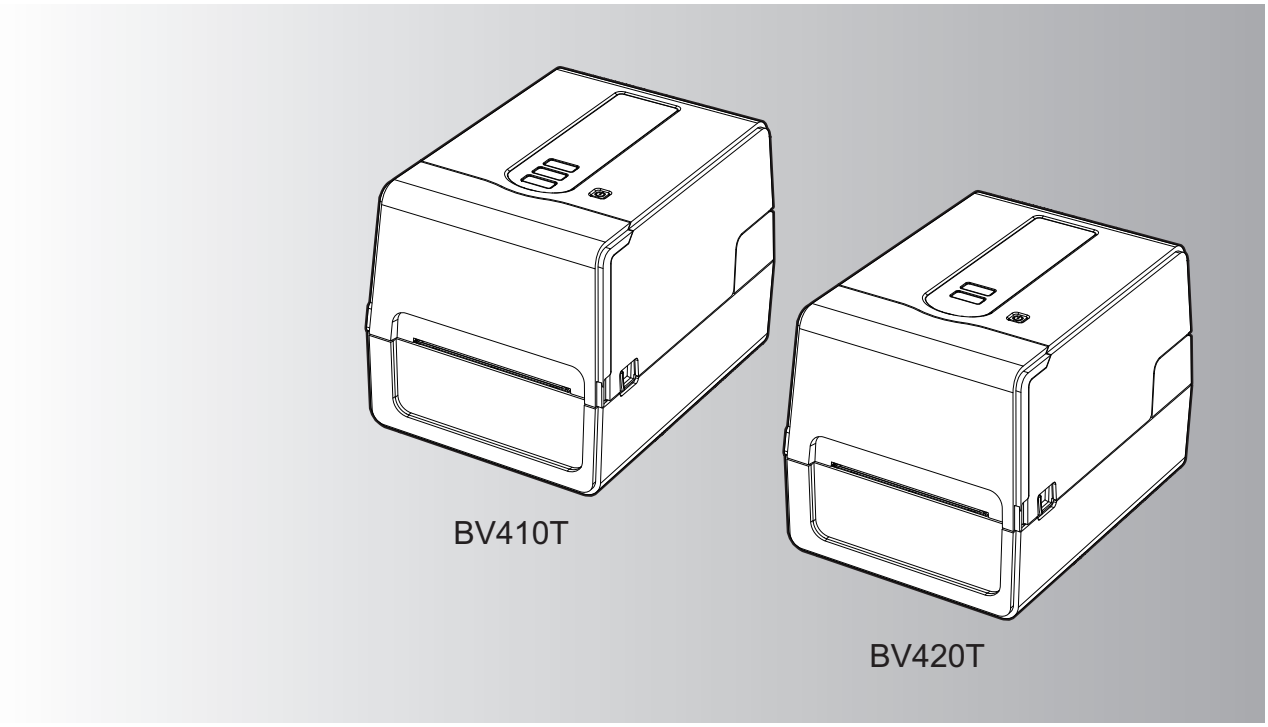
TOSHIBA

BARCODE PRINTERS

Owner's Manual

BV410T-GS02-QM-S/BV410T-GS14-QM-S
BV410T-TS02-QM-S/BV410T-TS14-QM-S
BV420T-GS02-QM-S/BV420T-GS14-QM-S
BV420T-TS02-QM-S/BV420T-TS14-QM-S



BV410T

BV420T

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Preface

Thank you for purchasing our product.
To keep the product in its best condition, keep this manual handy and use it whenever necessary.

■ How to read this manual

❑ Symbols in this manual

In this manual, some important items are described with the symbols shown below. Be sure to read these items before using this equipment.

⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death, serious injury, or serious damage, or fire in the equipment or surrounding objects.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, partial damage to the equipment or surrounding objects, or loss of data.
Note	Indicates information to which you should pay attention when operating the equipment.
Tip	Describes handy information that is useful to know when operating the equipment.
🕮	References describing items related to what you are currently doing. See these references as required.

❑ Target audience for this manual

This is a manual that is aimed at general users and administrators.

❑ Important notices about this manual

- This product is designed for commercial usage and is not consumer product.
- When using the product (including software), be sure to follow the instructions in this manual.
- This manual cannot be reproduced, duplicated, or reprinted in any form without prior written permission of Toshiba Tec Corporation.
- The contents of this manual may be changed without notification. Contact your authorized Toshiba Tec Corporation representative for the latest version of the manual.
- Refer to your local authorized service representative with regard to any queries you may have in this manual.

❑ Disclaimer Notice

The following notice sets out the exclusions and limitations of liability of Toshiba Tec Corporation (including its employees, agents and sub-contractors) to any purchaser or user ('User') of this printer including its accessories, options and bundled software ('Product').

1. The exclusion and limitations of liability referred to in this notice shall be effective to the fullest extent permissible at law. For the avoidance of doubt, nothing in this notice shall be taken to exclude or limit Toshiba Tec Corporation's liability for death or personal injury caused by Toshiba Tec Corporation's negligence or Toshiba Tec Corporation's fraudulent misrepresentation.
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   (b) any cause which prevents the Product from operating or functioning correctly which arises from or is attributable to either acts, omissions, events or accidents beyond the reasonable control of Toshiba Tec Corporation including without limitation acts of God, war, riot, civil commotion, malicious or deliberate damage, fire, flood, or storm, natural calamity, earthquakes, abnormal voltage or other disasters;
   (c) additions, modifications, disassembly, transportation, or repairs by any person other than service technicians authorized by Toshiba Tec Corporation; or
   (d) use of paper, supplies or parts other than those recommended by Toshiba Tec Corporation.

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(b) any special, incidental, consequential or indirect loss or damage, costs, expenses, financial loss or claims for consequential compensation;

   whatsoever and howsoever caused which arise out of or in connection with the Product or the use or handling of the Product even if Toshiba Tec Corporation is advised of the possibility of such damages.

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❑ Screens and description of operation procedures

The screen display may differ depending on your model and operating environment, such as installed options, OS version, and application software.

❑ Trademarks

- Microsoft, Windows, Windows NT, and the brand names and product names of other Microsoft products are trademarks of Microsoft Corporation in the US and other countries.
- Bluetooth® is a registered trademark owned by Bluetooth SIG, Inc.
- Android is a trademark of Google LLC.
- iPad and iPhone are trademarks of Apple Inc.
- IOS is a trademark or registered trademark of Cisco in the U.S. and other countries and is used under license.
- Other company names and product names in this manual are the trademarks of their respective companies.

❑ Official Names of Windows Operating System

- The official name of Windows® 10 is Microsoft Windows 10 Operating System.
- The official name of Windows® 11 is Microsoft Windows 11 Operating System.
- The official name of Windows Server® 2016 is Microsoft Windows Server 2016 Operating System.
- The official name of Windows Server® 2019 is Microsoft Windows Server 2019 Operating System.

❑ Importers/Manufacturer

Importer (For EU, EFTA)
Toshiba Tec Germany Imaging Systems GmbH
Carl-Schurz-Str. 7, 41460 Neuss, Germany

Importer (For UK)
Toshiba Tec U.K. Imaging Systems Ltd
Abbey Cloisters, Abbey Green, Chertsey, Surrey, KT16 8RB, United Kingdom

Importer (For Turkiye)
Boer Bilisim San. Tic. AS.
Yukari Dudullu, Tavukcuyolu Cad. Demirturk Sok No: 8A 34775,
Umraniye - Istanbul, Turkiye

Manufacturer
Toshiba Tec Corporation
1-11-1, Osaki, Shinagawa-ku, Tokyo, 141-8562, Japan

Precautions for the handling of Wireless Communication Devices

The following precautions are specific to wireless function. See “Safety Information” for general product precautions and regulatory information.

This product is classified as “wireless equipment for stations of low-power data transmissions systems” under the Wireless Telegraphy Act, and does not require a radio transmission license. The law prohibits modification of the interior of this product.

■ Regulatory Information

This product must be installed and used in strict accordance with the manufacturer’s instructions as described in the user documentation that comes with the product. This product complies with the following radio frequency and safety standards.
Standards below are certified under the operation with the provided antenna. Do not use this product with other antennas.

❑ Europe – EU Declaration of Conformity

Hereby, Toshiba Tec Corporation, declares that the BV410T/BV420T series are in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

❑ USA – Federal Communications Commission (FCC)

NOTE:
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.

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

RF EXPOSURE WARNING:
This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

❑ Canada – Innovation, Science and Economic Development Canada (ISED)

This device complies with ISED’S licence-exempt RSS standard(s).
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISDE applicables aux appareils radio exempts de licence.
L'exploitation est autorisée aux deux conditions suivantes :
(1) cet appareil ne doit pas causer d’interférence et
(2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the ISED RF Exposure limits under mobile exposure conditions (antennas are greater than 20 cm from a person's body).

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio Innovation, Sciences et Développement économique Canada (ISDE). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'ISDE dans des conditions d'exposition à des appareils mobiles (antennes sont supérieures à 20 cm à partir du corps d'une personne).

■ Approved Countries/Regions for Use for the Devices

This equipment is approved to the radio standard by the specific countries/regions. Please ask Toshiba Tec authorized dealers or service technicians.

■ Precaution for Use

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

Bluetooth® and Wireless LAN devices operate within the same radio frequency range and may interfere with one another. If you use Bluetooth® and Wireless LAN devices simultaneously, you may occasionally experience a less than optimal network performance or even lose your network connection.

If you should experience any such problem, immediately turn off your Bluetooth® or Wireless LAN device.

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

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

* Bluetooth® is a registered trademark owned by Bluetooth SIG, Inc.

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Product Overview

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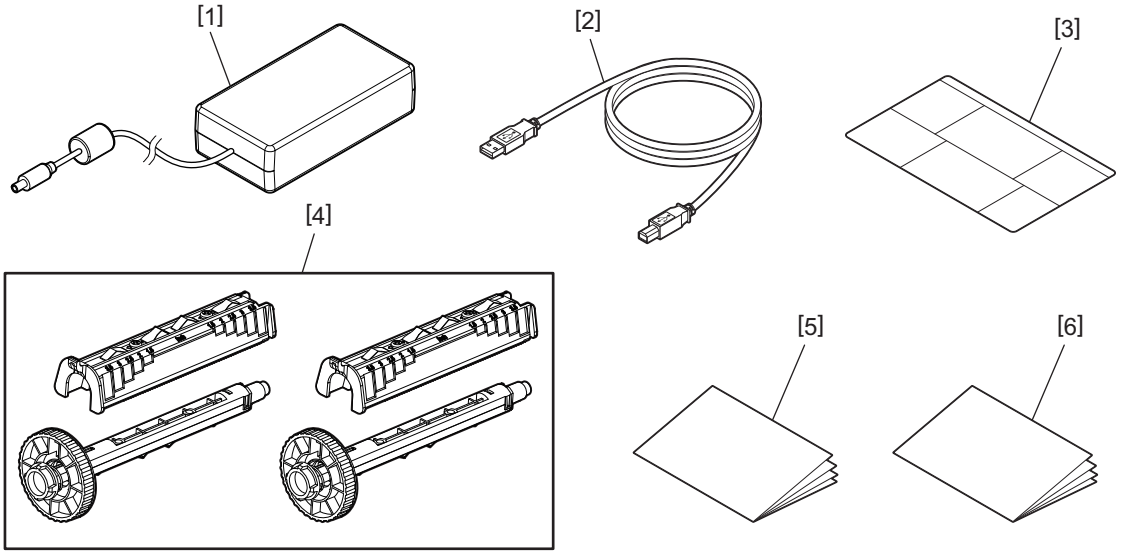
Accessories

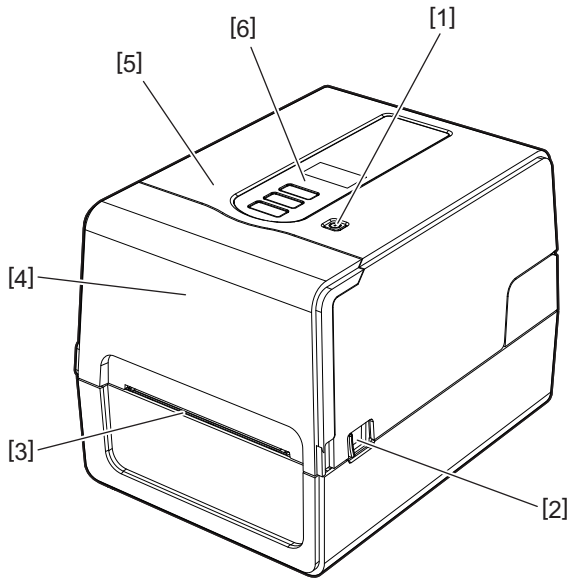
Confirm whether all the accessories are present.
If anything is missing, contact your service representative.

