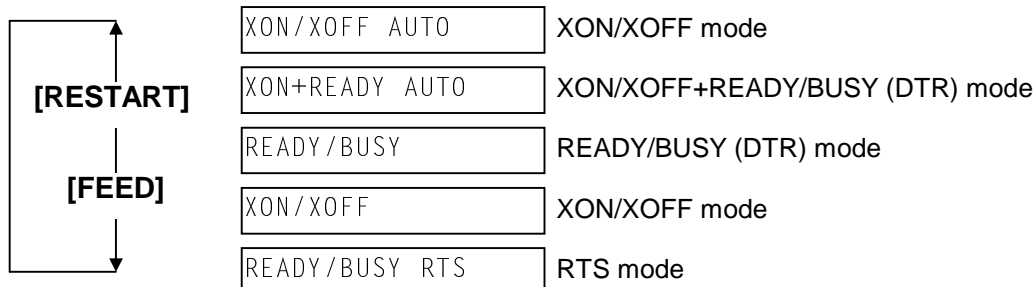
5.4.7 Transmission Control Code Selection

With this parameter you can select the transmission control code of the RS-232C interface.

When "<2>PARAMETER SET" appears, press the [PAUSE] key and the [FEED] key 6 times.

```
<2>PARAMETER SET
XON+READY AUTO
```

Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.



After selecting the transmission control code, press the [PAUSE] key.

NOTE: The following is the detailed descriptions for each transmission control code.

1) XON/XOFF AUTO

At the power on time, the printer outputs XON. At the power off time, the printer outputs XOFF.

2) XON+READY AUTO

At the power on time, the printer outputs XON. At the power off time, the printer outputs XOFF.

3) READY/BUSY

At the power on time, the DTR signal output from the printer turns to High level (READY). At the power off time, the printer does not output XOFF.

4) XON/XOFF

At the power on time, the printer outputs XON. At the power off time, the printer does not output XOFF.

5) READY/BUSY RTS

At the power on time, the RTS signal output from the printer turns to High level (READY). At the power off time, the printer does not output XOFF.

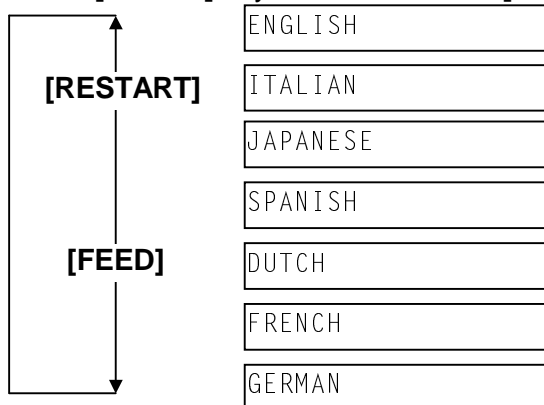
5.4.8 LCD Message Selection

With this parameter you can select the language in which the LCD message is displayed.

When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 7 times.

```
<2>PARAMETER SET
LCD ENGLISH
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the language, press the **[PAUSE]** key.

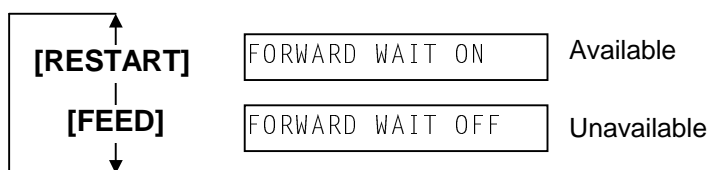
5.4.9 Auto Forward Wait Selection

With this parameter you can select whether or not the Auto Forward Wait function is activated. This function, used in the cut mode, automatically feeds the media for about 16.4 mm if there is more than 3-second idle time after printing to prevent the media from curling.

When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 8 times.

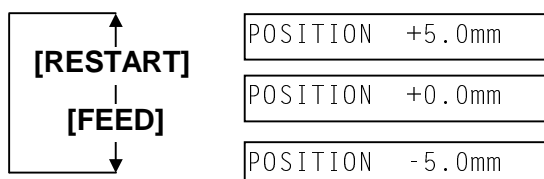
```
<2>PARAMETER SET
FORWARD WAIT OFF
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



When ON is selected, pressing the **[PAUSE]** key will result that the LCD Message Display shows the stop position fine adjustment value setting screen.

```
<2>PARAMETER SET
POSITION +0.0mm
```



[FEED] key: Pressing the **[FEED]** key one time causes a -0.5mm change, up to -5.0 mm .
[RESTART] key: Pressing the **[RESTART]** key one time causes a $+0.5\text{mm}$ change, up to $+5.0\text{ mm}$.

After selecting the auto forward wait, press the **[PAUSE]** key.

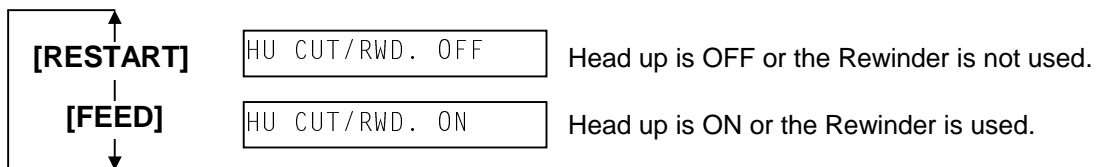
- NOTES:**
1. If the printer is not used for a few days, the top edge of the media may become curly, resulting in a paper jam. The Auto Forward Wait Function prevents this problem since the media feed amount is increased so that the media stops past the platen.
 2. When the Stop Position Fine Adjustment Value is set to + direction, the media will stop past the media outlet.
When the value is set to – direction, the media will stop inside the media outlet.
 3. This setting will be useful to fine adjust the cut position of labels.

5.4.10 Head Up Cut/Rewinder Selection

With this parameter you can select the print head up in cut mode or the use of the Rewinder. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 9 times.

```
<2>PARAMETER SET
HU CUT/RWD. OFF
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Head Up Cut/Rewinder, press the **[PAUSE]** key.

- NOTES:**
1. In cut mode, you can select ON/OFF status of the head up. In batch mode, you can select the use of the built-in Rewinder.
 2. In cut mode, be careful that the head up is unavailable depending on the rise of the solenoid's temperature.

5.4.11 Ribbon Saving Function Selection

With this parameter you can select the ribbon saving function. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 10 times.

```
<2>PARAMETER SET
RIBBON SAVE ON
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Ribbon Saving Function, press the **[PAUSE]** key.

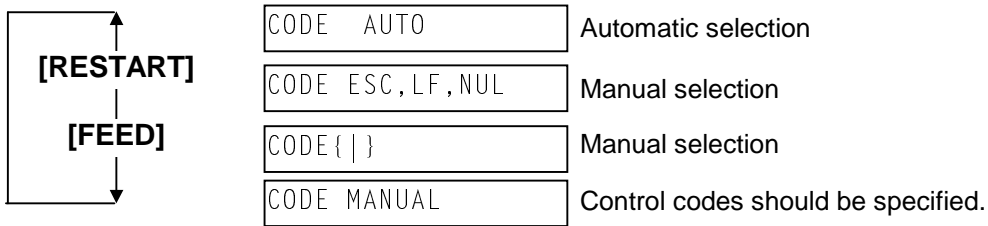
NOTE: When setting this function to ON, be sure to install the ribbon saving module (option: B-SX4T). Failure to do this may slacken the ribbon, causing print failures.

5.4.12 Control Code Selection

With this parameter you can select a Control Code. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 11 times.

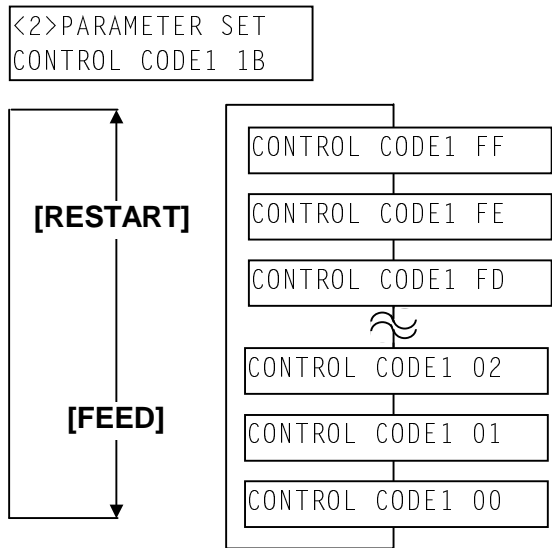
```
<2>PARAMETER SET
CODE AUTO
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



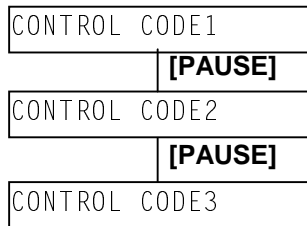
- NOTES:**
1. This parameter is used to select the Control Code for the communication between the printer and the host computer.
 2. Selecting “Manual” enables you to set the control code.

When “CODE MANUAL” is selected and the **[PAUSE]** key is pressed, the LCD display will show the setting screen of CONTROL CODE1 to CONTROL CODE3 as follows.



- NOTES:**
1. Pressing the **[FEED]** or **[RESTART]** key causes 1 byte change in the Control Code value.
 2. You cannot specify the same control code with the one used for the commands.
 3. You cannot use the specified Control Code for the data of the Data Command or Display Command.

After setting the control code for Control Code 1, press the **[PAUSE]** key to show the CONTROL CODE2 screen. In a same manner, press the **[PAUSE]** key after setting the control code for Control Code 2 to display the CONTROL CODE3 screen.



Press the **[PAUSE]** key after setting the control code for Control Code 3, and the Strip Wait Status Selection screen will appear.

5.4.13 Strip Wait Status Selection

With this parameter you can select the strip wait status. When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 12 times.



Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Strip Wait Status, press the **[PAUSE]** key.

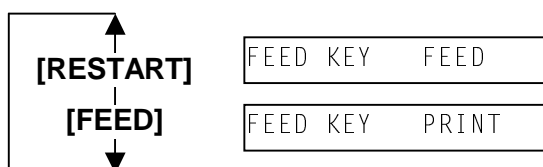
5.4.14 FEED Key Function Selection

With this parameter you can select the function of the **[FEED]** key.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 13 times.



Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



NOTE: When "FEED" is selected, the **[FEED]** key will feed one media when pressed. When "PRINT" is selected, the **[FEED]** key will print the data in the Image Buffer (The last printed data).

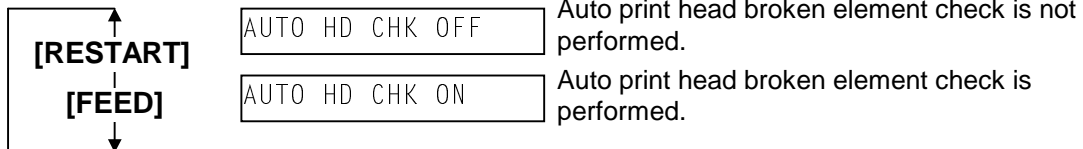
After selecting the FEED key function, press the **[PAUSE]** key.

5.4.17 Auto Print Head Check Selection

With this parameter you can select whether or not the Auto Print Head Check function is activated at the power on time. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 16 times.

```
<2>PARAMETER SET
AUTO HD CHK OFF
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



- NOTES:**
1. It will take about 2 seconds to perform the Auto Print Head check.
 2. It is recommended that this function is turned on when high quality printing such as bar codes printing is required, otherwise turned off.

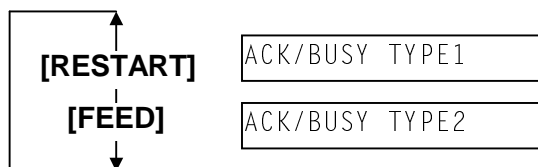
After selecting the auto print head check, press the **[PAUSE]** key.

5.4.18 Centronics Interface ACK/BUSY Timing Selection

With this parameter you can select the ACK/BUSY timing of the Centronics interface. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 17 times.

```
<2>PARAMETER SET
ACK/BUSY TYPE1
```

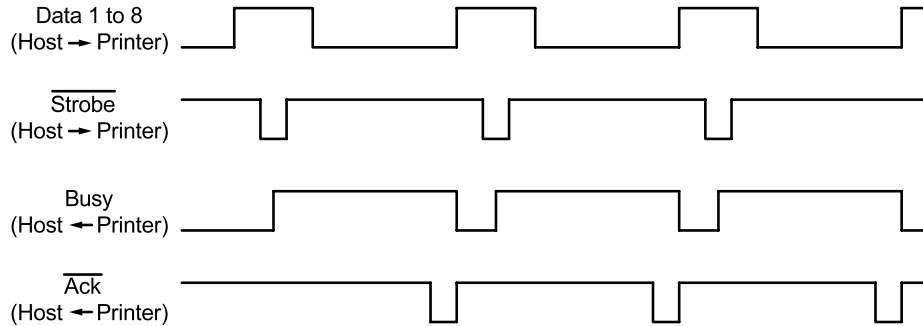
Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



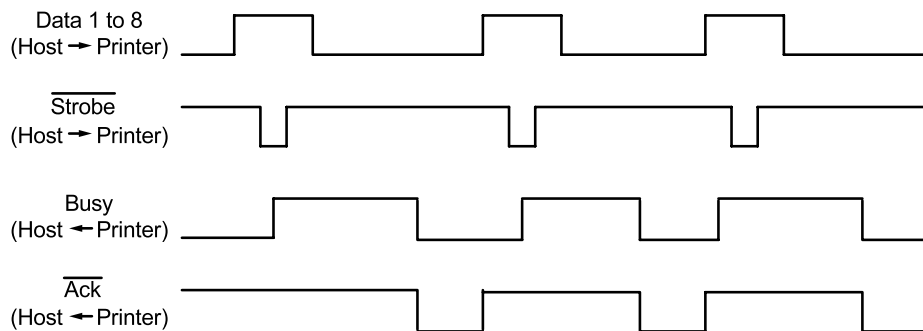
After selecting the ACK/BUSY timing, press the **[PAUSE]** key.

NOTE: *ACK/BUSY Signal Timing Chart*
 If the error occurs with the Centronics interface communication, change the types.

(1) TYPE1



(2) TYPE2



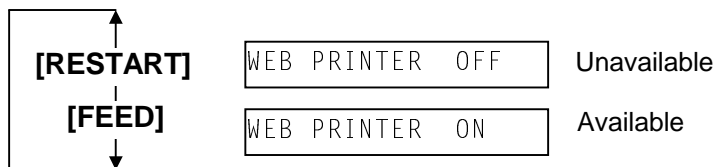
5.4.19 Web Printer Function Selection

With this parameter you can select whether or not the B-SX series printer can be used as a web printer. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 18 times.

```

    <2>PARAMETER SET
    WEB PRINTER OFF
    
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Web printer function, press the **[PAUSE]** key.

NOTE: *When “WEB PRINTER ON” is selected, the status of the B-SX series printer connected in a network can be checked through the Web browser.*

5.4.20 Input Prime Selection

With this parameter you can select whether or not the Reset operation can be performed when INIT signal is ON. When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 19 times.

```
<2>PARAMETER SET
INPUT PRIME ON
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



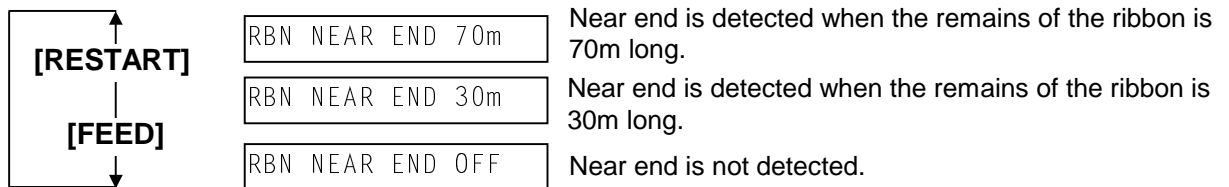
After selecting the Input Prime, press the **[PAUSE]** key.

5.4.21 Ribbon Near End Selection

With this parameter you can select the value to be detected the ribbon near end. When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 20 times.

```
<2>PARAMETER SET
RBN NEAR END 70m
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Ribbon Near End, press the **[PAUSE]** key.

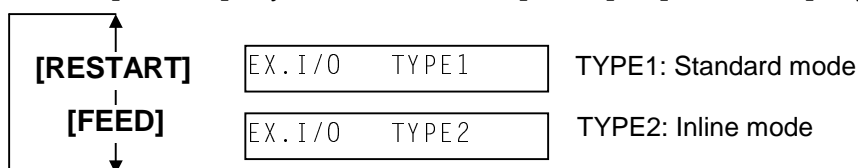
NOTE: There may be some variances in ribbon near end detection.

5.4.22 Expansion I/O Interface Selection

With this parameter you can select Type of the Expansion I/O interface operating mode. When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 21 times.

```
<2>PARAMETER SET
EX. I/O TYPE1
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Expansion I/O Interface, press the **[PAUSE]** key.

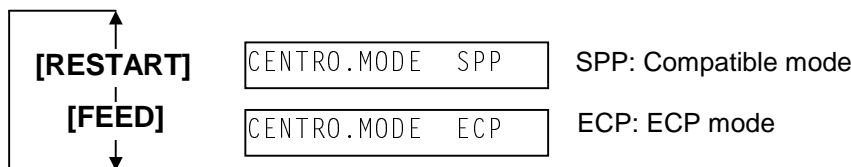
5.4.23 Centronics Interface Selection

With this parameter you can select Type of the Centronics interface operating mode.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 22 times.

```
<2>PARAMETER SET
CENTRO.MODE  SPP
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Centronics Interface, press the **[PAUSE]** key.

5.4.24 Plug & Play Selection

With this parameter you can select whether or not the Plug & Play function is activated.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 23 times.

```
<2>PARAMETER SET
PLUG & PLAY OFF
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Plug & Play, press the **[PAUSE]** key.

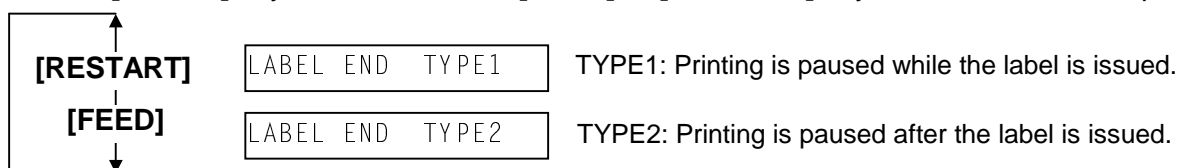
5.4.25 Label End Selection

With this parameter you can select printing process when the label end is detected.

When "<2>PARAMETER SET" appears, press the **[PAUSE]** key and the **[FEED]** key 24 times.

```
<2>PARAMETER SET
LABEL END  TYPE1
```

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Label End, press the **[PAUSE]** key.

5.4.26 Pre-Strip Selection

With this parameter you can select whether or not the Pre Strip function is activated.

When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 25 times.

<2>PARAMETER SET
PRE PEEL OFF OFF

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



After selecting the Pre Strip, press the **[PAUSE]** key.

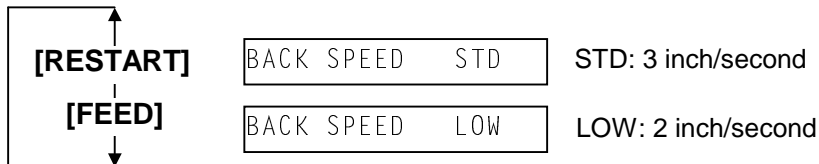
NOTE: When the print speed is set to 10"/sec., the pre-strip function will be activated regardless of this parameter setting.

5.4.27 Back Feed Speed Selection

With this parameter you can select the speed of back feed. When “<2>PARAMETER SET” appears, press the **[PAUSE]** key and the **[FEED]** key 26 times.

<2>PARAMETER SET
BACK SPEED STD

Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



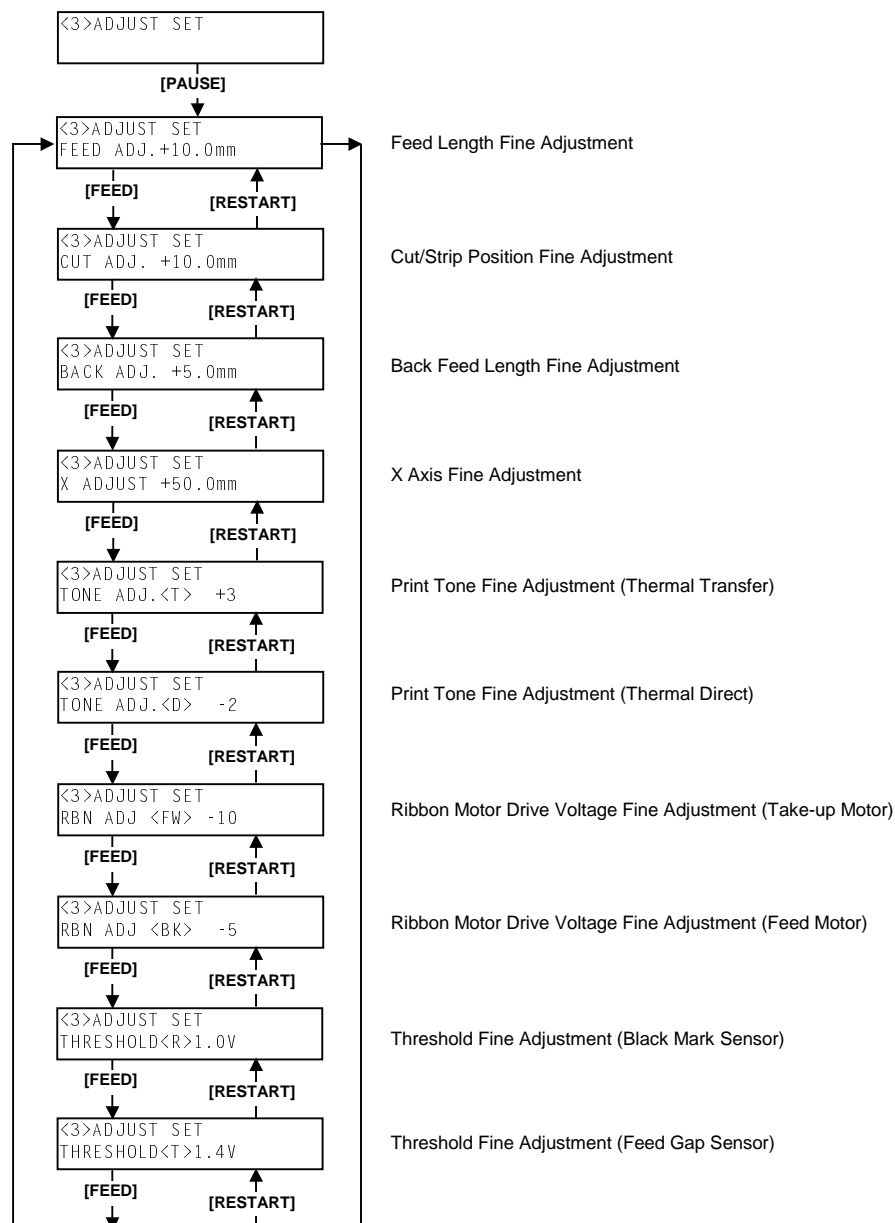
After selecting the Back Feed Speed, press the **[PAUSE]** key.

5.5 PRINTER PARAMETER FINE ADJUSTMENT

■ Outline of Printer Parameter Fine Adjustment

In the Printer Parameter Fine Adjustment mode, you can fine adjust each parameter, such as Print tone, Print start position, Threshold, etc. which are set by the PC command. This is useful when using several types of media by turns or when the print start position or cut/strip position is required to be fine adjusted.

The **Printer Parameter Fine Adjustment** menu contains the following.



While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the “<1>DIAG. Vx.x” Message appears.

```
<1>DIAG.  Vx.x
```

Press the **[FEED]** key twice.

The printer is at the start of the Printer Parameter Fine Adjustment menu.

```
<3>ADJUST SET
```

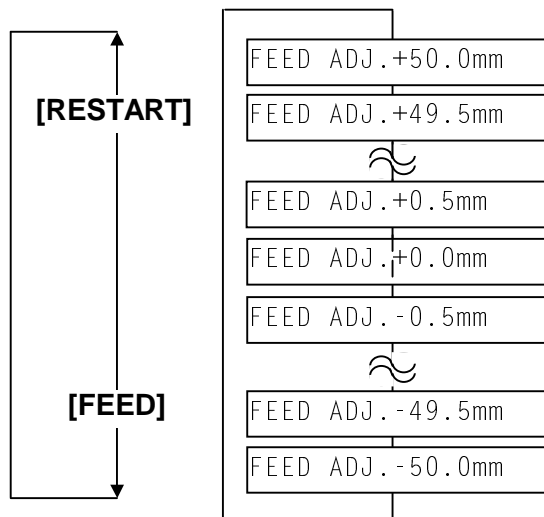
- NOTES:**
1. When pressing the **[FEED]** and **[RESTART]** keys at the same time in the parameter setting, the message returns to “<3>ADJUST SET”.
 2. If holding the **[FEED]** or **[RESTART]** key for 0.5 seconds or longer in the Printer Parameter Fine Adjustment, the key is entered continuously.
 3. A changed parameter becomes enabled by pressing the **[PAUSE]**.
 4. Use the **[FEED]** or **[RESTART]** key to select a desired value or option.

5.5.1 Feed Length Fine Adjustment

With this parameter you can fine adjust the feed length. When “<3>ADJUST SET” appears, press the **[PAUSE]** key.

```
<3>ADJUST SET
FEED ADJ. +0.0mm
```

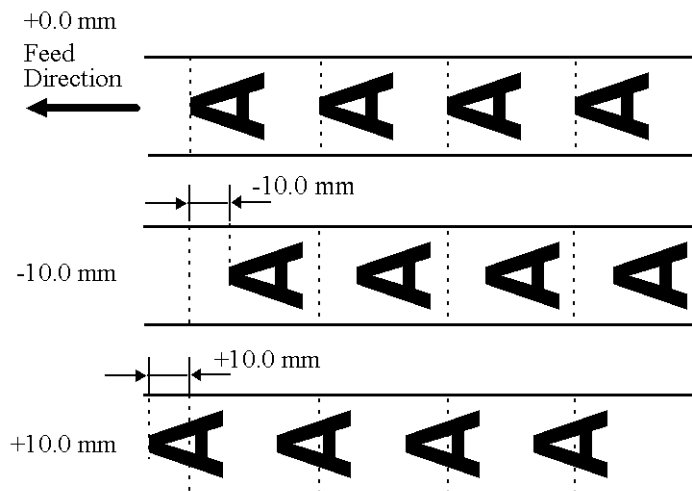
Press the **[PAUSE]** key to start. Use the **[FEED]** or **[RESTART]** key to select a desired option.



- [FEED]** key: Pressing the **[FEED]** key one time causes a -0.5mm change, up to -50.0mm .
- [RESTART]** key: Pressing the **[RESTART]** key one time causes a $+0.5\text{mm}$ change, up to $+50.0\text{mm}$.

After completing the fine adjustment, press the **[PAUSE]** key.

• Feed Length Fine Adjustment (Example)



NOTE: The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter.

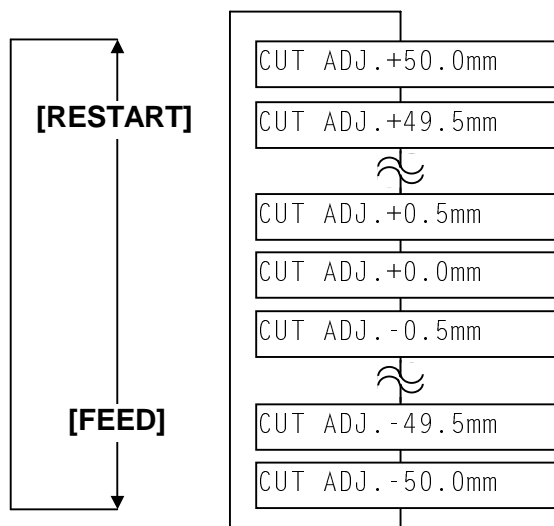
The maximum feed length fine adjustment value is ± 50.0 mm. When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.

5.5.2 Cut/Strip Position Fine Adjustment

With this parameter you can fine adjust the cut or strip position. When “<3>ADJUST SET” appears, press the [PAUSE] key and the [FEED] key.

```
<3>ADJUST SET
CUT ADJ. +0.0mm
```

Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.

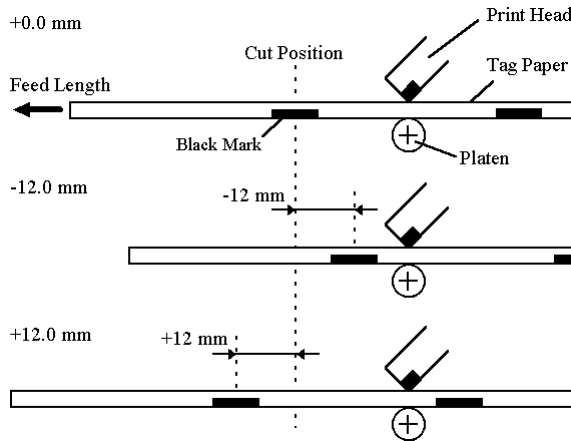


[FEED] key: Pressing the [FEED] key one time causes a -0.5 mm change, up to -50.0 mm.

[RESTART] key: Pressing the [RESTART] key one time causes a $+0.5$ mm change, up to $+50.0$ mm.

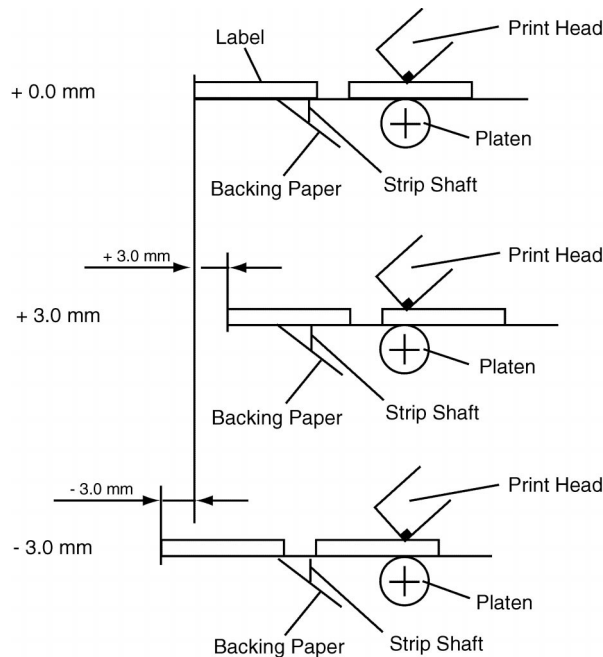
After completing the fine adjustment, press the [PAUSE] key.

• **Cut Position Fine Adjustment (Example)**

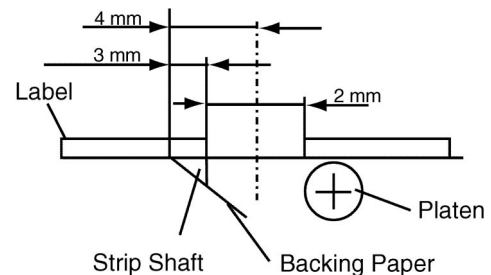


- NOTES:**
1. Cut issue is available only when the optional cutter unit (B-7208-QM) is installed.
 2. The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter.
The maximum cut position fine adjustment value is $\pm 50.0\text{mm}$. When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.

• **Strip Position Fine Adjustment (Example)**



NOTE: The print stop position when printing the label in strip mode varies according to label length as the strip mode printing stops so that the edge of the strip shaft is 4 mm from the middle of the gap. This is because the gap length is programmed as 2 mm. When the gap length is 5 mm or more, the effective print length should be set to the value obtained by subtracting 2mm from the label pitch, that is, set the gap length to 2 mm. If the print format hangs over the gap as a result, correct the print start position.



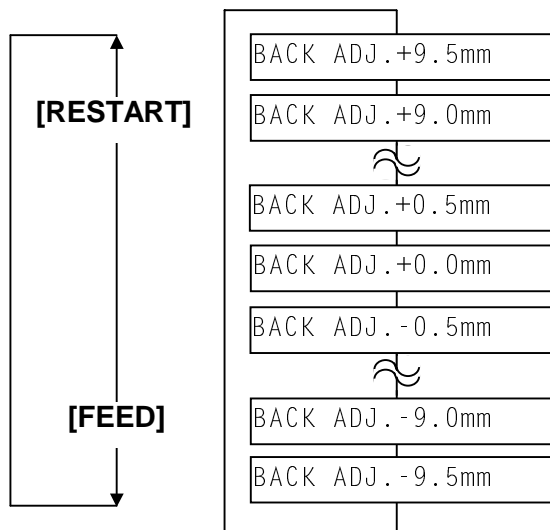
5.5.3 Back Feed Length Fine Adjustment

With this parameter you can fine adjust the Back Feed Length. When “<3>ADJUST SET” appears, press the [PAUSE] key and the [FEED] key twice.

```

<3>ADJUST SET
BACK ADJ. -0.0mm
  
```

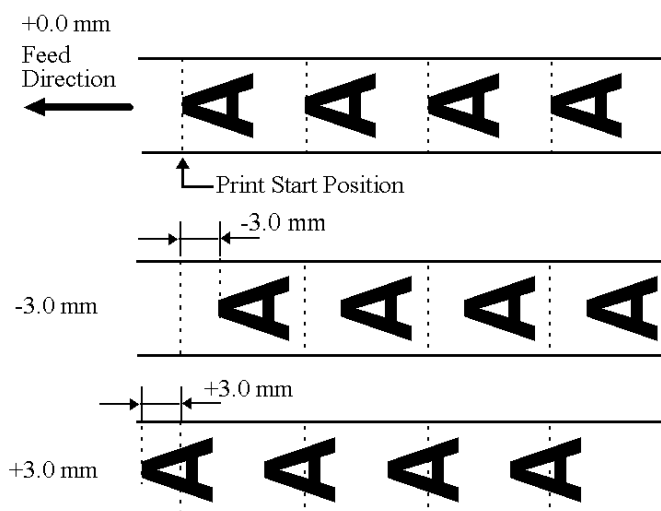
Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.



- [FEED] key: Pressing the [FEED] key one time causes a -0.5mm change, up to -9.5mm .
- [RESTART] key: Pressing the [RESTART] key one time causes a $+0.5\text{mm}$ change, up to $+9.5\text{mm}$.

After completing the fine adjustment, press the [PAUSE] key.

- **Back Feed Length Fine Adjustment (Example)**



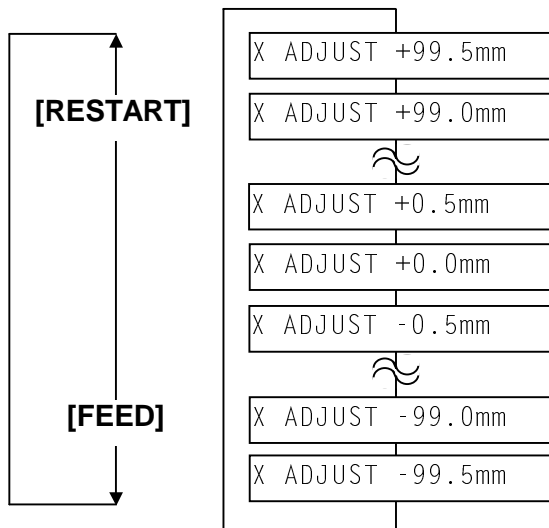
NOTE: The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter. The maximum back feed length fine adjustment value is $\pm 9.5\text{mm}$. When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.

5.5.4 X Axis Fine Adjustment

With this parameter you can fine adjust the print position on X Axis. When “<3>ADJUST SET” appears, press the [PAUSE] key and the [FEED] key 3 times.

```
<3>ADJUST SET
X ADJUST +0.0mm
```

Press the [PAUSE] key to start. Use the [FEED] or [RESTART] key to select a desired option.

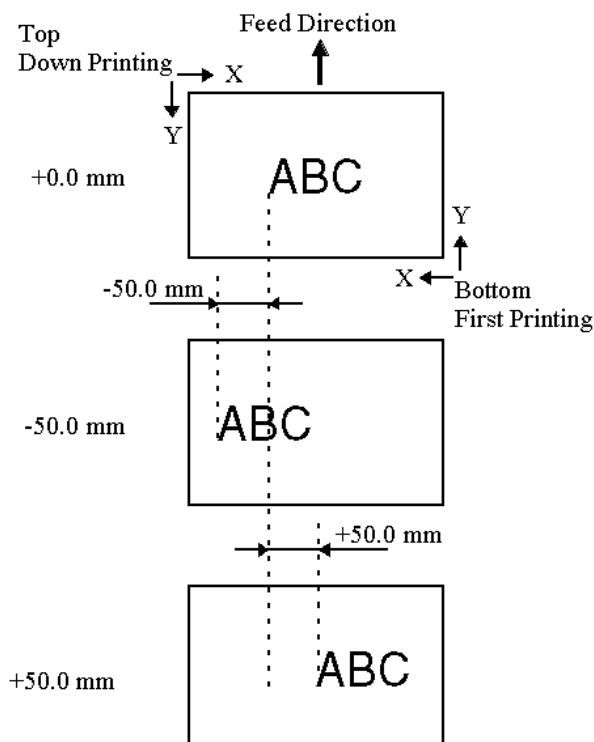


[FEED] key: Pressing the [FEED] key one time causes a -0.5mm change, up to -99.5 mm .

[RESTART] key: Pressing the [RESTART] key one time causes a $+0.5\text{mm}$ change, up to $+99.5\text{ mm}$.

After completing the fine adjustment, press the [PAUSE] key.

- **X-Axis Fine Adjustment (Example)**



- NOTES:**
1. The X Axis fine adjustment is performed to fine adjust the print position in horizontal direction (left or right).
 2. Adjust the X axis within the effective print range. After the value reaches the coordinate 0, the value remains unchanged even if the subsequent fine adjustment is performed in the negative direction.
 3. This adjustment cannot be used in the Self Test mode or Test print.
 4. The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter. The maximum X axis fine adjustment value is $\pm 99.5\text{mm}$. When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.

5.5.5 Print Tone Fine Adjustment (Thermal Transfer/Thermal Direct Print)

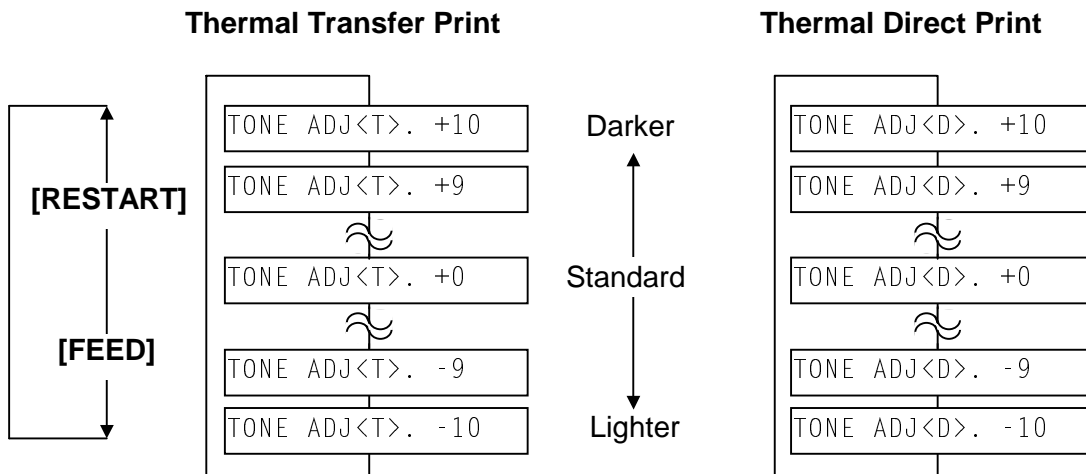
With this parameter you can fine adjust the Print Tone. When “<3>ADJUST SET” appears, press the **[PAUSE]** key and the **[FEED]** key 4 times to enter the Print Tone Fine Adjustment (Thermal transfer print) menu.