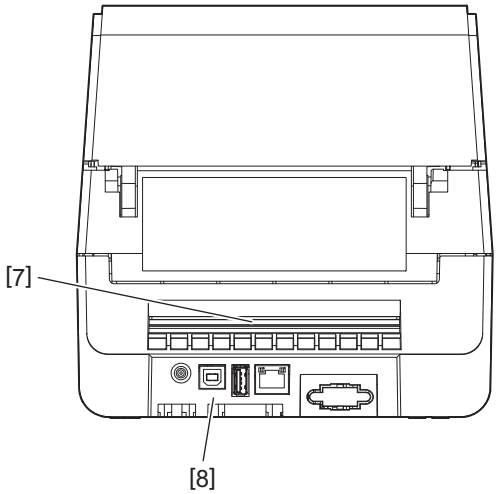


No.	Name of part
1	AC adapter (1)
2	USB cable (1)
3	Paper setting instruction label (1) This label is packed inside the printer. After unpacking, attach it in an easily visible place.
4	Ribbon spooler / Ribbon spooler attachment (1 set)
5	Safety Information (multi-language)
6	Quick Setup Guide (1)

Names and functions of parts

■ Exterior view



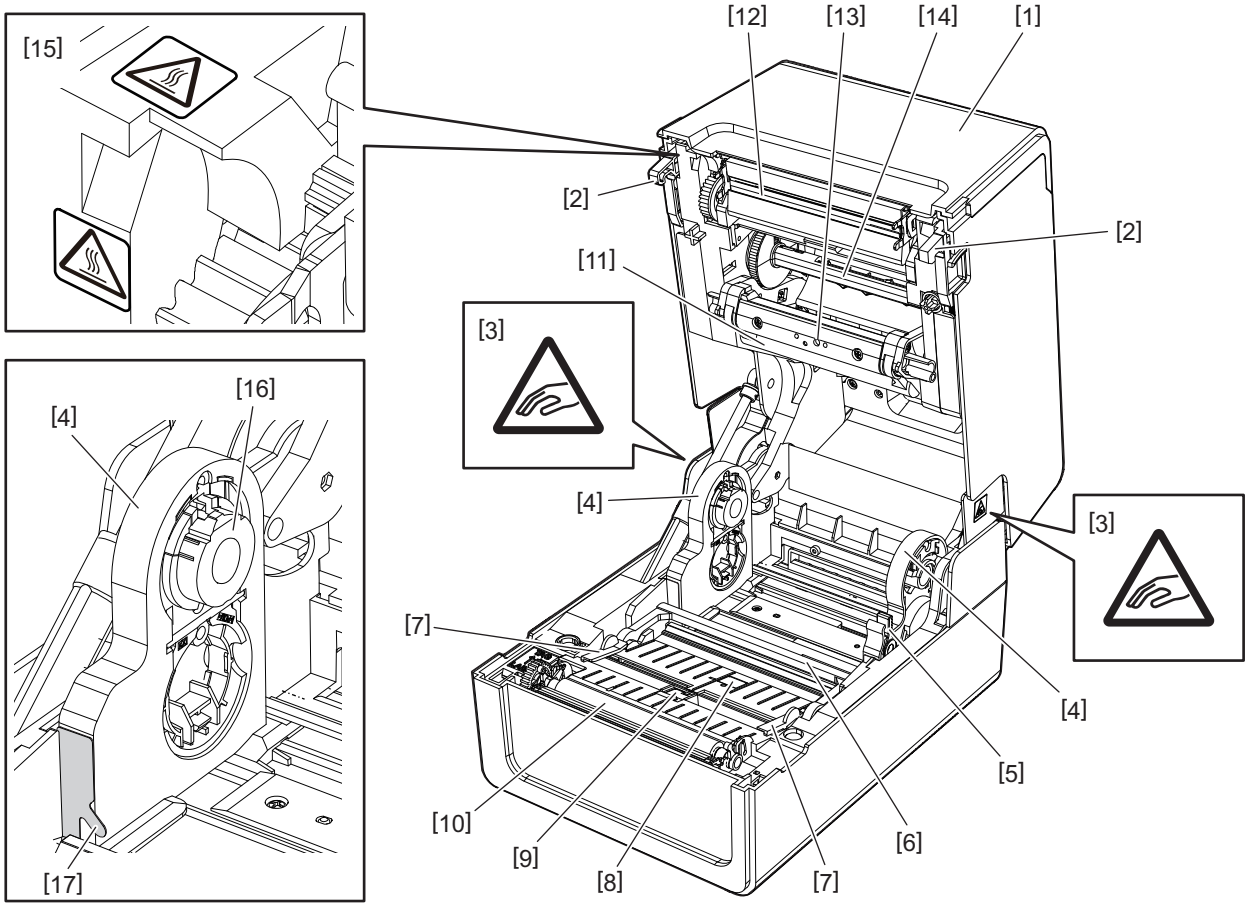


No.	Name of part	No.	Name of part
1	POWER button Turns the printer on and off.	5	Top cover
2	Top cover open lever Press this to open the top cover.	6	Operation panel BV410T: There is an LCD, and two lamps that show the state of the printer and three keys to operate the printer. BV420T: There are three lamps that show the state of the printer and two keys to operate the printer.
3	Media outlet The printed media comes from this outlet.	7	Media slot The media slot is used when the media is placed outside of the printer.
4	Ribbon cover	8	Power and interface panel 📖 P.15 “Power and interface panel”

■ Printing mechanism

⚠ CAUTION

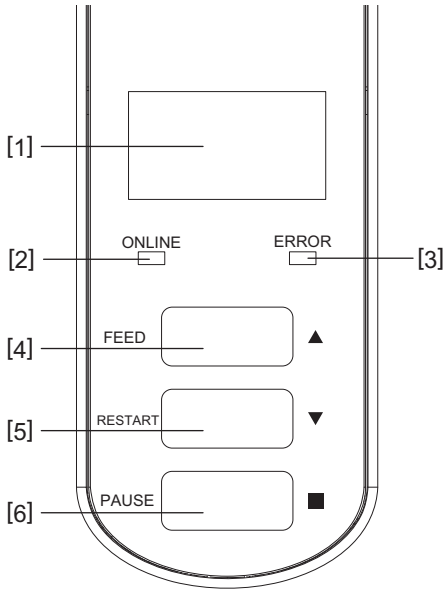
- **High-temperature warning**
  Be careful of high temperatures.
- **Pinch point warning**
  Be careful not to pinch your hands or fingers in covers and adjacent parts when closing covers.



No.	Name of part	No.	Name of part
1	Ribbon cover	10	Platen unit
2	Top cover fastening hook	11	Media damper (top)
3	Pinch point warning label Be careful not to pinch your hands or fingers in covers and adjacent parts when closing covers.	12	Print head
4	Media holder	13	Transmissive sensor (top)
5	Holder lock lever	14	Ribbon spooler
6	Media damper (bottom)	15	High-temperature warning label Be careful of high temperatures.
7	Media guides	16	Core holder
8	Transmissive sensor (bottom)	17	Outer roll paper hook
9	Reflective sensor		

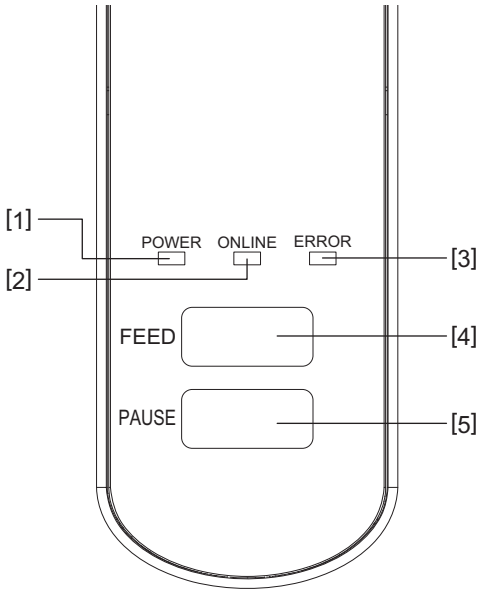
■ Operation panel

❑ BV410T



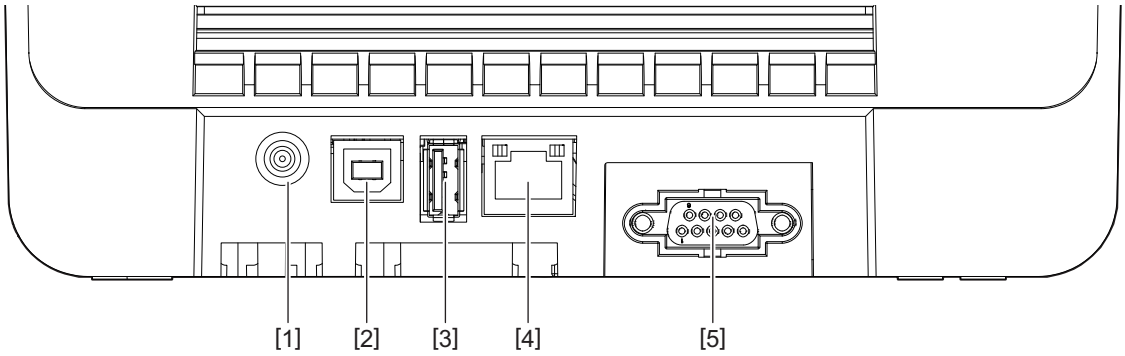
No.	Name of part
1	LCD (128x64 dots) Shows the state of the printer by using letters, numbers, katakana, kanji, and symbols.
2	ONLINE lamp (blue) • Lights when communications with the computer are possible. • Flashes when communicating with the computer. • Flashes slowly while in energy-saving mode. • Flashes at the same timing as the ERROR lamp when the power is turned off.
3	ERROR lamp (orange) • Lights when any problems occur on the printer. • Flashes at the same timing as the ONLINE lamp when the power is turned off.
4	[FEED] button • Use to feed one sheet of media or to eject one sheet of media. • Use to align the position of the media. • Use for various settings.
5	[RESTART] button • Use to restart printing after printing has been paused. • Use to restart when an error is resolved. However, some errors cannot be resolved by the [RESTART] button. 📖 P.68 “Error messages (BV410T)” • Use for various settings. • Initializes status after power is turned on.
6	[PAUSE] button • Use to pause printing. • Shows Help. • Use for various settings.

❑ BV420T



No.	Name of part
1	POWER lamp (blue) Lights when the power is turned on.
2	ONLINE lamp (blue) • Lights when communications with the computer are possible. • Flashes when communicating with the computer. • Flashes slowly while in energy-saving mode. • Flashes at the same timing as the ERROR lamp when the power is turned off.
3	ERROR lamp (orange) • Lights when an error occurs. • Flashes when the ribbon is running out. 📖 P.72 “ERROR lamp status (BV420T)”
4	[FEED] button • Use to feed one sheet of media or to eject one sheet of media. • Use to align the position of the media.
5	[PAUSE] button • Use to pause printing. • Resets the printer when paused or when an error occurs.

■ Power and interface panel



No.	Name of part
1	Power jack Connect the DC plug of the AC adapter.
2	USB port Connector for connecting a USB cable.
3	USB host Connector for connecting a USB memory.
4	LAN port Connector for connecting a LAN cable.
5	Serial interface port (option)

❑ Compatible USB memories

You can save receive buffer contents and operation log information to a USB memory.
For details, refer to “Key Operation Specification”.
You can use various commercially available types of USB memories. However, for details about USB memories that you can use, contact your service representative.

File systems for USB memories you can use

File system	Maximum capacity
FAT (FAT16)	2 GB
FAT32	8 GB

USB memories whose operation has been confirmed on the printer

Manufacturer	Product name	Capacity
SILICON POWER	ULTIMA-U02	32 GB, 64 GB
BUFFALO	RUF3-KV	16 GB, 32 GB
I/O DATA	U3-LC	256 GB, 512 GB, 1 TB
	U3-MAX2	16 GB, 32 GB, 64 GB, 128 GB, 256 GB
Kingston	DataTraveler	32 GB, 64 GB, 128 GB, 256 GB

Tip

You can use a USB memory by inserting it immediately before an operation. It does not need to be inserted in advance.

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Printer Setup

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Preparing to use the printer

This section explains how to set up the printer, connect a computer, and connect the power cable.

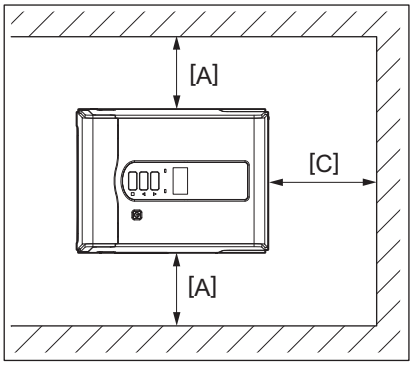
■ Setup locations

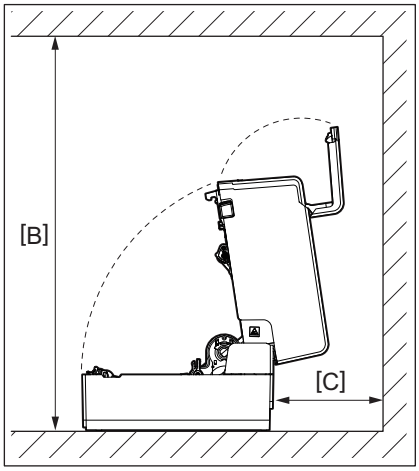
⚠ CAUTION

Do not set up in the following locations.

- Locations subject to direct sunlight
- Near windows
- Locations that are very hot or humid
- Locations subject to extreme changes in temperature
- Locations subject to vibrations
- Locations that are very dusty
- New equipment that generates magnetic or electromagnetic waves
- Locations near flame or water vapor
- On an unstable table
  There is a risk of fire, electric shock, and injury.

Set up the printer in a location that is flat and level, with good ventilation, and enough space to do operations. Also, provide open space around the printer as shown in the illustrations below.

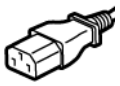


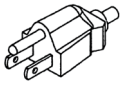
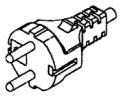
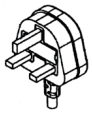
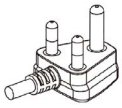


[A]: 100 mm (3.94")
[B]: 550 mm (21.65")
[C]: 150 mm (5.91")

■ When purchasing the power cable

In some countries/regions, the power cable is not provided with this printer. In this case, use a power cable approved for your country/region.

Power cable instructions
1. For use with 100 – 125 Vac mains power supply, select a power cable rated Min. 125 V, 10 A. 2. For use with 200 – 240 Vac mains power supply, select a power cable rated Min. 250 V, 10 A. 3. Select a power cable with the length of 2 m or less. 4. The power cable plug connected to the AC adapter must be able to be inserted into an ICE-320-C14 inlet. Refer to the following figure for the shape. 

Country/Region	North America	Europe	United Kingdom	Australia	South Africa
Power cable					
Rated (Min.) Type	125 V, 10 A SVT	250 V H05VV-F	250 V H05VV-F	250 V AS3191 approved, Light or Ordinary Duty type	250 V, 6 A H05VV
Conductor size (Min.)	No. 3/18AWG	3 x 0.75 mm^2	3 x 0.75 mm^2	3 x 0.75 mm^2	3 x 0.75 mm^2
Plug configuration (locally approved type)					
Rated (Min.)	125 V, 10 A	250 V, 10 A	250 V *1	250 V *1	250 V *1

*1 At least, 125% of the rated current of the product

■ Connecting the AC adapter/power cable

Use the following procedure to connect the provided AC adapter and power cable to an electric outlet.
The power plug has a ground wire, so be sure to connect it to a ground terminal also.