<3>ADJUST SET TONE ADJ.<T> +0	Thermal Transfer
----------------------------------	------------------

To change the screen to the Print Tone Fine Adjustment (Thermal direct print), press the **[FEED]** key again.

<3>ADJUST SET TONE ADJ.<D> +0	Thermal Direct
----------------------------------	----------------

When the LCD display shows “TONE ADJ.<T>” or “TONE ADJ.<D>”, press the **[PAUSE]** key to start. And then, use the **[FEED]** or **[RESTART]** key to select a desired option.



- [FEED]** key: Pressing the **[FEED]** key one time causes a -1 tone change, up to -10 tones.
- [RESTART]** key: Pressing the **[RESTART]** key one time causes a $+1$ tone change, up to $+10$ tones.

After completing the fine adjustment, press the **[PAUSE]** key.

- NOTES:**
1. The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter. The maximum print tone fine adjustment value is ± 10 (thermal transfer print) or $+7/-10$ (thermal direct print). When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 2. This is useful when print tone is required to be fine adjusted e.g.) When the ribbon is changed to different type.

5.5.6 Ribbon Motor Voltage Fine Adjustment (Feed/Take-up Motor)

With this parameter you can fine adjust the Ribbon Motor Voltage (Torque). When “<3>ADJUST SET” appears, press the **[PAUSE]** key and the **[FEED]** key 6 times to enter the Ribbon Motor Voltage Fine Adjustment (Take-up Motor) menu.

```
<3>ADJUST SET
RBN ADJ<FW> +0
```

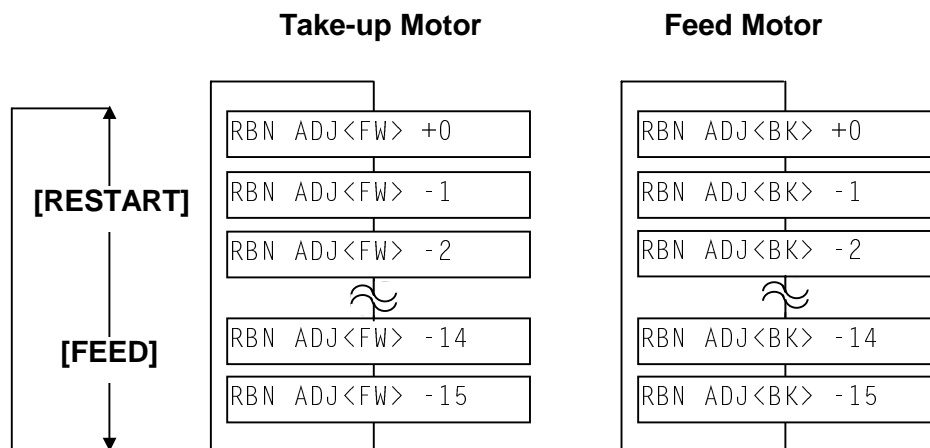
Take-up Motor

To change the screen to the Ribbon Motor Voltage Fine Adjustment (Feed Motor), press the **[FEED]** key again.

```
<3>ADJUST SET
RBN ADJ<BK> +0
```

Feed Motor

When the LCD display shows “RBN ADJ<FW>” or “RBN ADJ<BK>”, press the **[PAUSE]** key to start. And then, use the **[FEED]** or **[RESTART]** key to select a desired option.



[FEED] key: Pressing the **[FEED]** key one time causes a –1 step change, up to –15 steps.

[RESTART] key: Pressing the **[RESTART]** key one time causes a +1 step change, up to +0 steps.

After completing the fine adjustment, press the **[PAUSE]** key.

- NOTES:**
1. The fine adjustment value equals to the sum of the fine adjustment values set by the PC command and this parameter. The maximum ribbon motor voltage fine adjustment value is –15. When the value reached the maximum, the value remains unchanged even if the subsequent fine adjustment is performed.
 2. One step corresponds to 5% of the standard voltage and up to 75% of the voltage can be decreased.
 3. Please make this adjustment if a ribbon error occurs though the ribbon is proper.

5.5.7 Threshold Manual Fine Adjustment (Black Mark/Feed Gap Sensor)

With this parameter you can fine adjust the Threshold of the Black Mark and Feed Gap Sensors. When “<3>ADJUST SET” appears, press the **[PAUSE]** key and the **[FEED]** key 8 times to enter the Threshold Manual Fine Adjustment (Black Mark Sensor) menu.

```
<3>ADJUST SET
THRESHOLD<R>1.0V
```

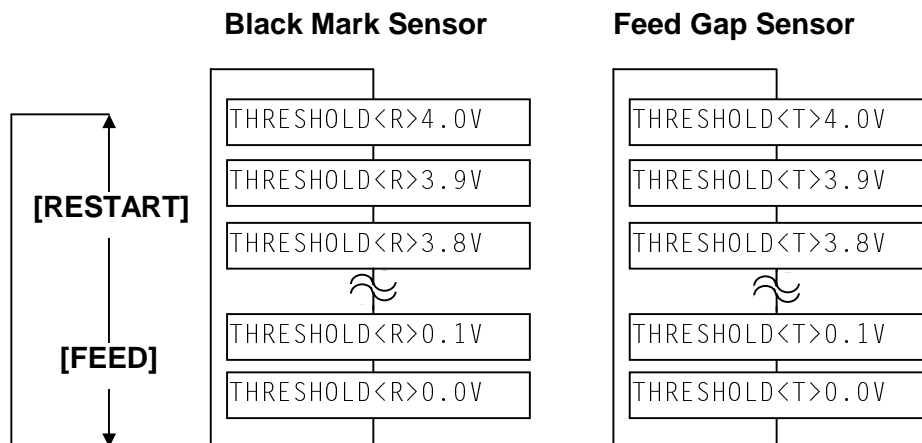
Black Mark Sensor

To change the screen to the Threshold Manual Fine Adjustment (Feed Gap Sensor), press the **[FEED]** key again.

```
<3>ADJUST SET
THRESHOLD<T>1.4V
```

Feed Gap Sensor

When the LCD display shows “THRESHOLD<R>” or “THRESHOLD<T>”, press the **[PAUSE]** key to start. And then, use the **[FEED]** or **[RESTART]** key to select a desired option.



[FEED] key: Pressing the **[FEED]** key one time causes a $-0.1V$ change, up to $0.0V$.

[RESTART] key: Pressing the **[RESTART]** key one time causes a $+0.1V$ change, up to $+4.0V$.

After completing the fine adjustment, press the **[PAUSE]** key.

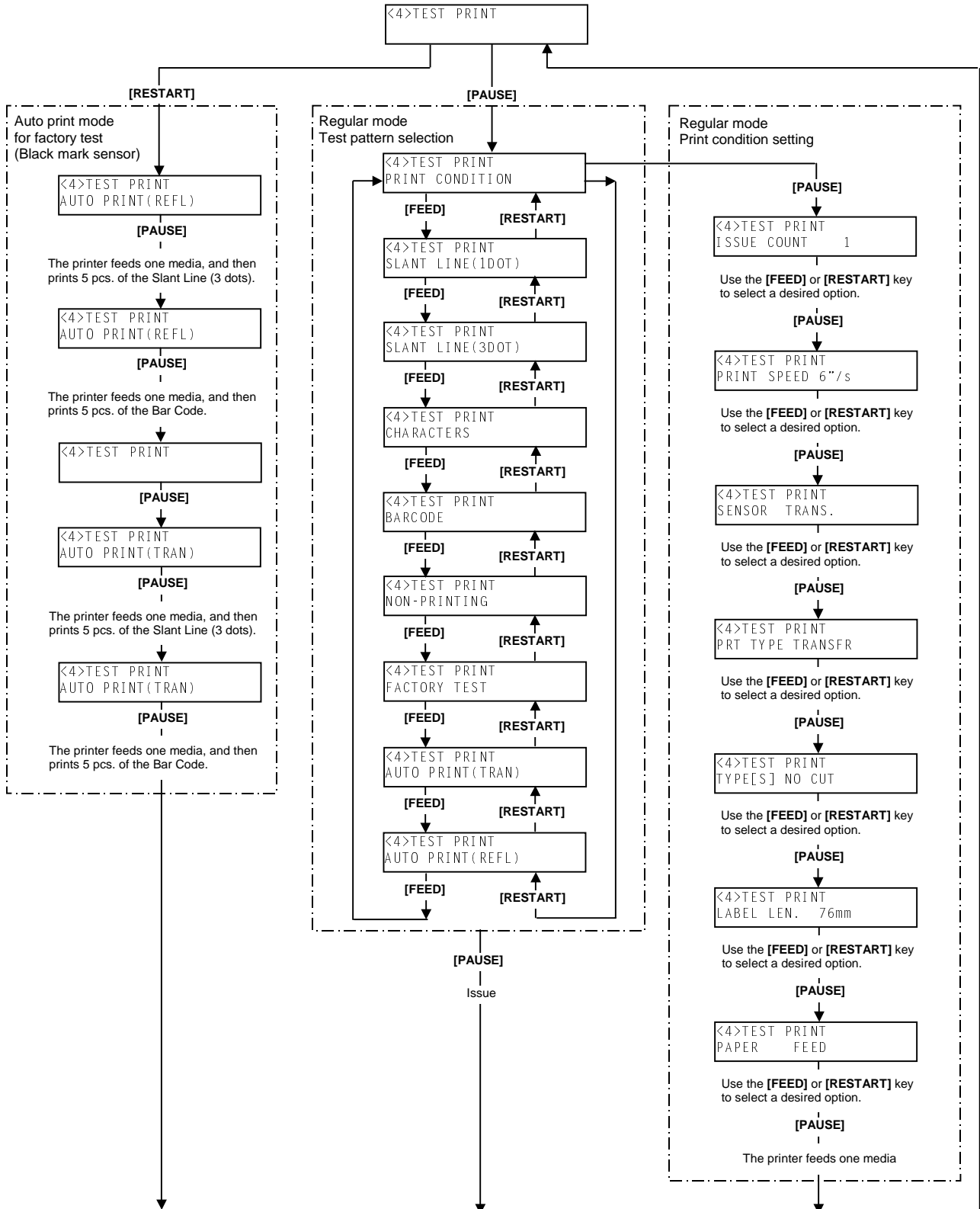
NOTE: This is useful to fine adjust the threshold when the media issue is improper even after the sensor threshold setting is performed. (See Section 6.1 Threshold Setting.)

5.6 TEST PRINT

■ Outline of Test Print

In the Test Print mode, you can print the test pattern and set its conditions. This is useful to check the print quality of new media or ribbon.

The **Test Print** menu contains the following:



While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the "<1>DIAG. Vx.x" Message appears.

<1>DIAG. Vx.x

Press the **[FEED]** key 3 times.

The Test Print is ready to be performed.

<4>TEST PRINT

- NOTES:**
1. When pressing the **[FEED]** and **[RESTART]** keys at the same time in the Test Print menu, the message returns to "<4>TEST PRINT".
 2. If holding the **[FEED]** or **[RESTART]** key for 0.5 seconds or longer in the Test Print menu, the key is entered continuously.
 3. The fine adjustment parameters are effective for the Test Print. (except for X Axis Fine Adjustment.)
 4. If any error occurs, an error message appears, and the printer stops printing. After clearing the errors, press the **[PAUSE]** key to return to the System Mode menu. The printer does not restart printing automatically.
 5. A changed parameter becomes enabled by pressing the **[PAUSE]** key.
 6. A label size greater than the image buffer length cannot be designated. If designated, the printer prints in the image buffer, or the printer stops because of an error.
 7. The printer doesn't support the rotary cutter (B-8204-QM) at the print speed of 10 inches/second. Accordingly, for the printer providing with the rotary cutter (regardless of cut mode), even if the print speed of 10"/second is selected, the printer performs at 6 inches/second automatically.
When 15mm-or-less label pitch at 3 inches/seconds or 30mm-or-less label pitch at 6 inches/second is designated, the printer performs printing without cut.

5.6.1 Specifying the Print Condition for the Test Print

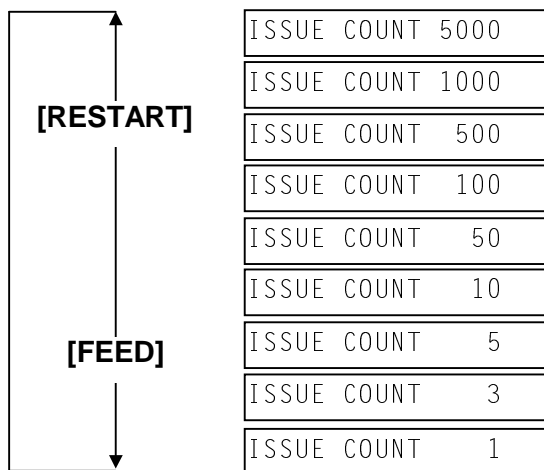
The print conditions for the Test Print should be specified before printing. When “<4>TEST PRINT” appears, press the **[PAUSE]** key.

```
<4>TEST PRINT
PRINT CONDITION
```

Issue Count Setting

To enter the Issue Count Setting menu, press the **[PAUSE]** key.

```
<4>TEST PRINT
ISSUE COUNT 1
```

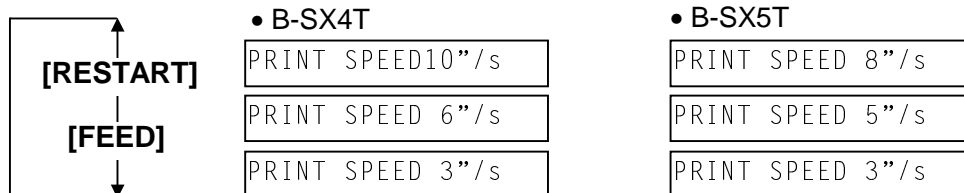


After selecting the issue count, press the **[PAUSE]** key to go to Print Speed Setting.

Print Speed Setting

Select the print speed for the test print among 10"/sec., 6"/sec., and 3"/sec. (B-SX4T), or 8"/sec., 5"/sec., and 3"/sec. (B-SX5T).

```
<4>TEST PRINT
PRINT SPEED 6"/s
```



After selecting the print speed, press the **[PAUSE]** key to go to Sensor Type Selection.

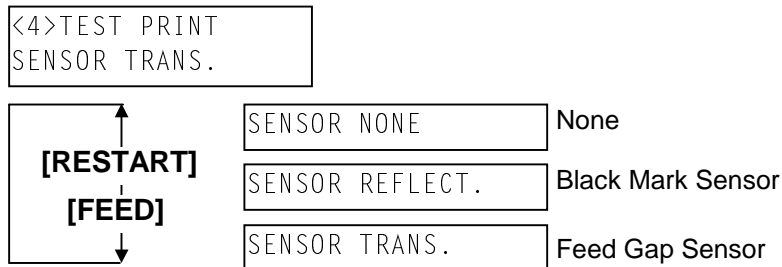
NOTES: 1. For the B-SX4T, the rotary cutter does not support the print speed of 10"/sec. Therefore, selection of 10"/sec. will be automatically changed to 6"/sec. when the rotary cutter is installed.

2. On the following conditions, the rotary cutter does not cut.

	Media pitch	Print speed
B-SX4T	Less than 15 mm	3"/sec.
	Less than 30 mm	6"/sec.
B-SX5T	Less than 15 mm	3"/sec.
	Less than 25 mm	5"/sec.
	Less than 38 mm	8"/sec.

Sensor Type Selection

Select the sensor type among “TRANS” (Feed Gap Sensor), “REFLECT” (Black Mark Sensor) and “NONE”.

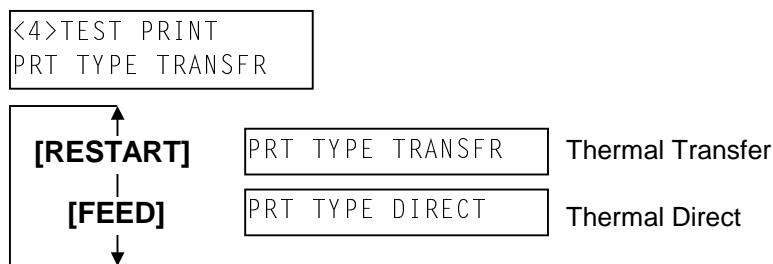


After selecting the sensor type, press the **[PAUSE]** key to go to Printing Mode Selection.

NOTE: Select the sensor type which is proper to the media being used. Basically, the Reflective Sensor (Black Mark Sensor) is for tag paper, and the Transmissive Sensor (Feed Gap Sensor) is for label.

Printing Mode Selection

Select the printing mode for the test print between “TRANSFR” (Thermal transfer) and “DIRECT” (Thermal direct).

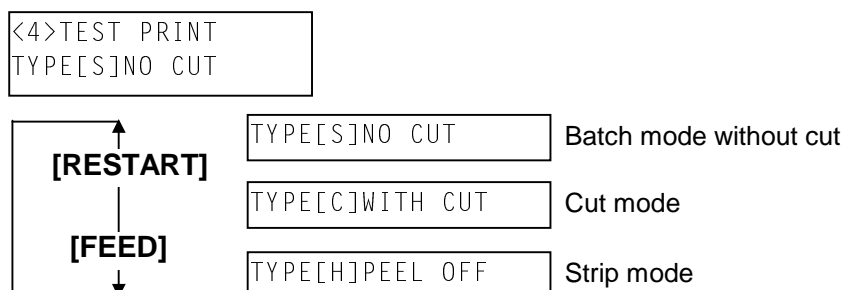


After selecting the printing mode, press the **[PAUSE]** key to go to Issue Mode Selection.

NOTE: Select the printing mode which is proper to the operating conditions. Basically, the Thermal Transfer is for the use of ribbon, and the Thermal Direct is for the use of thermal paper.

Issue Mode Selection

Select the issue mode for the test print among “[S]NO CUT” (Batch mode without cut), “[C]WITH CUT” (Cut mode), and “[H]PEEL OFF” (Strip mode).

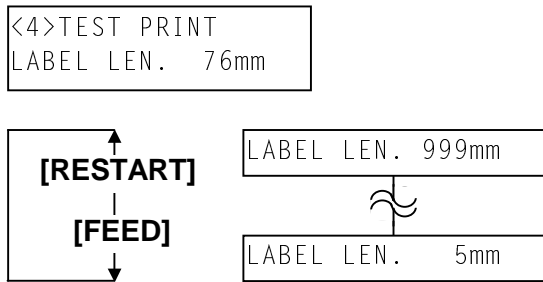


After selecting the Issue Mode, press the **[PAUSE]** key to go to Label Length Setting.

NOTE: Cut mode is available only when the optional cutter module (B-4205-QM or B-8204-QM) is installed. Strip mode is available only when the optional strip module (B-9904-H-QM) is installed.

Label Length Setting

Select the label length for the test print in a range from 5 mm to 999 mm.



[FEED] key: Pressing the **[FEED]** key one time causes a –1 mm change, up to 5 mm.

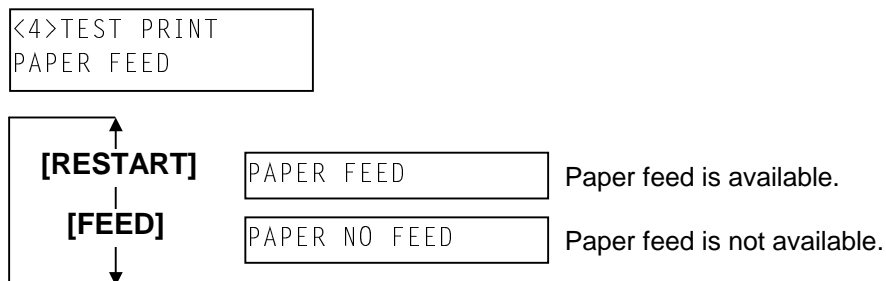
[RESTART] key: Pressing the **[RESTART]** key one time causes a +1 mm change, up to 999 mm.

After selecting the label length, press the **[PAUSE]** key to go to Paper Feed Selection.

NOTE: Pressing and holding the **[RESTART]** or **[FEED]** key causes the display to show the values quickly and continuously. To stop it, release the key.

Paper Feed Selection

Select whether or not a paper feed is performed prior to a test print.



After selecting the paper feed, press the **[PAUSE]** key. The display returns to the “<4>TEST PRINT”.

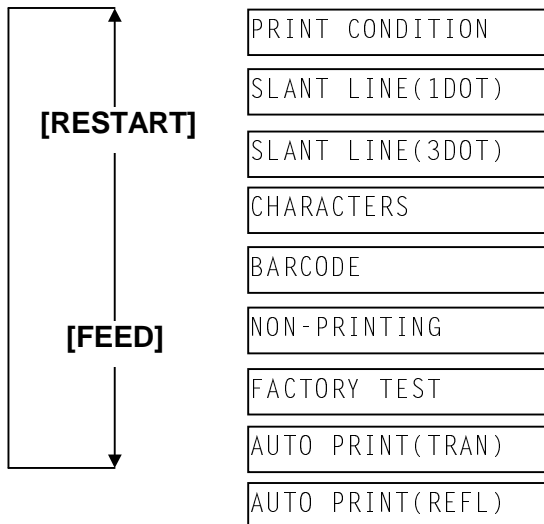
NOTE: When “PAPER FEED” is selected, the printer feeds the media prior to a test print to adjust the print start position. When “PAPER NO FEED” is selected, the printer starts printing without print start position adjustment. If the print start position adjustment is unnecessary, you can save the media by selecting “PAPER NO FEED”.

5.6.2 Test Print Pattern Selection

When “<4>TEST PRINT” appears after paper feed selection, press the **[PAUSE]** key.

```
<4>TEST PRINT
PRINT CONDITION
```

Select a test print pattern from the following options.



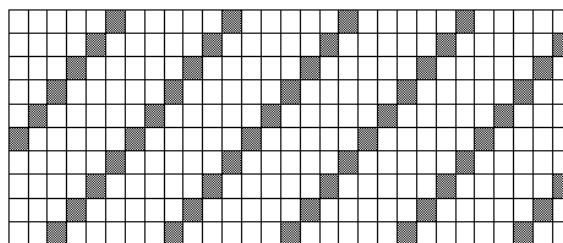
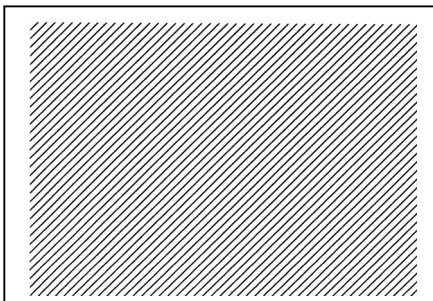
5.6.3 Slant Line (1 dot)

```
SLANT LINE(1DOT)
```

While selecting the Slant Line (1 dot), press the **[PAUSE]** key to start printing the slant line patterns (1 dot). After printing is completed, the display returns to “<4>TEST PRINT”.

Pressing the **[PAUSE]** key causes the display to show “SLANT LINE (1DOT)” again. Then, press the **[FEED]** key.

■ Print Sample of Slant Line (1 dot)



(Magnified view: Black area ratio 16.6%)

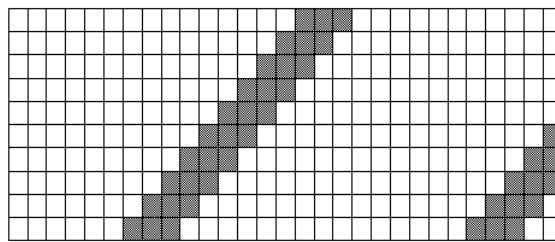
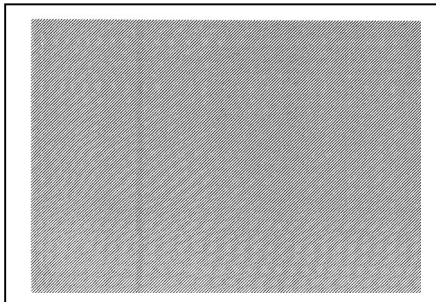
5.6.4 Slant Line (3 dots)

SLANT LINE(3DOT)

While selecting the Slant Line (3 dots), press the **[PAUSE]** key to start printing the slant line patterns (3 dots). After printing is completed, the display returns to "<4>TEST PRINT".

Pressing the **[PAUSE]** key causes the display to show "SLANT LINE (3DOT)" again. Then, press the **[FEED]** key.

■ Print Sample of Slant Line (3 dots)



(Magnified view: Black area ratio 16.7%)

5.6.5 Characters

CHARACTERS

While selecting the Characters, press the **[PAUSE]** key to start printing the characters. After printing is completed, the display returns to "<4>TEST PRINT".

Pressing the **[PAUSE]** key causes the display to show "CHARACTERS" again. Then, press the **[FEED]** key.

■ Print Sample of Characters



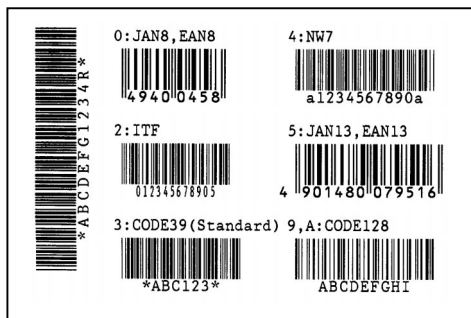
5.6.6 Barcode

BARCODE

While selecting the Barcode, press the **[PAUSE]** key to start printing the bar codes. After printing is completed, the display returns to “<4>TEST PRINT”.

Pressing the **[PAUSE]** key causes the display to shown “BARCODE” again. Then, press the **[FEED]** key.

■ Print Sample of Barcodes



5.6.7 Non-Printing

NON-PRINTING

While selecting the Non-printing, press the **[PAUSE]** key to start issuing a blank media. After printing is completed, the display returns to “<4>TEST PRINT”.

Pressing the **[PAUSE]** key causes the display to shown “NON-PRINTING” again. Then, press the **[FEED]** key.

NOTE: *The Non-Printing function looks like a media feeding.*

■ Print Sample of Non-print



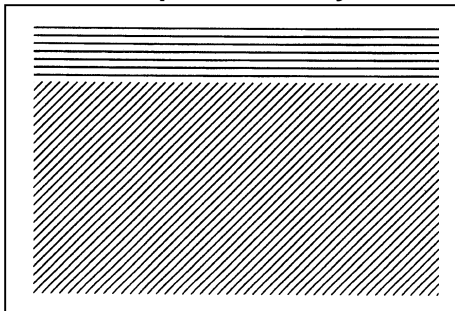
5.6.8 Factory Test

FACTORY TEST

While selecting the Factory test, press the **[PAUSE]** key to start printing the factory test pattern. After printing is completed, the display returns to "<4>TEST PRINT".

Pressing the **[PAUSE]** key causes the display to shown "FACTORY TEST" again. Then, press the **[FEED]** key.

■ Print Sample of Factory Test



5.6.9 Auto Print

AUTO PRINT(TRAN)

Feed Gap Sensor

AUTO PRINT(REFL)

Black Mark Sensor

While selecting the Auto Print, press the **[PAUSE]** key to feed one media and print slant lines (3 dots) on 5 pieces of media.

Next, press the **[PAUSE]** key to print bar codes on 5 pieces of media. Pressing the **[PAUSE]** key again causes the printer to print characters on 5 pieces of media.

- NOTES:**
1. Select "AUTO PRINT (TRAN)" when using labels, and "AUTO PRINT (REFL)" when using tag paper.
 2. Auto print is performed under the conditions below. Parameter setting and print tone fine adjustment value is ignored.

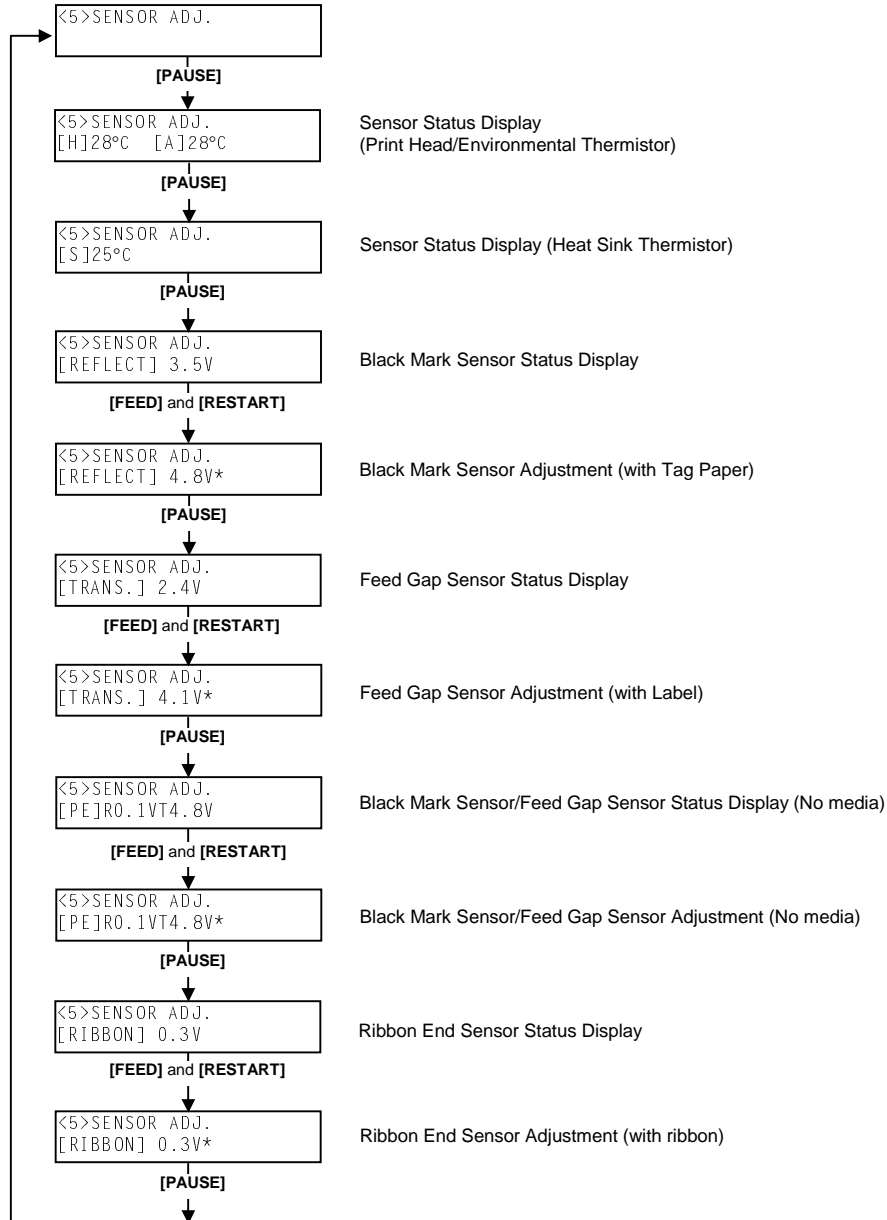
<i>Print speed:</i>	<i>6 inches/second (B-SX4T)</i> <i>5 inches/second (B-SX5T)</i>
<i>Sensor type:</i>	<i>Black mark or feed gap sensor</i>
<i>Printing method:</i>	<i>Thermal transfer</i>
<i>Issuing mode:</i>	<i>Batch printing</i>
<i>Label size:</i>	<i>76mm</i>
<i>Print tone fine adjustment value:</i>	<i>±0</i>

5.7 SENSOR ADJUSTMENT

■ Outline of the Sensor Adjustment

In the Sensor Adjustment mode, the status of the sensors and thermistors is displayed. Also you can make a Threshold Setting for the Black Mark, Feed Gap, and Ribbon End Sensors.

The **Sensor Adjustment** menu contains the following:



- NOTES:**
1. Perform a sensor threshold setting after changing the media to a different type.
 2. An error related to the print position may be caused by the improperly set sensor threshold. In this case please perform a threshold setting in this mode. In case further adjustment is required, refer to Section 5.5 Printer Parameter Fine Adjustment to make the threshold fine adjustment.
 3. When pressing the **[FEED]** and **[RESTART]** keys at the same time in the Sensor Adjustment menu, the display returns to "<5>SENSOR ADJ."
 4. The sensor status is checked every 200 msec. Therefore, the display may change according to the status.

While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the "<1>DIAG. Vx.x" Message appears.

```
<1>DIAG.  Vx.x
```

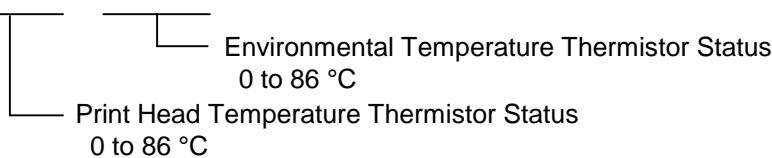
Press the **[FEED]** key 4 times. The printer is at the start of the Sensor Adjustment menu.

```
<5>SENSOR ADJ.
```

5.7.1 Sensor Status Display

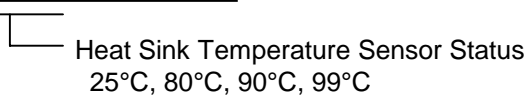
When "<5>SENSOR ADJ." appears, press the **[PAUSE]** key to display the following.

```
<5>SENSOR ADJ.  
[H]20°C [A]22°C
```



Pressing the **[PAUSE]** key again shows the following display:

```
<5>SENSOR ADJ.  
[S]25°C
```



Press the **[PAUSE]** key to show the current black mark sensor status.

5.7.2 Black Mark Sensor Adjustment

```
<5>SENSOR ADJ.  
[REFLECT] 3.8V
```

The status detected by the Black Mark Sensor
0.0V to 5.0V

Follow the Black mark sensor adjustment procedure below.

- (1) Load a tag stock in the B-SX series printer so that the Black Mark Sensor detects a print area (no black mark).
- (2) Press and hold the **[RESTART]** or **[FEED]** key for more than 3 seconds.

```
<5>SENSOR ADJ.  
[REFLECT] 2.8V*
```

When the adjustment is completed, "*" appears.

- (3) Remove the tag stock from the printer.
- (4) Press the **[PAUSE]** key to show the current Feed Gap Sensor status.

5.7.3 Feed Gap Sensor Adjustment

```
<5>SENSOR ADJ.  
[TRANS.] 2.3V
```

Status detected by the Feed Gap Sensor
0.0V to 5.0V

Follow the Feed Gap Sensor adjustment procedure below.

- (1) Place the backing paper (labels are removed) in the B- SX series printer so that the Feed gap Sensor detects it.
- (2) Press and hold the **[RESTART]** or **[FEED]** key for more than 3 seconds.

```
<5>SENSOR ADJ.  
[TRANS.] 4.1V*
```

When the adjustment is completed, "*" appears.

- (3) Remove the backing paper from the printer.
- (4) Press the **[PAUSE]** key to show the current status of the Black Mark Sensor and the Feed Gap Sensor with no paper.

5.7.4 Black Mark Sensor and Feed Gap Sensor Adjustment (No Paper)

```
<5>SENSOR ADJ.  
[PE]R1.0VT4.8V
```

— Status detected by the Feed Gap Sensor (No paper)

— Status detected by the Black Mark Sensor (No paper)

Follow the Black Mark Sensor (no paper)/Feed Gap Sensor (no paper) adjustment procedure below.

- (1) Remove any paper from the detecting area of the Black Mark Sensor and the Feed Gap Sensor.
- (2) Press and hold the **[RESTART]** or **[FEED]** key for more than 3 seconds.

```
<5>SENSOR ADJ.  
[PE]R1.0VT4.8V*
```

— When the adjustment is completed, "*" appears.

- (3) Press the **[PAUSE]** key to show the current Ribbon End Sensor status.

5.7.5 Ribbon End Sensor Adjustment

```
<5>SENSOR ADJ.  
[RIBBON] 0.3V
```

— Status detected by the Ribbon End Sensor

Follow the Ribbon End Sensor adjustment procedure below.

- (1) Place the ribbon in the B-SX series printer so that the Ribbon End Sensor detects it.
- (2) Press and hold the **[RESTART]** or **[FEED]** key for more than 3 seconds.

```
<5>SENSOR ADJ.  
[RIBBON] 0.3V*
```

— When the adjustment is completed, "*" appears.

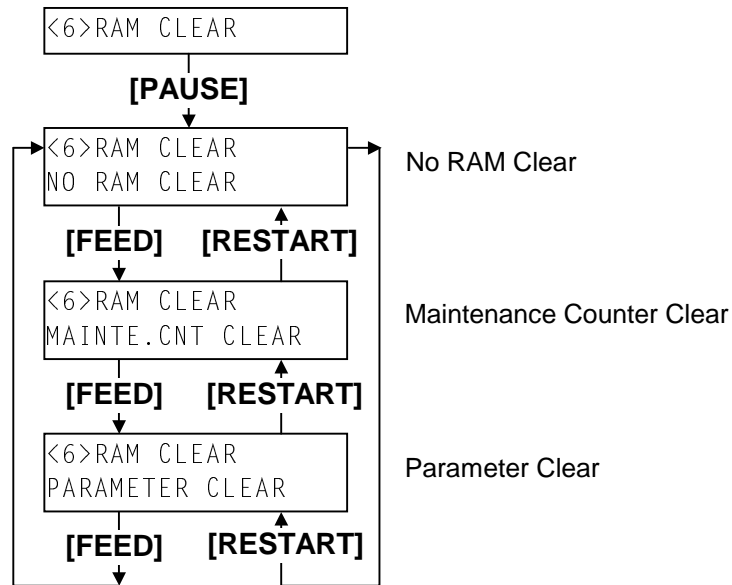
- (3) Press the **[PAUSE]** key to return to "<5>SENSOR ADJ." display.

5.8 RAM CLEAR

■ Outline of RAM Clear

In the RAM Clear mode, clearing the Maintenance Counter and initializing the Parameters are possible. After replacing the print head, ribbon motor, or platen, perform a maintenance clear.

The **RAM Clear** menu contains the following:



While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the “<1>DIAG. Vx.x” Message appears.

<1>DIAG. Vx.x

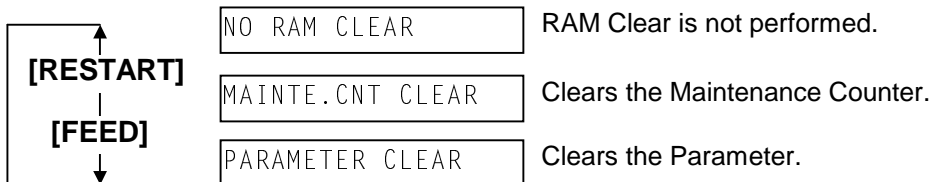
Press the **[FEED]** key 5 times. The printer is at the start of the RAM Clear menu.

<6>RAM CLEAR

5.8.1 RAM Clear Menu Selection

When “<6>RAM CLEAR” appears, press the **[PAUSE]** key.

Select the RAM Clear menu among “No RAM Clear”, “Maintenance Counter Clear”, or “Parameter Clear”.



- NOTES:**
1. To exit the RAM clear menu selection, press the **[FEED]** and **[RESTART]** keys at the same. The display returns to “<6>RAM CLEAR”.
 2. After RAM clear, the following items are still stored: Label distance covered, Sensor adjustment value, IP address, Language for the LCD message, data in the flash memory, and data in the ATA card.

5.8.2 No RAM Clear

NO RAM CLEAR

Press the **[PAUSE]** key. No RAM Clear operation is performed and the display returns to "<6>RAM CLEAR".

Pressing the **[PAUSE]** key again causes the display to return to "NO RAM CLEAR".

5.8.3 Maintenance Counter Clear

MAINTE.CNT CLEAR

Press the **[PAUSE]** key to perform the Maintenance Counter Clear.

When the Maintenance Counter Clear is completed, the following message appears.

*** COMPLETE ***

Turn off the printer to exit this mode.

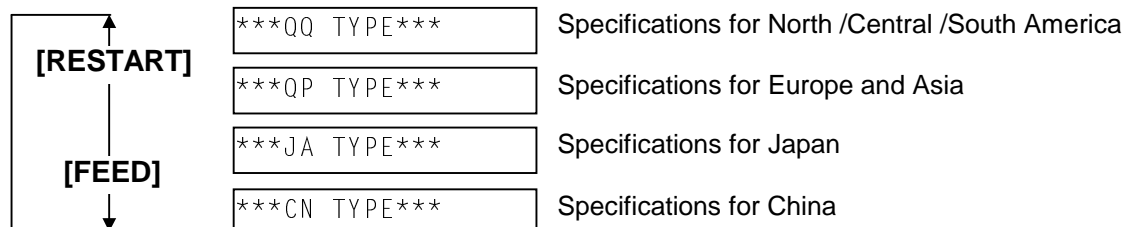
■ Initial values after clearing the maintenance counter (MANTE.CNT CLEAR)

Item	Initial Value
Label distance covered	0 km
Print distance	0 km
Cut count	0 time
Head up/down count	0 time
Ribbon motor drive time	0 hour
Solenoid drive time	0 hour
RS-232C hardware error count	0 time
System error count	0 time
Momentary power failure count	0 time

5.8.4 Printer Parameter Clear

PARAMETER CLEAR

Press the **[PAUSE]** key to show the destination code selection display.



Select the destination code of the printer being used, and press the **[PAUSE]** key to perform a Printer Parameter Clear.

When the Printer Parameter Clear is completed, the following message appears.

*** COMPLETE ***

Turn off the printer to exit this mode.

■ Initial values after clearing the parameters (PARAMETER CLEAR)

Item	Initial Value
Feed length fine adjustment (PC), (KEY)	0 mm
Cut (Strip) position fine adjustment (PC), (KEY)	0 mm
Back feed length fine adjustment (PC), (KEY)	0 mm
Print tone fine adjustment (Thermal transfer), (PC), (KEY)	0
Print tone fine adjustment (Thermal direct), (PC), (KEY)	0
Ribbon take-up motor driving voltage fine adjustment (PC), (KEY)	0
Ribbon feed motor driving voltage fine adjustment (PC), (KEY)	0
Threshold manual fine adjustment for the black mark sensor	1.0V
Threshold manual fine adjustment for the feed gap sensor	1.4V
X axis fine adjustment	0 mm
Character code and zero font code	PC-850, "0" (without slash)
Control code	AUTO
Baud rate	9600 bps
Data length	QP/JA: 8 bits, QQ: 7 bits
Stop bit	1 bit
Parity	QP: None, QQ/JA: EVEN
Transmission control code	QP/JA: XON+READY AUTO QQ: READY/BUSY
Forward wait	OFF
Feed key function	FEED
Kanji code type	TYPE1
Euro code	B0H
Auto print head check	OFF
Web printer function	OFF
Status response	ON
Label pitch	76.2 mm
Effective print length	74.2 mm
Effective print width	104.0 mm (B-SX4T), 128.0 mm (B-SX5T)
Printing mode	Thermal transfer
Sensor type	Feed gap sensor
Print speed	6"/sec. (B-SX4T), 5"/sec. (B-SX5T)
Issue mode	Batch print
PC save automatic calling	ON (Save No. on the Main PCB (ID No.): 01)
ACK/BUSY timing	TYPE 1
LCD message language	QQ/QP: English JA: Japanese
Head up in cut mode/Rewinder selection	Head up: OFF, Rewinder: OFF
Ribbon saving module	QQ/QP: OFF JA: ON
Strip wait status	OFF
Input prime (Reset operation when $\overline{\text{INIT}}$ signal is ON.)	ON: Available
Ribbon near end detect	OFF: No detection
Expansion I/O mode	TYPE1: Standard mode
Centronics I/O mode	SPP: Compatible mode
Plug & Play	OFF
Print processing at the label end detection	TYPE1: Printing is paused while the label is issued.
Pre strip	OFF: Unavailable
Back feed speed	STD: 3 inches/second
Basic interpreter	OFF: Unavailable
Basic interpreter trace	OFF: Unavailable
DHCP function	OFF: Unavailable

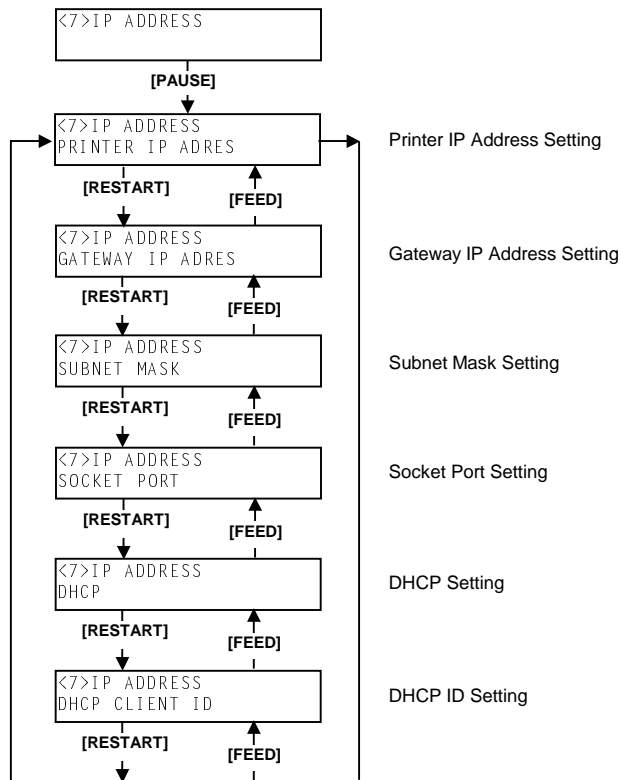
NOTE: The initial values of Data length, Parity, Control code, LCD message language are different according to the destination code.

5.9 IP ADDRESS SETTING

■ Outline of the IP Address Setting

In the IP Address Setting 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.

The **IP Address Setting** menu contains the following:



While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the “<1>DIAG. Vx.x” Message appears.

<1>DIAG. Vx.x

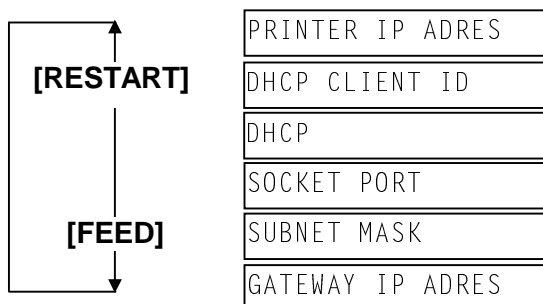
Press the **[FEED]** key 6 times.

The printer is at the start of the IP Address Setting menu.

<7>IP ADDRESS

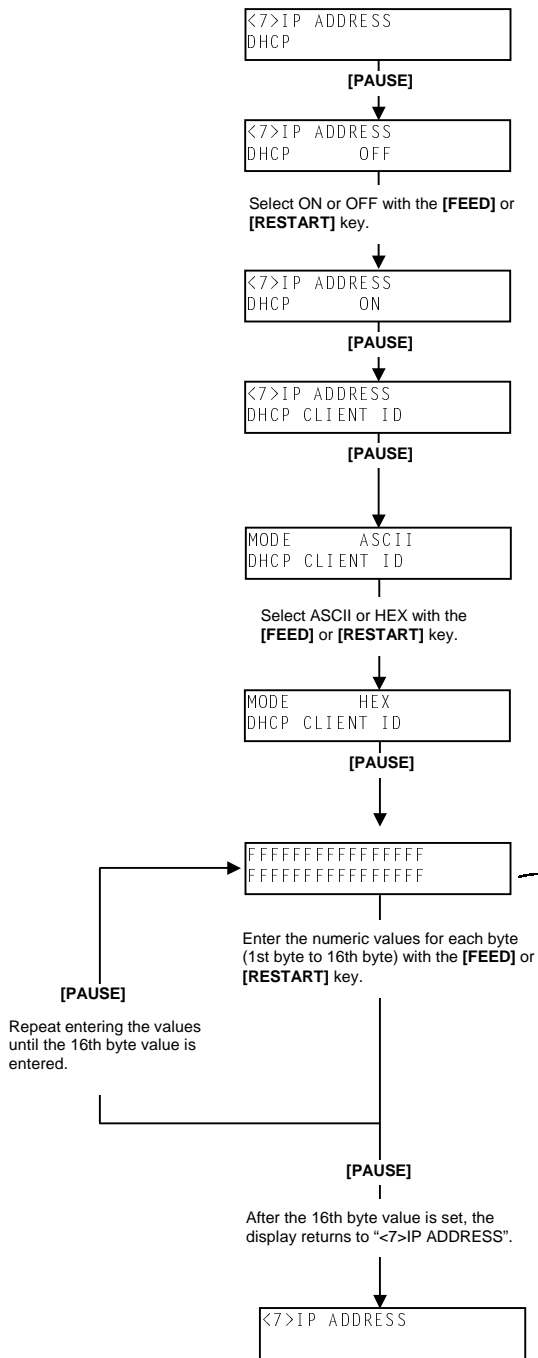
When “<7>IP ADDRESS” appears, press the **[PAUSE]** key.

Select the IP Address menu among “Printer IP Address”, “Socket Port”, “Gateway IP Address”, “Subnet Mask”, “DHCP”, or “DHCP Client ID”.



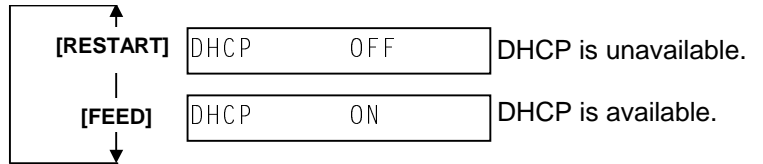
(3) DHCP and DHCP ID Settings

To set the DHCP and the DHCP ID, follow the procedure below.



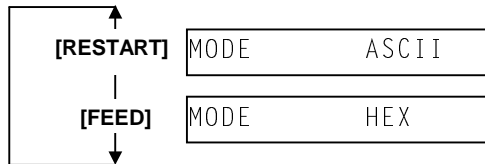
DHCP setting

Select "DHCP ON" or "DHCP OFF" with the [FEED] or [RESTART] key.



DHCP ID entering mode setting

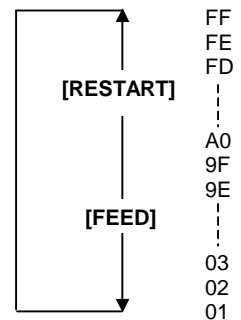
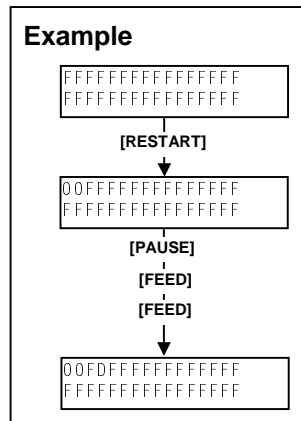
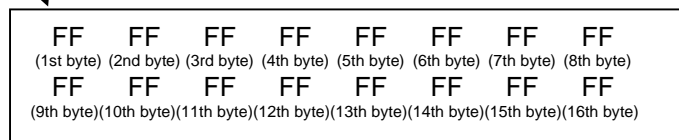
Select "ASCII" or "HEX" with the [FEED] or [RESTART] key.



DHCP ID setting

Set the ID from 1st byte to 16th byte.

NOTE: HEX mode is used here. For ASCII mode, data of each byte will be showed in ASCII characters.

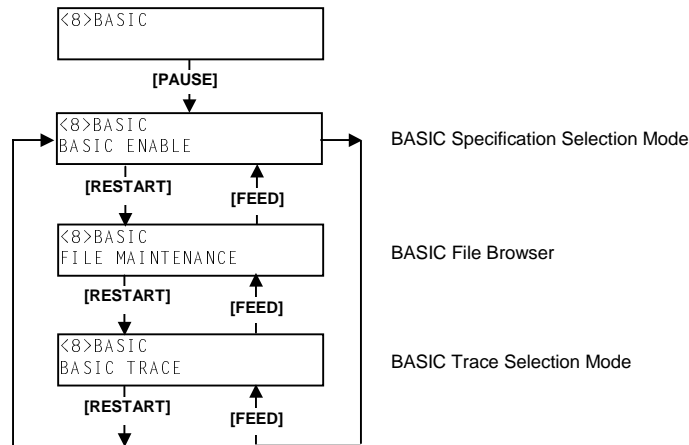


5.10 BASIC SETTING

■ Outline of Basic Setting

Setting the BASIC specification and Trace specification to be enabled/disabled, and displaying the program file, data file, and area file are available in this mode.

The Basic Setting menu contains the following.



While pressing the **[FEED]** and **[PAUSE]** keys at the same time, turn on the printer. Hold both keys until the “<1>DIAG. Vx.x” Message appears.

<1>DIAG. Vx.x

Press the **[FEED]** key 8 times.

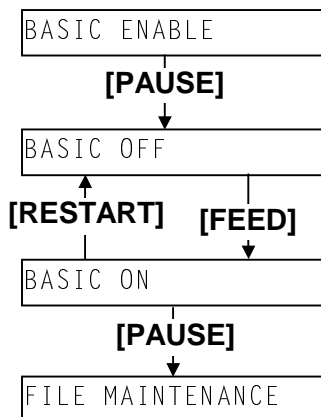
The printer is at the start of the BASIC setting menu.

<8>BASIC

When “<8>BASIC” appears, press the **[PAUSE]** key.

5.10.1 Basic Specification Selection Mode

Select whether the Basic specification is enable or not.



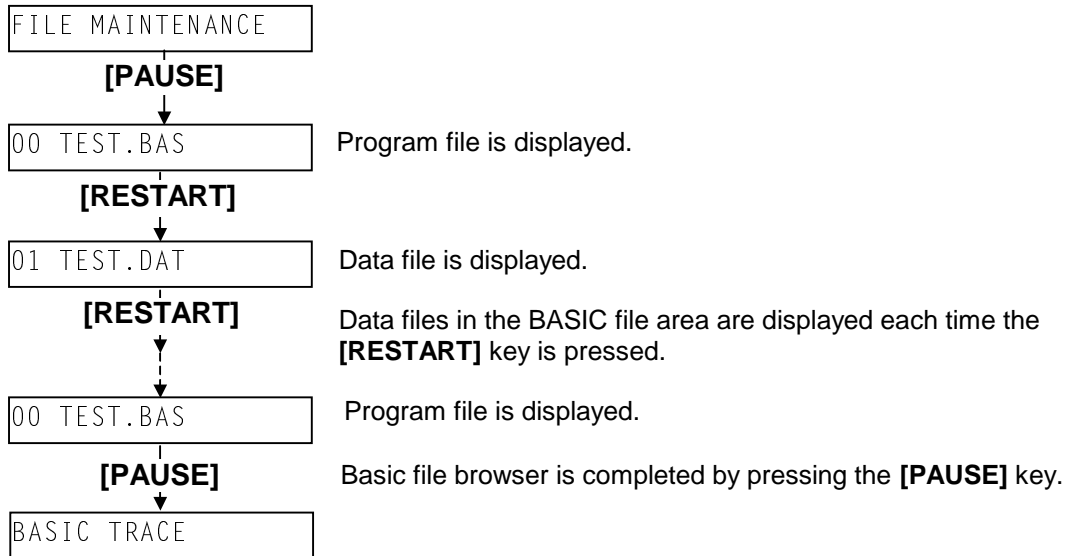
“BASIC ON” or “BASIC OFF” is selected each time the **[RESTART]** or **[FEED]** key is pressed.

Basic specification selection is completed by pressing the **[PAUSE]** key.

5.10.2 Basic File Browser

Data files in the program file and basic file area are displayed.

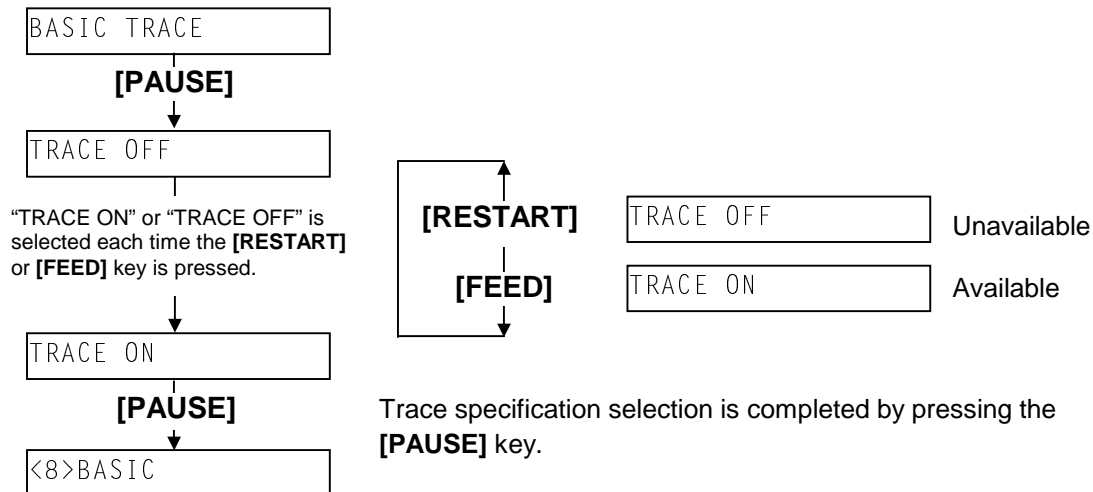
When "<8>BASIC" appears, press the [PAUSE] key, then [RESTART] key.



5.10.3 Basic Trace Selection Mode

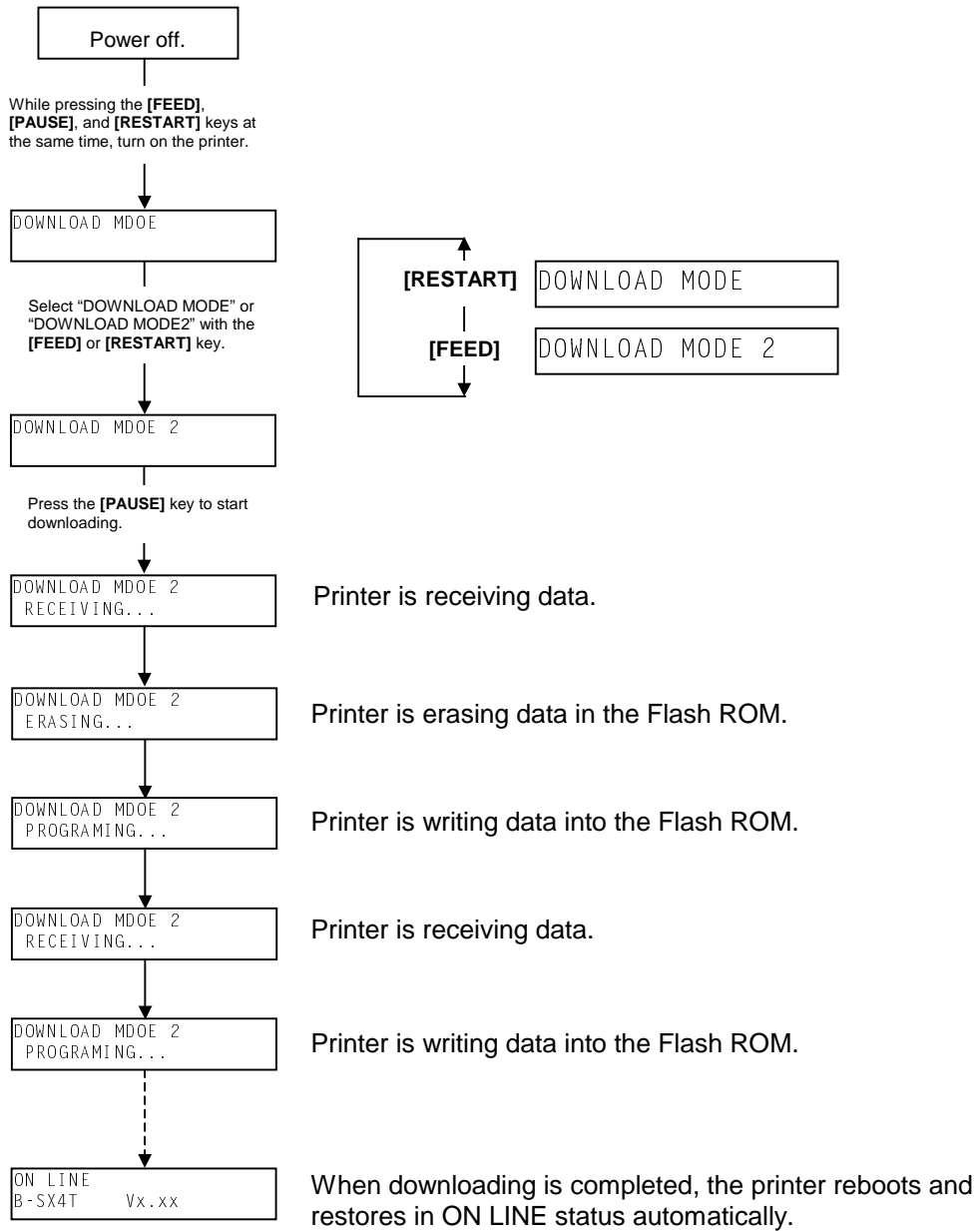
Select whether the Basic trace specification is enable or not.

When "<8>BASIC" appears, press the [PAUSE] key, then [RESTART] key twice.



5.11 DOWNLOAD MODE

In this mode, the printer enables downloading.



NOTE: Centronics Interface ACK/BUSY timing is different between "DOWNLOAD MODE" and "DOWNLOAD MODE 2".). If data cannot be downloaded in DOWNLOAD MODE, select "DOWNLOAD MODE 2" and retry downloading.

6. ON LINE MODE

In the ON LINE mode, the following settings can be performed.

- Threshold Setting for the Feed Gap Sensor
- Threshold Setting for the Black Mark Sensor
- Reset
- Parameter Settings
- Printer Parameter Fine Adjustment
- Dump Mode

■ LED function

LED	Illuminates when...	Flashes when...
POWER	The printer is turned on.	-----
ON LINE	The printer is ready to print.	The printer is communicating with your computer.
ERROR	Any error occurs with the printer.	The ribbon is nearly over. (See NOTE.)

NOTE: Flashes only when the Ribbon Near End Detection function is selected.

■ Key function

PAUSE	Used to stop printing temporarily.
RESTART	Used to restart printing.
FEED	Used to feed the media.

NOTE: Use the **[RESTART]** key to resume printing after a pause, or after clearing an error.

■ Error messages

- NOTES:**
1. If an error is not cleared by pressing the **[RESTART]** key, turn the printer off and then on.
 2. After the printer is turned off, all print data in the printer is cleared.
 3. "*****" indicates the number of unprinted media. Up to 9999 (in pieces).

Error Messages	Problems/Causes	Solutions
HEAD OPEN	The Print Head Block is opened in Online mode.	Close the Print Head Block.
HEAD OPEN *****	Feeding or printing has been attempted with the Print Head Block open.	Close the Print Head Block. Then press the [RESTART] key.
COMMS ERROR	A communication error has occurred.	Make sure the interface cable is correctly connected to the printer and the host, and the host is turned on.
CUTTER ERROR ***** (Only when the cutter module is installed on the printer.)	The media is jammed in the cutter.	Remove the jammed media. Then press the [RESTART] key. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.

■ Error messages (continued)

Error Messages	Problems/Cause	Solutions
PAPER JAM ****	<ol style="list-style-type: none"> 1. The media is jammed in the media path. The media is not fed smoothly. 2. A wrong Media Sensor is selected for the media being used. 3. The Black Mark Sensor is not correctly aligned with the Black Mark on the media. 4. Size of the loaded media is different from the programmed size. 5. The Feed Gap Sensor cannot distinguish the print area from a label gap. 	<ol style="list-style-type: none"> 1. Remove the jammed media, and clean the Platen. Then reload the media correctly. Finally press the [RESTART] key. 2. Turn the printer off and then on. Then select the Media Sensor for the media being used. Finally resend the print job. 3. Adjust the sensor position. Then press the [RESTART] key. 4. Replace the loaded media with one which matches the programmed size then press the [RESTART] key, or turn the printer off and then on, select a programmed size that matches the loaded media. Finally resend the print job. 5. Refer to Section 5.4 to set the threshold. If this does not solve the problem, turn off the printer, and call a TOSHIBA TEC authorised service representative.
NO PAPER ****	<ol style="list-style-type: none"> 1. The media has run out. 2. The media is not loaded properly. 3. The media is slack. 	<ol style="list-style-type: none"> 1. Load new media. Then press the [RESTART] key. 2. Reload the media correctly. Then press the [RESTART] key. 3. Take up any slack in the media.
RIBBON ERROR ****	The ribbon is not fed properly.	Remove the ribbon, and check the status of the ribbon. Replace the ribbon, if necessary. If the problem is not solved, turn off the printer, and call a TOSHIBA TEC authorised service representative.
NO RIBBON ****	The ribbon has run out.	Load a new ribbon. Then press the [RESTART] key.
REWIND FULL ****	The Built-In Rewinder Unit is full.	Remove the backing paper from the Built-In Rewinder Unit. Then press the [RESTART] key.
EXCESS HEAD TEMP	The Print Head has overheated.	Turn off the printer, and allow it to cool down (about 3 minutes). If this does not solve the problem, call a TOSHIBA TEC authorised service representative.
HEAD ERROR	There is a problem with the Print Head.	Replace the Print Head.
Other error messages	A hardware or software problem may have occurred.	Turn the printer off and then on. If this does not solve the problem, turn off the printer again, and call a TOSHIBA TEC authorised service representative.

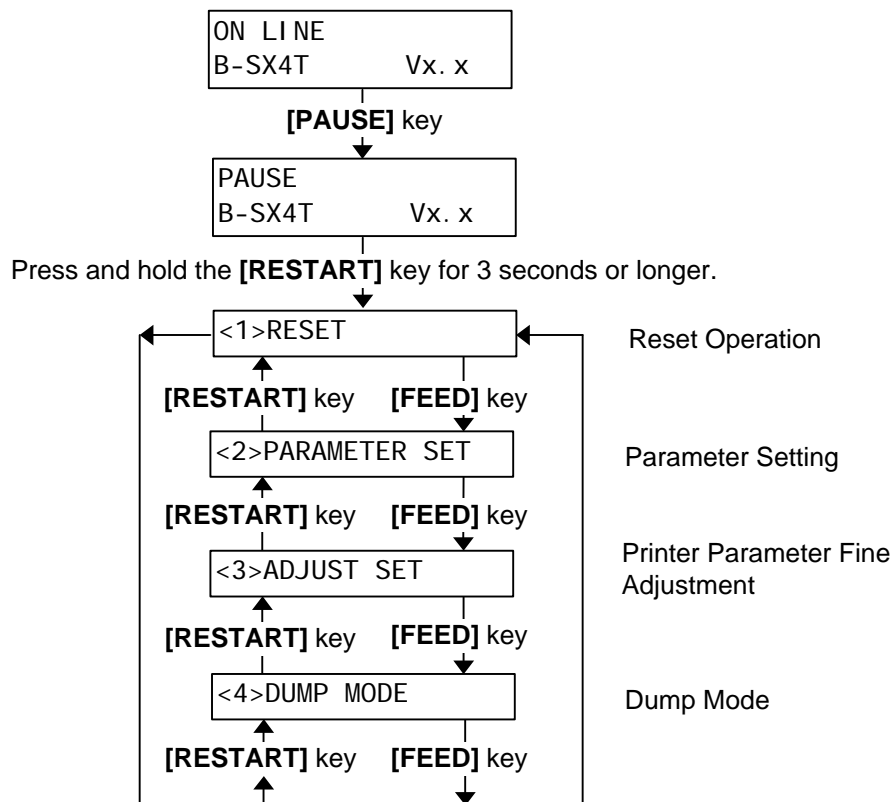
■ LCD message and LED indication

Symbols in the message

- 1: ○: The LED is illuminated. ◎: The LED is flashing. ●: The LED is unlit.
 2: ****: the number of unprinted media. Up to 9999 (in pieces)
 3: %%%: ATA Card's remaining memory 0 to 9999999 (in K bytes)
 4: ###: Flash memory card remaining memory for PC save area: 0 to 895 (in K bytes)
 5: &&&: Remaining flash memory capacity for storing writable characters 0 to 3147 (in K bytes)

No.	LCD Message	LED Indication			Printer Status	Restoration by RESTART key Yes/No	Acceptance of Status Request Reset Command Yes/No
		POWER	ONLINE	ERROR			
1	ON LINE	○	○	●	In online mode	----	Yes
	ON LINE	○	◎	●	In online mode (The printer in communication)	----	Yes
2	HEAD OPEN	○	●	●	The print head block is opened in online mode.	----	Yes
3	PAUSE ****	○	●	●	The printer is paused.	Yes	Yes
4	COMMS ERROR	○	●	○	A parity, overrun, or framing error has occurred during communication through the RS-232C.	Yes	Yes
5	PAPER JAM ****	○	●	○	The media is jammed during paper feed.	Yes	Yes
6	CUTTER ERROR****	○	●	○	A problem has occurred with the cutter module.	Yes	Yes
7	NO PAPER ****	○	●	○	The media has run out, or the media is not loaded properly.	Yes	Yes
8	NO RIBBON ****	○	●	○	The ribbon has run out.	Yes	Yes
9	HEAD OPEN ****	○	●	○	Feed or printing was attempted with the print head block open.	Yes	Yes
10	HEAD ERROR	○	●	○	There is a problem with the print head.	Yes	Yes
11	EXCESS HEAD TEMP	○	●	○	The print head is overheated.	No	Yes
12	RIBBON ERROR****	○	●	○	The ribbon has been torn. A problem has occurred with the sensor that determines the torque for the ribbon motor.	Yes	Yes
13	REWIND FULL ****	○	●	○	An overflow error has occurred in the rewinder unit.	Yes	Yes
14	SAVING%%%%%%%% or SAVING ###&&&	○	○	●	In writable character or PC command save mode	----	Yes
15	FLASH WRITE ERR.	○	●	○	An error has occurred while writing to flash memory or ATA card.	No	Yes
16	FORMAT ERROR	○	●	○	An erase error has occurred in formatting the flash memory or ATA card.	No	Yes
17	FLASH CARD FULL	○	●	○	Data cannot be stored because the flash memory or ATA card is full.	No	Yes
18	Display of error message (See Notes.)	○	●	○	A command error has occurred in analyzing the command.	Yes	Yes
19	POWER FAILURE	○	●	○	A power failure has occurred.	No	No
20	INITIALIZING...	○	●	●	A flash memory card is being initialized.	----	----
21	100BASE LAN INITIALIZING...	○	●	●	100BASE LAN is now being initialized. (Only when the optional B-9700-LAN-QM is installed.)	----	----
22	DHCP CLIENT INITIALIZING...	○	●	●	DHCP CLIENT is now being initialized. (Only when the DHCP is effective.)	----	----

Reset Operation, Parameter Setting, Printer Parameter Fine Adjustment and Dump Mode



NOTE: This section describes the threshold setting for the Feed Gap/Black Mark Sensor, Reset Operation, and Dump Mode. The procedures of the Parameter Setting and Printer Parameter Fine Adjustment are described in the System Mode, please refer to Section 5.4 and Section 5.5, respectively.

6.1 THRESHOLD SETTING

To maintain a constant print position the printer uses the Transmissive Sensor to detect the gap between labels by measuring the amount of light passing through the media. When the media is pre-printed, the darker (or more dense) inks can interfere with this process causing paper jam errors. To get around this problem a minimum threshold can be set for the sensor in the following way.

■ Threshold setting procedure

- (1) Turn the power ON. The printer is in stand by mode.

```
ON LINE
B-SX4T      Vx. x
```

- (2) Load a media roll.

- (3) Press the **[PAUSE]** key.

```
PAUSE
B-SX4T      Vx. x
```

- (4) The printer enters the pause mode.

- (5) Press and hold the **[PAUSE]** key for at least 3 seconds in the pause state.

```
TRANSMI SSI VE
B-SX4T      Vx. x
```

- (6) The sensor type is displayed.

- (7) To select the Reflective Sensor (Black Mark Sensor), press the **[FEED]** key.

```
REFLECTIVE
B-SX4T      Vx. x
```

- (8) To select the Transmissive Sensor (Feed Gap Sensor), press the **[FEED]** key again.

```
TRANSMI SSI VE
B-SX4T      Vx. x
```

- (9) Press and hold the **[PAUSE]** key until more than 1.5 labels (tags) have been advanced. The media is advanced until the **[PAUSE]** key is released. (Threshold setting is completed by this operation.)

```
PAUSE
B-SX4T      Vx. x
```

- (10) Press the **[RESTART]** key.

```
ON LINE
B-SX4T      Vx. x
```

- (11) The printer is in stand-by.

- (12) Send an issue command from the PC to the printer.

```
ON LINE
B-SX4T      Vx. x
```

NOTES:

1. If the **[PAUSE]** key is released within 3 seconds whilst in pause state, paper will not feed.
2. Failure to feed more than 1.5 labels may result in an incorrect threshold setting.
3. While the Print Head Block is raised, the **[PAUSE]** key does not work.
4. Errors such as paper end and cutter error are not detected during paper feed.
5. Selecting the Transmissive Sensor (for pre-printed labels) within software commands allows the printer to detect the proper print start position correctly even when using pre-printed labels.
6. If the printer continued to print out of position after setting the threshold, adjust the Feed Gap Sensor in the system mode. Reset the threshold again. Make sure that the Transmissive Sensor (for pre-printed labels) is selected in the feed and issue commands.

6.2 RESET

Reset operation clears the print data sent to the printer from the computer, and returns the printer to an idle condition.

- (1) The printer is turned on, standing by, or printing.

ON LINE	
B-SX4T	Vx. x

- (2) To stop printing, or clear the data sent from the computer, press the **[PAUSE]** key. The printer stops printing.

PAUSE	52	← The number of unprinted media (See NOTE 2 .)
B-SX4T	Vx. x	

- (3) Press and hold the **[RESTART]** key for 3 seconds or longer.

<1>RESET

- (4) Press the **[PAUSE]** key. The data sent from the computer will be cleared, and the printer returns to an idle condition.

ON LINE

NOTES:

1. If the **[RESTART]** key is held for less than 3 seconds when the printer is in an error or pause state, the printer restarts printing. However, when a communication error or command error occurs, the printer returns to an idle condition.
2. When the **[PAUSE]** key is pressed during printing, the number of unprinted media is displayed.

6.3 DUMP MODE

In Dump mode, any characters sent from the host computer will be printed. Received characters are expressed in hexadecimal values. This allows the user to verify programming commands and debug the program.

- (1) The printer is turned on, standing by, or printing.

```
ON LINE
B-SX4T   Vx. x
```

- (2) Press the **[PAUSE]** key.

```
PAUSE      52
B-SX4T     Vx. x
```

← The number of unprinted media (See **NOTE.**)

- (3) During the Pause state, press and hold the **[RESTART]** key for 3 seconds or more. The display shows “<1> RESET”.

```
<1>RESET
```

- (4) Press the **[FEED]** key. The display shows “<2>PARAMETER SET”.

```
<2>PARAMETER SET
```

- (5) Press the **[FEED]** key. The display shows “<3>ADJUST SET”.

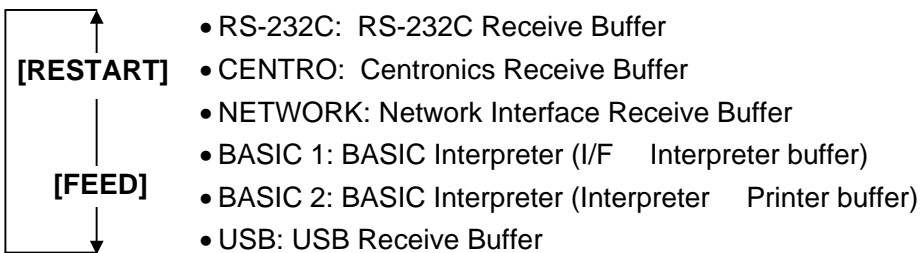
```
<3>ADJUST SET
```

- (6) Press the **[FEED]** key. The display shows “<4>DUMP MODE”. Press the **[PAUSE]** key to enter the Dump Mode.

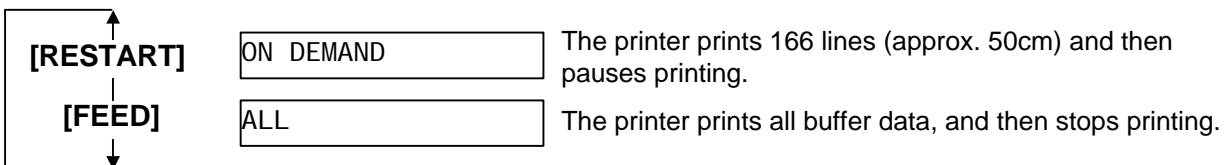
```
<4>DUMP MODE
BUFFER RS-232C
```

- (7) Select the receive buffer to be dumped with the **[FEED]** or **[RESTART]** key.

```
<4>DUMP MODE
BUFFER RS-232C
```



- (8) Select the printing method with the **[FEED]** or **[RESTART]** key.



- (9) Press the **[PAUSE]** key to start printing. The printer prints the data in the selected receive buffer.

```
NOW PRINTING...
```

- (10) After completing the printing, the display returns to “<4>DUMP MODE”.

```
<4>DUMP MODE
```


(11) Reset the printer by turning the power off and on. The display shows "ON LINE".