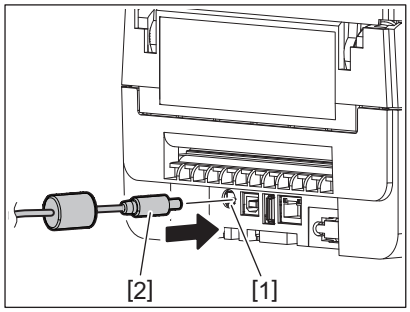
⚠ WARNING

- **Use only the AC voltage specified on the rating plate.**
  Otherwise, it may cause fire or electric shock.
- **The socket outlet shall be near the equipment and be easily accessible.**
- **Be sure to use the power cable* and the AC adapter supplied with this printer.**
  Use of a power cable or an AC adapter other than those supplied may result in fire. Moreover, do not use the power cable or the AC adapter supplied with any device other than this printer.
  * In some countries/regions, the power cable is not provided with this printer. In this case, use a power cable approved for your country/region.
- **Do not use extension cords or connect multiple wires to a single outlet.**
  There is a risk of fire and electric shock from exceeding the capacity of the power source.
- **Do not excessively bend, damage, pull on, place heavy objects on, or heat the power cable.**
  There is a risk of fire and electric shock from damaging the power cable. If the power cable should ever be damaged, ask for a replacement at your service representative.
- **Be sure to connect the ground wire to the ground terminal.**
  There is a risk of fire and electric shock if current leaks occur. However, do not connect it to a gas pipe, water pipe, faucet, or lightning rod, etc., which could cause an accident or malfunction.
- **Do not plug or unplug the power plug with wet hands.**
  There is a risk of fire and electric shock from plugging or unplugging the power plug with wet hands.

⚠ CAUTION

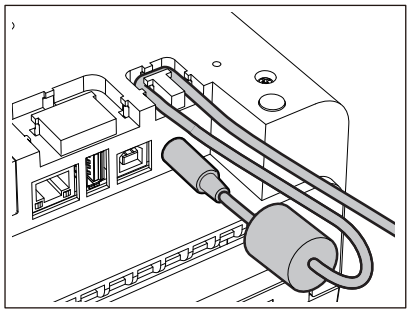
- **Insert the power plug fully and securely into the electric outlet.**
  There is a risk of fire and electric shock from not plugging the power plug in securely.
- **Always hold the plug when unplugging the power plug.**
  There is a risk of fire and electric shock from pulling on the power cable which can break or expose the core wires.
- **Unplug the power plug at least once a year and clean the blades of the plug and the area around the blades.**
  There is a risk of fire from the collected dust.
- **Before unplugging the power cable, be sure to confirm that the printer is turned off.**
  There is a risk of malfunction from unplugging the power cable while the power is on.

1 **Connect the DC plug [2] of the AC adapter to the power jack [1] on the back of the printer.**

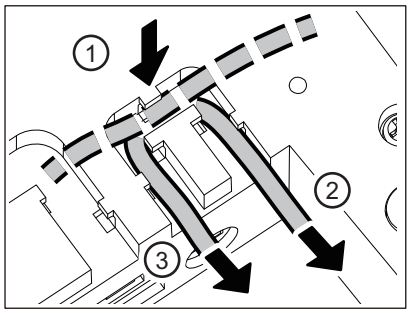


Tip

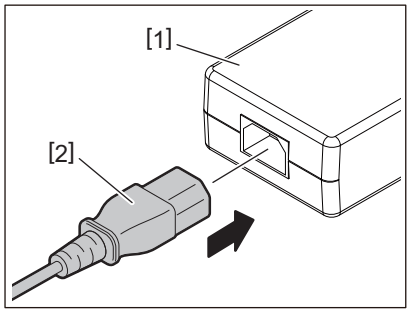
You can prevent the cable from being unplugged by passing the cable of the DC plug through the groove on the bottom side.



Insert the cable into the groove in the order shown in the illustration below.



2 Connect the power cable [2] to the AC adapter [1].



Note

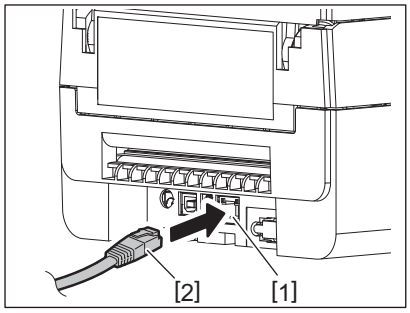
If a power cable is not provided with this printer, purchase the correct one referring to the following.
P.19 “When purchasing the power cable”

■ Connecting to a computer

Use the following procedure to connect to a computer.
Which communications cable to use depends on the means of communicating with the computer.
For details, consult with your service representative.

❑ Connecting with a LAN cable

1 Connect the connector of the LAN cable [2] to the LAN port [1] on the back of the printer.



Tip

You do not need to turn off the power to the printer or the computer.

2 Connect the connector on the other end of the LAN cable to the LAN port on the computer.
Refer to the owner's manual for the computer being used regarding how to connect to the computer.

Note

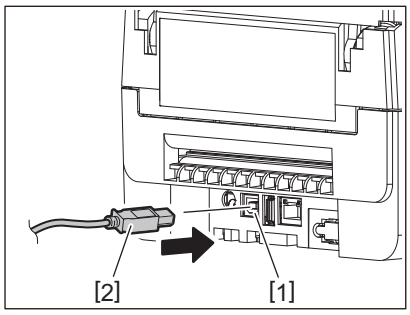
- Use a LAN cable that is compliant with standards.
  - 10BASE-T standard: Category 3 or higher
  - 100BASE-TX standard: Category 5 or higher
  - Cable length: Up to 100 m (328.1 ft) maximum segment length
- Communication errors may occur depending on the connected LAN environment and the noise environment. In this case, you may need shielded cables (STP) and matching of the connected devices.
- It is recommended to change the default SNMP community name.

❑ Connecting with a USB cable

1 **Turn on the computer and start up the Windows system.**

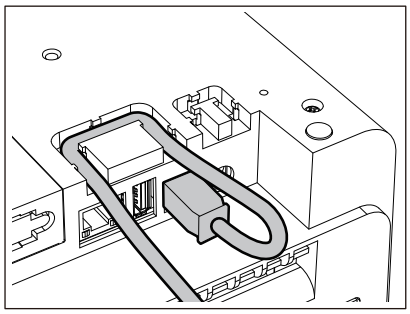
2 **Turn on the printer's POWER button.**

3 **Connect the connector of the USB cable [2] to the USB interface [1] for connecting a host computer on the back of the printer.**



Tip

You can prevent the cable from being unplugged by passing the USB cable through the groove on the bottom side.



4 **Connect the connector on the other end of the USB cable to the USB interface on the computer.**
Refer to the owner's manual for the computer being used regarding how to connect to the computer.

Note

Use the B type connector of a USB cable that is compliant with the 2.0 standard or higher to connect to the printer.

❑ Connecting with Bluetooth

To use the Bluetooth interface to communicate between the printer and a host device, you need to first do a connection setting called “Pairing”.
The printer has 2 pairing modes to use according to the situation.
This section explains how to switch pairing modes and how to do pairing with a host device (Android device or iOS device).

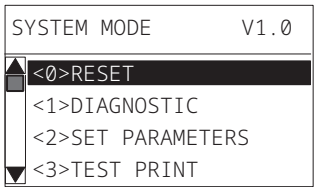
The pairing modes are “Auto reconnect disabled mode”, which is used to share the printer with multiple Android devices or iOS devices, and “Auto reconnect enabled mode”, which is used only for specified iOS devices.
The “Auto reconnect disabled mode” is the initial setting.
You can check the current pairing mode by the [C] symbol displayed on the LCD.

Mode name	Icon displayed when power is turned on	Usage	Function
Auto reconnect enabled mode	[C] symbol is lit	Used only for specified iOS devices.	After turning on the power, attempts to connect to the last host device that was connected.
Auto reconnect disabled mode	[C] symbol is off	Used by sharing with multiple Android devices and iOS devices.	After turning on the power, waits for connection from a host device. A pairing operation from the host device is necessary.

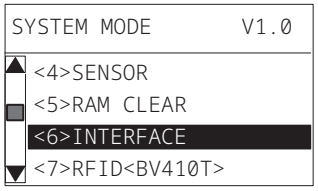
Setting up Bluetooth mode

1 **Turn off the printer's POWER button.**

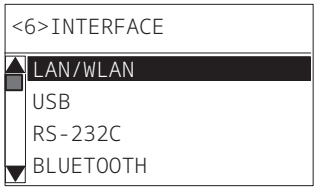
2 **While pressing the [FEED] and [PAUSE] buttons, turn on the power.**
The system mode opens.



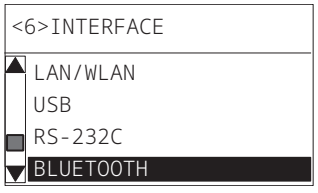
3 **Use the [FEED] button to select the [<6>INTERFACE] menu.**



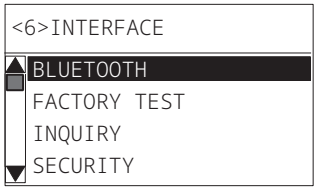
4 **Press the [PAUSE] button.**
The [<6>INTERFACE] screen opens.



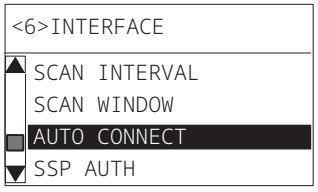
5 **Use the [FEED] button to select the [BLUETOOTH] submenu.**



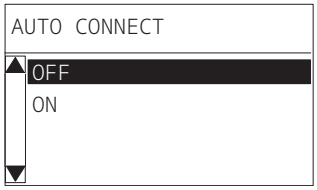
6 **Press the [PAUSE] button.**
The [BLUETOOTH] settings screen opens.



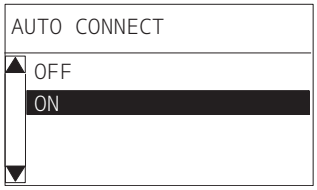
7 **Use the [FEED] button to select [AUTO CONNECT].**



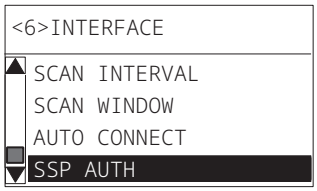
8 **Press the [PAUSE] button.**
The [AUTO CONNECT] settings screen opens.



9 **Use the [FEED] or [RESTART] button to select [ON]/[OFF] for [AUTO CONNECT].**



10 **Press the [PAUSE] button.**
The [BLUETOOTH] settings screen returns.



11 **Reboot the printer.**

Android pairing procedure

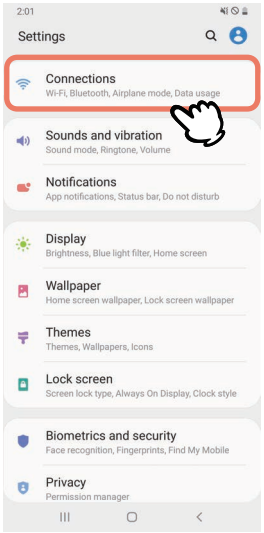
While the printer's power is on, do the pairing settings from the host device.
When doing the pairing settings, set [OFF] for auto reconnect on the printer.

Tip

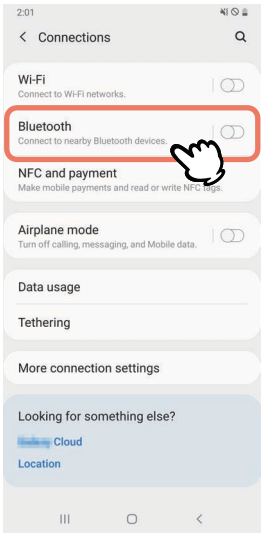
Depending on the host device and OS version you are using, some screen displays may differ. Refer to the owner's manual of the product being used for details.

1 **On the app list screen, tap [Settings].**

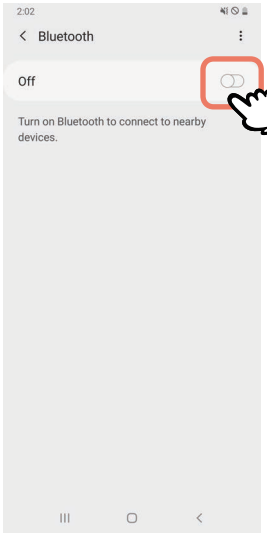
2 **On the Settings screen, tap [Connections].**



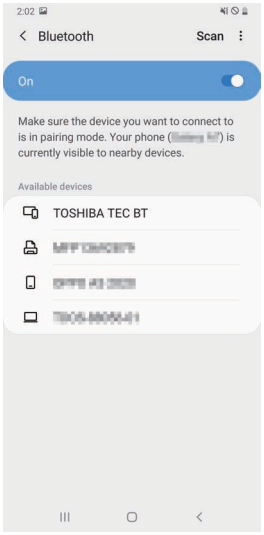
3 **On the Connections screen, tap [Bluetooth].**



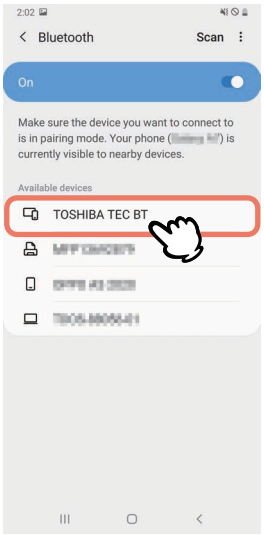
4 **On the Bluetooth screen, tap the switch button to set it to on.**



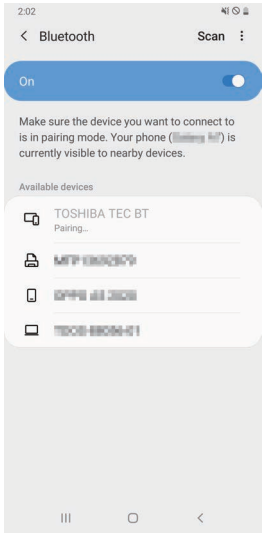
5 **When this is set to on, Bluetooth automatically searches for devices.**



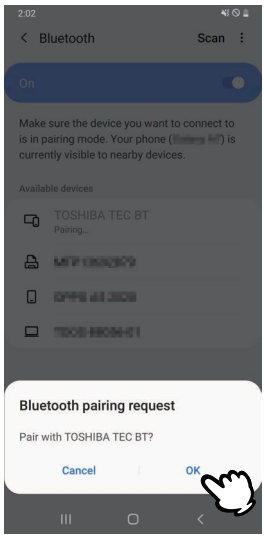
6 **From [Available devices], tap [TOSHIBA TEC BT].**



7 **The pairing setting starts.**



8 **Tap [OK].**

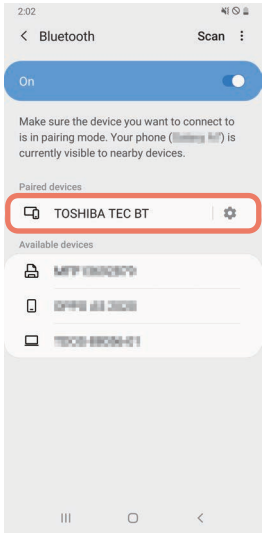


9 **Press the [PAUSE] button of the printer.**

Note

If the [PAUSE] button is not pressed, an SSP authentication error occurs and the pairing connection is not completed. In that case, perform the pairing connection again.