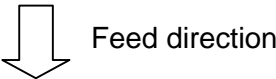
ON LINE

NOTE:

When the [PAUSE] key is pressed during printing, the number of unprinted media is displayed. The data in the receive buffer is printed as follows:

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
7B 41 58 3B 2B 30 30 30 2C 2B 30 30 30 2C 2B 30 {AX; +000, +000, +0
30 7C 7D 7B 44 30 37 37 30 2C 31 31 30 30 2C 30 0|}{D0760, 1100, 0
37 34 30 7C 7D 7B 43 7C 7D 7B 4C 43 3B 30 30 33 740|}{C|}{LC; 003
30 2C 30 30 32 30 2C 30 30 33 30 2C 30 36 36 30 0, 0020, 0030, 0660
2C 30 2C 32 7C 7D 7B 4C 43 3B 30 30 37 30 2C 30 , 0, 2|}{LC; 0070, 0
30 32 30 2C 30 30 37 30 2C 30 36 36 30 2C 30 2C 020, 0070, 0660, 0,
39 7C 7D 7B 4C 43 3B 30 30 35 30 2C 30 30 32 30 9|}{LC; 0050, 0020
:
:
:
44 45 46 47 48 49 4A 7C 7D 7B 50 43 31 30 3B 30 DEFGHIJ|}{PC10; 0
33 35 30 2C 30 34 30 30 2C 31 2C 31 2C 4B 2C 30 350, 0400, 1, 1, K, 0
30 2C 42 3D 41 42 43 44 65 66 67 68 69 6A 6B 6C 0, B=ABCDefghijkl
:
:
:
6D 6E 6F 70 7C 7D 7B 50 56 30 32 3B 30 33 33 30 mnop|}{PV02; 0330
2C 30 36 36 30 2C 30 32 37 30 2C 30 32 35 30 2C , 0660, 0270, 0250,
41 2C 30 30 2C 42 3D 42 7C 7D 7B 50 56 30 33 3B A, 00, B=B|}{PV03;
:
:
:
3B 30 39 30 30 2C 30 31 38 30 2C 54 2C 48 2C 30 ; 0900, 0180, T, H, 0
35 2C 41 2C 30 3D 31 32 33 34 35 36 37 38 39 30 5, A, 0=1234567890
41 42 43 44 45 7C 7D 00 00 00 00 00 00 00 00 00 ABCDE|}
:
:
:
    