10 When [TOSHIBA TEC BT] appears in [Paired devices], the operation is finished.



Note

An SSP authentication error occurs when the pairing connection fails. In that case, perform pairing connection again.

iOS pairing procedure

While the printer's power is on, do the pairing settings from the host device.
When doing the pairing settings, set [OFF] for auto reconnect on the printer.

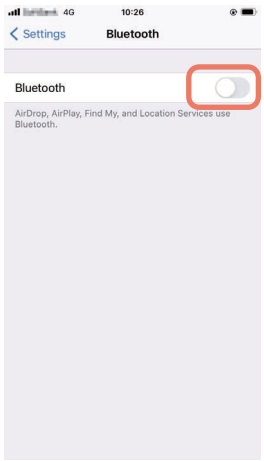
Tip

Some of the screens that appear may differ, depending on the host device you are using. Refer to the owner's manual of the product being used for details.

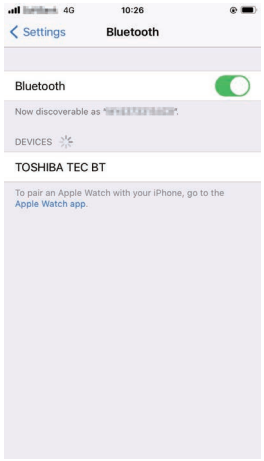
1 In the home screen, tap [Settings].

2 In the Settings screen, tap [Bluetooth].

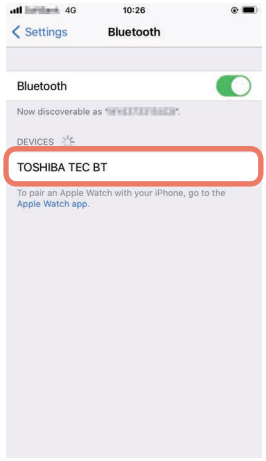
3 In the Bluetooth screen, tap the switch button to set it to on.



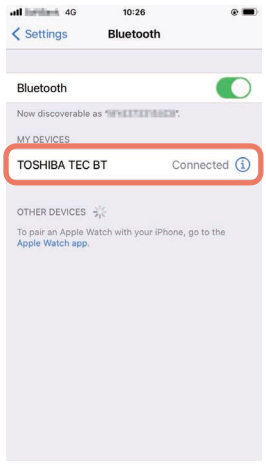
4 **When this is set to on, Bluetooth automatically searches for devices.**



5 **Tap [TOSHIBA TEC BT].**



6 **When [Connected] appears, the operation is finished.**

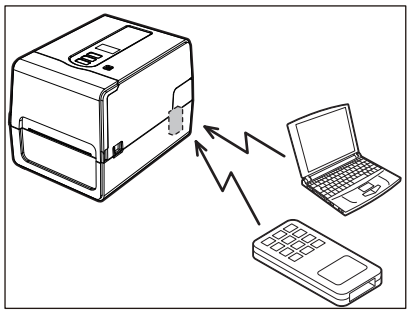


Note

An SSP authentication error occurs when the pairing connection fails. In that case, perform pairing connection again.

How to communicate

1 **Bring the host device to within 3 m (9.8 ft) of the printer.**



2 **Turn on the printer and host device.**

3 **Confirm that the icon indicating that Bluetooth connection is possible is lit.**

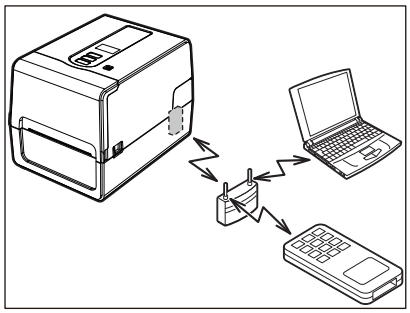
4 **Transmit data from the host device to the printer.**

❑ Connecting via wireless LAN

Note

- Before doing wireless communications, be sure to carefully read the information referenced below.
  📖 P.5 “Precautions for the handling of Wireless Communication Devices”
- Check that there are no obstructions between the printer and the host. Obstructions in between them could cause poor communications.

1 **Place the printer inside the coverage area of the access point.**



2 **Turn on the printer and host device.**

3 **Transmit data from the host device to the printer.**

Tip

Communications may be difficult, depending on the environment in which the printer is being used. Confirm this in advance. Specifically, communications may be impossible near metal objects, in locations with extensive metal dust, or in a room enclosed by metal walls, etc.

Turning the printer ON/OFF

When turned on, the printer checks the print head and memory. Also, the data in the memory is deleted when the power is turned off.

Note

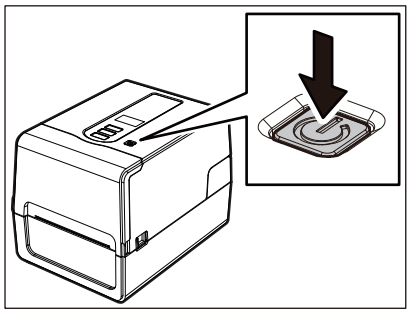
The POWER button is used to turn the power on and off. There is a risk of malfunction from turning the power on and off by plugging and unplugging the power plug.

■ Turning ON the printer

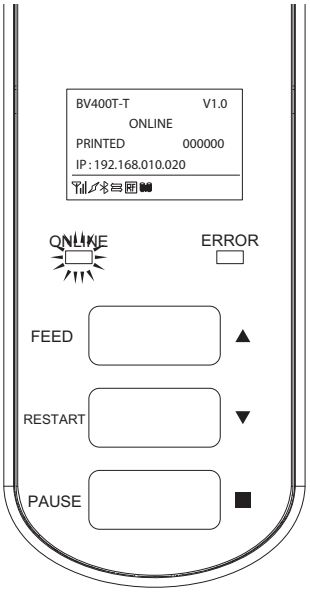
<BV410T>

1 Press the printer's POWER button for a few seconds.

Release once the LCD fully lights.



"ONLINE" appears in the LCD. The ONLINE lamp (blue) flashes for about 15 seconds, and then stays lit.



Tip

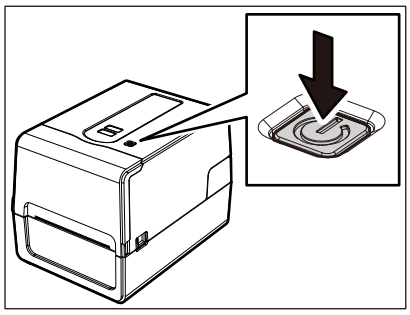
If the power does not turn on or an error message is displayed, refer to the following page.

P.68 "Troubleshooting"

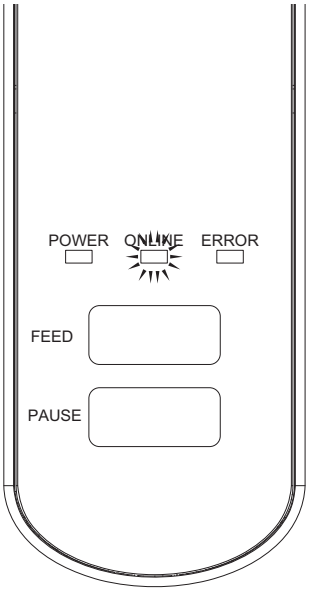
<BV420T>

1 Press the printer's POWER button for a few seconds.

The POWER lamp lights.



The ONLINE lamp (blue) flashes for about 15 seconds, and then stays lit.



Tip

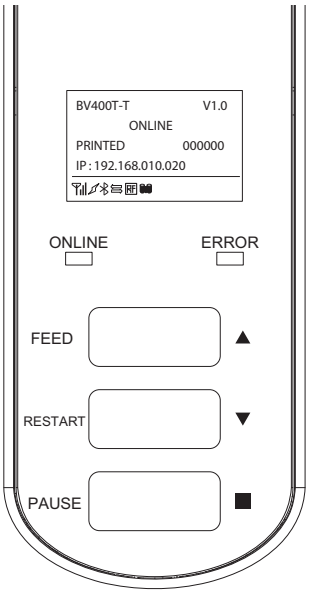
If the power does not turn on, refer to the following page.

P.68 "Troubleshooting"

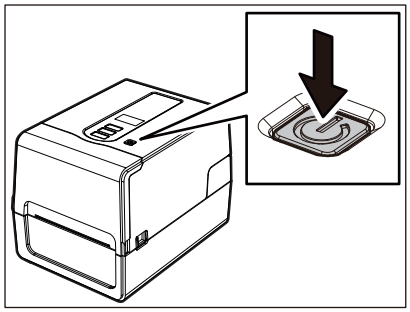
■ Turning OFF the printer

<BV410T>

1 **While "ONLINE" appears in the LCD, check that the ONLINE lamp (blue) is not flashing quickly.**



2 **Press the printer's POWER button for a few seconds.**



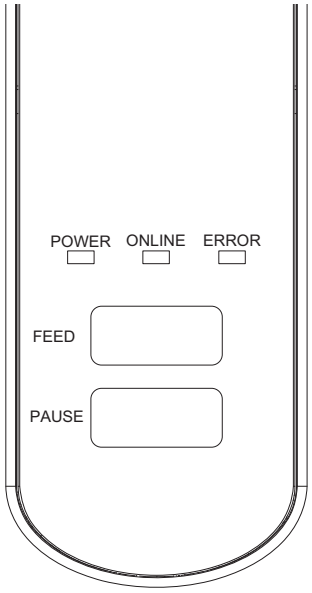
3 **The LCD turns off.**
After the ONLINE lamp and ERROR lamp flash together, they turn off.

Note

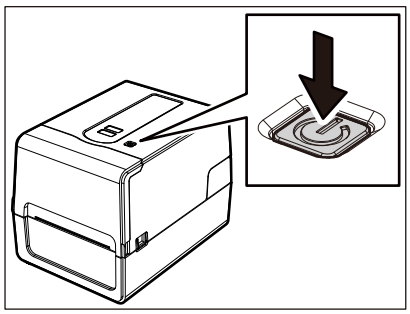
- Do not turn off the power while media is being output. This could cause paper jams or malfunctions. However, if the printer produces strange smells or smoke, immediately turn off the POWER button and unplug the power plug from the electric outlet.
- If the ONLINE lamp is flashing quickly, the printer may be communicating with the computer, so do not turn off the power. This could have a bad effect on the connected computer.

<BV420T>

1 Check that the ONLINE lamp (blue) is not flashing quickly.



2 Press the printer's POWER button for a few seconds.



After the ONLINE lamp and ERROR lamp flash together, they turn off.

Note

- Do not turn off the power while media is being output. This could cause paper jams or malfunctions. However, if the printer produces strange smells or smoke, immediately turn off the POWER button and unplug the power plug from the electric outlet.
- If the ONLINE lamp is flashing quickly, the printer may be communicating with the computer, so do not turn off the power. This could have a bad effect on the connected computer.

Loading the media

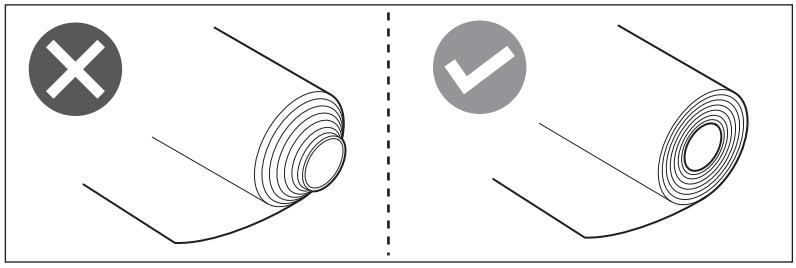
This section explains the procedure for loading media (Label/Tag) in the printer.
Use Toshiba Tec Corporation certified genuine media. For details about ordering and preparing media, contact your service representative.

⚠ CAUTION

Immediately after printing, do not touch the print head or its surrounding area.
This could cause burns.

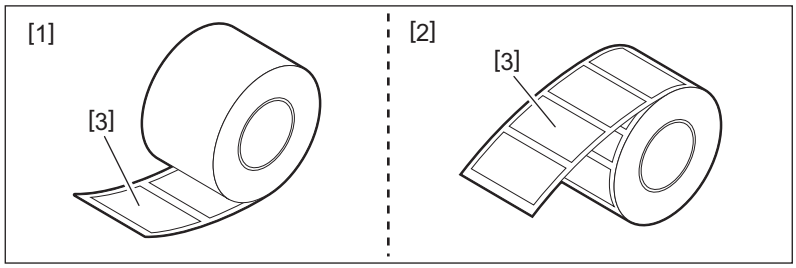
Note

- The size of media that can be loaded in the printer is as below.
  - Roll diameter: Up to 127 mm (5")
  - Inner diameter of the core: 25.4 mm (1"), 38 mm (1.5"), 40 mm (1.57"), or 42 mm (1.65")
- If the outer diameter of the media exceeds 127 mm (5") or the inner diameter of the core is 76.2 mm (3"), place the media in the separately sold external media stand.
  📖 P.49 “Procedure for loading media when using the external media stand”
- To use media that are to be loaded in the printer for the first time, use “SENSOR” in the system mode to adjust the sensitivity of the media detection sensors.
  For details, refer to “Key Operation Specification”.
- To load pre-printed media, set the threshold.
  For details, refer to “Key Operation Specification”.
- Before loading the media, flatten its cross-section as shown below.