```



Print Conditions

- Printing width: 4.2 inches
- Sensor selection: None
- Print speed: 6"/sec. (B-SX4T), 5"/sec. (B-SX5T)
- Printing mode: Depends on the selection in use.
- 16 bytes/line
- Data is printed in the order from the new one to the old one.
- Data specified by the receive buffer write pointer will be printed in boldface.

Receive buffer size

	B-SX4T	B-SX5T
RS-232C	1MB (65536 lines)	6MB (393216 lines)
Centronics	1MB (65536 lines)	6MB (393216 lines)
Network Interface	1MB (65536 lines)	6MB (393216 lines)
BASIC 1	4KB (256 lines)	4KB (256 lines)
BASIC 2	4KB (256 lines)	4KB (256 lines)
USB	1MB (65536 lines)	6MB (393216 lines)

Required label length

	B-SX4T	B-SX5T
RS-232C	198.2m	1189.2m
Centronics	198.2m	1189.2m
Network Interface	198.2m	1189.2m
BASIC 1	1m	1m
BASIC 2	1m	1m
USB	198.2m	1189.2m

NOTE:

If an error occurs during dumping, the printer will display an error message and stop printing. The error can be cleared by pressing the [PAUSE] key, and then the display will show "<4>DUMP MODE" again. After recovery from the error the printer will not start printing automatically.

7. PROGRAM DOWN LOAD

This section provides step-by-step instructions on how to setup and download the firmware to the B-SX series thermal printer. The firmware download will be made from a PC via the RS-232C interface and Centronics interface of the printer.

7.1 OUTLINE OF FEATURES

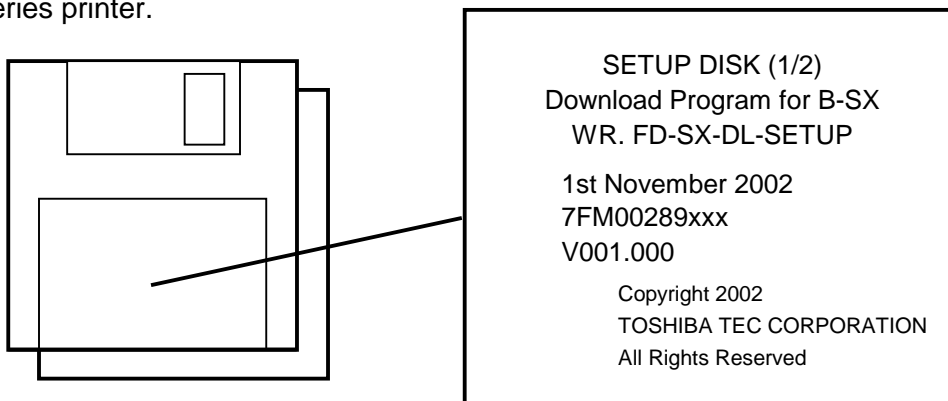
The software for performing the program download will allow the download of the Firmware (Boot program, Application program, and Character generator) from the provided FDK. The software will be run on a standard PC and communication to the B-SX series printer will be via the RS-232C interface and the Centronics interface.

Firmware Download

The Boot program, Application program and Character generator are installed into the B-SX series printer's flash memory prior to being shipped to the customer. However, if specifications should change at a later date, this software will allow downloading firmware updates to the B-SX series printer.

7.2 DOWNLOAD PROGRAM INSTALLATION

Before you can communicate from your PC to the B-SX series printer, you must first copy the "Download Program for B-SX" from the two FDKs provided to the hard disk of your PC. This program allows you to download the firmware (Boot program, Application program and Character generator) to the B-SX series printer.



7.2.1 System Requirements

System

- IBM Compatible PC running Windows 95® or Windows 98
- Installed memory of 16MB minimum (32MB recommended)
- Available Hard Disk space of 10MB or more

NOTE: *Windows 3.1® is not supported.*

Windows 3.1®, Windows 95®, and Windows 98® are registered trademarks of the Microsoft Corporation.

Interface

The RS-232C interface and Centronics interface.

7.2.2 Setup

Setup Disk

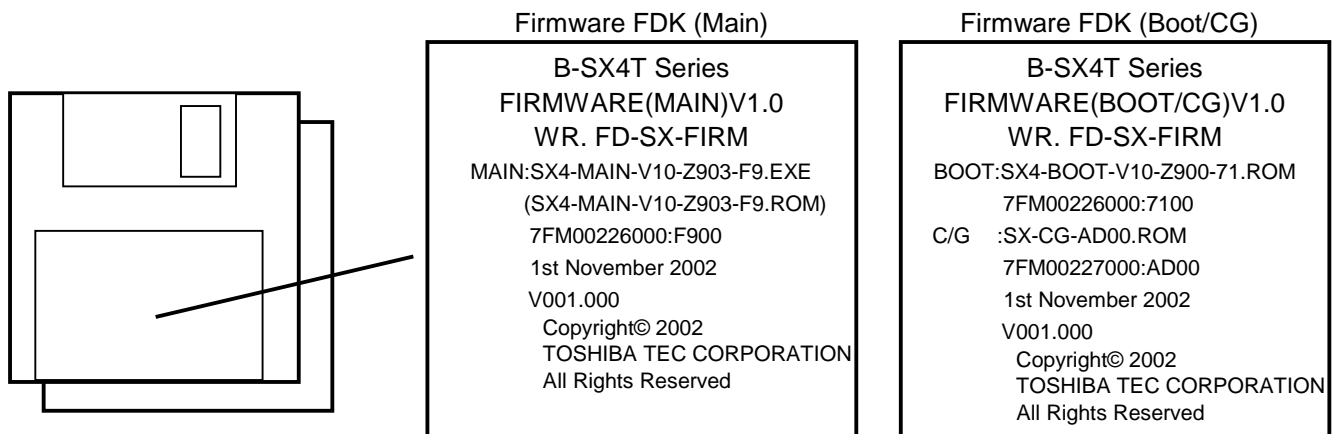
Make sure that you have all two diskettes available of the "Download Program for B-SX".

Installation Procedure

- (1) While running Windows 95 or Windows 98, insert Setup Disk (1/2) into the PC floppy drive.
- (2) Click on the START button then highlight RUN and click on RUN.
- (3) When the RUN display appears, type in A:\SETUP and click on OK.
- (4) Install the Download Program by following the messages on the display.

7.3 FIRMWARE DOWNLOAD

If it ever becomes necessary to upgrade the firmware in the B-SX series printer you will be supplied with a floppy disk containing the latest firmware revision similar to that shown below.

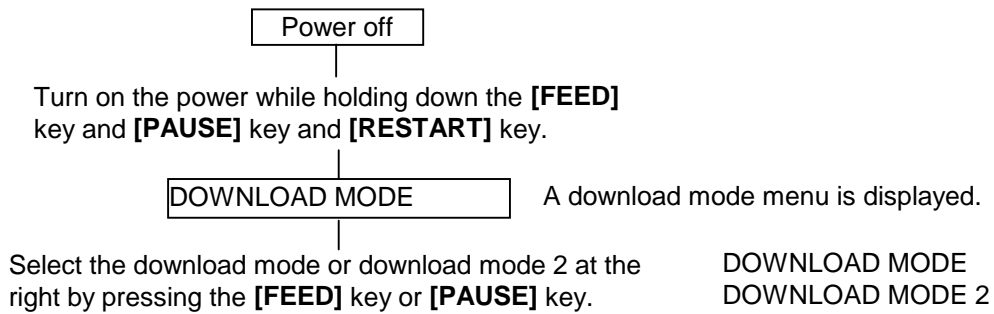


The following paragraphs give the download procedure that the firmware (Boot program, Application program and Character generator) is copied onto the PC hard disk before being transferred to the printer.

Before starting the download procedure

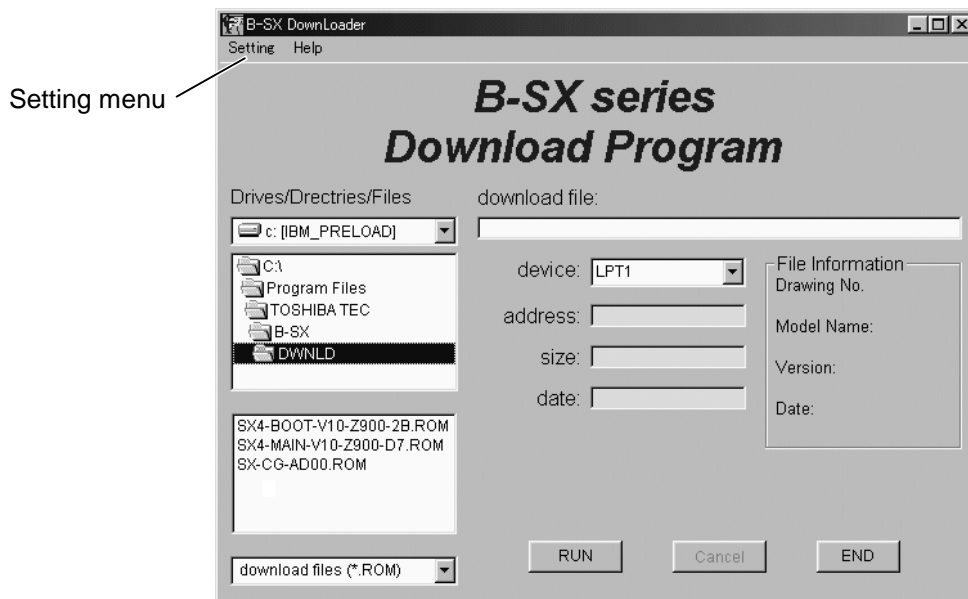
- Copy the firmware program contained in the FDKs to your specified directory of the hard disk. If the file format of the file installed into the FDK is "*.EXE", click it twice to decompress into "*.ROM" file.
- Connect the printer to your PC with the Centronics I/F cable or the RS-232C I/F cable. For the Centronics communication, cancel the network pass allocated to LPT 1 of the PC. Failure to do this will disable you from firmware download.

- (1) Turn on the printer power by the following procedure.



NOTE: Program downloading must be performed in the **DOWNLOAD MODE**. It cannot be performed in *On line mode* or *System mode*.

- (2) Turn on the PC power and start up Windows.
- (3) Click on the START button to access the program menu.
- (4) Highlight "TOSHIBA TEC", "B-SX" and "Dwnld", and click on "B-SX Downloader" to start up the download program. The main menu screen will appear as shown below.

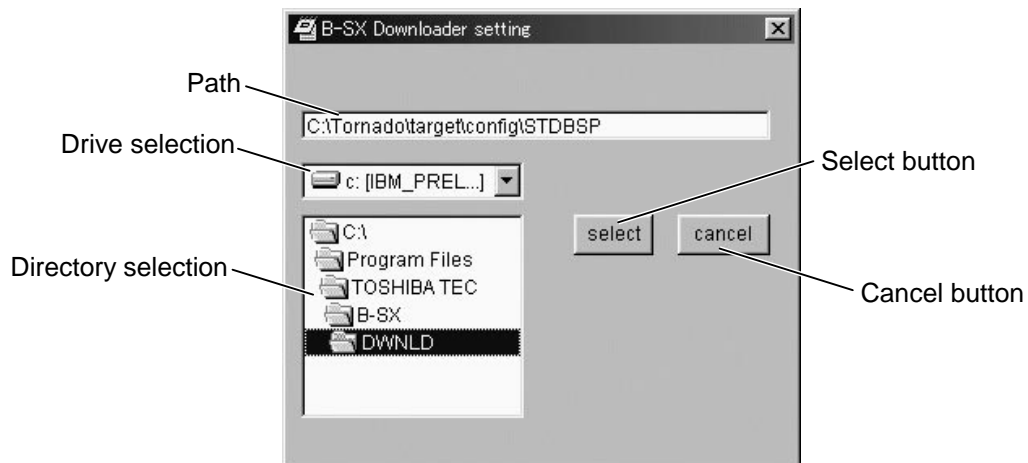


(5) On the main menu screen, perform Default Device setting and Default Path setting in the following procedure.

- 1) Click on "Setting" on the upper left corner of the main menu screen.
- 2) Click on "Open" to show the sub menu screen as shown below.

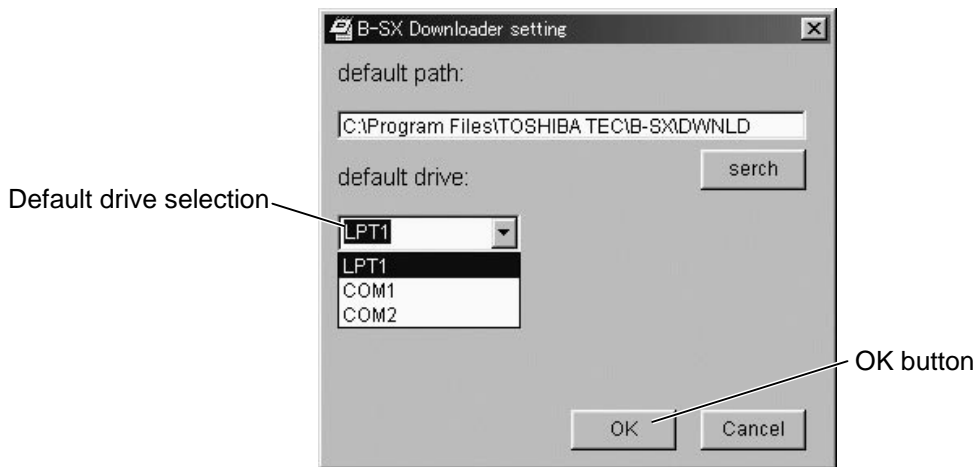


- 3) Click on the Search button to show the sub menu screen as shown below. Select a directly to be required as the default path.



- 4) Click on the Select button and then the OK button. The default path setting is completed. This setting will be effective next time you start up Windows.

- 5) Select a device to be required as the default device, and then click the OK button. The default device setting is completed. This setting will be effective next time you start up Windows.

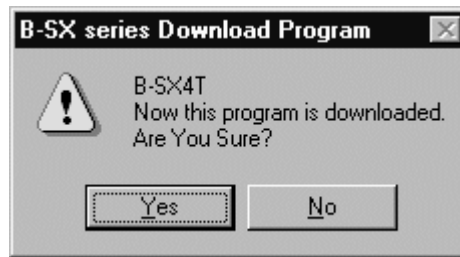


- NOTES:**
1. When COM1 or COM2 is selected as the default drive, communications parameter will be fixed as follows; Baud rate: 115200bps, Parity: even, Data Length: 8 bits, and Stop Bit: 1 bit.
 2. The default device is can be set on the main menu screen, however, it will be cleared at the termination of the download program.

- (6) Select the drive directory in which the firmware file (*.ROM) was saved, and the file name to be downloaded. (File information will be showed on the right side of the screen. Click on the RUN button.

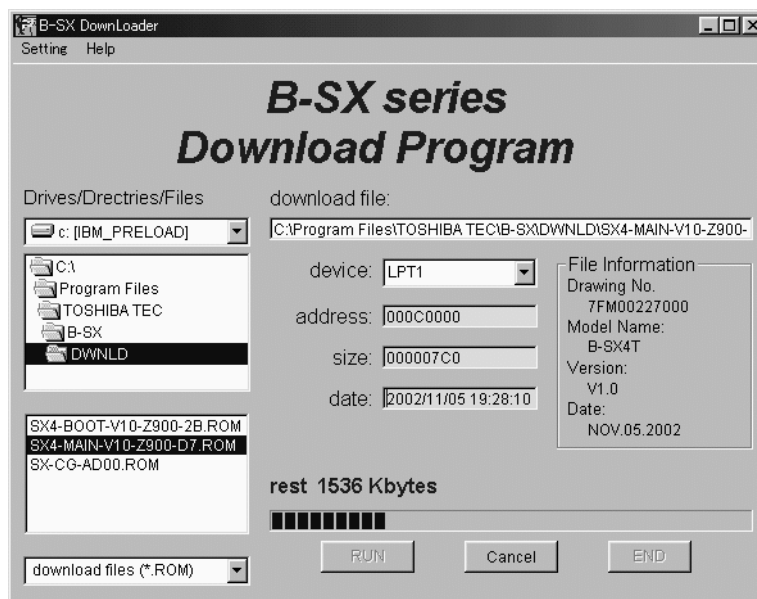


- (7) The following message screen appears. Click on the Yes button to start the program download. If canceling the download, click on the No button.



- NOTE:** While downloading, the following message will appear on the LCD display, respectively.
- Data in the Flash ROM is being erased.: "ERASING..."
- The printer is receiving data.: "RECEIVING..."
- Data is being written into the Flash ROM.: "PROGRAMMING..."

- (8) While the printer prepares for the downloading, part of the screen may be disordered. After approximately 15 seconds, the following screen will appear causing the firmware to be transferred.



- (9) After the firmware was transferred successfully, the display returns to the main menu screen.
- (10) After data was written into the Flash ROM successfully, the message "**** COMPLETE ****" appears on the LCD display. And then the printer will restarts automatically.
- (11) Click on the END button to terminate the download program.

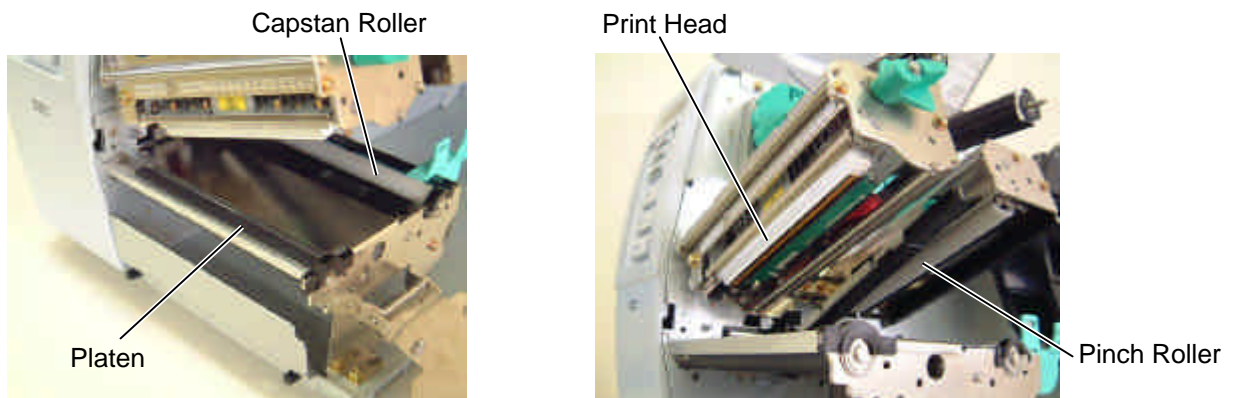
8. PERIODIC MAINTENANCE PROCEDURE

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.

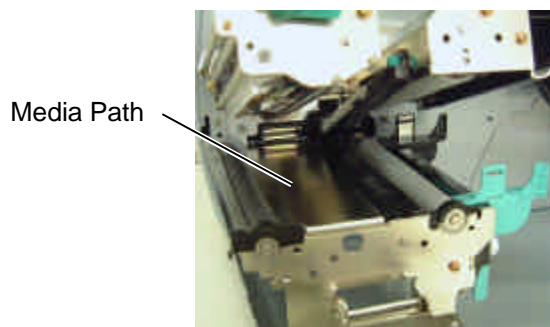
Please refer to the following general maintenance procedure and perform periodic servicing.

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.

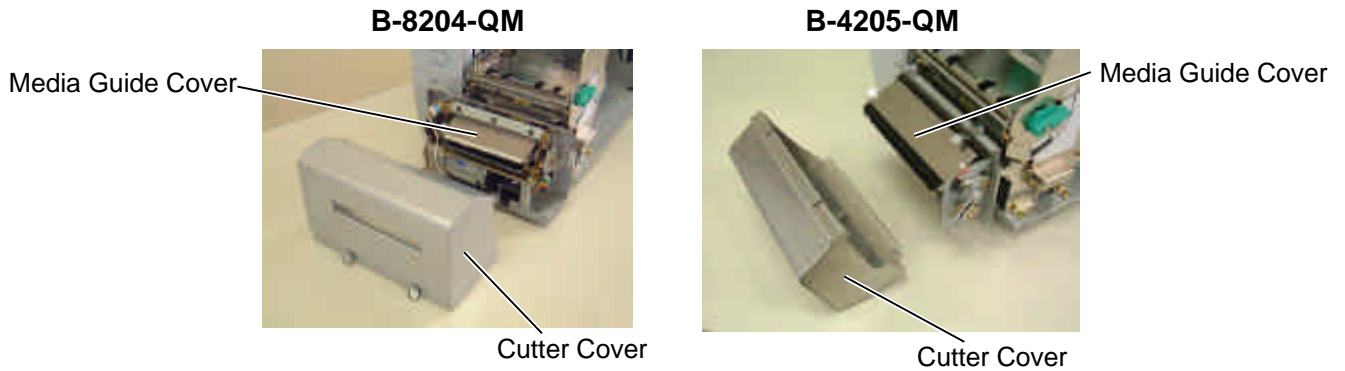


(5) When using the cutter unit, clean the cutter blade and the media path.

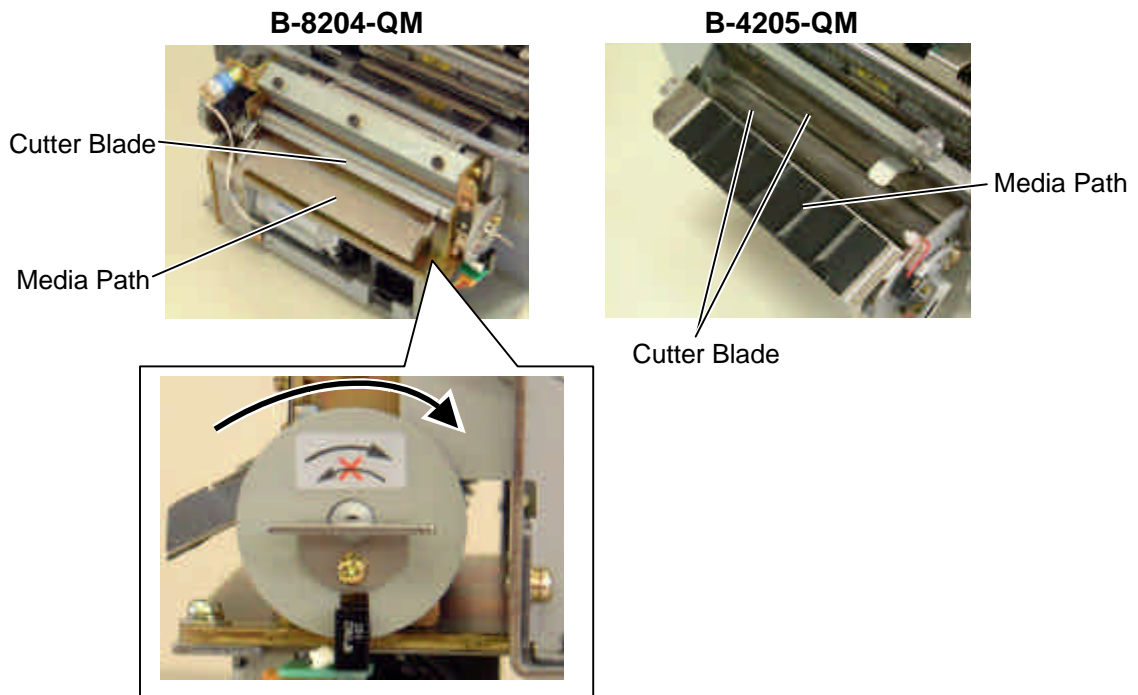
WARNING!

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

1) Remove the cutter cover and the media guide cover.



2) Wipe the cutter blade with a soft cloth or a cotton swab moistened with alcohol.
Wipe the media path with a soft cloth moistened with alcohol.



NOTE: For the B-8204-QM, turn the cutter blade clockwise so as to clean easily.

6. Apply FLOIL G-488 to the cutter unit using a soft cloth.

CAUTION!

1. *Lubrication: During parts replacement*
2. *Kinds of oil: FLOIL G-488: 1 Kg can. (Parts No. 19454906001)*
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	Part No.	Standard interval of replacement
1	Cutter unit (Option: B-4205-QM)	GFM-0060001	300,000 cuts
2	Cutter unit (Option: B-8204-QM)	GFM-0066001	300,000 cuts
3	Platen	7FM00163000	50 km
4	Feed Roller	7FM00164000	50 km
5	Pinch Roller	7FM00169000	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.

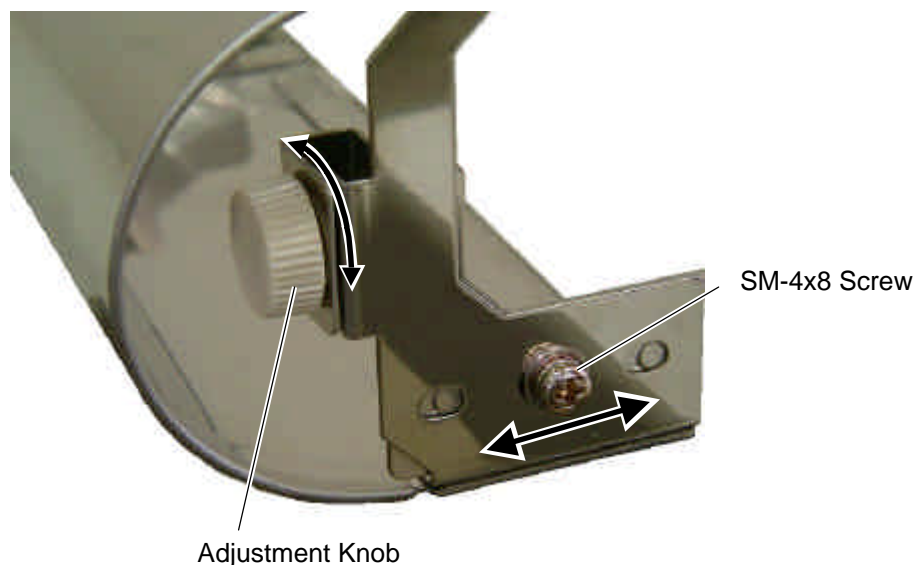
10. Conduct the following tests and make sure that there is no problem.

- (1) Print test with TOSHIBA TEC-approved media and ribbon. (Print tone, print head position, etc.)
- (2) Paper skew

When the Strip Module is used;

If the label skews when using the built-in Rewinder unit, turn the adjustment knob of the rewinder guide plate to correct the label feed. Clockwise turn moves the rewinder guide plate forward and counterclockwise turn moves it backward.

- When labels skew to the right:
Loosen the SM-4x8 screw with a phillips-head screwdriver. Turn the adjustment knob clockwise, and tighten the SM-4x8 screw when the rewinder guide plate is positioned correctly.
- When labels skew to the left:
Loosen the SM-4x8 screw with a phillips-head screwdriver. Turn the adjustment knob counterclockwise, and tighten the SM-4x8 screw when the rewinder guide plate is positioned correctly.



- (3) Print start position adjustment (Horizontal: media position, vertical: sensor adjustment/adjustment by issuing commands.)
 - (4) Communication test
 - (5) Abnormal noise
 - (6) 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.

9. TROUBLESHOOTING

Problems	Cause	Solution
Power does not turn ON.	<ol style="list-style-type: none"> 1. Input voltage to the printer is not within the rated voltage. (Check by CN1 on the PS unit.) 2. Output voltage from the printer is not within the rated voltage. [Check that the voltage between +24V pins (1, 2 and 6) and PG pins (3, 7 and 8) of CN4 on the PS unit is 24V. And check that the voltage between +5V pin (5) and SG pin (4) is 5V.] 3. No voltage to the MAIN PC board. [Check that the voltage between +27V pins (1, 2 and 6) and PG pins (3, 7 and 8) of CN501 on the MAIN PC board is 24V. And check that the voltage between +5V pin (5) and LG pin (4) is 5V.] 4. Failure of MAIN PC board. 	<p>Replace the power cable or power inlet.</p> <p>Replace the PS unit.</p> <p>Replace the power harness.</p> <p>Replace the MAIN PC board.</p>
LED or LCD does not light.	<ol style="list-style-type: none"> 1. Failure of the panel PC board or operation panel 2. Failure of the operation panel harness 3. Failure of the MAIN PC board 	<p>Replace the panel PC board or operation panel.</p> <p>Replace the operation panel harness.</p> <p>Replace the MAIN PC board.</p>
Poor printing	<ol style="list-style-type: none"> 1. Poor media quality. 2. Dirty print head 3. The print head block is not set completely. 	<p>Use the media approved by TOSHIBA TEC.</p> <p>Clean the print head.</p> <p>Close the print head block completely.</p>
Printer does not print.	<ol style="list-style-type: none"> 1. Print head failure 2. Connection of the print head connector is incomplete, a bad contact, or broken elements. 3. Failure in rewinding/feeding of the ribbon. 4. Failure of the MAIN PC board. 5. Failure of the software 6. Failure of the printer cable. 	<p>Replace the print head.</p> <p>Connect the harness completely, or replace the harness.</p> <p>Replace the ribbon take-up motor, ribbon feed motor or MAIN PC board.</p> <p>Replace the MAIN PC board.</p> <p>Check the program.</p> <p>Replace the printer cable.</p>
Dot missing	<ol style="list-style-type: none"> 1. Broken print head element 2. Broken print head cable wires 3. Failure of the MAIN PC board 	<p>Replace the print head.</p> <p>Replace the print head harness.</p> <p>Replace the MAIN PC board.</p>
Blurred print	<ol style="list-style-type: none"> 1. Poor media quality. 2. Dust is on the media. 	<p>Use only TOSHIBA TEC-approved media.</p> <p>Clean the print head and remove any dust from the media.</p>

Problems	Cause	Solution
Ribbon wrinkle	<ol style="list-style-type: none"> Poor ribbon quality. Ribbon is not rewound or fed smoothly. 	<p>Use only TOSHIBA TEC-approved ribbon.</p> <p>Replace the ribbon rewind motor or ribbon feed motor.</p>
Media feed failure	<ol style="list-style-type: none"> Media is not set properly. Poor media quality Improper adjustment of the feed gap sensor or black mark sensor. Threshold is improper. Failure of the feed gap sensor or black mark sensor The cutter mechanism is not installed properly. Failure of the stepping motor. 	<p>Set the media properly.</p> <p>Use the media approved by TOSHIBA TEC.</p> <p>Re-adjust the sensor.</p> <p>Set the threshold correctly.</p> <p>Replace the feed gap sensor or black mark sensor.</p> <p>Install the cutter module properly.</p> <p>Replace the stepping motor or MAIN PC board.</p>
Communication error	<ol style="list-style-type: none"> Failure of the communication cable Failure of the RS-232C connector Failure of the communication connector Failure of the PC or application software Failure of the MAIN PC board 	<p>Replace the cable.</p> <p>Replace the connector</p> <p>Replace the connector.</p> <p>Modify the program.</p> <p>Replace the MAIN PC board.</p>

10. MAJOR UNIT REPLACEMENT

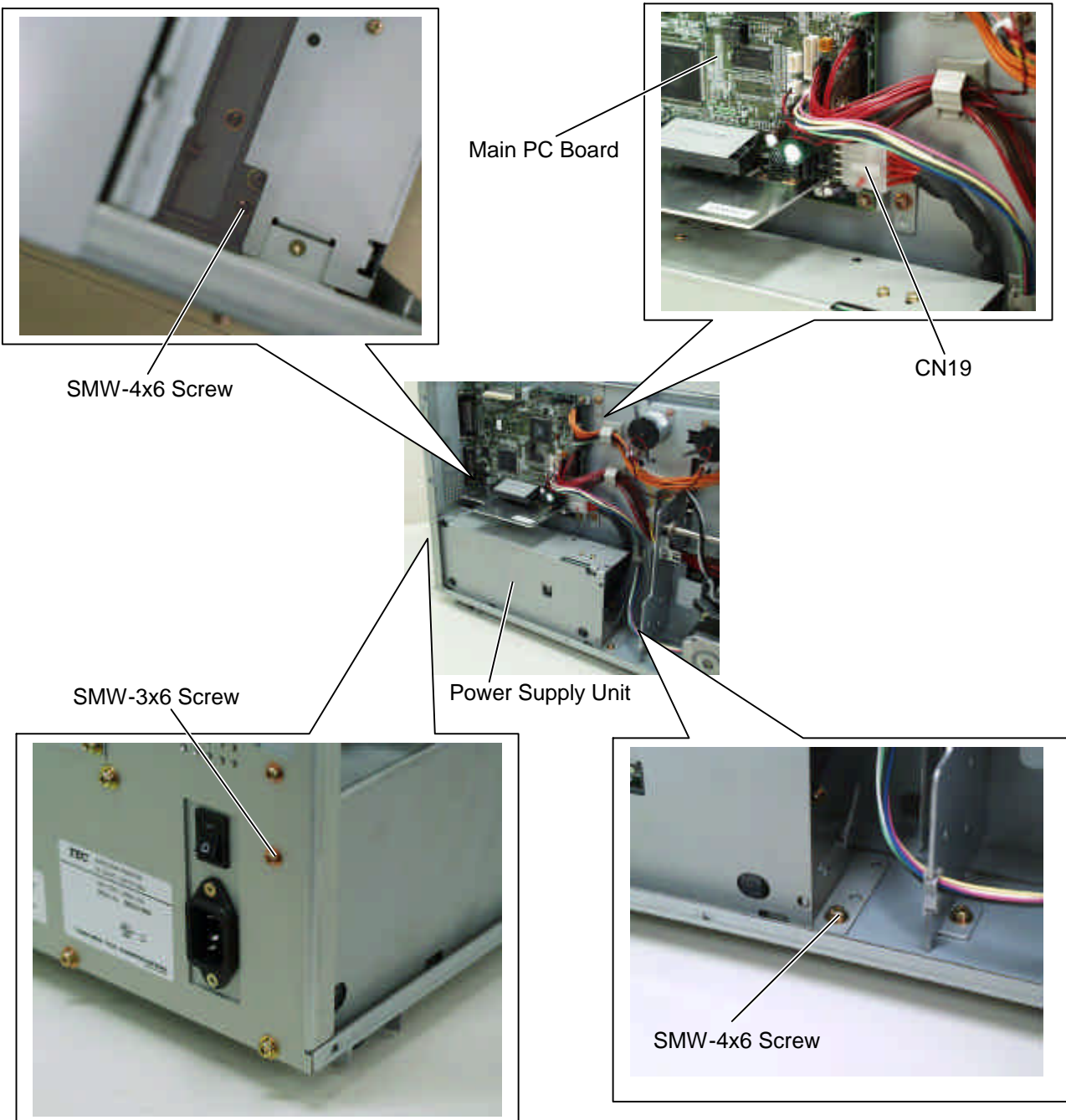
WARNING!

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

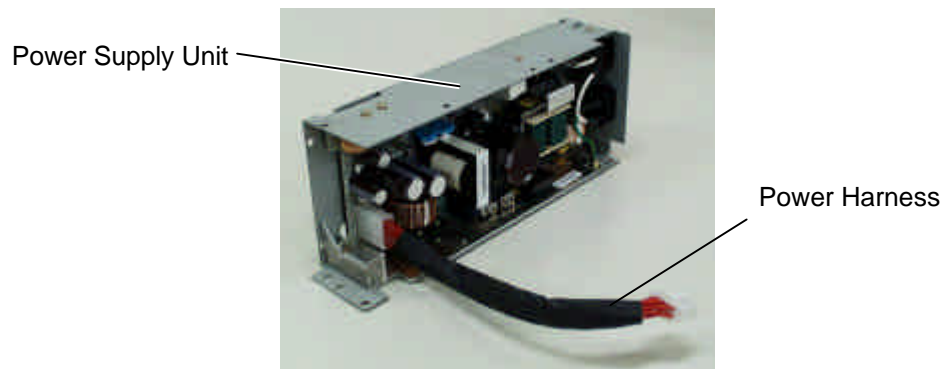
NOTE: Be sure to disconnect all cables of the printer from the PC and the option devices.
Never remove the screws fixing the printer block. (See Caution in Section 3.)

10.1 POWER SUPPLY UNIT

- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Disconnect the power supply harness from CN19 on the Main PC board.
- 3) Remove the SMW-3x6 and the two SMW-4x6 screws to detach the power supply unit from the printer.

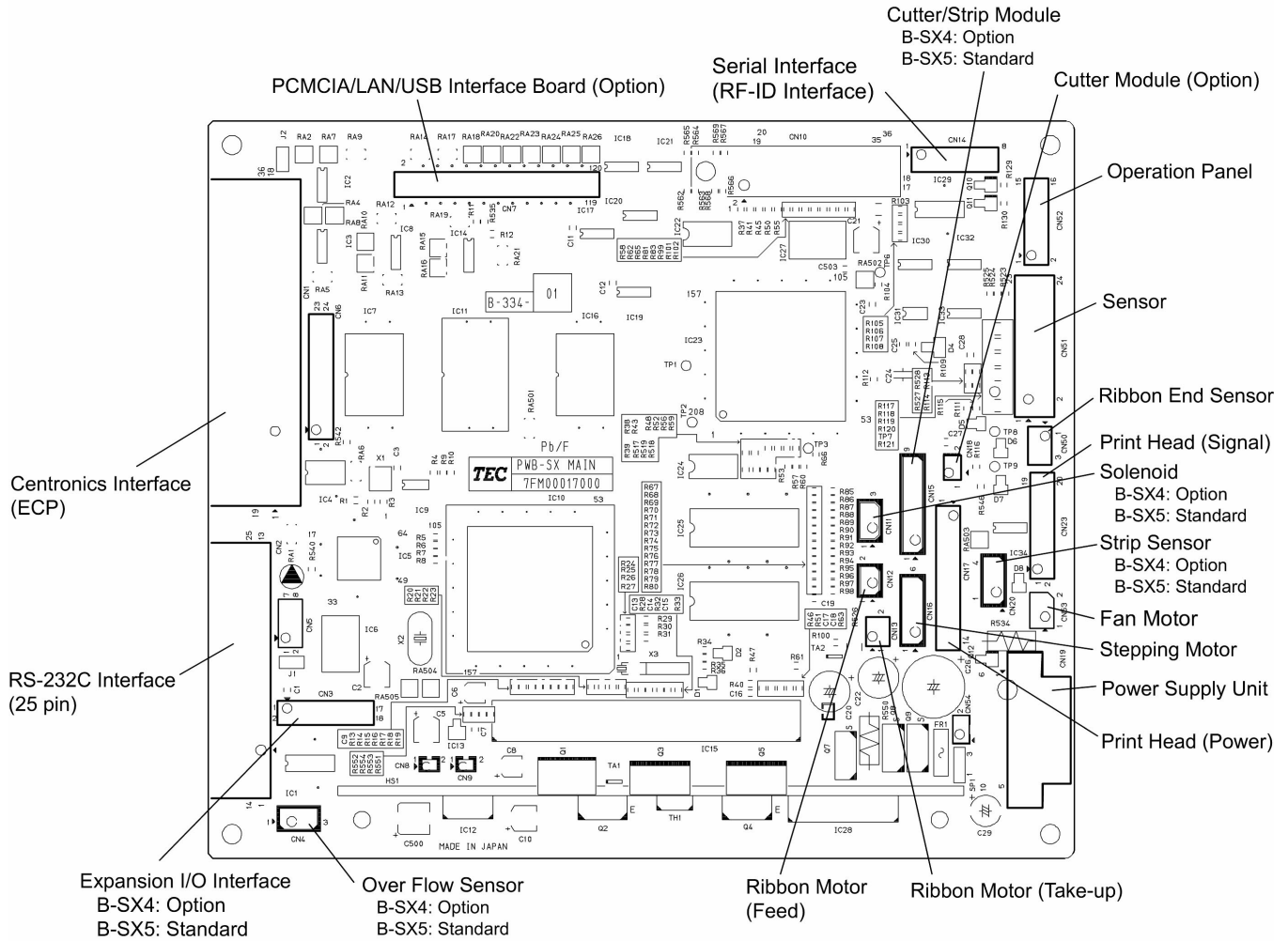


- 4) Disconnect the power harness from the power supply unit.
- 5) Replace the power supply unit with a new one, then reassemble in the reverse order of removal.



10.2 MAIN PC BOARD

- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) For the B-SX5T series, remove the expansion I/O board. (Refer to Section 4.)
- 3) Disconnect all the cables from the MAIN PC board.

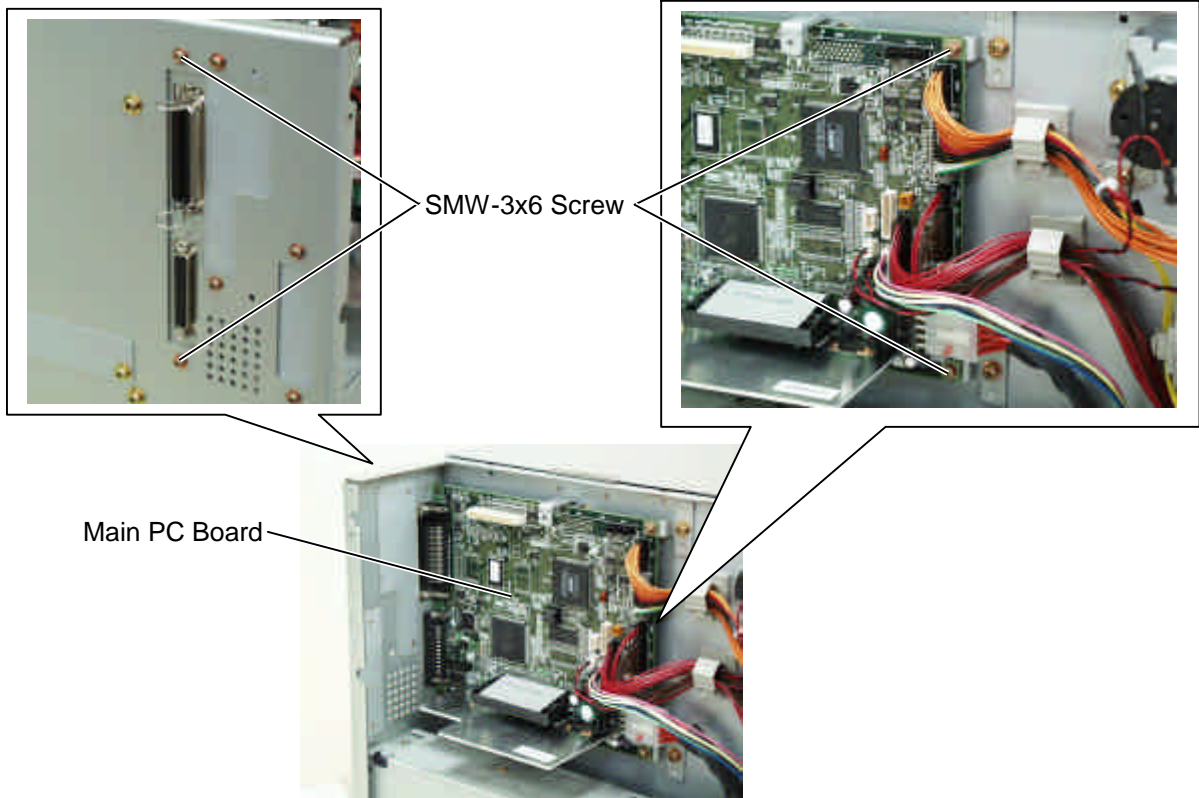


NOTE: The cables are connected to the following connectors as standard (without option).

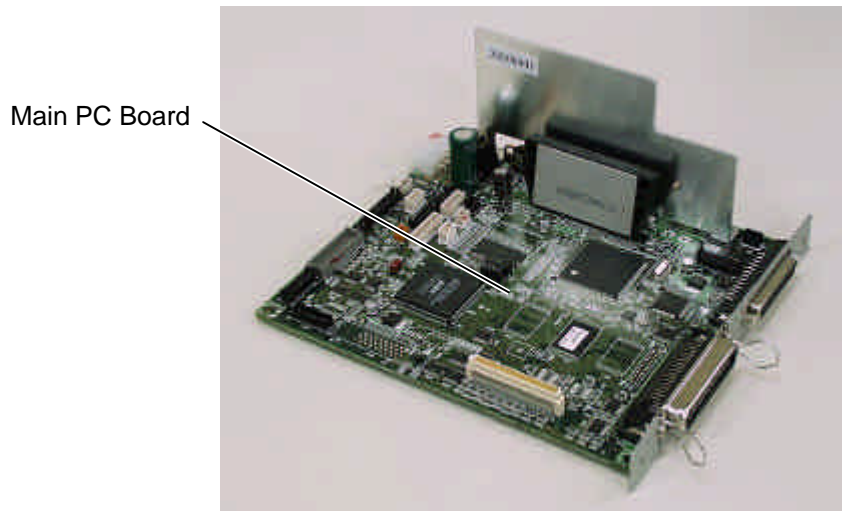
B-SX4T: CN8, 9, 12, 13, 16, 17, 19, 23, 50 – 53

B-SX5T: CN3, 4, 8, 9, 11 – 13, 15 – 17, 19, 20, 23, 50 – 53

- 4) Remove the four SMW-3x6 screws to detach the Main PC board from the printer.



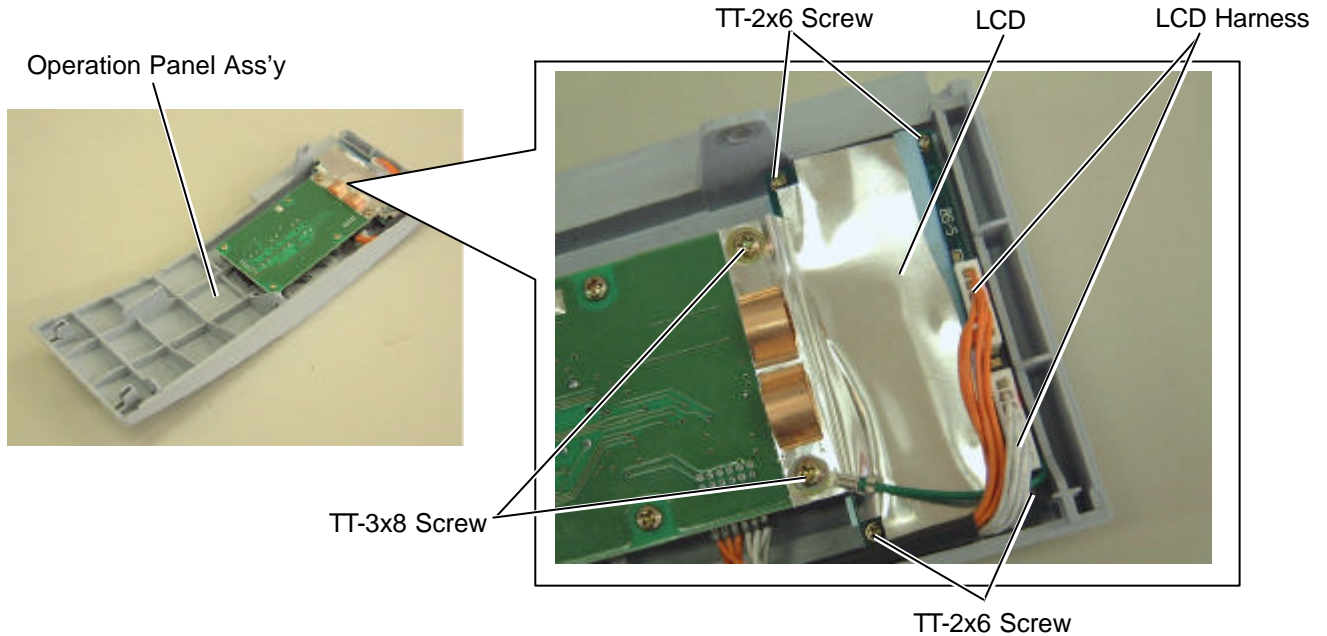
- 5) Replace the Main PC board with a new one, then reassemble in the reverse order of removal.



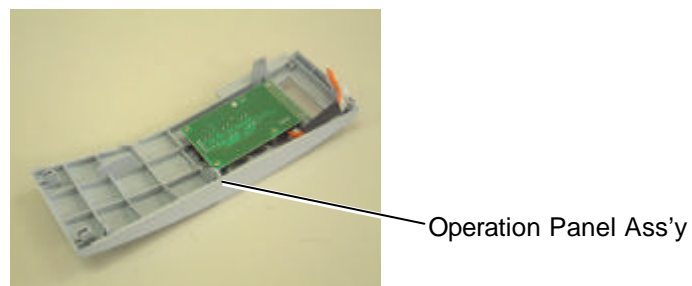
10.3 PANEL PC BOARD AND LCD UNIT

10.3.1 LCD

- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the operation panel ass'y. (Refer to Section 3.4.)
- 3) Remove the two LCD harnesses, the four TT-2x6 screws, and the two TT-3x8 screws from the LCD.

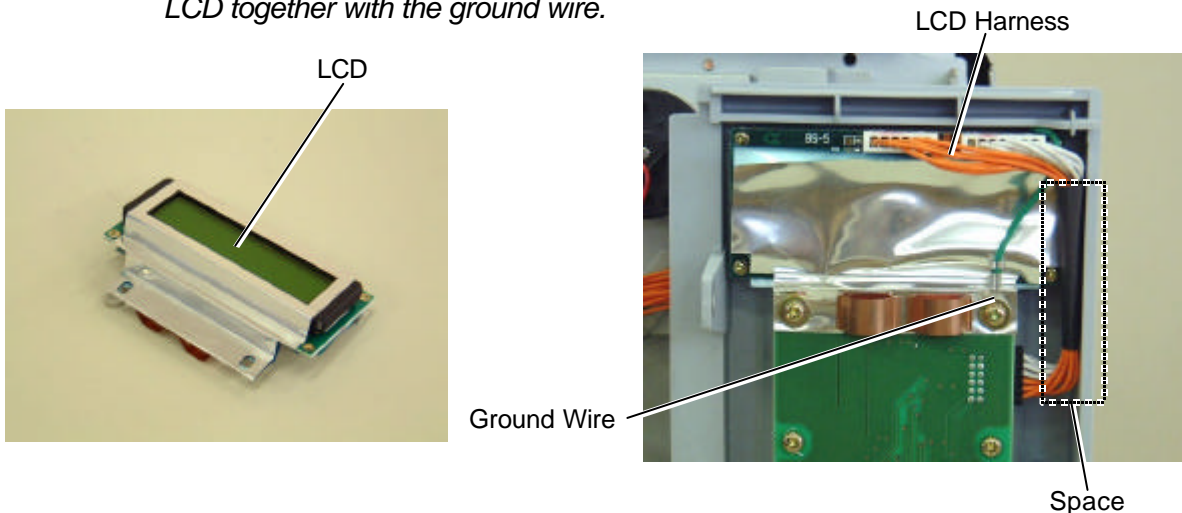


- 4) Detach the LCD from the operation panel ass'y.



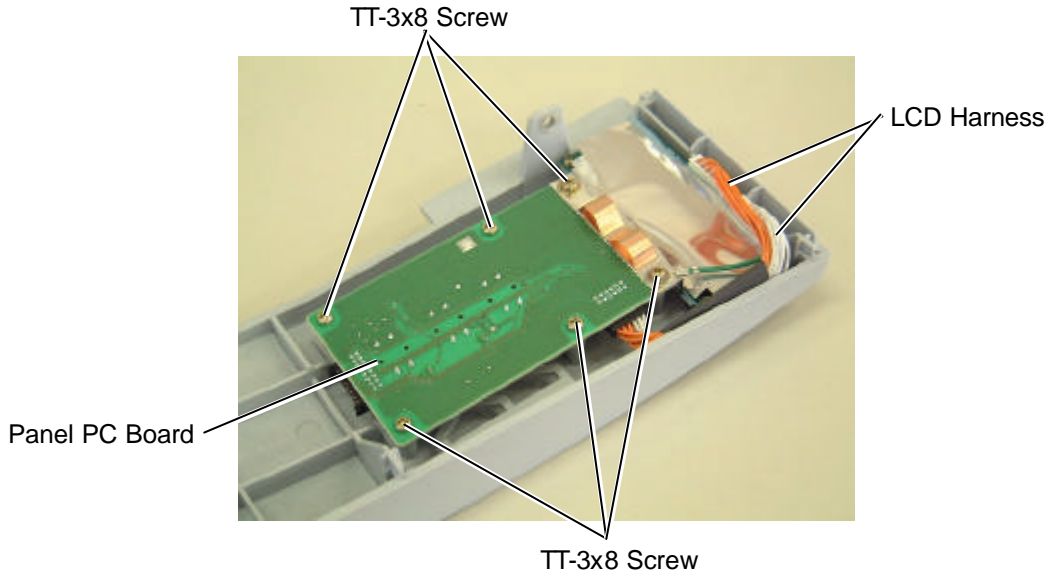
- 5) Replace the LCD with a new one, then reassemble in the reverse order of removal.

NOTE: When reassembling, lead the LCD harness through the space as the picture below shows. Failure to do this may cause the cover to catch the harness. Also secure the LCD together with the ground wire.

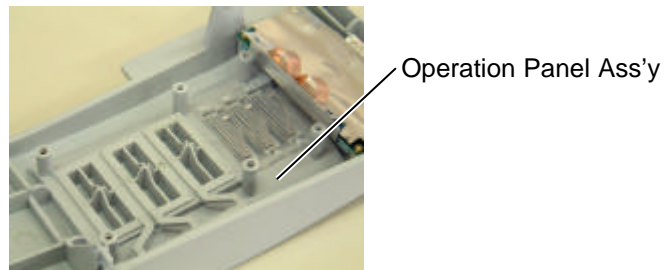


10.3.2 Panel PC Board

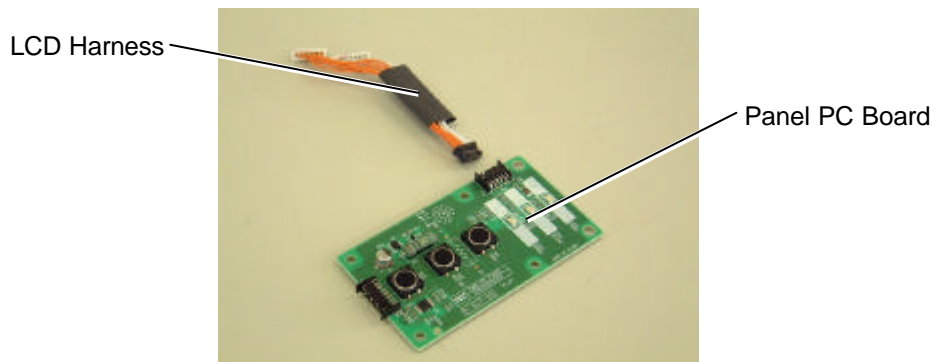
- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the operation panel ass'y. (Refer to Section 3.4.)
- 3) Remove the two LCD harnesses and the six TT-3x8 screws from the LCD.



- 4) Detach the panel PC board from the operation panel ass'y.



- 5) Disconnect the LCD harness from the panel PC board.

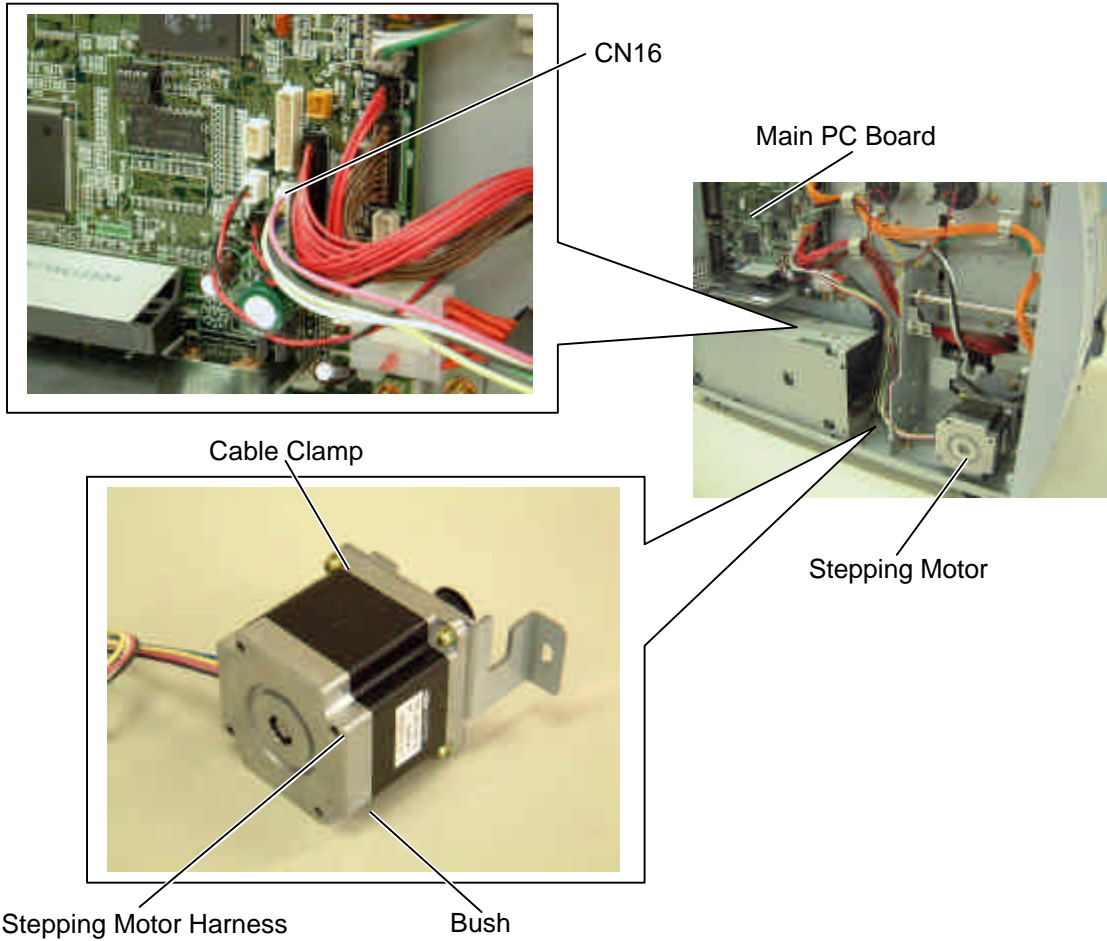


- 6) Replace the panel PC board with a new one, then reassemble in the reverse order of removal.

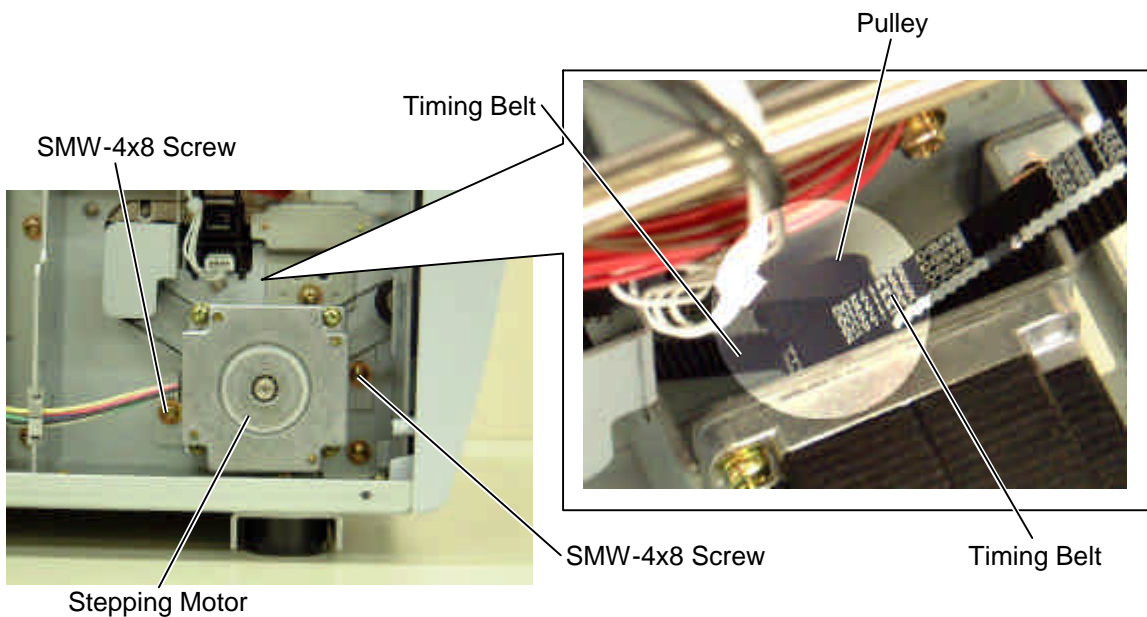
NOTE: When reassembling, lead the LCD harness through the space. Failure to do this may cause the cover to catch the harness. (Refer to Section 10.3.1.)

10.4 STEPPING MOTOR

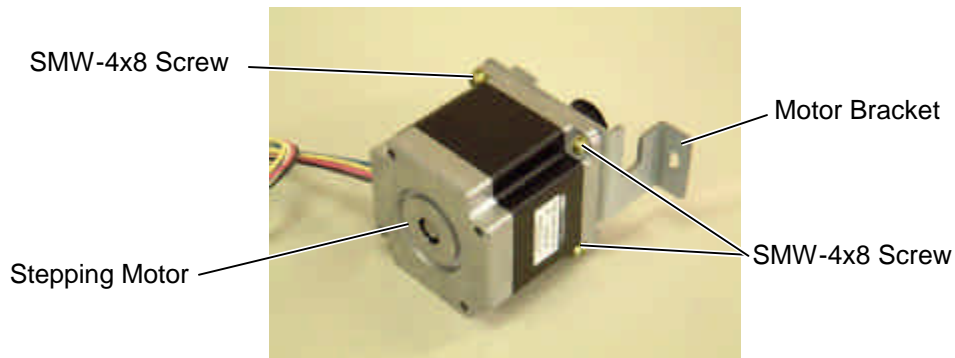
- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Disconnect the stepping motor harness from CN16 on the Main PC board.
- 3) Remove the stepping motor harness from the cable clamp and the bush.



- 4) Remove the two SMW-4x8 screws from the stepping motor. And then detach the stepping motor from the printer while taking the two timing belts off the pulley.

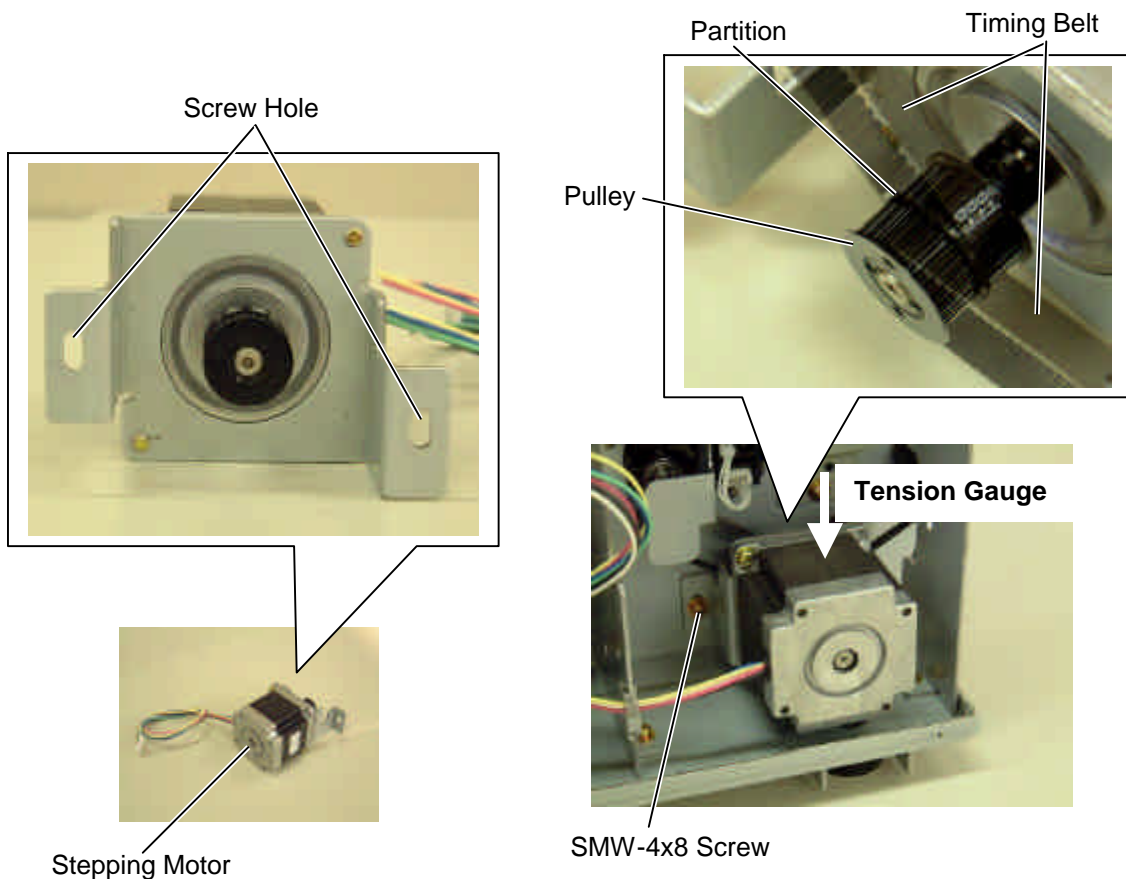


5) Remove the four SMW-4x8 screws to detach the stepping motor from the motor bracket.



6) Replace the stepping motor with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.

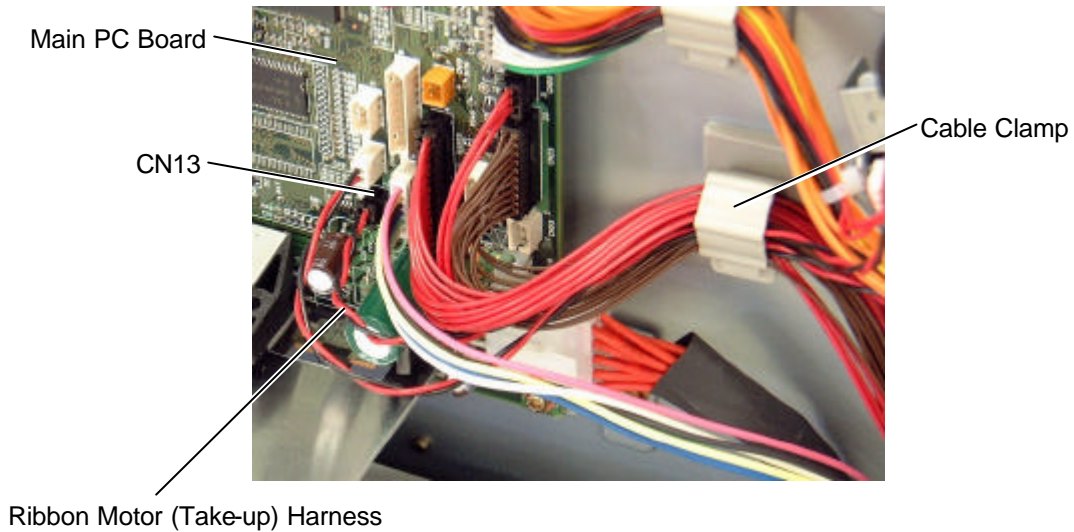
- Place the stepping motor so that the harness faces the Main PC board.
- When reassembling the stepping motor, place the two timing belts around the pulley so that the partition is positioned between two belts.