Tip

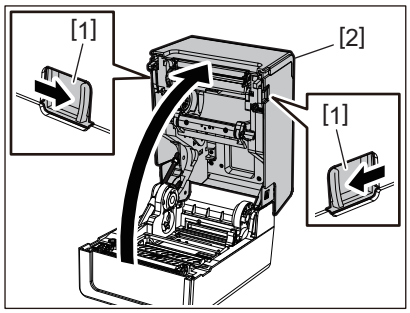
- Media are available in inner roll [1] and outer roll [2], which differ as shown in the figure below. Regardless of the rolling direction, load the media so that the print side [3] will face upward.



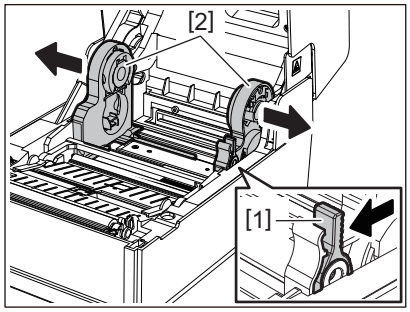
- Toshiba Tec Corporation shall assume no liability for any consequences of printing by loading media other than Toshiba Tec Corporation certified ones.

■ Media loading procedure

1 While pulling each of the right and left lock release portions [1] in the arrow direction, fully open the top cover [2].



2 While holding the holder lock lever [1], extend the media holder [2] to the right and left.

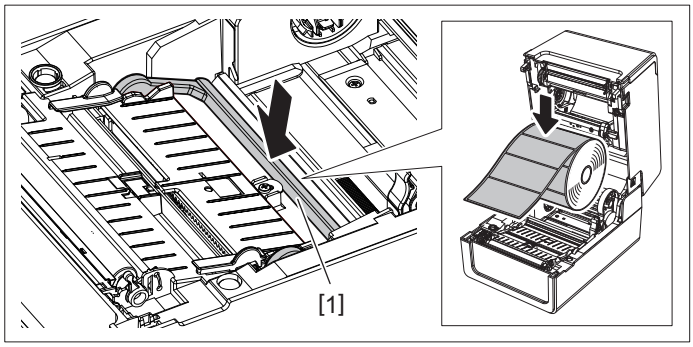


3 Change the position of the core holder to match the inner diameter of the media core for the roll media being used.

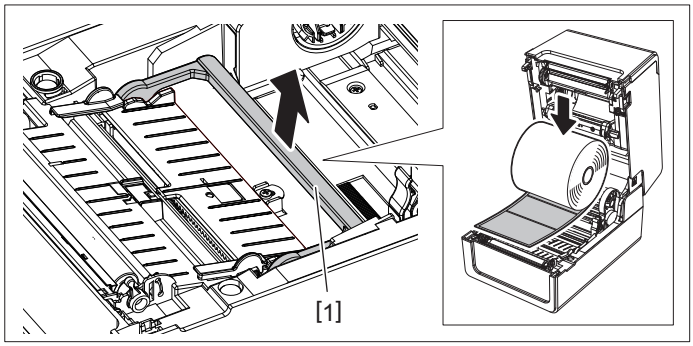
P.41 “Moving the core holder”

4 Change the position of the media damper (bottom) [1].

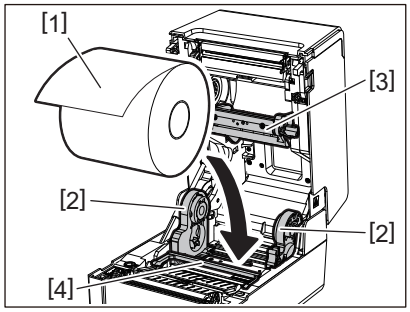
- When an outer roll media is used: Push up the media damper (bottom) [1] until a pop sound is heard to make it locked.



- When an inner roll media is used: Pull up the media damper (bottom) [1] to release the lock.



5 Place the roll media [1] between the right and left parts of the media holder [2] so that the print side will face upward.

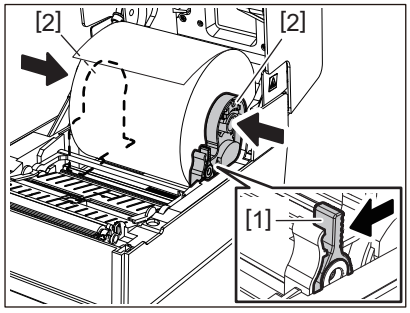


Note

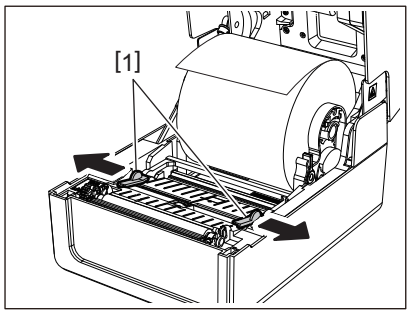
- Pay attention to the rolling direction of the media when loading the media. If you load the media in the opposite direction, printing fails.
- Cut the end of the media straight with scissors. For labels, cut the base between labels straight.
- When loading media, be careful not to damage the media damper (top) [3] and the media damper (bottom) [4].

6 While holding the holder lock lever [1], slide the right and left parts of the media holder [2] inward to lock the roll media firmly.

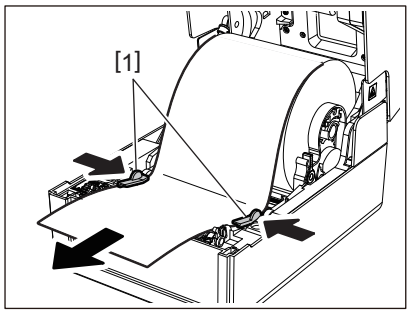
Confirm that the convex portions of the core holder fit the core.



7 Extend the media guides [1] to the right and left.



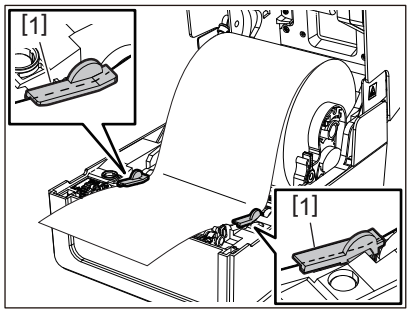
8 Pull out the media so that the end of the media will be slightly outside the media outlet and then pass the media under the right and left media guides [1].



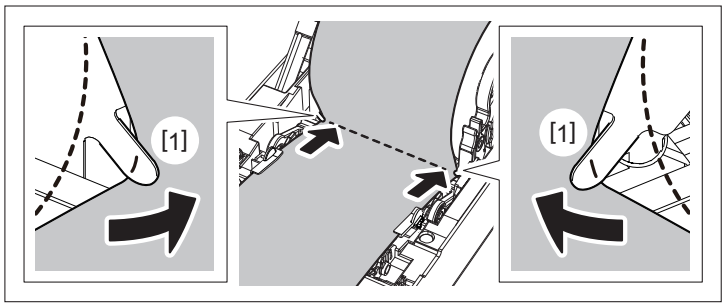
Note

Make sure that the media guides [1] do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

9 Confirm that the media pass under the media guides [1].



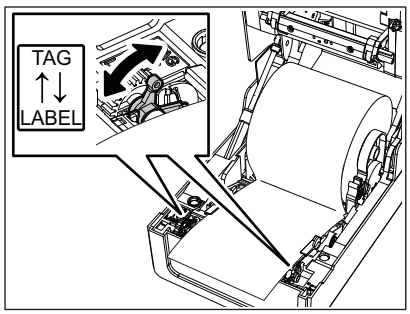
10 In the case of an outer roll media, push the right and left edges of the media to pass it through the outer roll paper hooks [1].



Note

When passing the media through the outer roll paper hooks [1], be careful not to create wrinkles or damage it in any way. Using a media with wrinkles or other damage could cause a print failure.

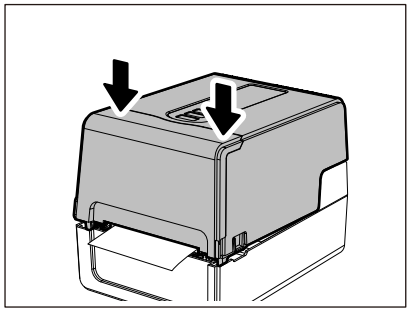
11 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



Note

When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

12 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.



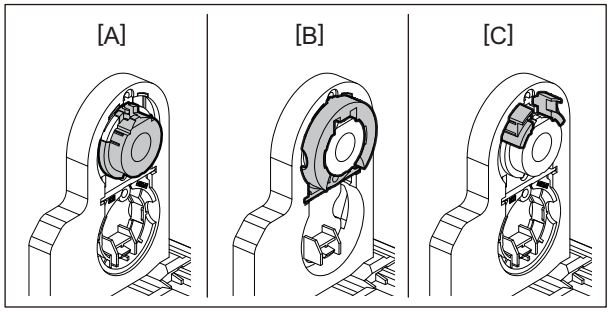
13 Press and hold down the [FEED] button to feed the media by about 10 to 20 cm (3.94" to 7.87") to confirm that the media can be fed correctly.

Tip

When you load media that use the reflective sensor, adjust the position of the reflective sensor.
📖 P.59 “Adjusting the position of the reflective sensor (movable)”

❑ Moving the core holder

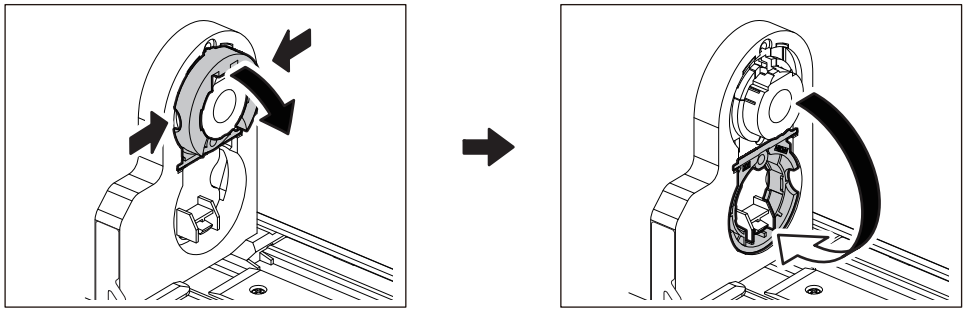
Move the core holder to one of the positions shown in the figure below to match the inner diameter of the media core for the roll media being used.



[A] ϕ25.4 mm (1")
[B] ϕ38 mm (1.5")
[C] ϕ40 mm (1.57"), ϕ42 mm (1.65")

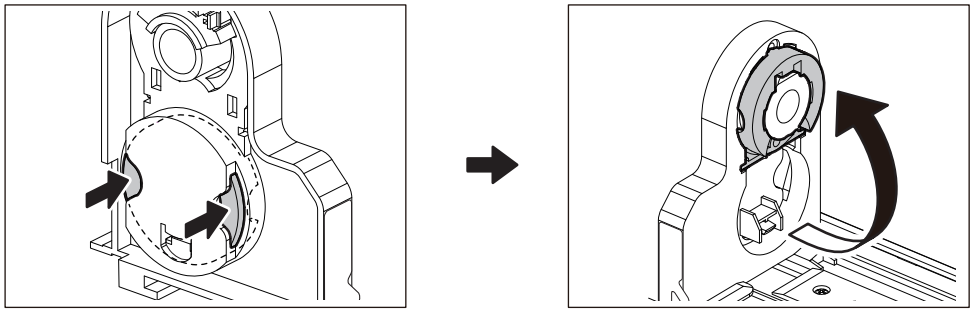
For ϕ25.4 mm (1")

Hold both sides of the ϕ38 mm (1.5") core holder and pull it towards you to house it in the dent below.



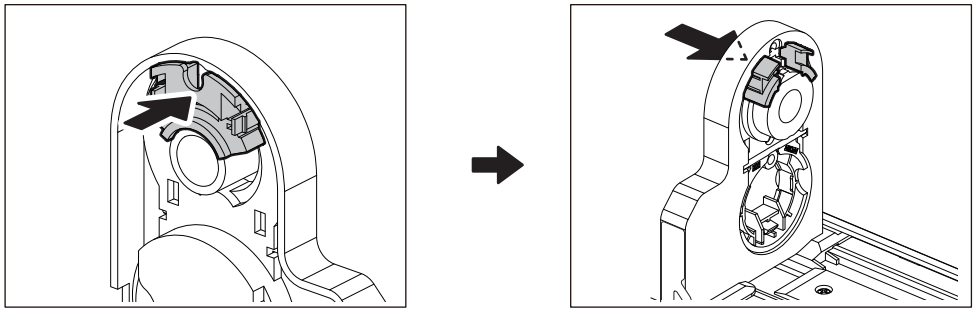
For ϕ38 mm (1.5")

From the outside of the media holder, push out both sides of the ϕ38 mm (1.5") core holder housed in the dent below. Then place it on the core holder above.

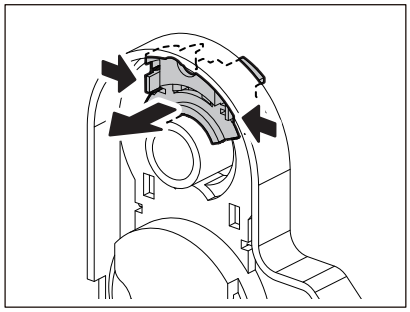


For ϕ40 mm (1.57") and ϕ42 mm (1.65")

From the outside of the media holder, push out the ϕ40 mm (1.57") or ϕ42 mm (1.65") core holder until it “snaps”.



To return the ϕ40 mm (1.57") or ϕ42 mm (1.65") core holder to its original position, push it while holding both sides.



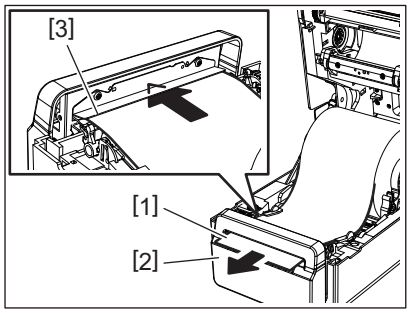
■ Procedure for loading media when the cutter module is attached

⚠ CAUTION

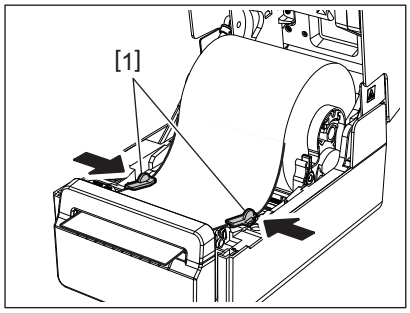
Do not touch the cutter blade directly.
This could cause injury.