- The screw holes to attach the stepping motor are shaped oval, which allows you to adjust the attaching position. Hold down the tension gauge onto the stepping motor at 3kg force and secure it with the two SMW-4x8 screws.



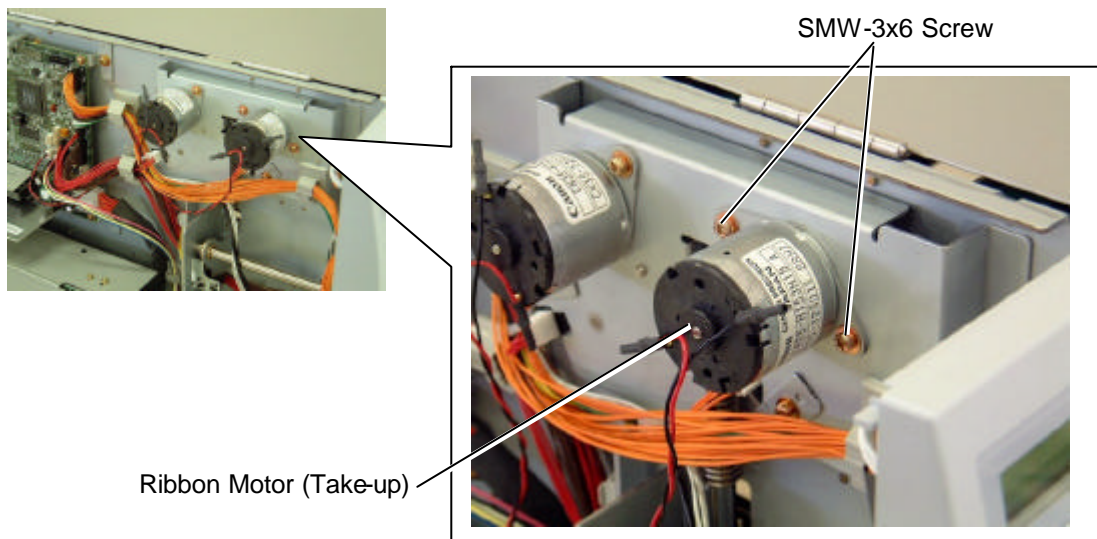
10.5 RIBBON MOTORS (TAKE-UP, FEED)

10.5.1 Ribbon Motor (Take-up)

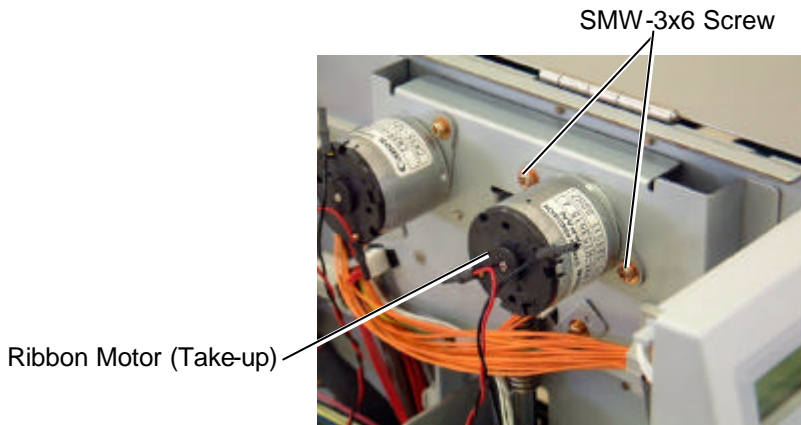
- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the ribbon motor (take-up) harness from CN13 on the Main PC board and the cable clamp.



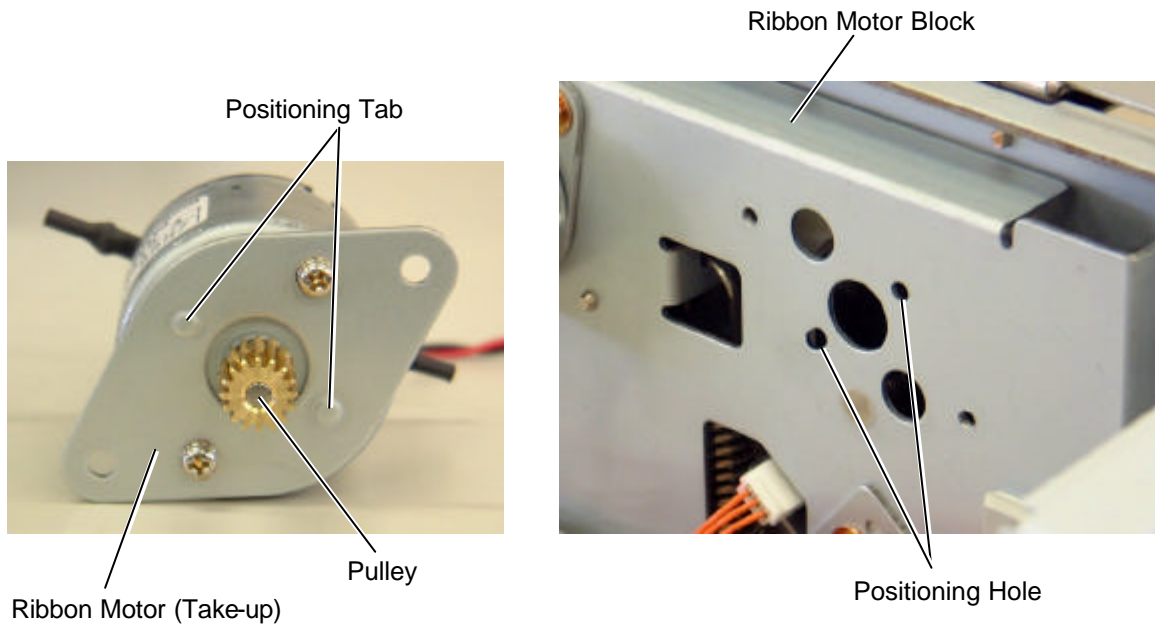
- 3) Remove the two SMW-3x6 screws to detach the ribbon motor (take-up).



- 4) Replace the ribbon motor (take-up) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
- Tighten the two SMW-3x6 screws with 58.8 to 88.2N cm torque.



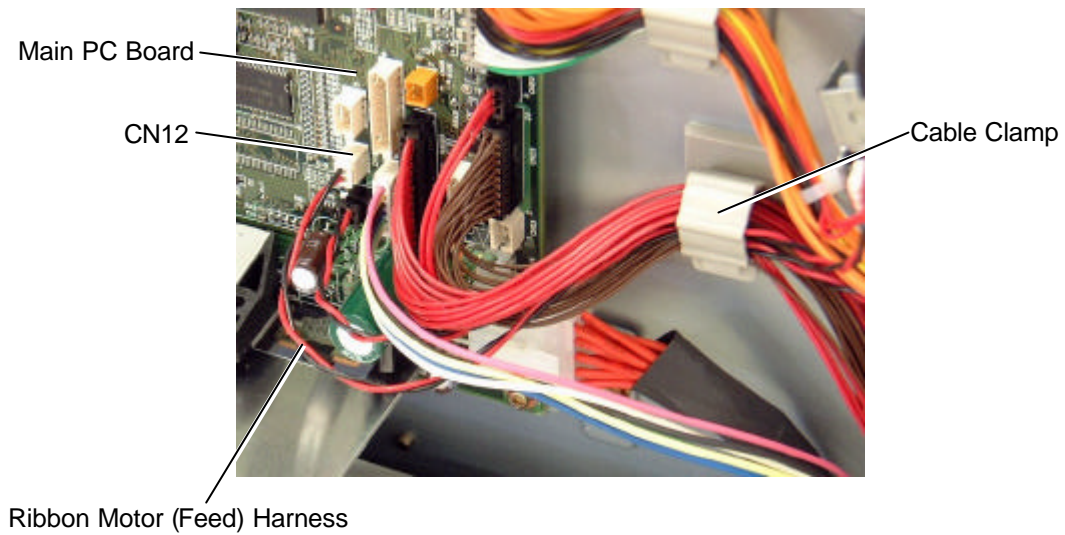
- Fit the positioning tabs of the ribbon motor (take-up) into the positioning holes of the ribbon motor block.
- Apply FLOIL G-488 to the pulley using a soft cloth.
- Place the ribbon motor (take-up) so that the harness faces the Main PC board.



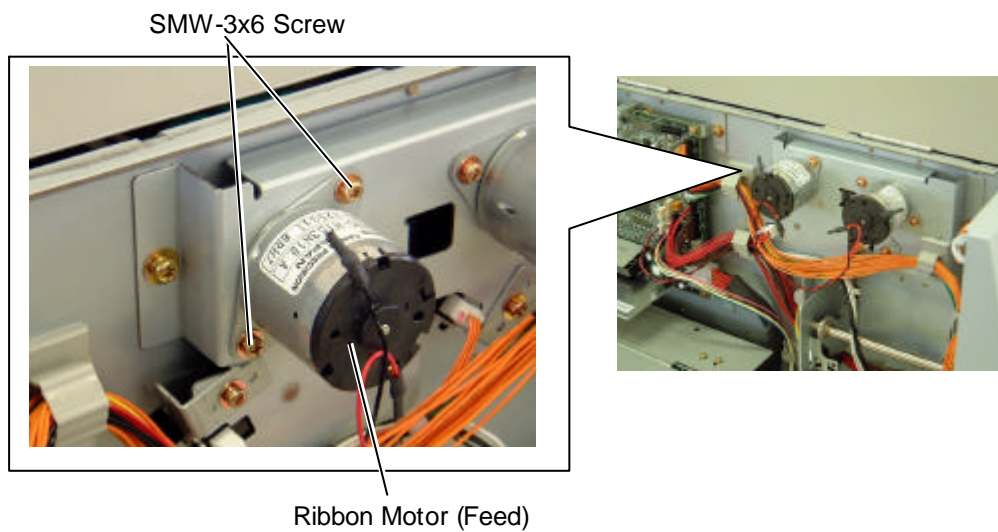
- 5) Refer to Section 5.5.6 to fine adjust the ribbon motor voltage.

10.5.2 Ribbon Motor (Feed)

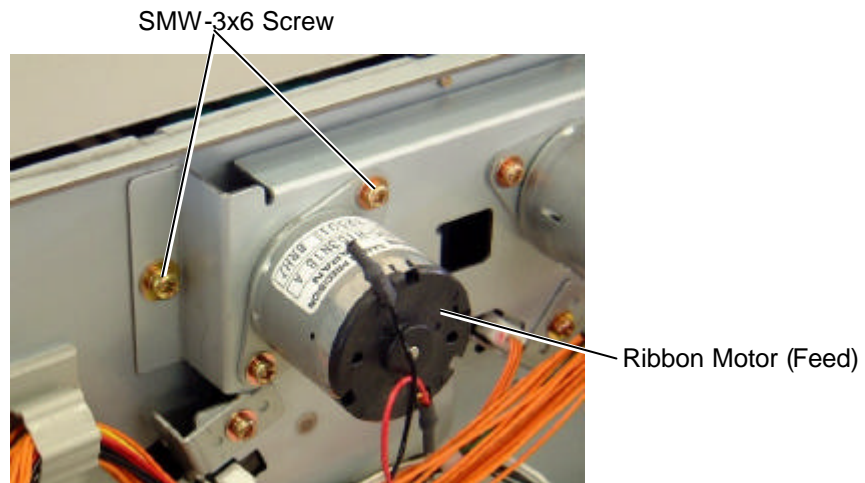
- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the ribbon motor (feed) harness from CN12 on the Main PC board and the cable clamp.



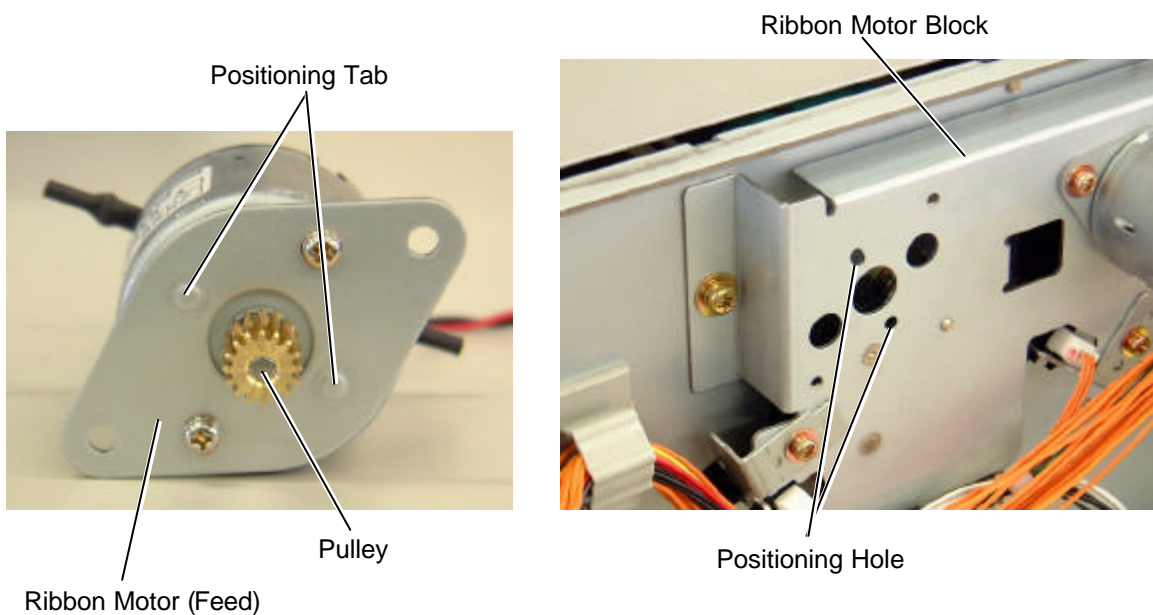
- 3) Remove the two SMW-3x6 screws to detach the ribbon motor (feed).



- 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.
- Tighten the two SMW-3x6 screws with 58.8 to 88.2N cm torque.



- Fit the positioning tabs of the ribbon motor (feed) into the positioning holes of the ribbon motor block.
- Apply FLOIL G-488 to the pulley using a soft cloth.
- Place the ribbon motor (feed) so that the harness faces the Main PC board.



- 5) Refer to Section 5.5.6 to fine adjust the ribbon motor voltage.

10.6 RIBBON MOTOR SENSORS (TAKE-UP, FEED)

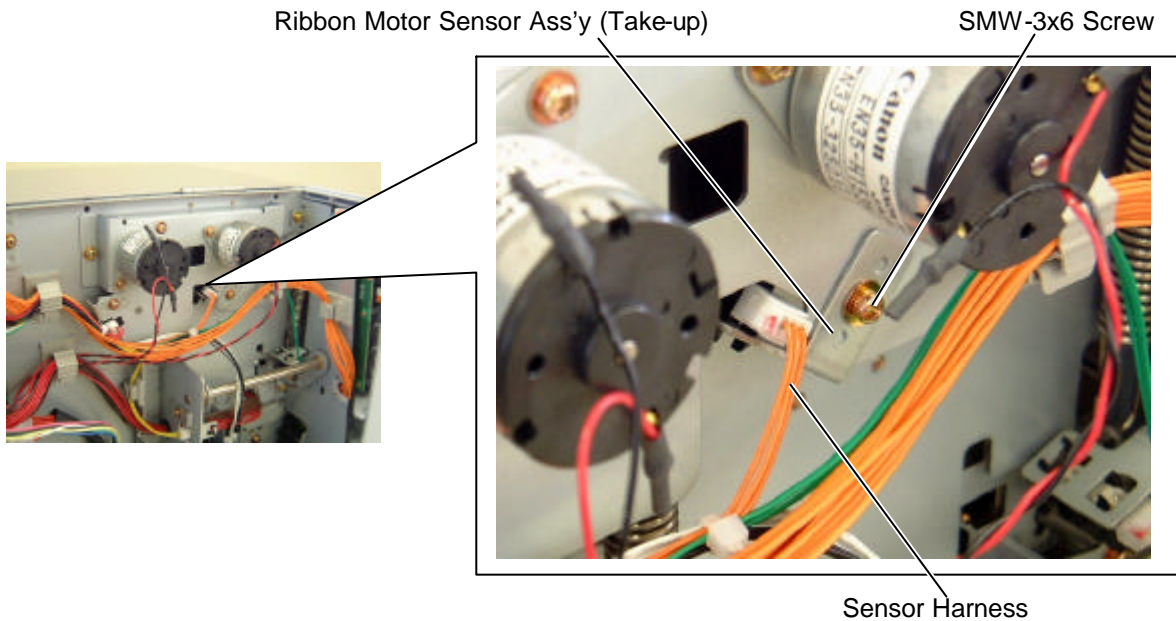
10.6.1 Ribbon Motor Sensor (Take-up)

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 CN51 on the Main PC board.

3) Remove the SMW-3x6 screw to detach the ribbon motor sensor ass'y (take-up).



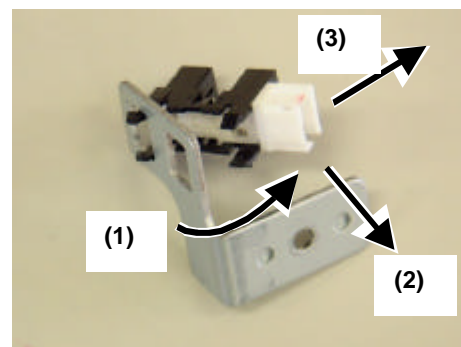
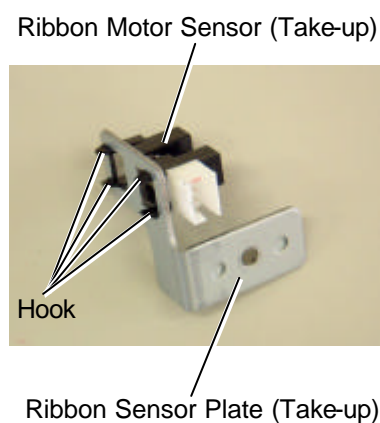
4) Detach the ribbon motor sensor (take-up) from the ribbon sensor plate (take-up) in the following steps.

NOTE: The ribbon motor sensor (take-up) is attached to the plate with the four hooks.

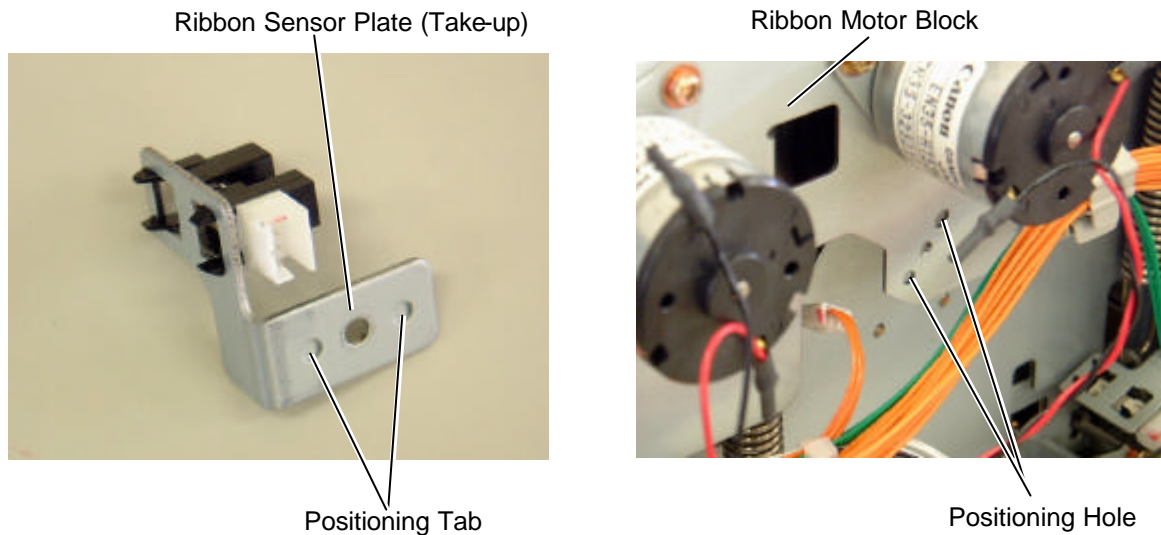
(1) Pull the ribbon motor sensor (take-up) in the direction indicated by the arrow to unhook the two hooks on the connector side.

(2) Move the ribbon motor sensor (take-up) in the direction indicated by the arrow to unhook the other hooks.

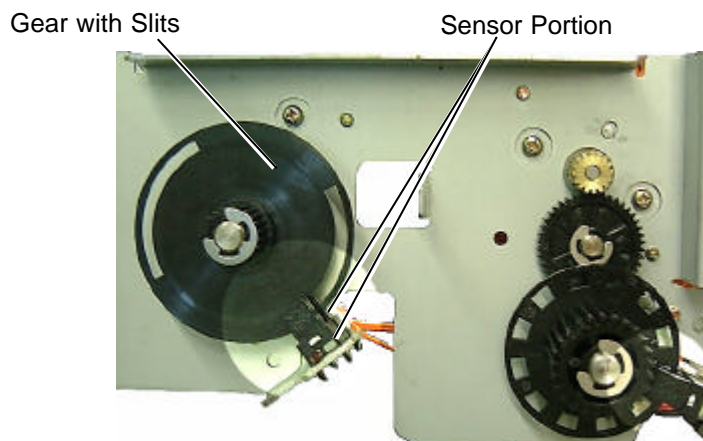
(3) Detach the ribbon motor sensor (take-up) from the plate.



- 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 of the ribbon motor block.



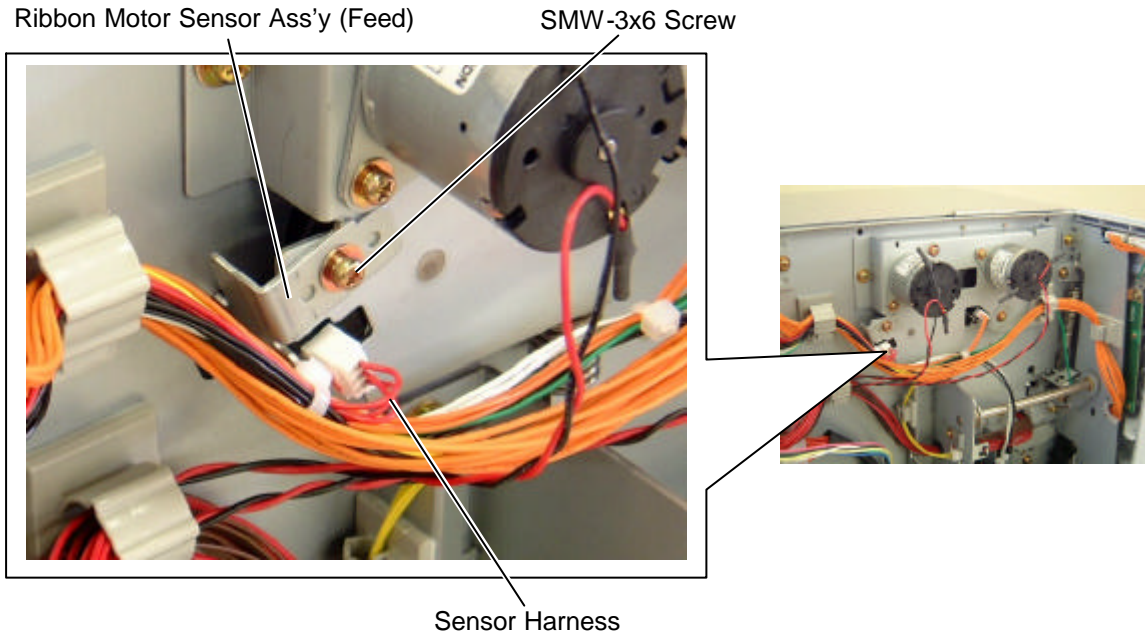
- Make sure that the gear with slits passes between the sensor portions.



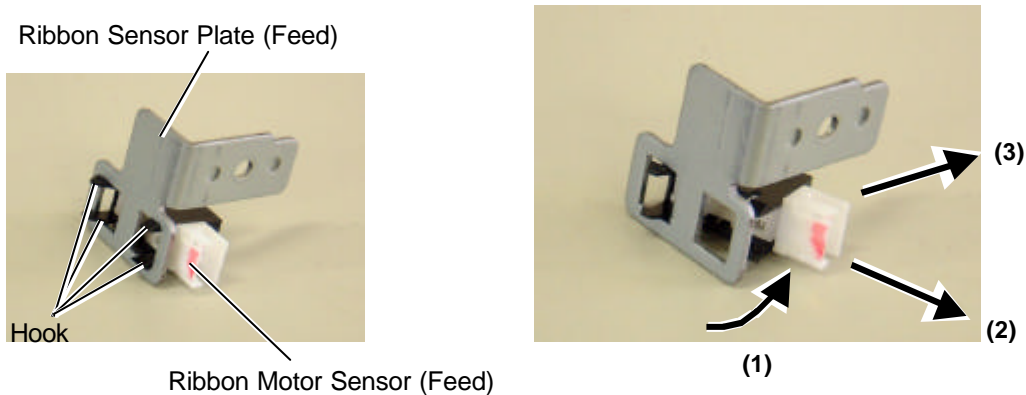
NOTE: This photo was taken from the gear side for being visible.

10.6.2 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 CN51 on the Main PC board.
- 3) Remove the SMW-3x6 screw to detach the ribbon motor sensor ass'y (feed).

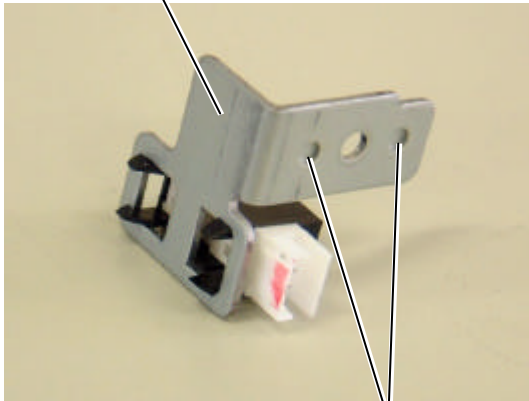


- 4) Detach the ribbon motor sensor (feed) from the ribbon sensor plate (feed) in the following steps.
NOTE: The ribbon motor sensor (feed) is attached to the plate with the four hooks.
 (1) Pull the ribbon motor sensor (feed) in the direction indicated by the arrow to unhook the two hooks on the connector 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.



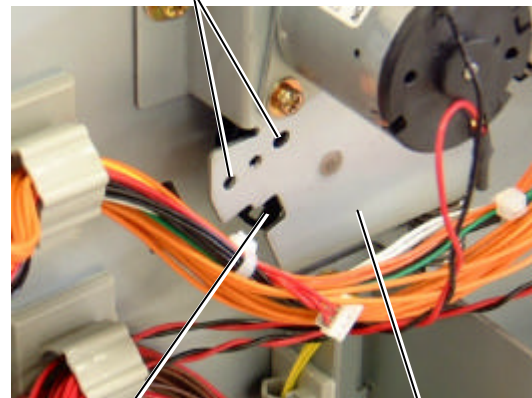
- 5) Replace the ribbon motor sensor (feed) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
- Attach the ribbon motor sensor (feed) to the ribbon sensor plate (feed) in the correct direction.
 - Fit the positioning tabs of the ribbon sensor plate (feed) into the positioning holes of the ribbon motor block.

Ribbon Sensor Plate (Feed)



Positioning Tab

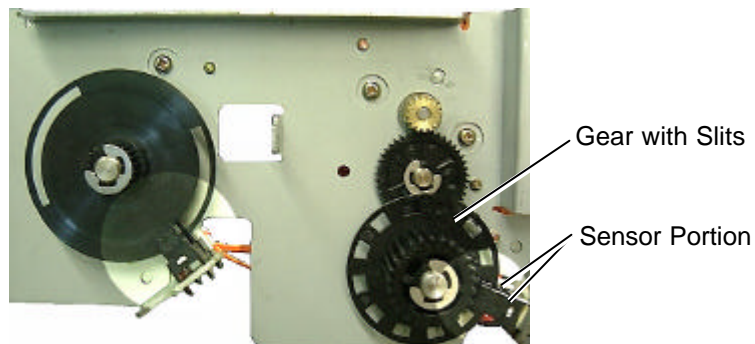
Positioning Hole



Gear with Slits

Ribbon Motor Block

- Make sure that the gear with slits passes between the sensor portions.



NOTE: This photo was taken from the gear side for being visible.

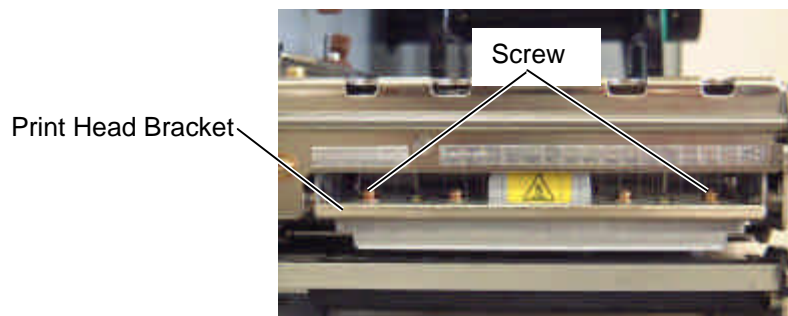
10.7 PRINT HEAD

WARNING!

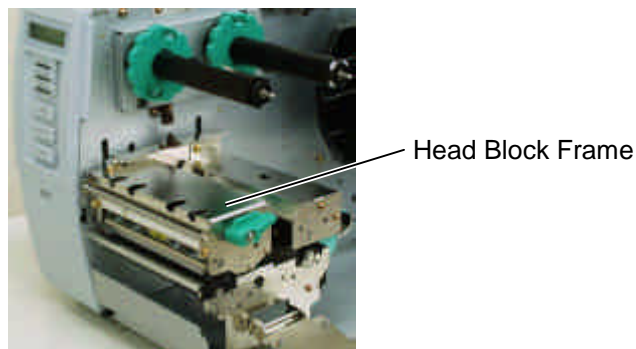
Never perform the replacement just after printing. Doing so may cause you to be injured by the print head being hot.

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.*

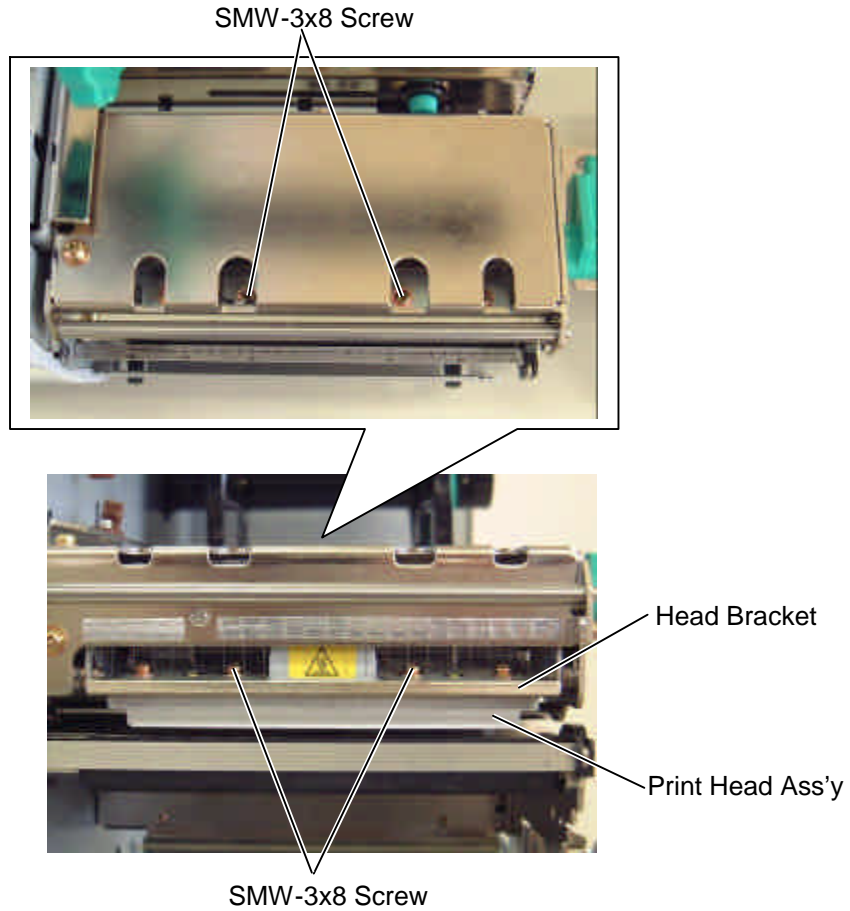


- 4. Never disassemble the head block frame. Doing so may cause a print failure, such as ribbon wrinkle, blurred print, etc.*



- 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.)

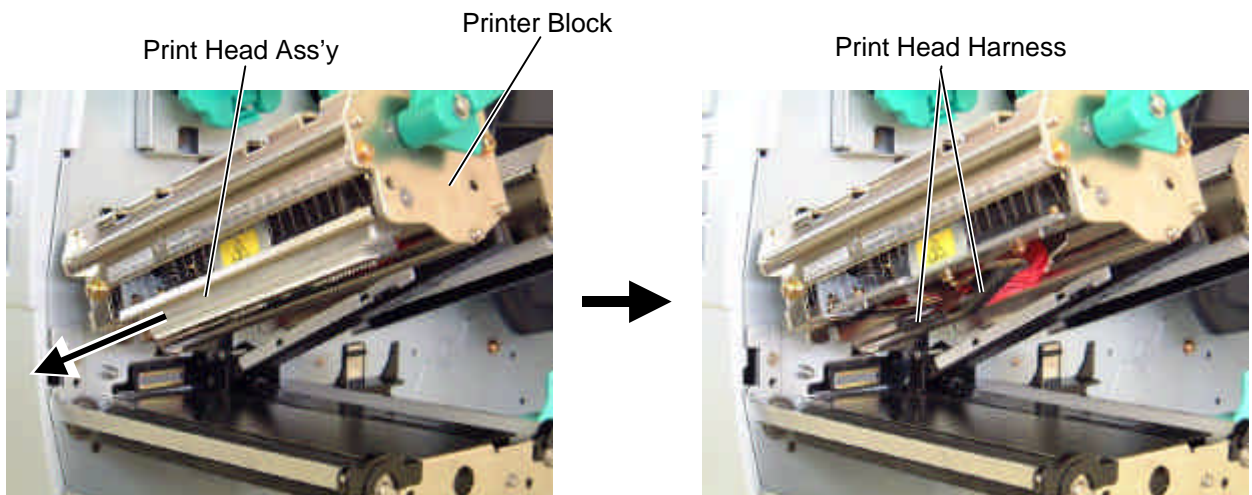
- 3) Remove the two SMW-3x8 screws to detach the print head ass'y from the head bracket.



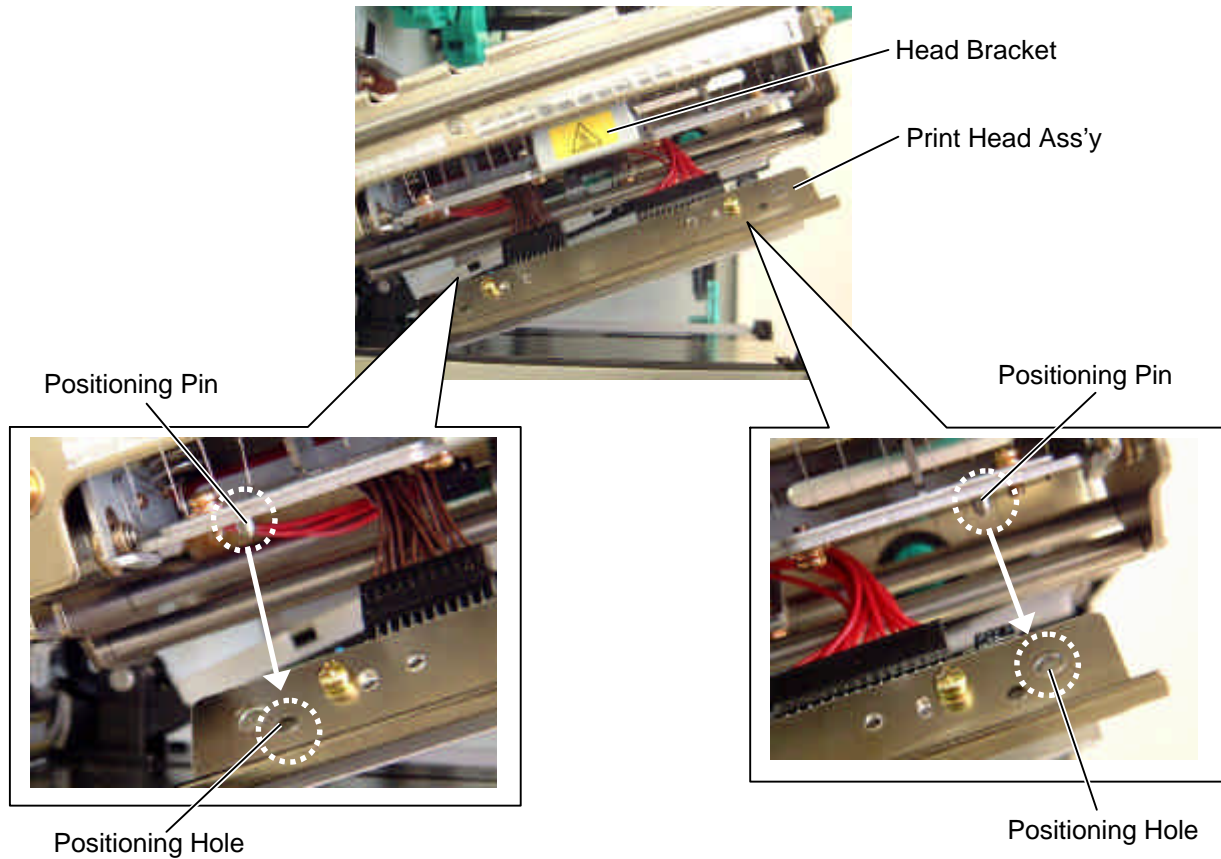
- 4) Open the printer block. (Refer to Section 3.3.)

NOTE: At this time, be sure to support the bottom of the print head so as not to drop onto the platen. Failure to do this may cause the print head and the platen to be damaged.

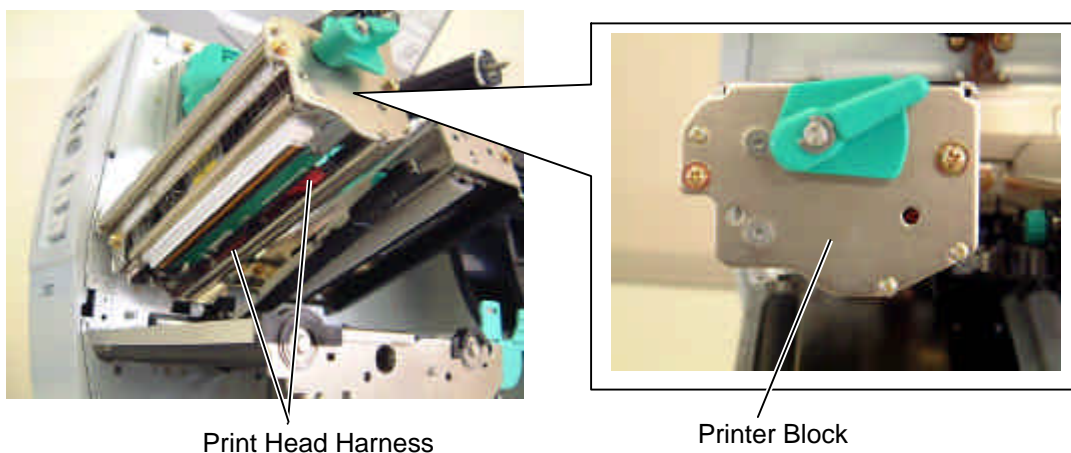
- 5) Pull the print head ass'y in the direction indicated by the arrow. And then disconnect the two harnesses to detach the print head ass'y.



- 6) 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.



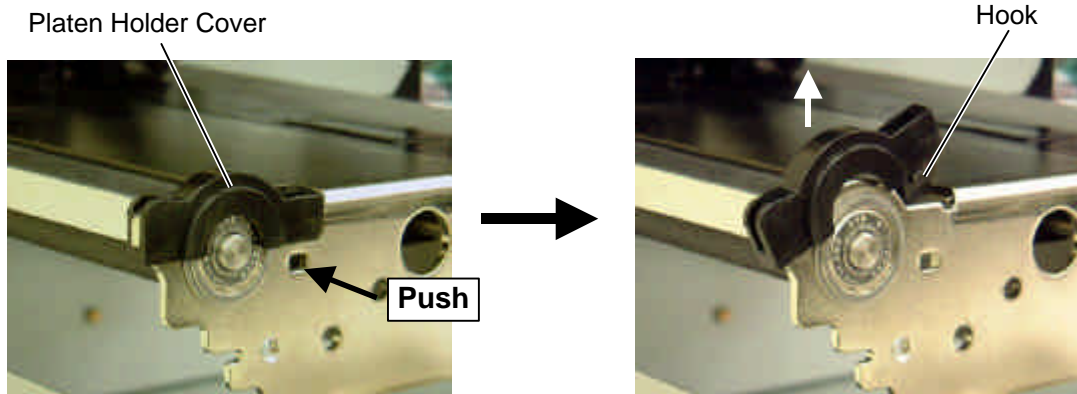
- 7) Make sure that the print head harness doesn't appear out of the printer block. If so, the print head harness may touch the ribbon and the media causing a print failure.



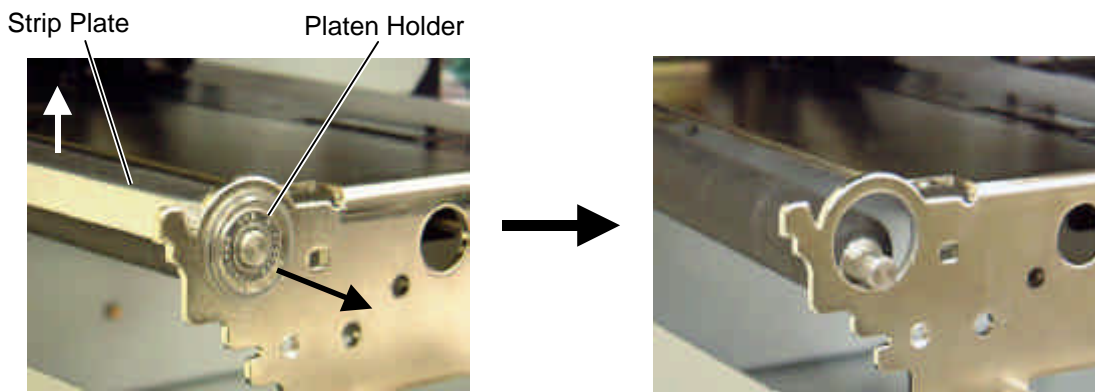
- 8) Perform a test print. Make sure that printing was performed correctly.
 If the print tone is improper, refer to Section 5.5.5 to adjust the print tone.
 9) Refer to Section 5.8.3 to perform a maintenance counter clear.

10.8 PLATEN

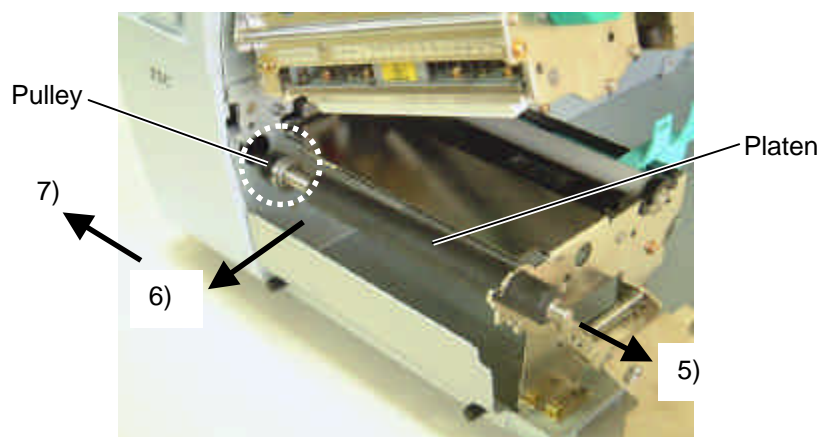
- 1) Open the top cover. (Refer to Section 3.1.)
- 2) Open the printer block. (Refer to Section 3.3.)
- 3) Push the hook through the rectangle hole with a fine tool to remove the platen holder cover.



- 4) Remove the platen holder and the strip plate.



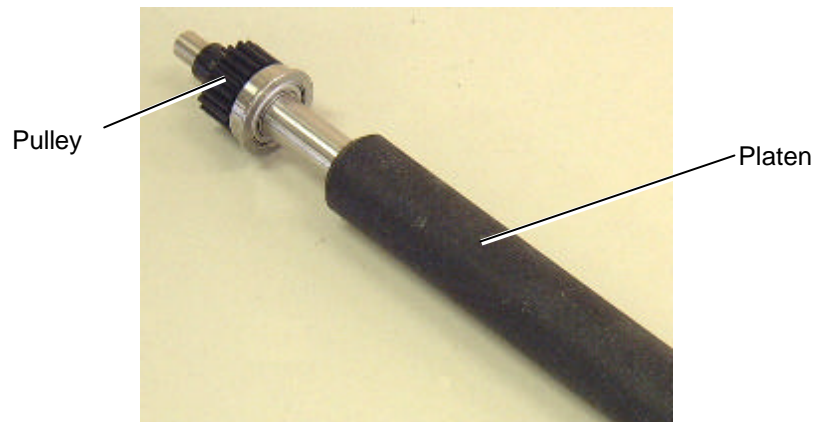
- 5) Pull the platen ass'y to the right until the entire pulley appears.
- 6) Pull the pulley forward.
- 7) Pull the platen to the left to detach it from the printer.



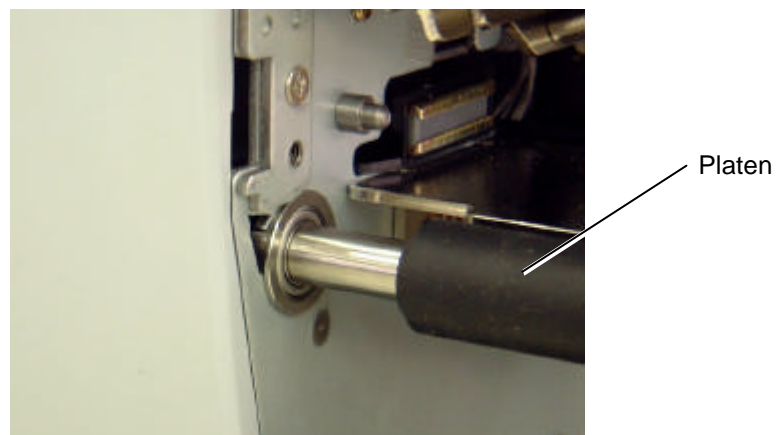
- 8) Replace the platen with a new one, then reassemble in the reverse order of removal.

NOTES:

1. Apply *FLOIL* to the platen pulley before installing the platen.

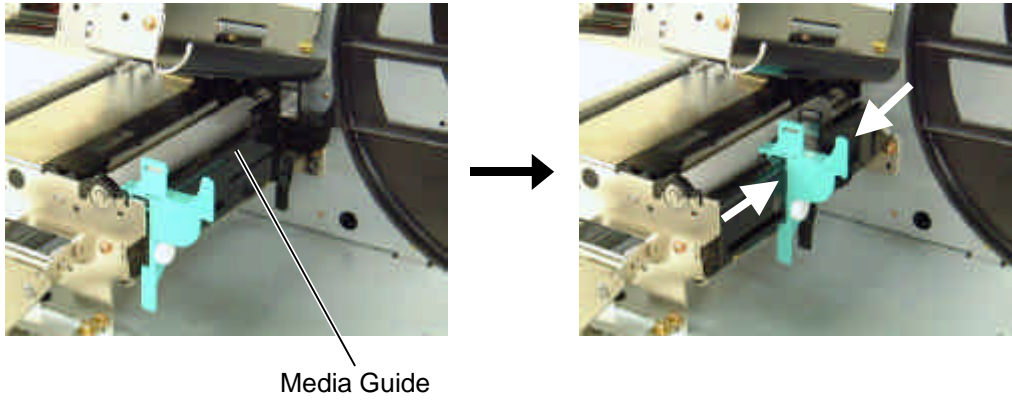


2. When installing the platen, first fully insert the pulley into the printer. Also make sure that the platen holder cover is fixed with the hook.

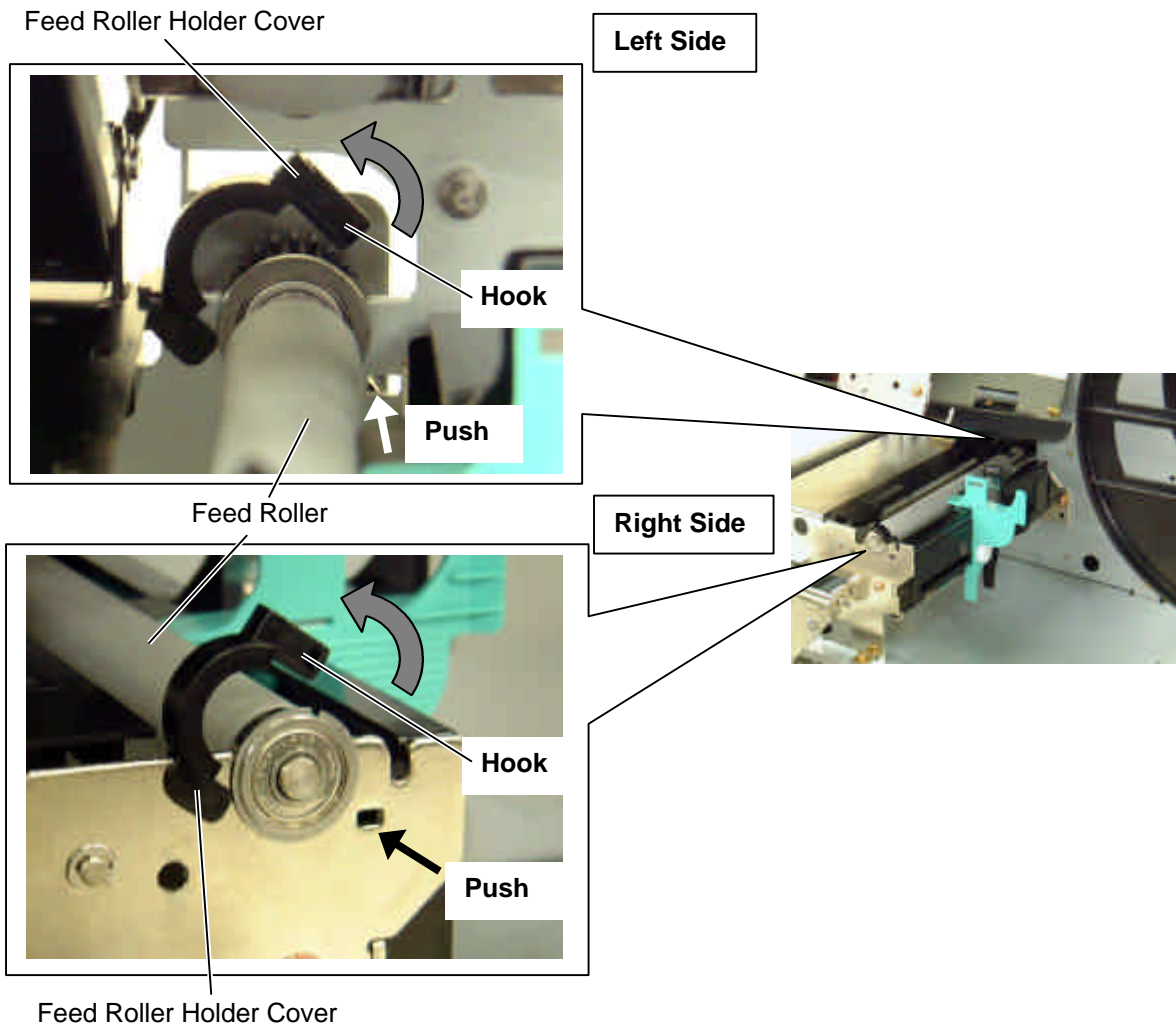


10.9 FEED ROLLER

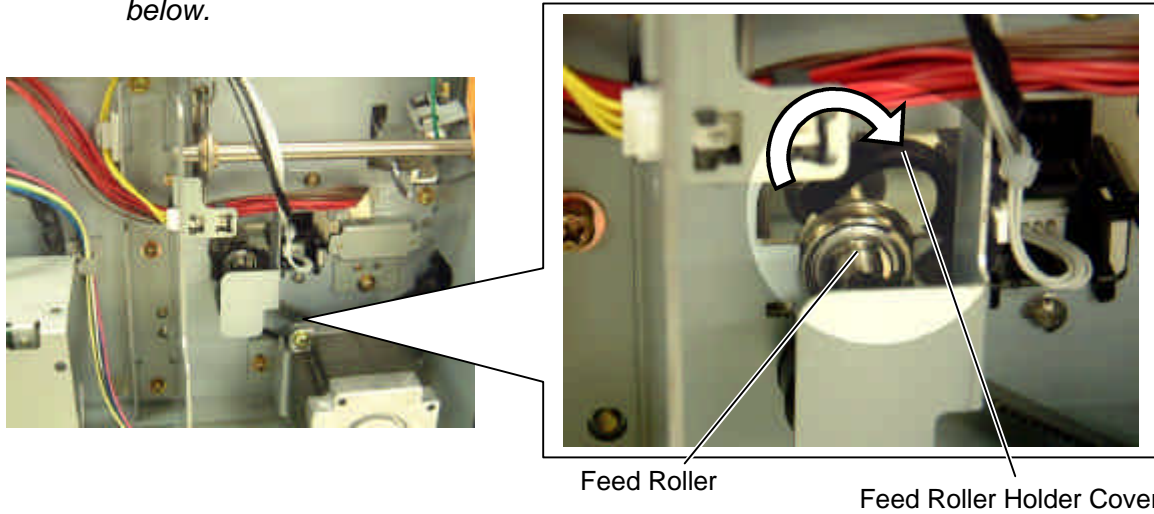
- 1) Open the top cover. (Refer to Section 3.1.)
- 2) Open the printer block. (Refer to Section 3.3.)
- 3) Make sure that the media guide is closed. (In this condition, you can easily remove the feed roller holder cover on the left side of the feed roller.)



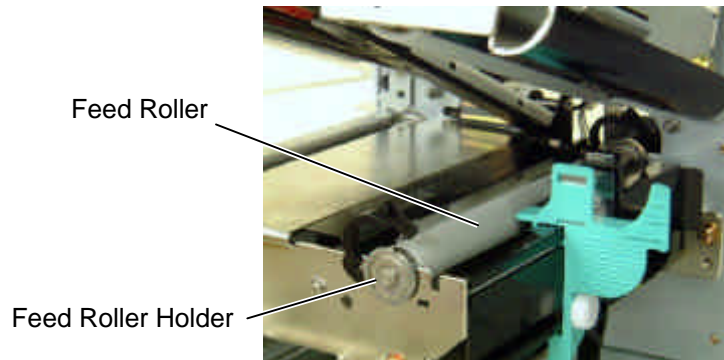
- 4) Push the hooks through the rectangle holes with a fine tool to open the feed roller holder covers.



NOTE: *If the left feed roller holder cover is hard to open, remove the side panel (L) and open the feed roller holder cover from the opposite side of the printer as shown in the pictures below.*



5) Detach the feed roller holder and the feed roller.



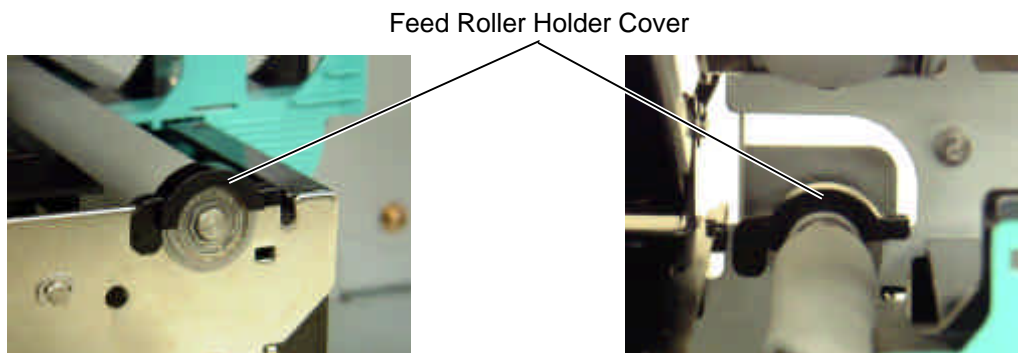
6) Replace the feed roller with a new one, then reassemble in the reverse order of removal.

NOTES:

1. *Apply FLOIL to the feed roller gear before installing the feed roller.*

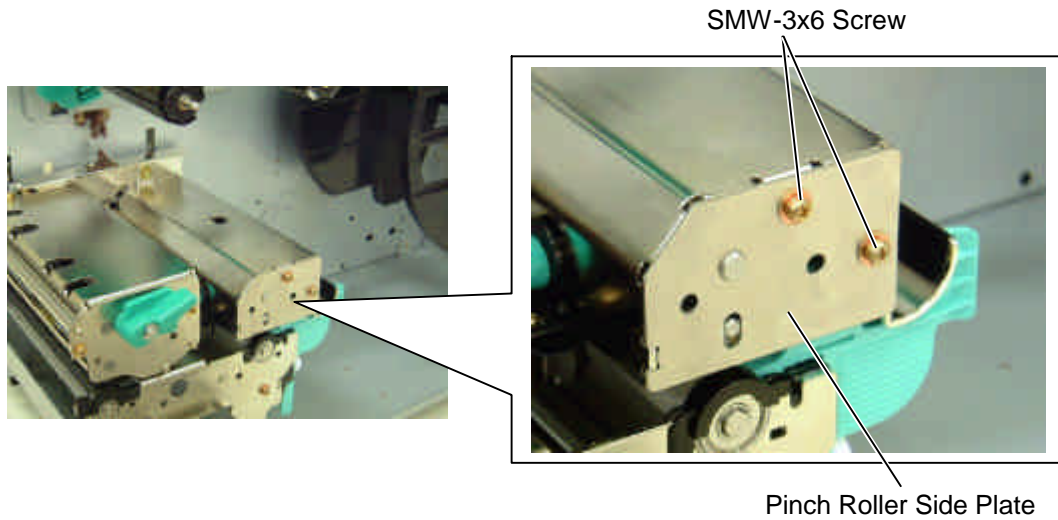


2. *When reassembling, make sure that the feed roller is attached correctly. Also make sure that the feed roller holder covers are fixed with the hooks, respectively.*

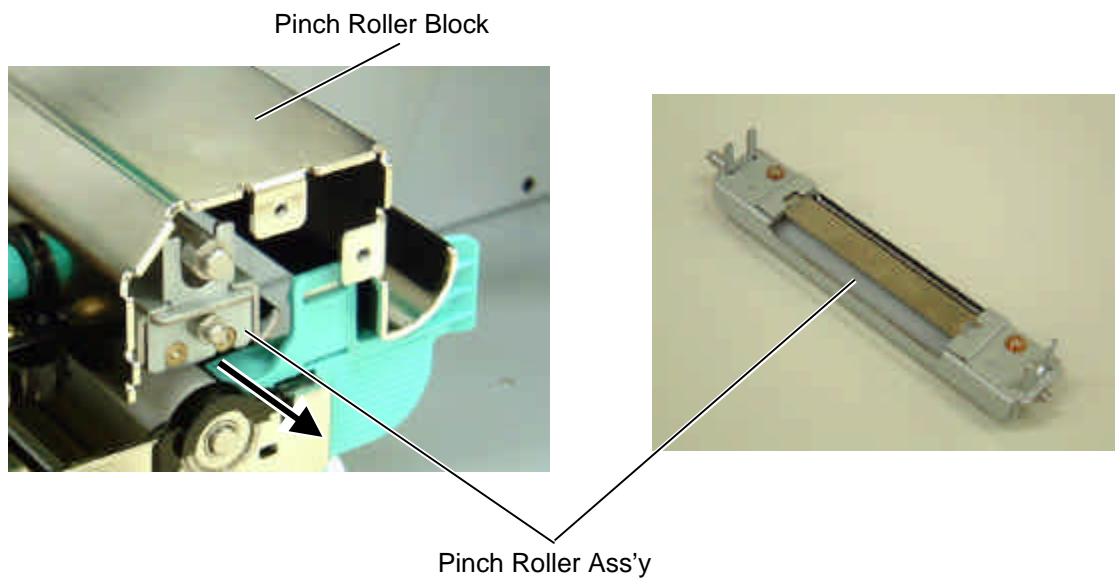


10.10 PINCH ROLLER ASS'Y

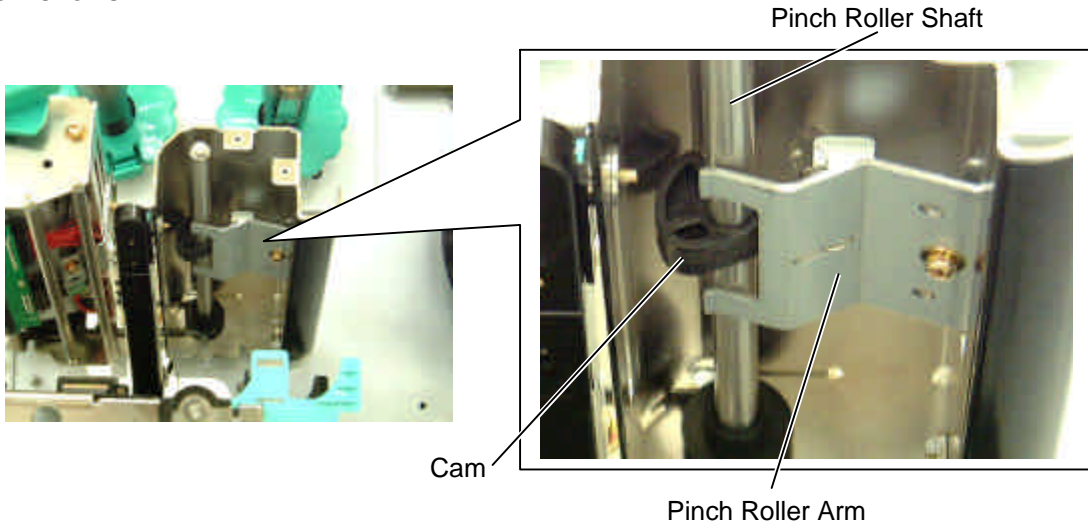
- 1) Open the top cover. (Refer to Section 3.1.)
- 2) Open the printer block. (Refer to Section 3.3.)
- 3) Remove the two SMW-3x6 screws to remove the pinch roller side plate.



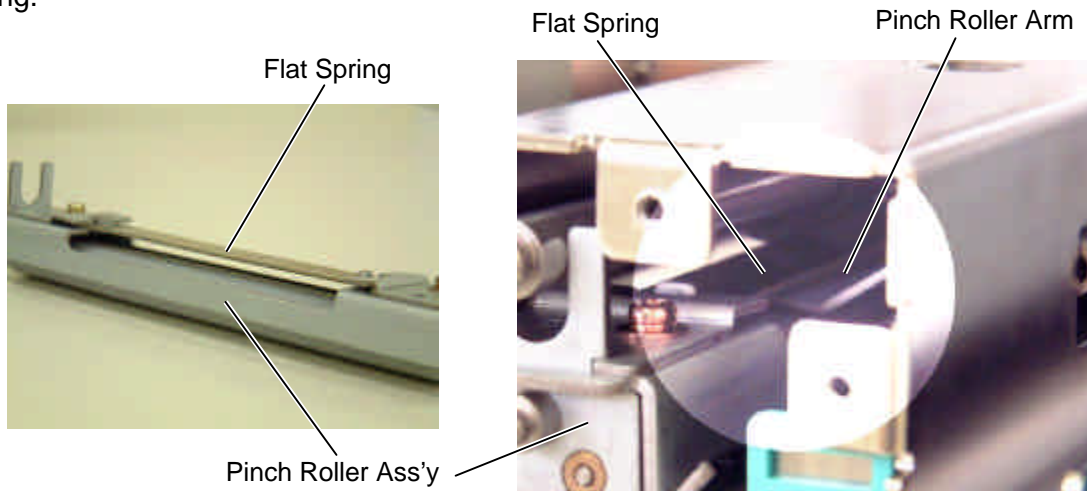
- 4) Detach the pinch roller ass'y from the pinch roller block.



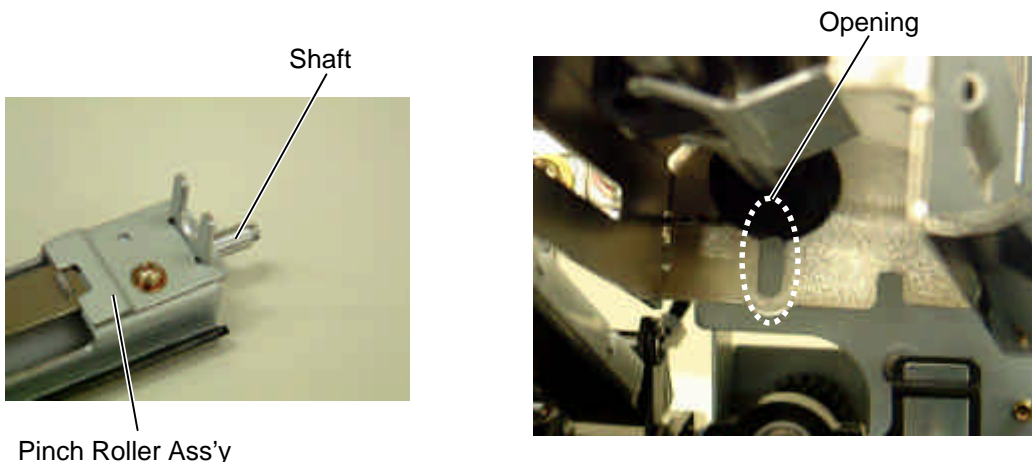
- 5) Replace the pinch roller ass'y with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
- Tighten the two SMW-3x6 screws with 58.8 to 88.2N cm torque.
 - When reassembling the pinch roller ass'y, make sure that the cam is located as the picture below shows.



- When reassembling the pinch roller ass'y, insert the pinch roller arm into the space below the flat spring.



- Fit the shaft into the opening of the pinch roller block.

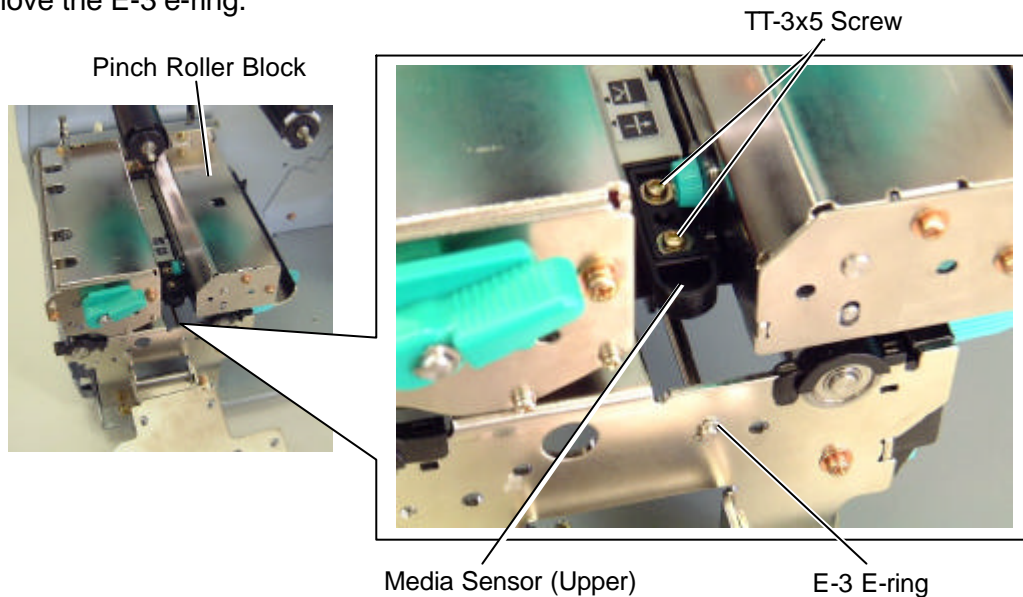


10.11 MEDIA SENSORS (UPPER, LOWER)

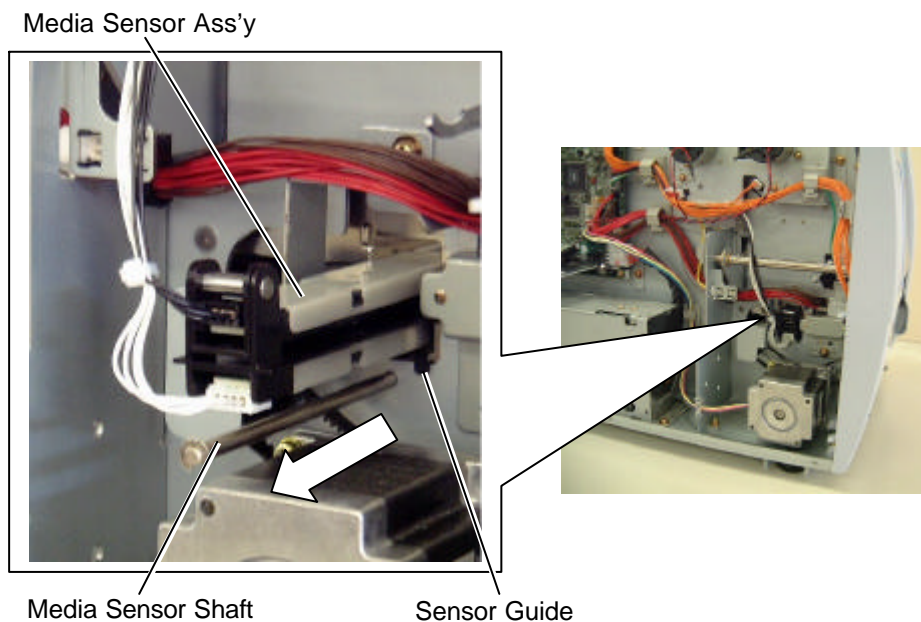
NOTE: The media sensor ass'y is composed of the media sensor (upper) and the media sensor (lower). The media sensor (upper) contains the thermistor and the feed gap sensor (photo transistor). The media sensor (lower) contains the black mark sensor and the feed gap sensor (photo diode).

10.11.1 Removing the Media Sensor Ass'y

- 1) Open the top cover. (Refer to Section 3.1.)
- 2) Open the side panel (L). (Refer to Section 3.2.)
- 3) Remove the two TT-3x5 screws from the media sensor (upper)
- 4) Remove the E-3 e-ring.

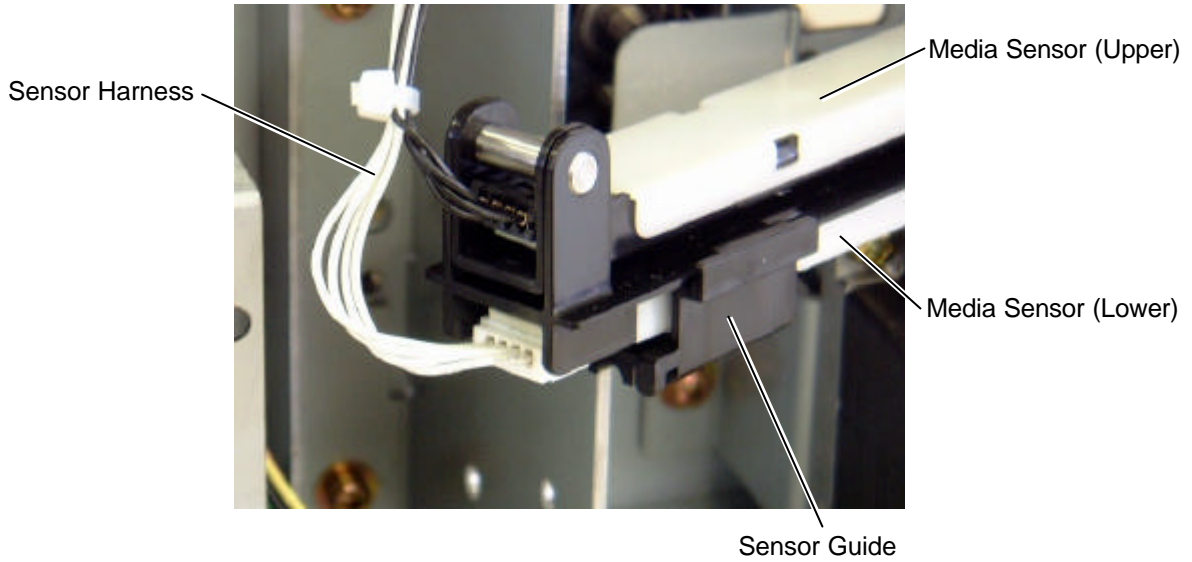


- 5) Open the printer block. (Refer to Section 3.2.)
- 6) Pull the media sensor ass'y and the media sensor shaft to the direction indicated by the arrow. And then, remove the sensor guide from the printer frame.

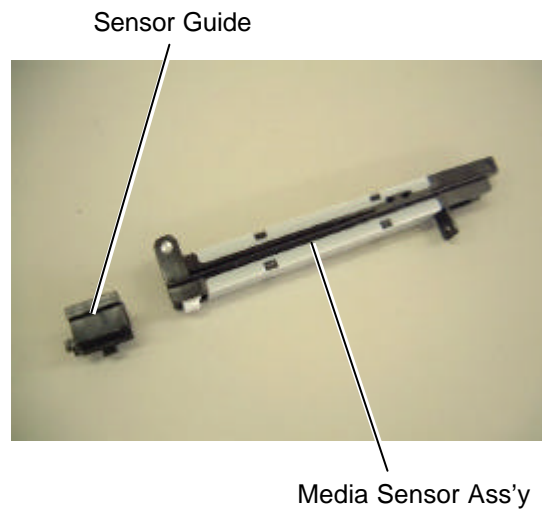
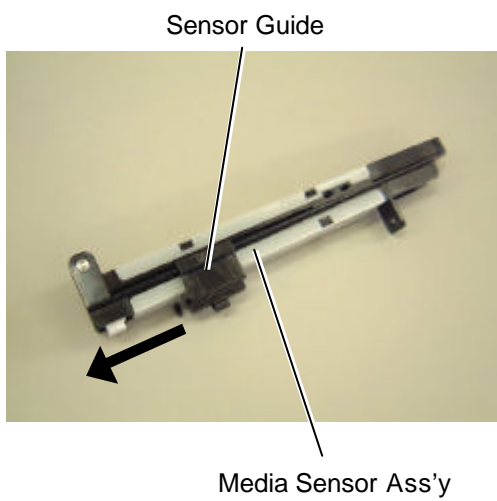


- 7) Disconnect the black harness from the media sensor (upper) and the white harness from the media sensor (lower), respectively.

NOTE: The other end of the sensor harness is connected to CN51 on the Main PC board.

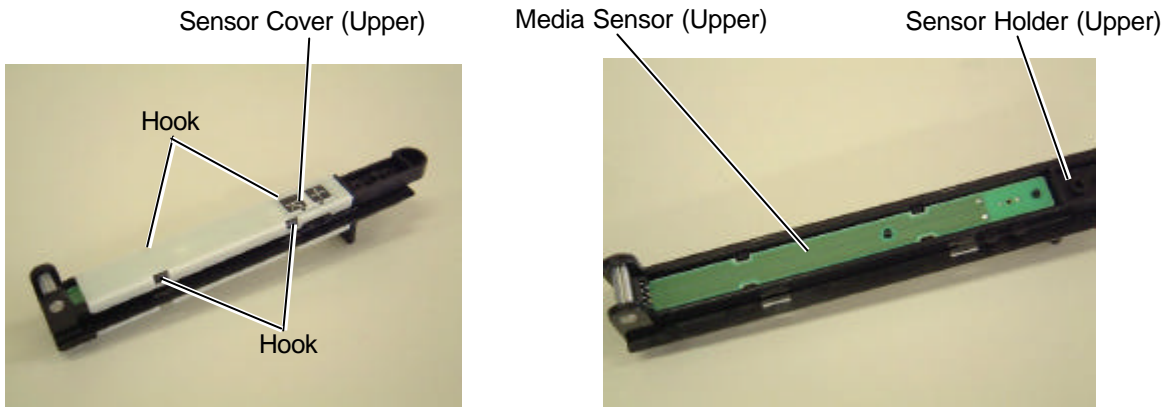


- 8) Remove the sensor guide from the media sensor ass'y while moving it to the direction indicated by the arrow.

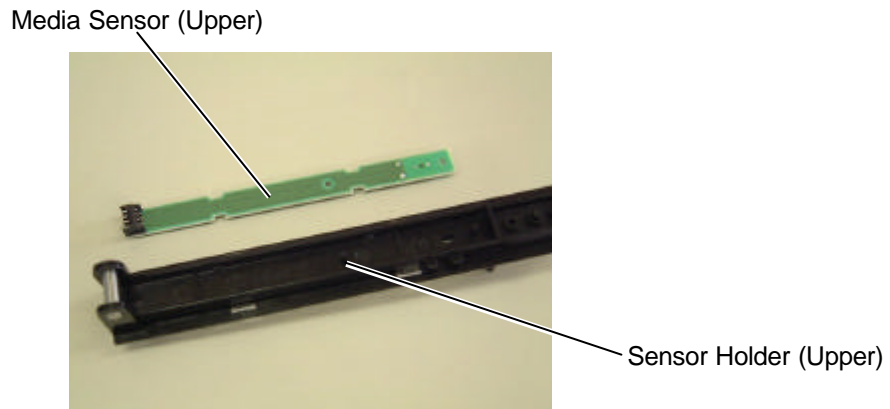


10.11.2 Replacing the Media Sensor (Upper)

- 1) Remove the sensor cover (upper) from the sensor holder (upper) while unhooking the two hooks.

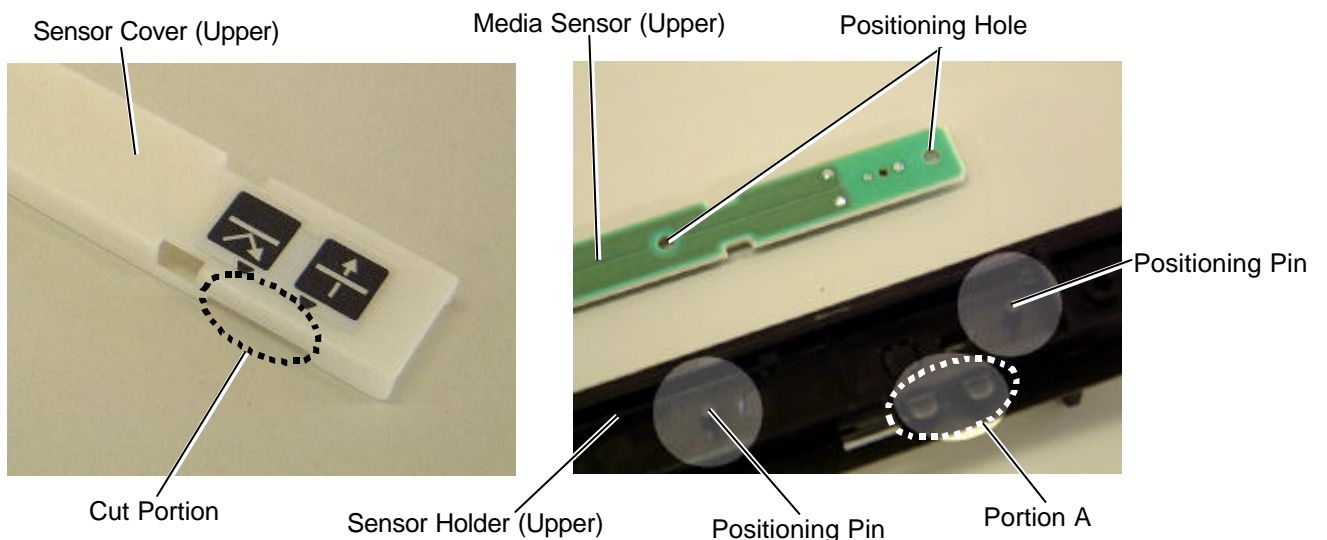


- 2) Detach the media sensor (upper) from the sensor holder (upper).



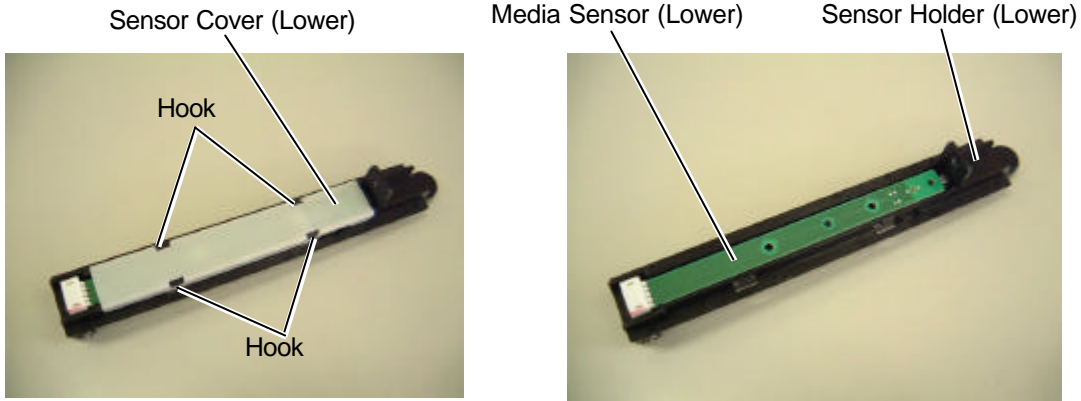
- 3) Replace the media sensor (upper) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.

- When reassembling the media sensor (upper), fit the positioning pins of the sensor holder (upper) into the positioning holes.
- When reassembling the sensor cover (upper), fit the cut portion onto the portion A of the sensor holder (upper).

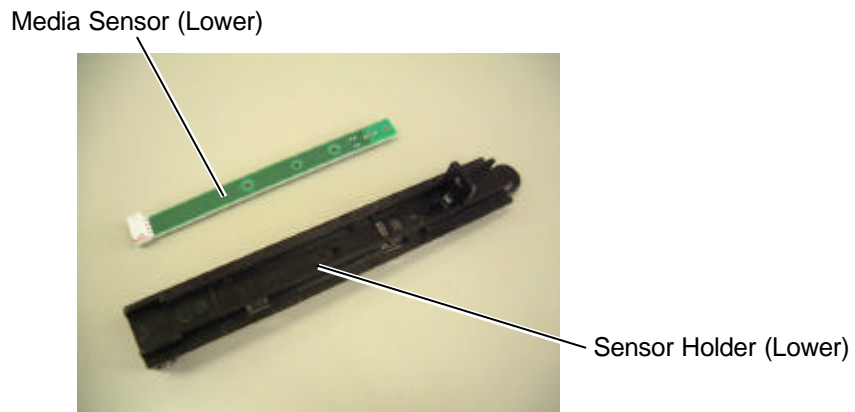


10.11.3 Replacing the Media Sensor (Lower)

- 1) Remove the sensor cover (lower) from the sensor holder (lower) while unhooking the two hooks.

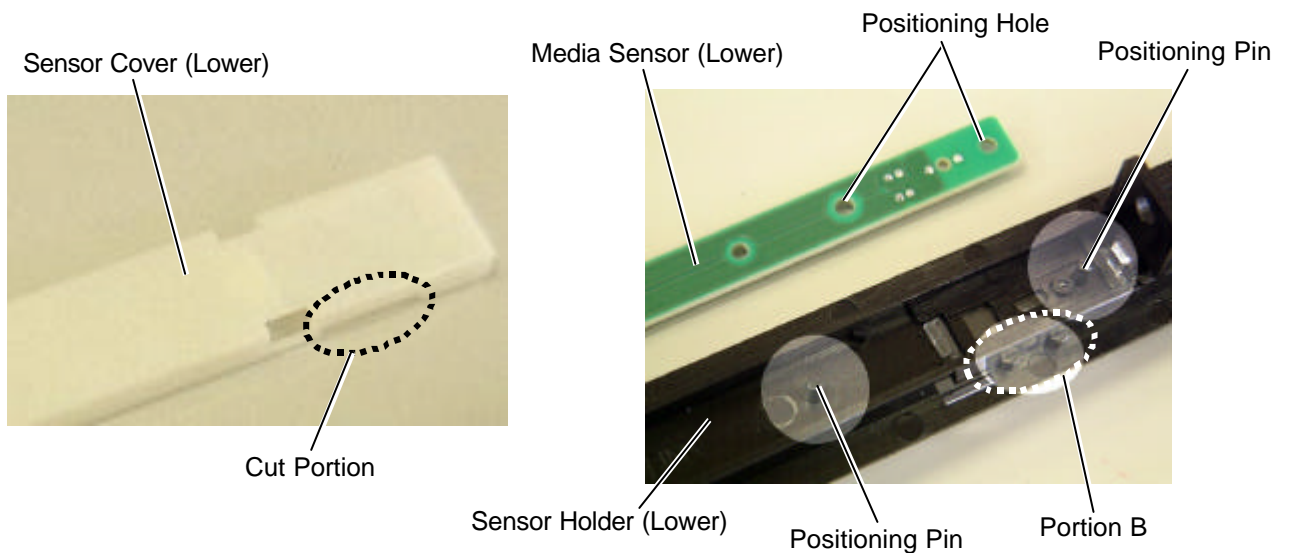


- 2) Detach the media sensor (lower) from the sensor holder (lower).



- 3) Replace the media sensor (lower) with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.

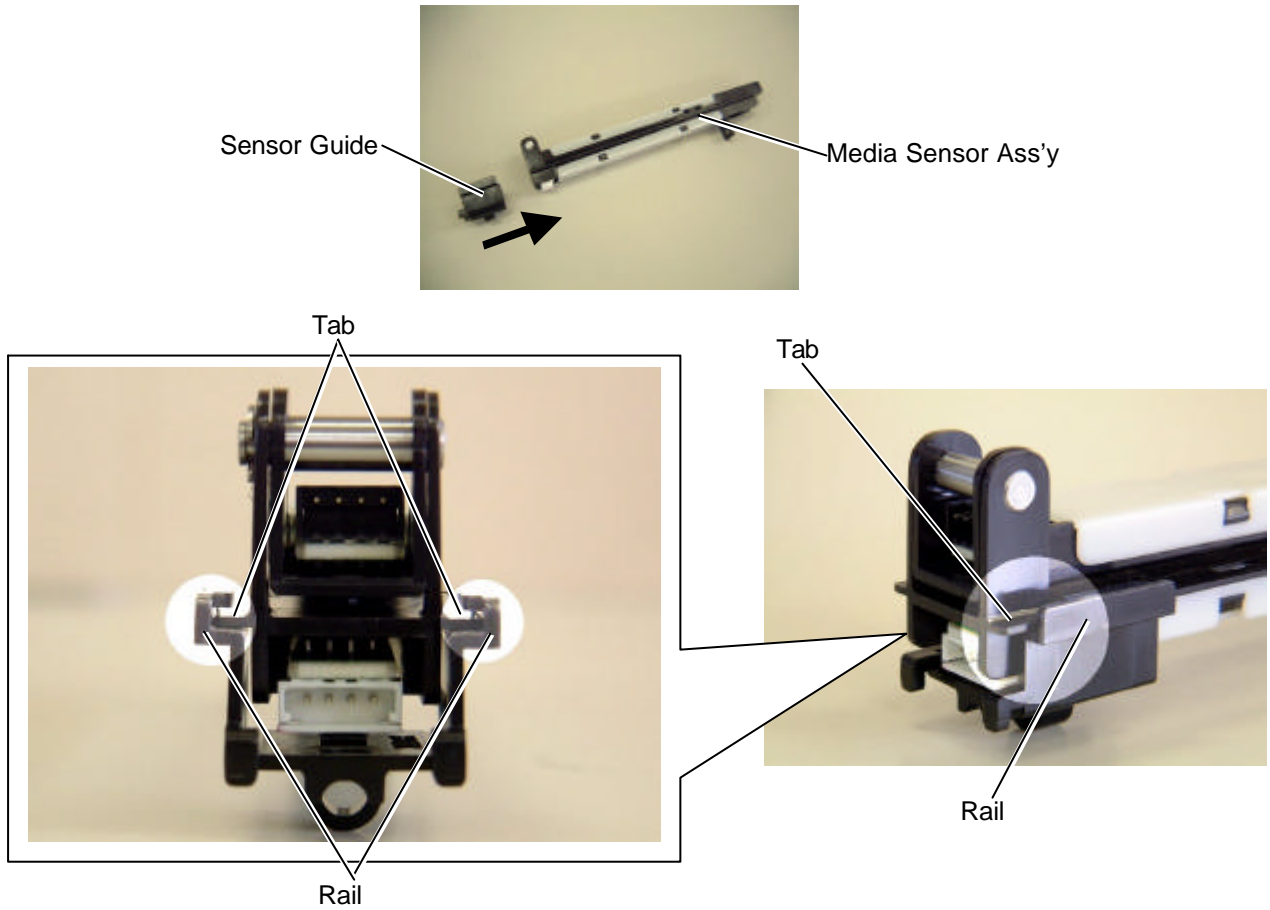
- When reassembling the media sensor (lower), fit the positioning pins of the sensor holder (lower) into the positioning holes.
- When reassembling the sensor cover (lower), fit the cut portion onto the portion B of the sensor holder (lower).



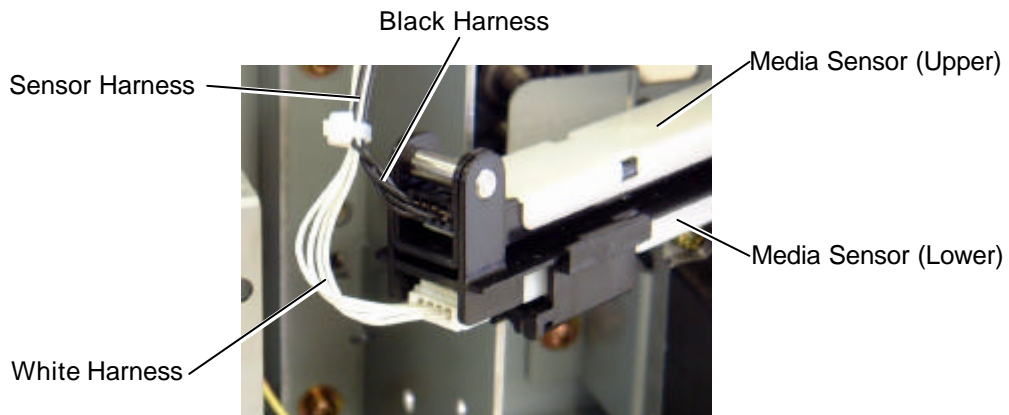
10.11.4 Reassembling the Media Sensor Ass'y

After replacing the media sensors, reassemble the media sensor ass'y into the printer in the following procedure.

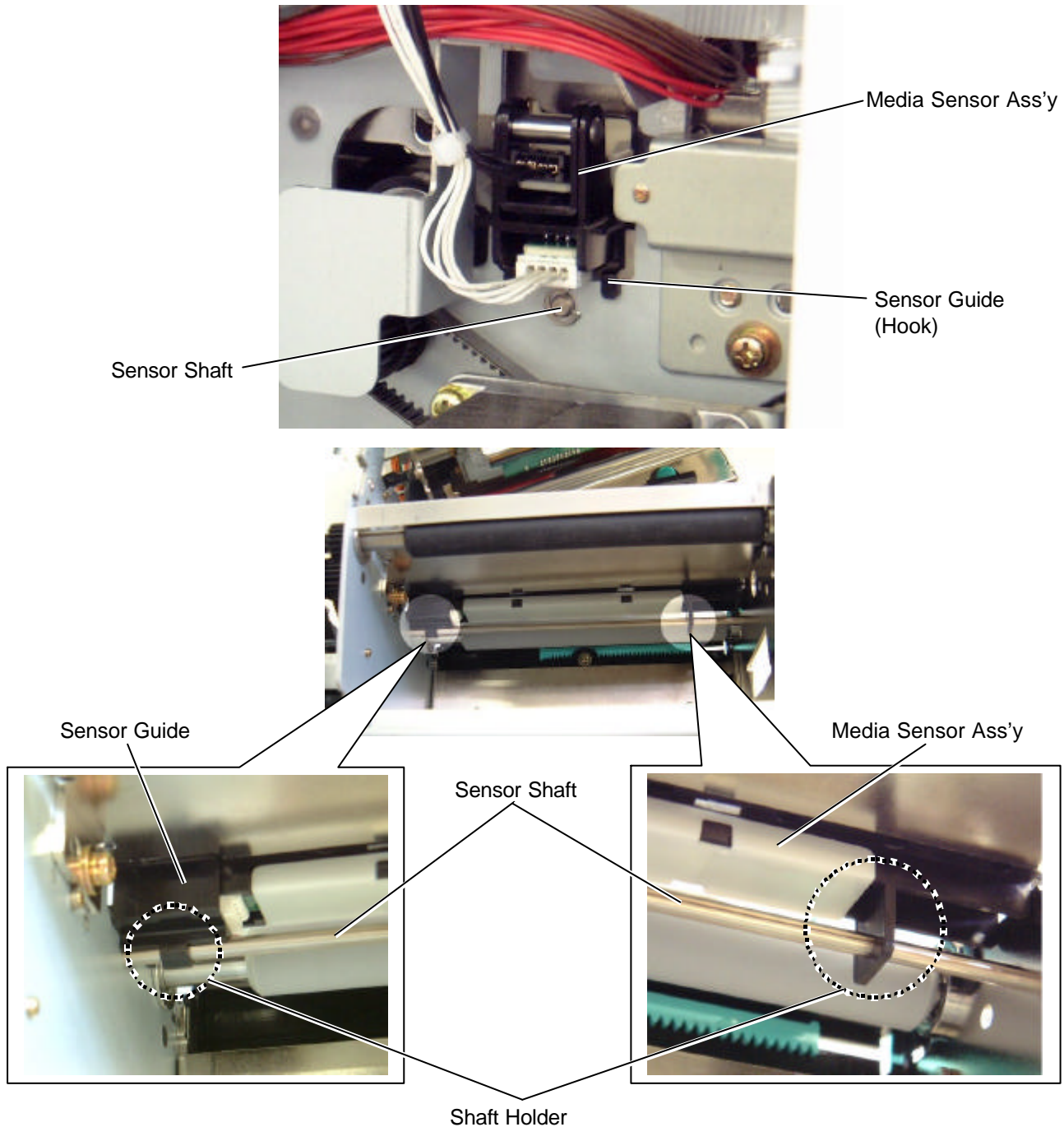
- 1) Attach the sensor guide to the media sensor ass'y so that the tabs slide along the rails.



- 2) Connect the black harness to the media sensor (upper) and the white harness to the media sensor (lower), respectively.



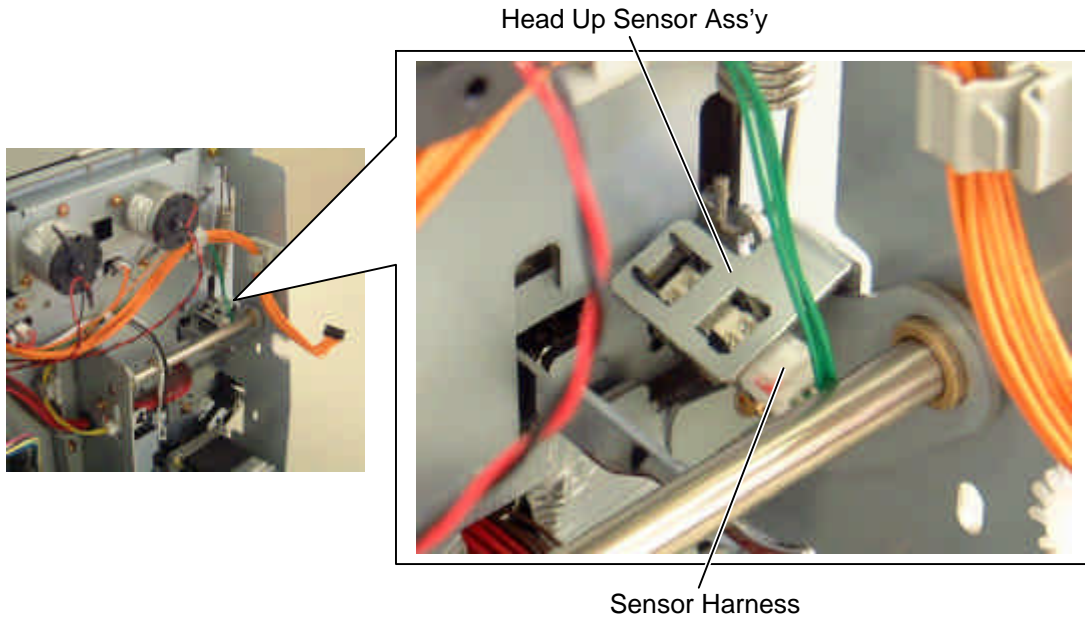
- 3) Attach the sensor guide to the printer so that the hook fits onto the frame.
 Attach the media sensor ass'y.
 Also attach the sensor shaft to the printer so that it passes through the two shaft holders.



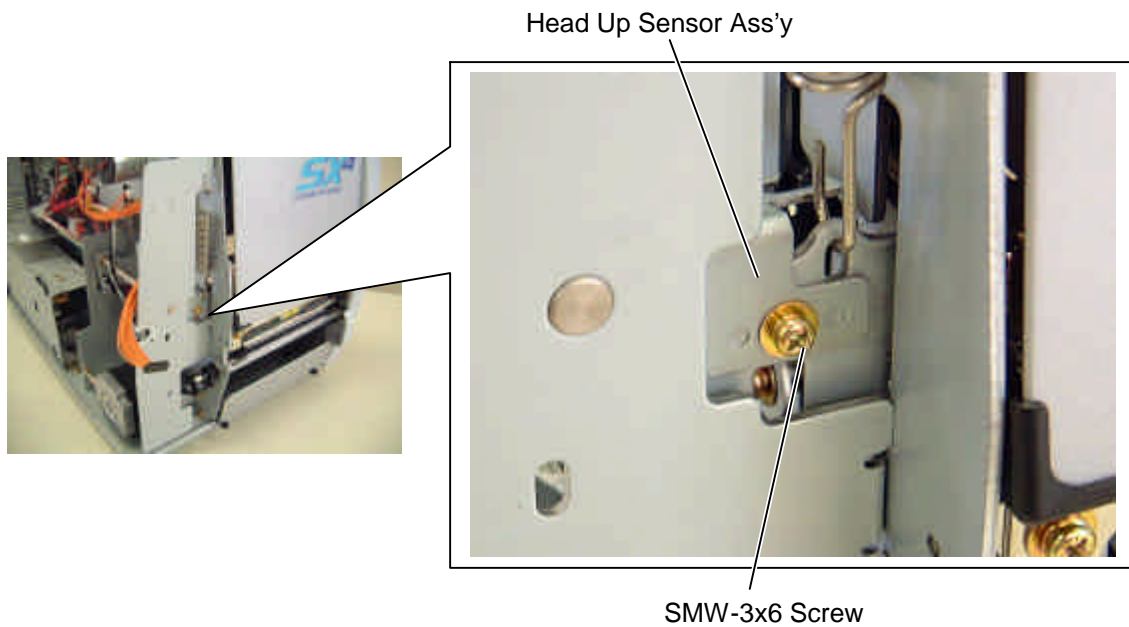
- 4) Close the printer block.
- 5) Fix the sensor shaft with the E-3 e-ring. (Refer to Section 10.11.1.)
- 6) Attach the media sensor (upper) to the pinch roller block with the two TT-3x5 screws. (Refer to Section 10.11.1.)
- 7) Attach the side panel (L) to the printer.
- 8) Perform a sensor adjustment in System mode.
- 9) Perform a test print. Make sure that printing was performed correctly.
- 10) Refer to Sections 5.5.7 and 6.1 to adjust the feed gap/black mark sensor.

10.12 HEAD UP SENSOR

- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the operation panel. (Refer to Section 3.4.)
- 3) Disconnect the sensor harness from the head up sensor ass'y.



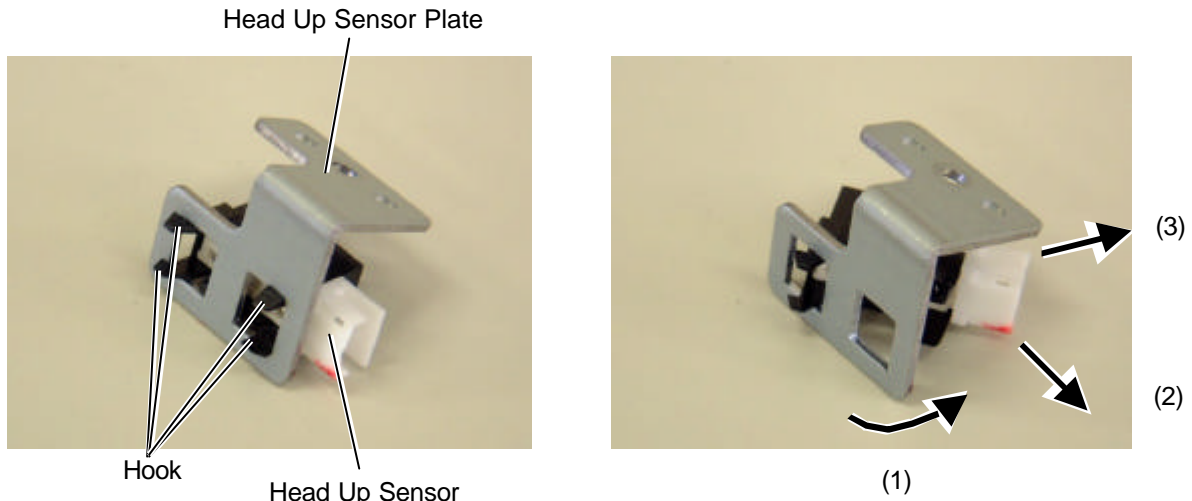
- 4) Remove the SMW-3x6 screw to detach the head up sensor ass'y from the printer.



5) Detach the head up sensor from the head up sensor plate in the following steps.

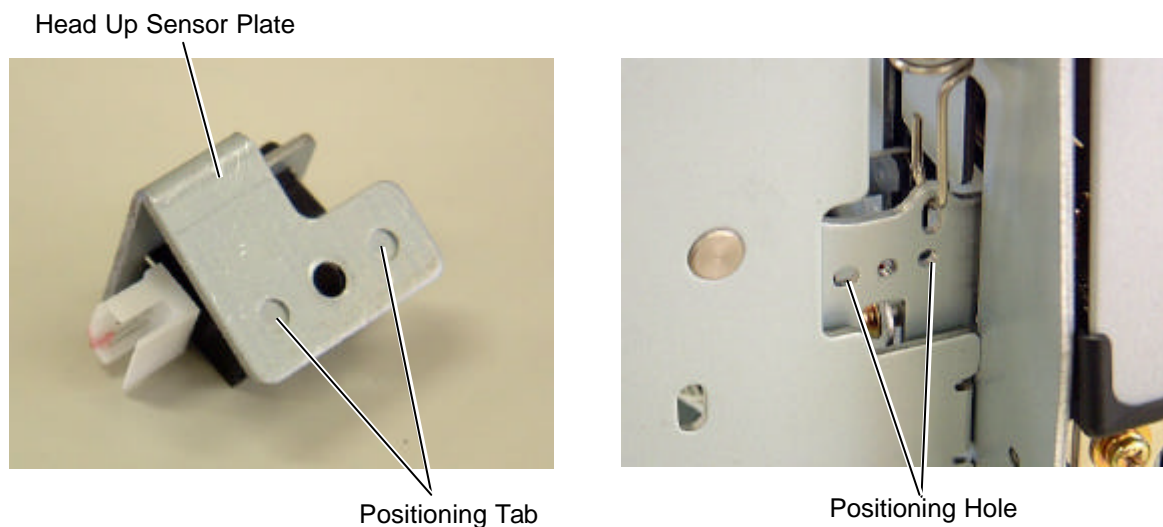
NOTE: The head up sensor is attached to the plate with the four hooks.

- (1) Pull the head up sensor in the direction indicated by the arrow to unhook the two hooks on the connector side.
- (2) Move the head up sensor in the direction indicated by the arrow to unhook the other hooks.
- (3) Detach the head up sensor from the plate.



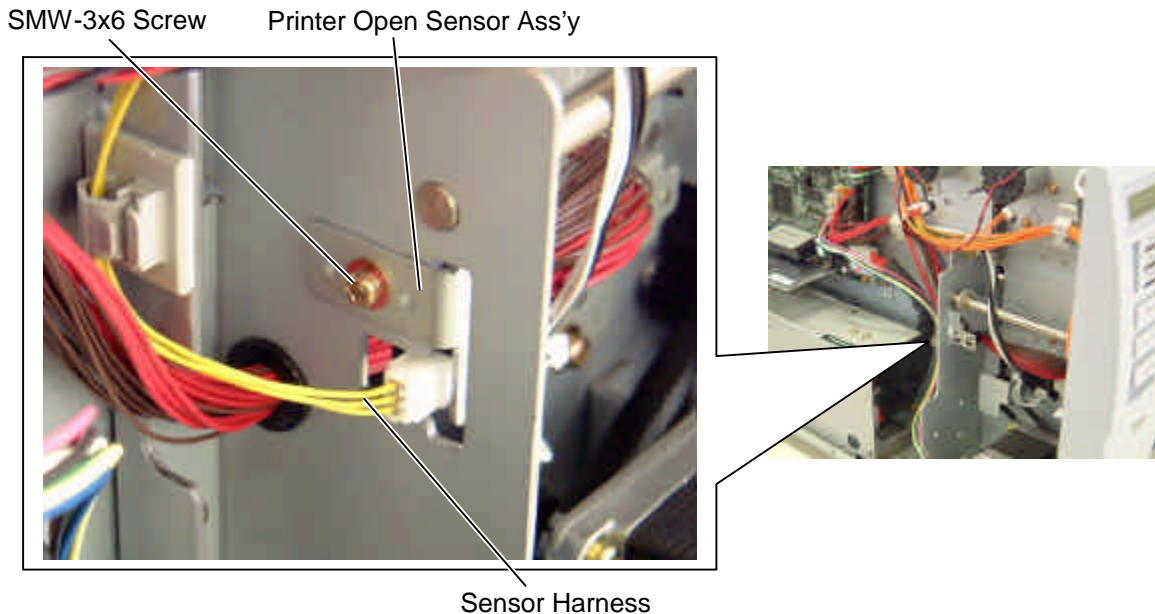
6) Replace the head up sensor with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.

- When reassembling, make sure that the head up was attached to the head up sensor plate in the correct direction.
- Fit the positioning tabs of the head up sensor plate into the positioning holes of the printer frame.



10.13 PRINTER OPEN SENSOR

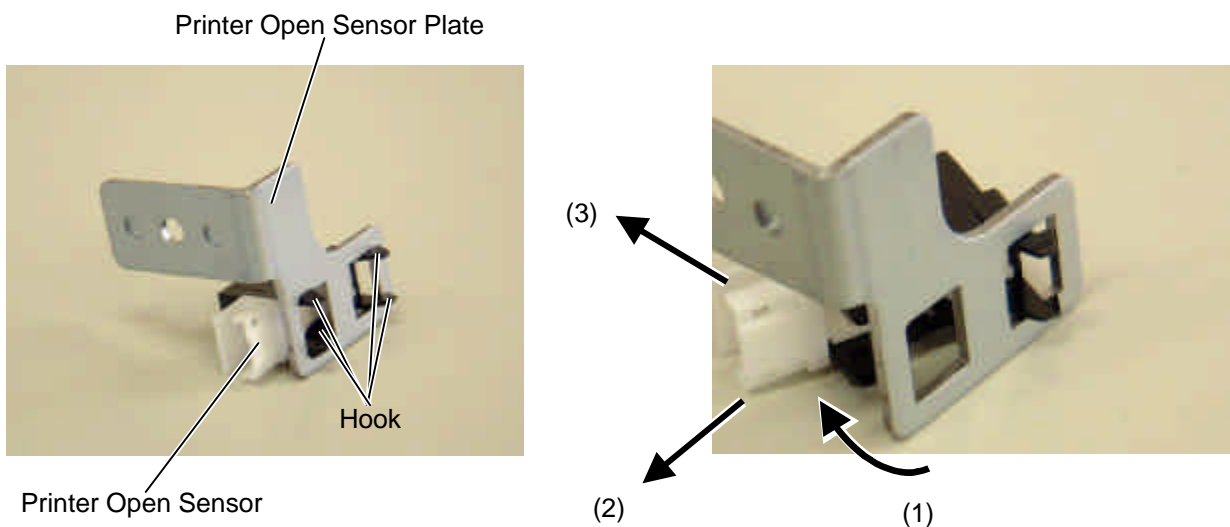
- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Disconnect the sensor harness from the printer open sensor ass'y.
- 3) Remove the SMW-3x6 screw to detach the printer open sensor ass'y from the printer.



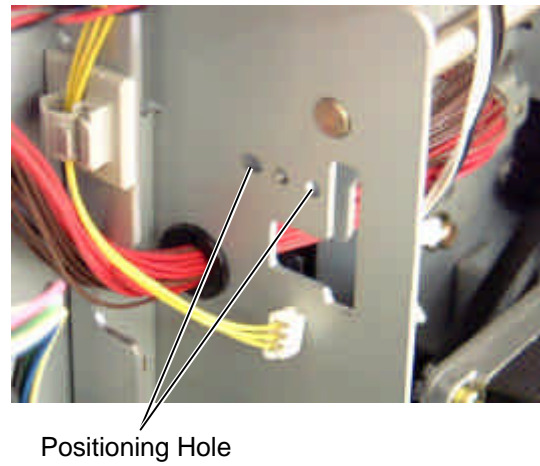
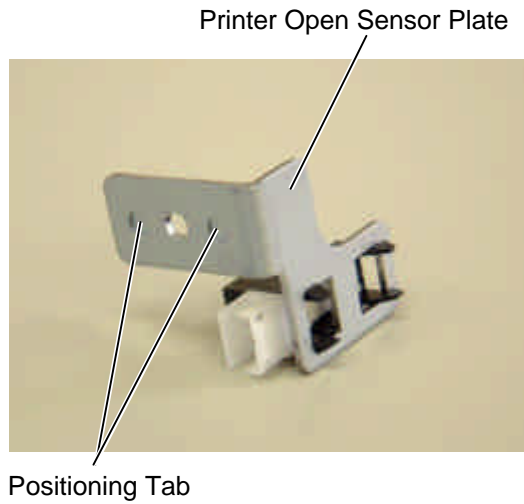
- 4) Detach the printer open sensor from the printer open sensor plate in the following steps.

NOTE: The printer open sensor is attached to the plate with the four hooks.

 - (1) Pull the printer open sensor in the direction indicated by the arrow to unhook the two hooks on the connector side.
 - (2) Move the printer open sensor in the direction indicated by the arrow to unhook the other hooks.
 - (3) Detach the printer open sensor from the plate.

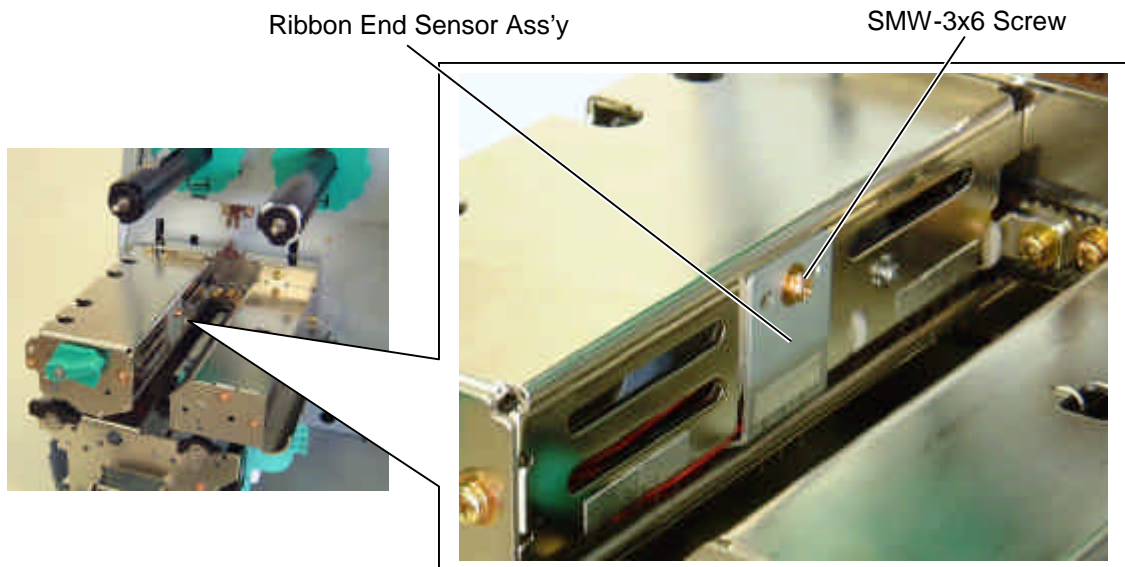


- 5) Replace the printer open sensor with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
- When reassembling, make sure that the printer open sensor was attached to the printer open sensor plate in the correct direction.
 - Fit the positioning tabs into the positioning holes of the printer frame.

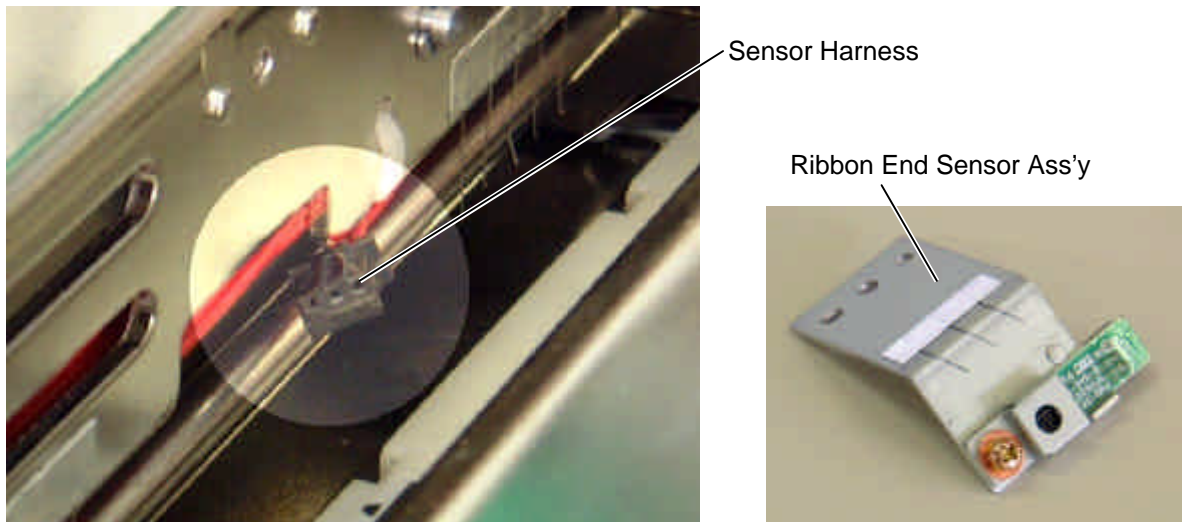


10.14 RIBBON END SENSOR

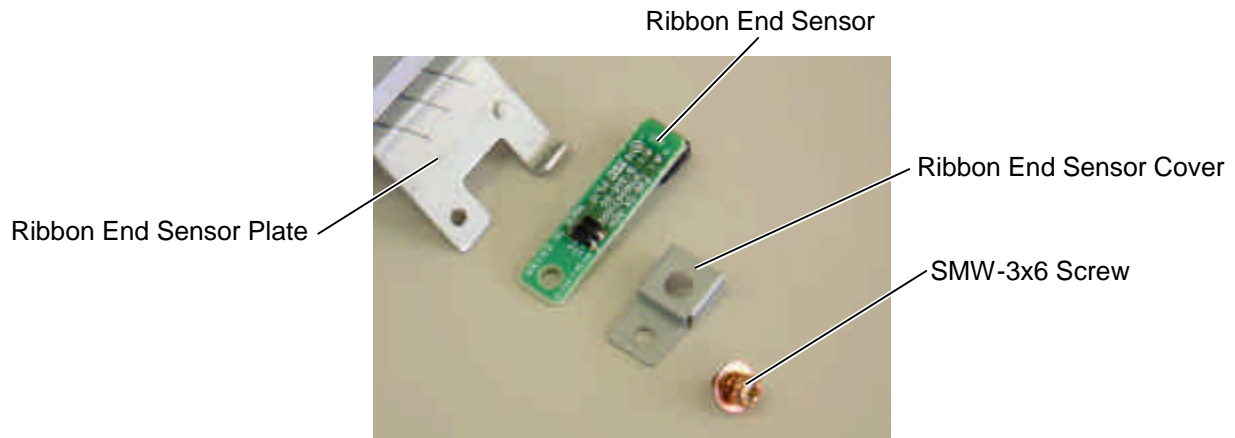
- 1) Open the top cover. (Refer to Section 3.1.)
- 2) Open the printer block. (Refer to Section 3.3.)
- 3) Remove the SMW-3x6 screw to detach the ribbon end sensor ass'y from the printer.



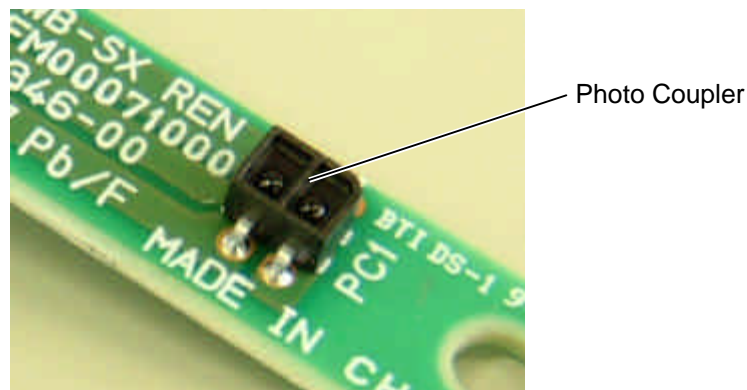
- 4) Disconnect the sensor harness from the ribbon end sensor ass'y, and then detach the ribbon end sensor ass'y from the printer.



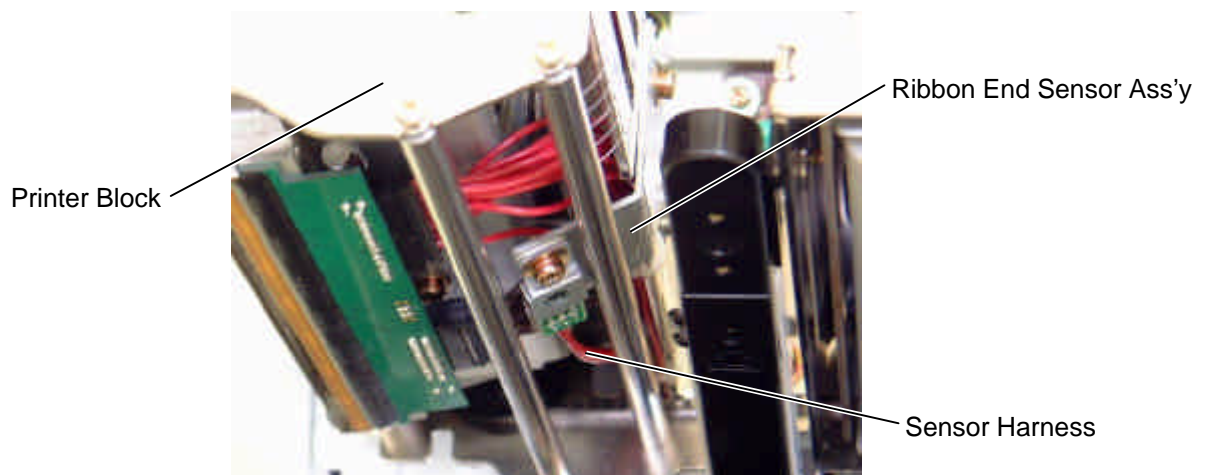
- 5) Remove the SMW-3x6 screw to detach the ribbon end sensor and the ribbon end sensor cover from the ribbon end sensor plate.



- 6) Replace the ribbon end sensor with a new one, then reassemble in the reverse order of removal. At this time, take care of the following points.
- When reassembling, make sure that the ribbon end sensor was attached to the ribbon end sensor plate in the correct direction.
 - Assemble the ribbon end sensor cover and the ribbon end sensor so that the photo coupler is positioned at the center of the round hole of the cover.
 - Be careful not to damage the sensor.

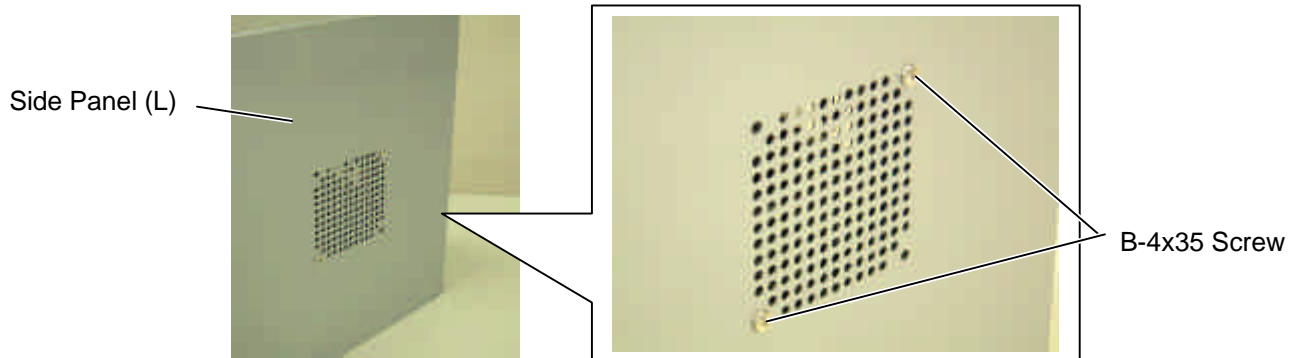


- Make sure that the sensor harness doesn't appear out of the printer block. If so, the sensor harness may touch the ribbon and the media causing a print failure.

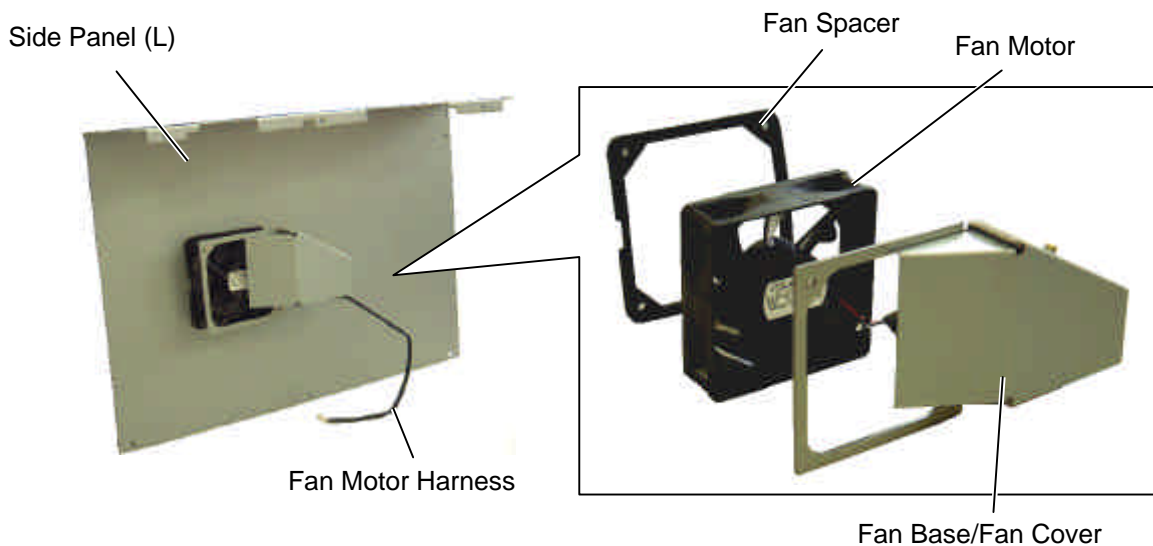


10.15 FAN MOTOR

- 1) Remove the side panel (L). (Refer to Section 3.2.)
- 2) Remove the two B-4x35 screws from the side panel (L).



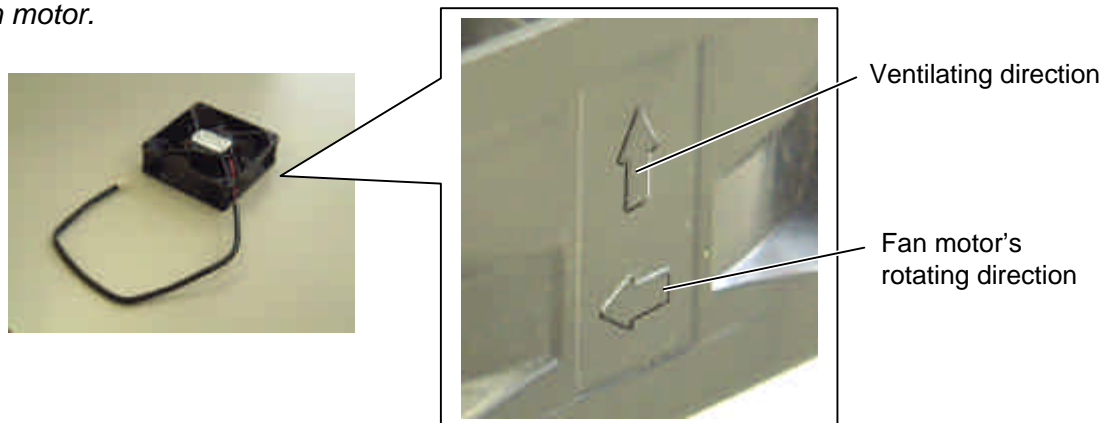
- 3) Remove the fan motor, fan spacer, and fan base/fan cover from the side panel (L).



- 4) Replace the fan motor with a new one, and then reassemble in the reverse order of removal.

NOTES:

1. Tighten the B-4x35 screws with 94.1 – 188.2 N•cm torque.
2. Attach the fan motor so that it takes the air into the printer. Refer to the arrows embossed on the fan motor.



3. Attach the fan motor, fan base/fan cover in the correct orientation. (Refer to the picture of Step 3.)

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