1 **Load the media by following steps 1 to 7 of the normal media loading procedure.**

2 **Insert the end [1] of the media into the media slot [3] of the cutter module [2].**



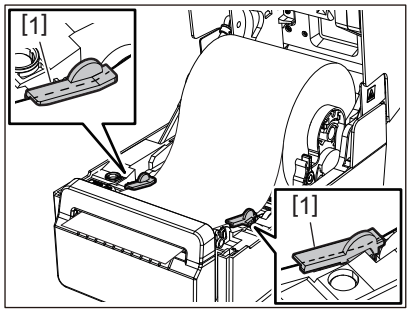
3 **Pass the media under the right and left media guides [1].**



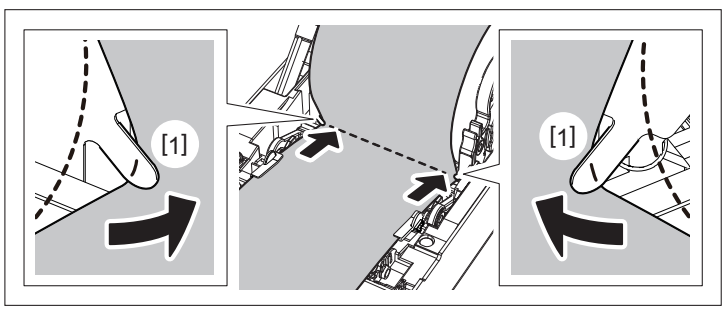
Note

Make sure that the media guides [1] do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

4 **Confirm that the media pass under the media guides [1].**



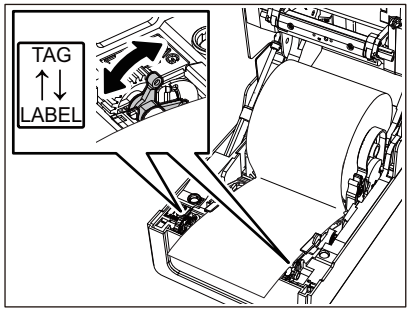
5 **In the case of an outer roll media, push the right and left edges of the media to pass it through the outer roll paper hooks [1].**



Note

When passing the media through the outer roll paper hooks [1], be careful not to create wrinkles or damage it in any way. Using a media with wrinkles or other damage could cause a print failure.

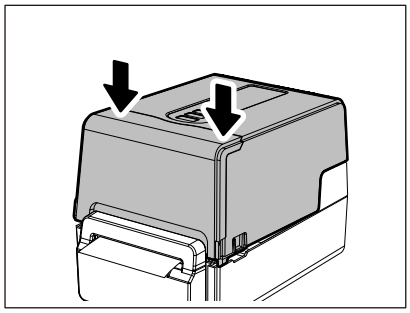
6 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



Note

When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

7 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.

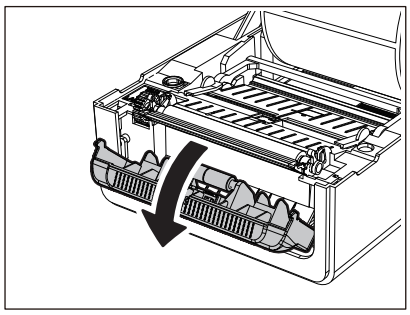


8 Press the [FEED] button to confirm that the media can be cut correctly.

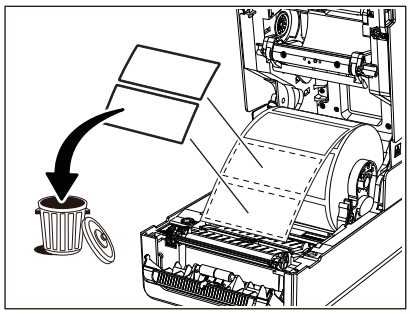
■ Procedure for loading media when the peel-off module is attached

1 **Load a label roll by following steps 1 to 7 of the normal media loading procedure.**

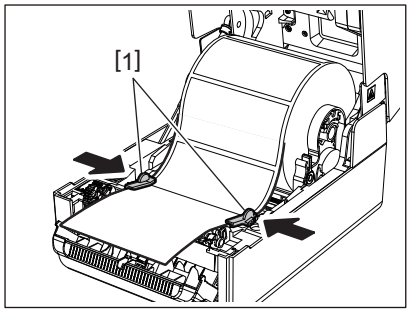
2 **Open the peel-off module.**



3 **Peel off labels from about 200 mm (7.87") of the base from the end of the media.**



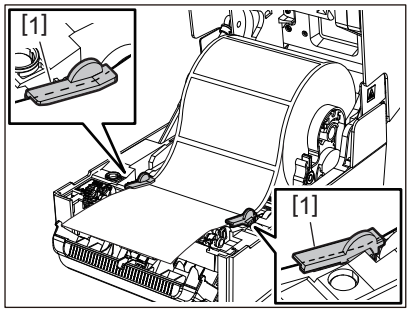
4 **Pass the media under the right and left media guides [1].**



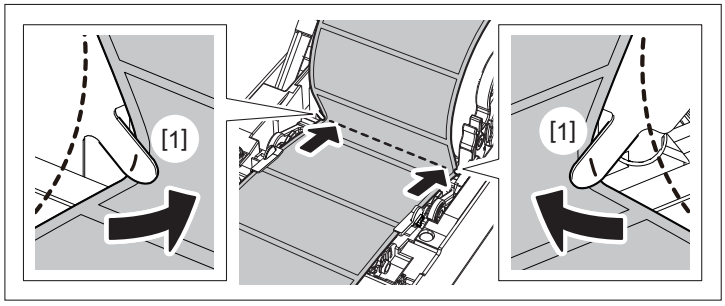
Note

Make sure that the media guides [1] do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

5 **Confirm that the media pass under the media guides [1].**



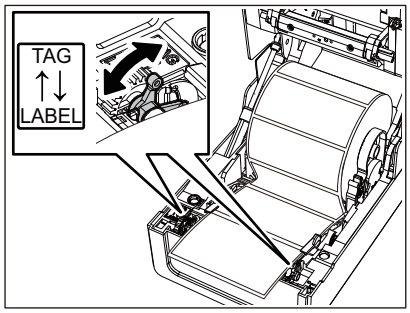
6 In the case of an outer roll media, push the right and left edges of the media to pass it through the outer roll paper hooks [1].



Note

When passing the media through the outer roll paper hooks [1], be careful not to create wrinkles or damage it in any way. Using a media with wrinkles or other damage could cause a print failure.

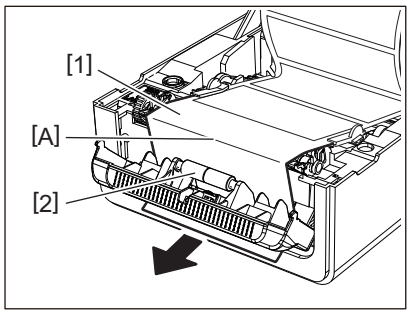
7 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



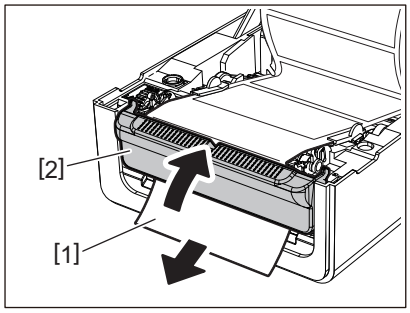
Note

When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

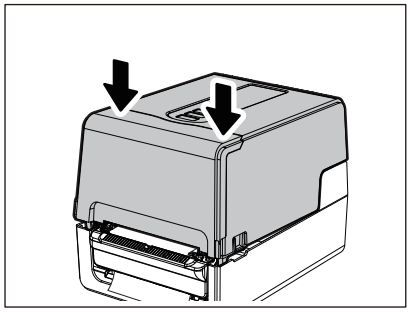
8 Pass the base [1] between the peel-off feed roller [2] and the peel-off plate.



9 If the base is loose, the peel-off module may be opened during operation. Confirm that there is no slack in portion A in the figure above. While pulling the base [1] slightly as in the figure below, close the peel-off module [2].



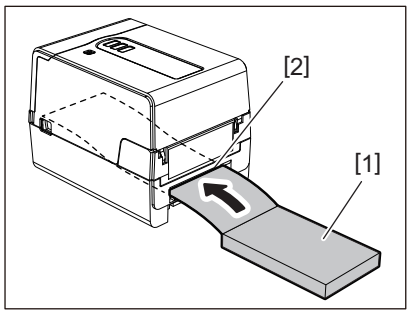
10 **Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.**



11 **Press the [FEED] button to confirm that the label can be removed correctly.**

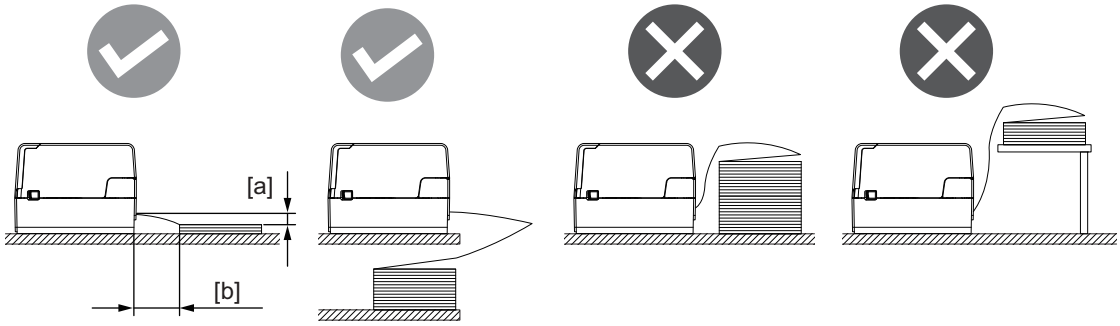
■ Fanfold paper loading procedure

1 **Place fanfold paper [1] behind the rear of the printer and insert the end of it into the media slot [2].**



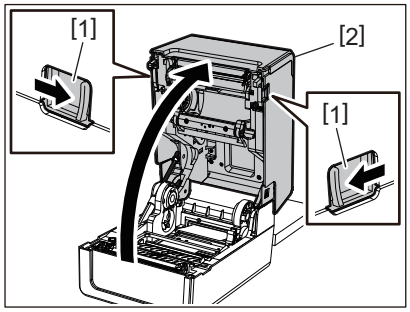
Note

- Place the fanfold paper so that the print side will face upward.
- Place the fanfold paper in parallel to the media slot. Placing it diagonally could cause media feed failures and paper jams.
- Place the fanfold paper so that the top will be at a position [a] lower than the media slot of the printer by at least 10 mm (0.39").
- To place the printer and the fanfold paper on a table of a single height, make sure that the distance [b] between the fanfold paper and the media slot of the printer is at least 100 mm (3.94").



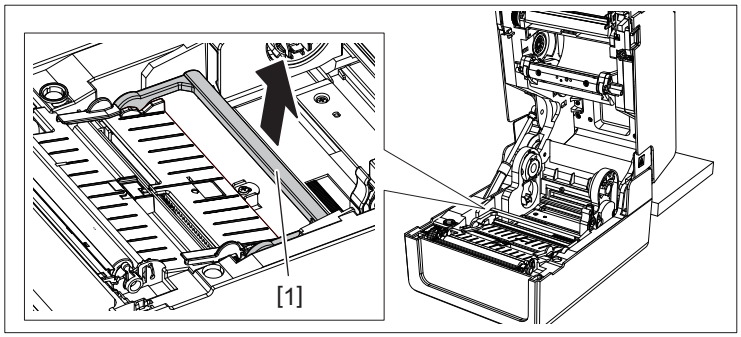
- Make sure that the communication cable, power cable, etc. do not interfere with the fanfold paper.
- If a media feed error occurs, move the media farther away from the printer.

2 While pulling each of the right and left lock release portions [1] in the arrow direction, fully open the top cover [2].

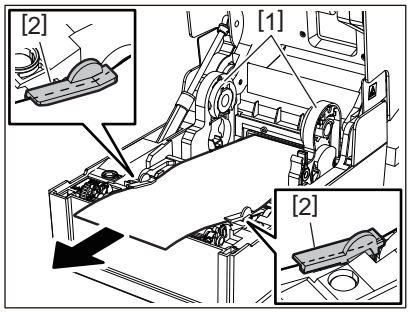


Note

Pull up the paper damper (bottom) [1] to unlock it.



3 Extend the media holder [1] and the media guide [2] to the right and left by aligning them to the paper width. Pass the fanfold paper under the media holder [1] and the media guide [2], and pull it to the media outlet.

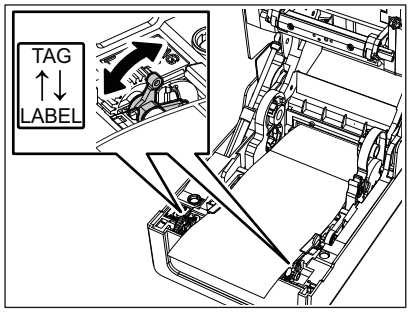


4 By aligning the media holder and the media guide to the paper with, adjust them so that there is no gap between them and the media.

Note

Make sure that the media guides do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

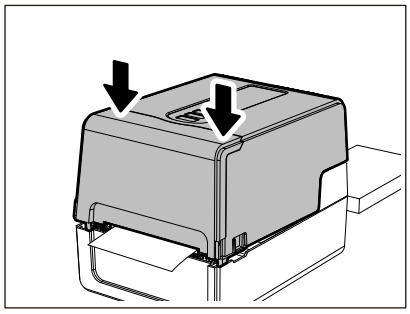
5 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



Note

When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

6 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.

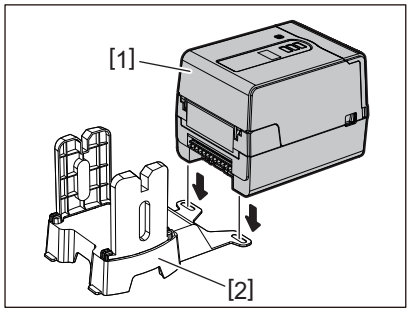


7 Press the [FEED] button to confirm that the media can be fed correctly.

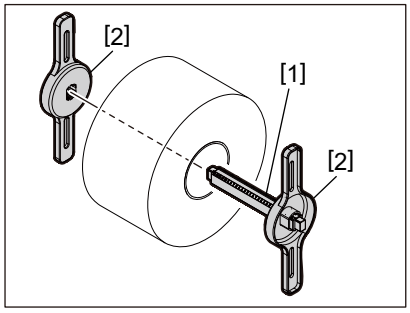
■ Procedure for loading media when using the external media stand

If the outer diameter of the media exceeds 127 mm (5") or the inner diameter of the core is 76.2 mm (3"), place the media in the separately sold external media stand.

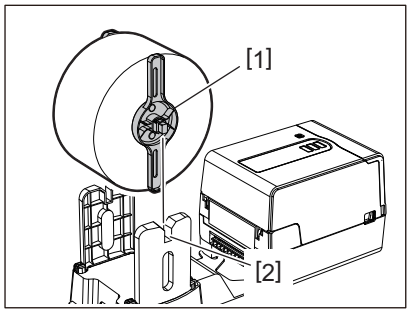
1 Load the external media stand [2] on the supports at the rear of the printer [1].



2 Insert the media shaft [1] into the media core for the roll media and insert the shaft into the hole of the left part of the media holder [2].



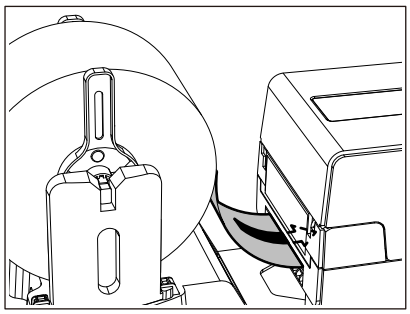
3 Insert the right and left parts of the media holder [1] into the grooves of the external media stand [2].



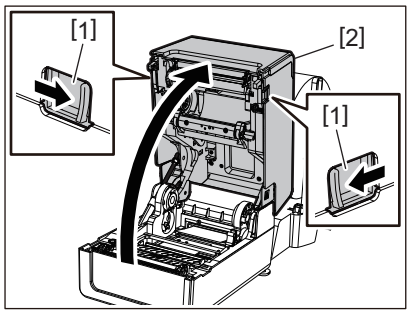
Note

Adjust the position of the roll media so that the roll media will be centered on the media shaft.

4 Insert the end of the media into the media slot.

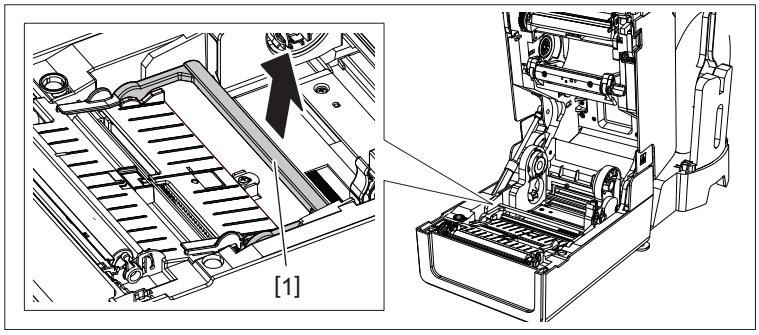


5 While pulling each of the right and left lock release portions [1] in the arrow direction, fully open the top cover [2].

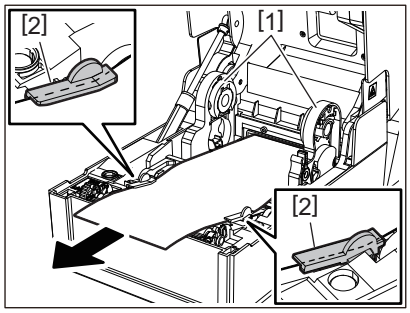


Note

Pull up the paper damper (bottom) [1] to unlock it.



6 Extend the media holder [1] and the media guide [2] to the right and left by aligning them to the paper width. Pass the media under the media holder [1] and the media guide [2], and pull it to the media outlet.

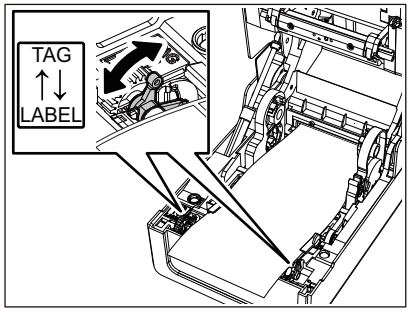


7 By aligning the media holder and the media guide to the paper with, adjust them so that there is no gap between them and the media.

Note

Make sure that the media guides do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

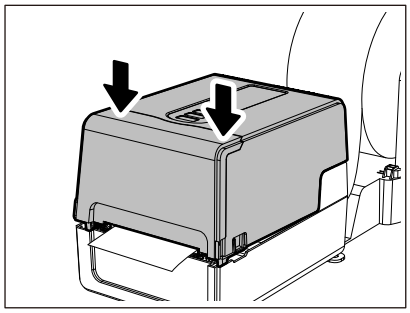
8 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



Note

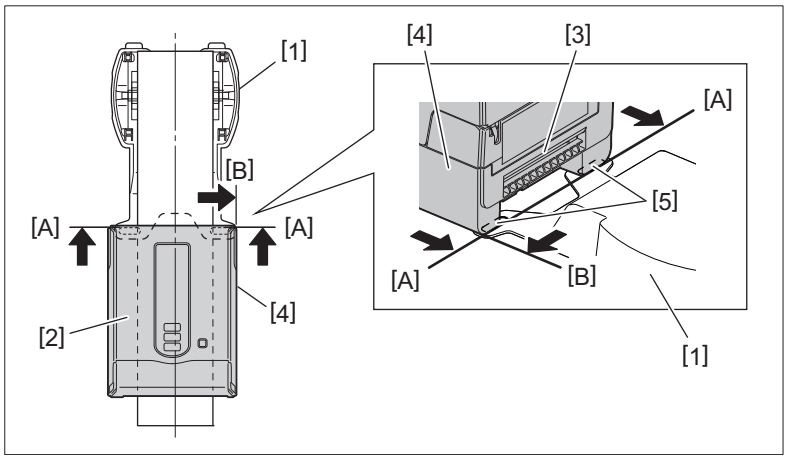
When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

9 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.



10 Adjust the installation position of the printer [2] toward the external media stand [1].

The media slot [3] of the printer is located near the right lateral [4] on its rear side.
Place the printer to the correct position as shown in the figure below.
Align the rear of the printer to the dents [5] (position [A]) of the external media stand.
Align the right lateral [4] of the printer to the position [B].



Note

If the printer [2] is installed by aligning to the left and right centers of the external media stand [1], the print quality may be affected.

11 Press the [FEED] button to confirm that the media can be fed correctly.

Note

- When the top cover is opened and then closed or the media is exchanged, check that the printer is installed in the proper position before printing. Printing with misalignment may affect the print quality.
- Printing of a media with a large-diameter core may result in misalignment of the print position as the media runs low. Adjust the print position by [FEED ADJ.] of the parameter setting menu if necessary.

Loading the ribbon (thermal transfer method)

The printer supports two printing methods, thermal transfer and direct thermal.
The thermal transfer method is a printing method whereby the ink in the ribbon is melted with the heat from the print head and is fixed on the media.
The direct thermal method is a printing method whereby heat is applied from the print head to media containing color formers to create colors.

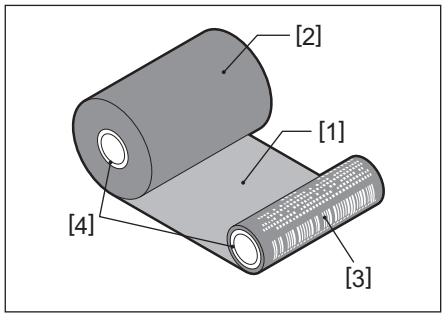
This section explains the procedure for loading a ribbon in the printer.
Use a Toshiba Tec Corporation certified genuine ribbon. For details about ordering a ribbon, contact your service representative.

⚠ CAUTION

Immediately after printing, do not touch the print head or its surrounding area.
This could cause burns.

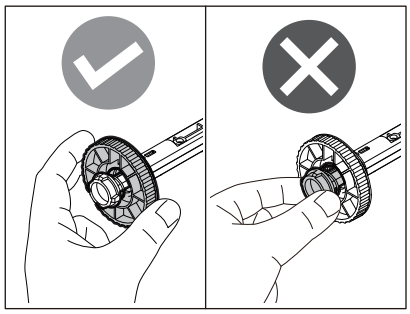
Note

- To print with the direct thermal method, do not load a ribbon. Printing with a ribbon loaded could damage the print head and could also cause the melted ribbon to adhere to the print head, requiring the replacement of the print head (for a fee).
- A ribbon has a back side [1] and a front side (ink side). Load it carefully. If you print by loading it the wrong way, printing not only fails but also requires the replacement of the print head (for a fee).
- To tell the unused roll of the partially used ribbon from the used roll, refer to the table below. For a new ribbon, the one with a large diameter is the unused roll.

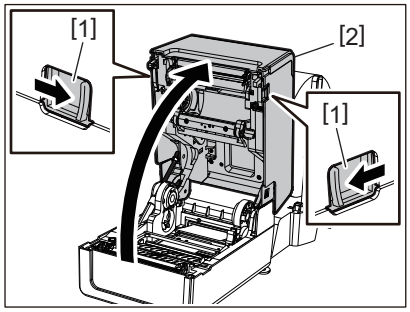


1. Back side
2. Ribbon (unused roll)
3. Ribbon (used roll)
4. Core

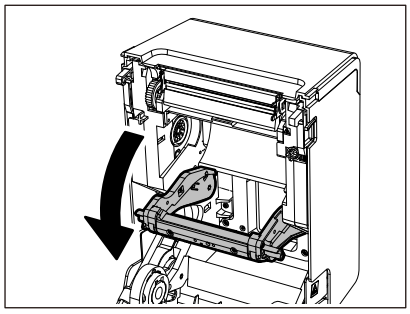
- To hold the ribbon spooler, hold the green portion. Handling it by holding the black protrusion at the end could cause malfunctions.



1 **While pulling each of the right and left lock release portions [1] in the arrow direction, fully open the top cover [2].**



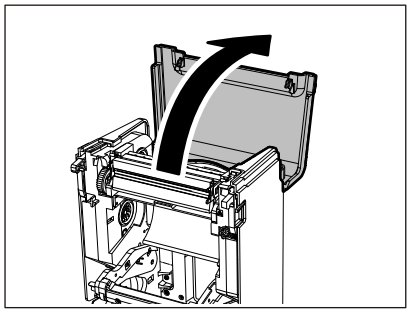
2 **Push down the media damper (top).**



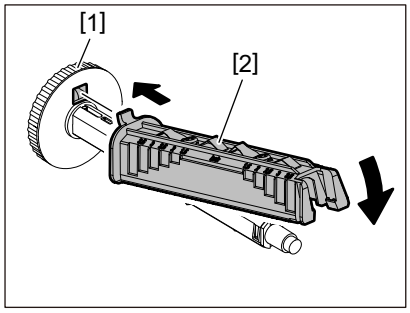
Note

Push down the media damper (top) gently. Holding or pulling the media damper (top) strongly could cause malfunctions.

3 **Open the ribbon cover.**



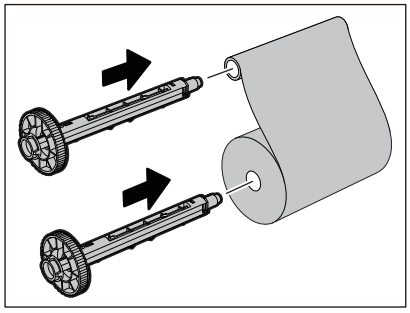
4 **If the ribbon core diameter is 25.4 mm (1"), mount the ribbon spooler attachment [2] on the ribbon spooler [1].**



Note

The ribbon core diameter is either 25.4 mm (1") or 12.7 mm (0.5"). If the ribbon core diameter is 12.7 mm (0.5"), do not use the ribbon spooler attachment.

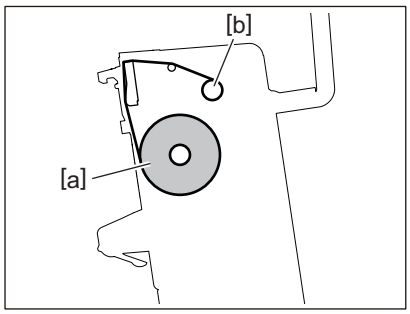
5 Insert the ribbon spoolers into the ribbon cores.



Note

- Insert the ribbon spoolers into both supply side roll core and take-up side roll core.
- If the width of the ribbon used is the same as that of the ribbon cores, make sure that the ribbon is centered on the ribbon spoolers.

6 Load the ribbon according to the figure below.

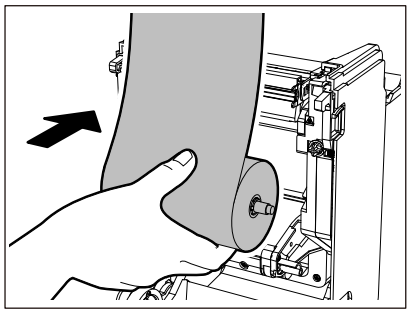


- [a] Supply side
- [b] Take-up side

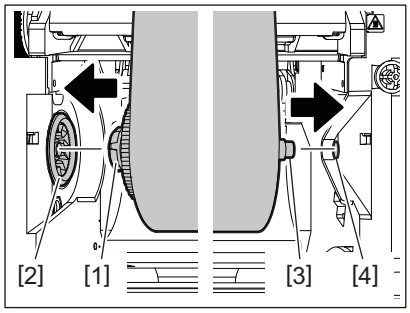
Note

Pay attention to the front and back sides of the ribbon.

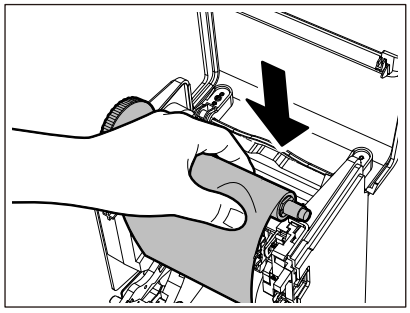
7 Mount the supply side roll of the ribbon on the guide.



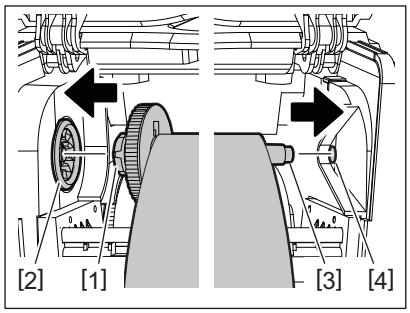
1. Fit the left side [1] of the ribbon spooler inserted into the roll in the guide wheel [2].
2. Fit the right side [3] of the ribbon spooler in the guide hole [4].



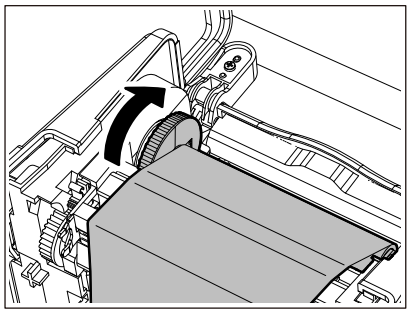
8 Mount the take-up side roll of the ribbon on the guide.



1. Fit the left side [1] of the ribbon spooler inserted into the roll in the guide wheel [2].
2. Fit the right side [3] of the ribbon spooler in the guide hole [4].

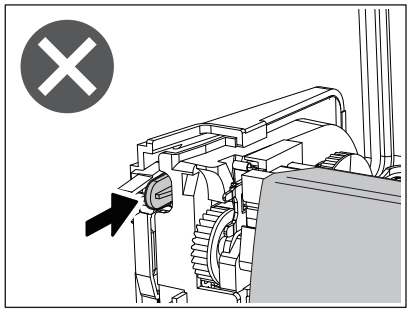


9 Rotate the ribbon spooler in the upward direction to remove any slack in the ribbon.

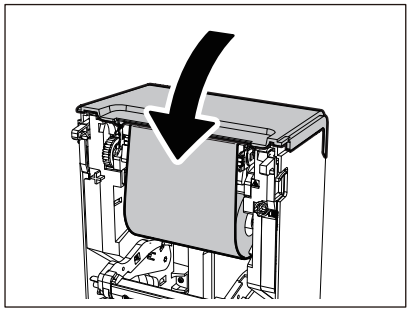


Note

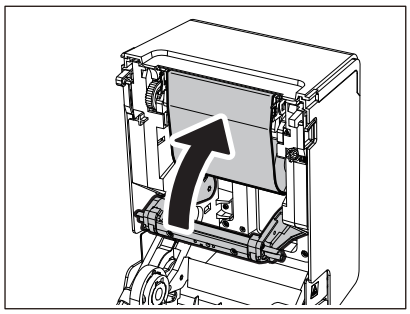
- Any slack in the ribbon could cause poor print quality. After removing the slack in the ribbon, turn the ribbon spooler two more times to ensure that all the slack in the ribbon is removed.
- The portion of the ribbon that you touched when loading the ribbon may have poor printing quality. Thus, rotate the ribbon spooler until the portion you touched passes the print head passing position.
- Pressing the lever in the figure below releases the ribbon spooler reverse rotation preventing lock, giving the ribbon a slack. Be careful not to press the lever by mistake after winding the ribbon.



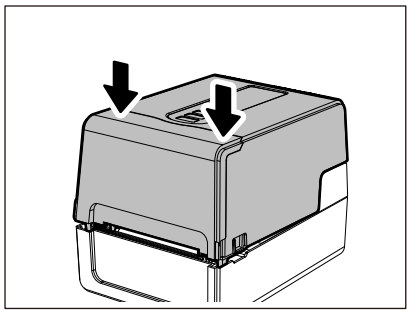
10 **Close the ribbon cover until it “snaps” into place.**



11 **Raise the media damper (top).**



12 **Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.**



13 **Press the [FEED] button once.**

Note

If any print wrinkles occur, press [FEED] button a few more times.

14 **Perform [<7>RIBBON CORE I.D].**
For details about [<7>RIBBON CORE I.D], refer to “Key Operation Specification”.

Adjusting the position of the media detection sensor

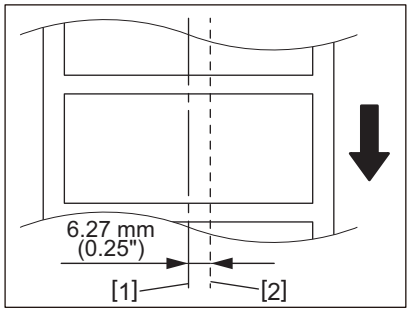
To ensure that the media are fed correctly, the printer is equipped with two types of media detection sensor: reflective sensor (movable), which detects the black marks printed on the back side of media, and transmissive sensor (fixed), which detects the gap between labels.
Adjust the position of the reflective sensor to match the position of the black mark. If it is not adjusted to a correct position, the printer cannot issue the media because it cannot detect the rear end of the media, displaying the “PAPER JAM ****” message and resulting in an error. If you changed the media type or quality, adjust the sensitivity of the media sensor.
For details, refer to “Key Operation Specification”.

⚠ CAUTION

Immediately after printing, do not touch the print head or its surrounding area.
This could cause burns.

■ Confirming the position of the transmissive sensor (fixed)

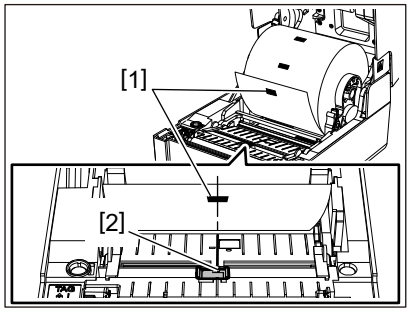
The transmissive sensor is fixed at a position [2] 6.27 mm (0.25") to the right of the media center [1].



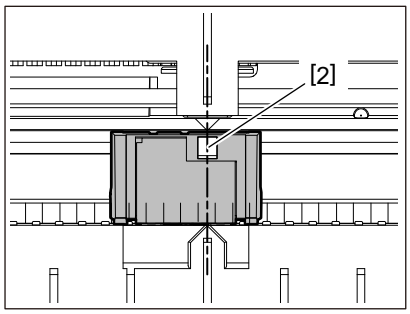
■ Adjusting the position of the reflective sensor (movable)

1 **Open the top cover.**

2 **Pull out the media by about 15 cm (5.91") and fold the media so that the black mark [1] at the back side of the media will face upward.**

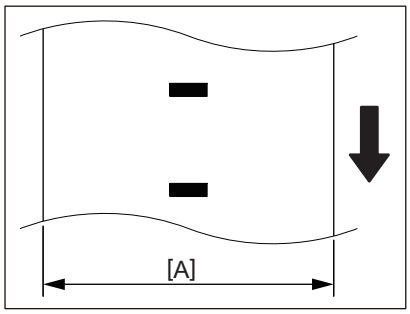


3 **Align the center of the reflective sensor [2] with the center line of the black mark.**



Tip

The reflective sensor is movable from one end of the media to the other.



[A]: Range in which the reflective sensor can be moved

3

Daily Maintenance

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Print head.....63
Media detection sensors.....63
Platen unit.....64
Media housing.....64
Cutter module (option).....65
Peel-off module (option).....65

Daily maintenance

Clean the printer periodically (at each media replacement) to ensure that clear prints can always be obtained.
The print head and the platen unit, in particular, can easily get dirty. Clean them with the procedure below.

⚠ WARNING

Do not splash water directly or clean with a cloth containing a large amount of moisture.
Allowing water to enter inside the printer could cause fire and electric shock.

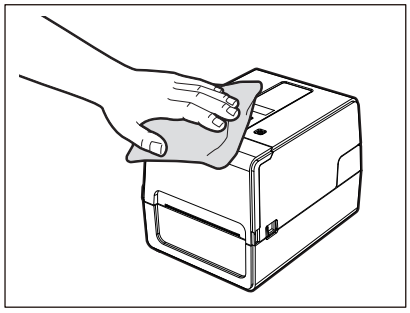
⚠ CAUTION

- **Turn off the POWER button and unplug the power plug from the electric outlet.**
  Cleaning with the power on could cause fire and electric shock.
- **Do not clean the printer with a cleaner that contains paint thinner, benzine, and flammable gas, for example.**
  This could cause fire.
- **Immediately after printing, do not touch the print head or its surrounding area.**
  This could cause burns.

■ Cover

1 **Turn off the POWER button and unplug the power plug from the electric outlet.**

2 **Wipe dirt off the cover with a dry, soft cloth.**
Wipe any particularly conspicuous dirt with a soft cloth containing a small amount of water.



Note

Never use paint thinner, benzine, or other chemicals. Using them could cause discoloration of the cover and breakage of plastic parts.

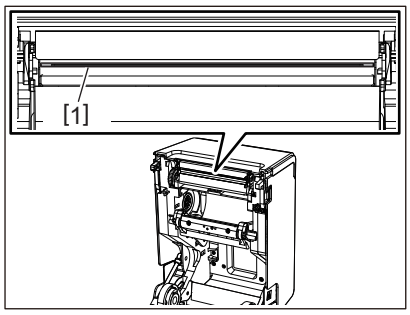
■ Print head

1 Turn off the POWER button and unplug the power plug from the electric outlet.

2 Open the top cover.

3 Clean the print head (hatched portion).

Wipe dirt off the heating portion [1] (hatched portion) of the print head with the separately sold head cleaner pen, commercially available cotton swab, or a soft cloth containing a small amount of anhydrous ethanol.



Tip

Order the separately sold head cleaner pen from your service representative.

Note

- Do not damage the print head with a sharp object. This could cause print failures and malfunctions.
- Do not touch the heating portion of the print head directly. This could cause electrostatic damage and corrosion.
- Never use chemicals such as thinner or benzine. This could cause print failures and malfunctions.

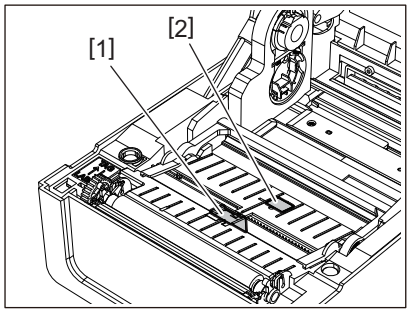
■ Media detection sensors

1 Turn off the POWER button and unplug the power plug from the electric outlet.

2 Open the top cover and take out the media.

3 Clean the reflective sensor [1] with a soft cloth containing a small amount of anhydrous ethanol or a cotton swab.

Wipe paper powder and dust with a dry, soft cloth.



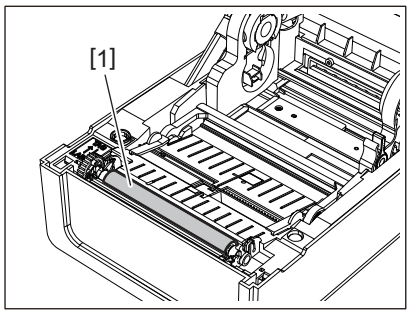
4 Remove paper powder and dust from the transmissive sensor (bottom) [2] with a commercially available cleaning brush.

Note

- Do not damage the sensor with a sharp object. This could cause print failures and malfunctions.
- Never use paint thinner, benzine, or other chemicals. This could cause print failures and malfunctions.

■ Platen unit

1. **Turn off the POWER button and unplug the power plug from the electric outlet.**
2. **Fully open the top cover.**
3. **Wipe dirt off the platen unit [1] a soft cloth containing a small amount of anhydrous ethanol.**
   Conduct cleaning for each roll of media.

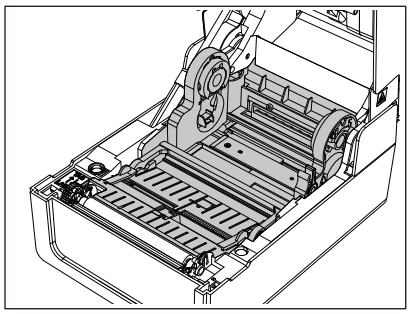


Note

- Do not damage the platen unit with a sharp object. This could cause print failures and malfunctions.
- Never use chemicals such as thinner or benzine. This could cause print failures and malfunctions.

■ Media housing

1. **Turn off the POWER button and unplug the power plug from the electric outlet.**
2. **Open the top cover and take out the media.**
3. **Wipe paper powder and dust off the media housing with a dry, soft cloth.**
   If the dirt cannot be removed, wipe the dirt off with a soft cloth moistened with a neutral detergent diluted with water. After cleaning, wipe the neutral detergent completely with a cloth moistened with water and wrung firmly. Conduct cleaning for each roll of media.



Note

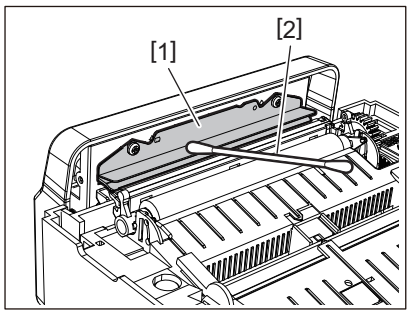
Never use chemicals such as thinner or benzine. This could discolor and deteriorate the media enclosure.

■ Cutter module (option)

⚠ CAUTION

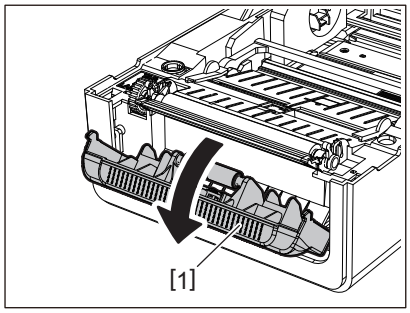
Do not touch the cutter blade directly.
This could cause injury.

1. **Turn off the POWER button and unplug the power plug from the electric outlet.**
2. **Open the top cover and take out the media.**
3. **Clean the cutter guide [1] with a soft cloth moistened with dehydrated ethanol or a cotton swab [2].**

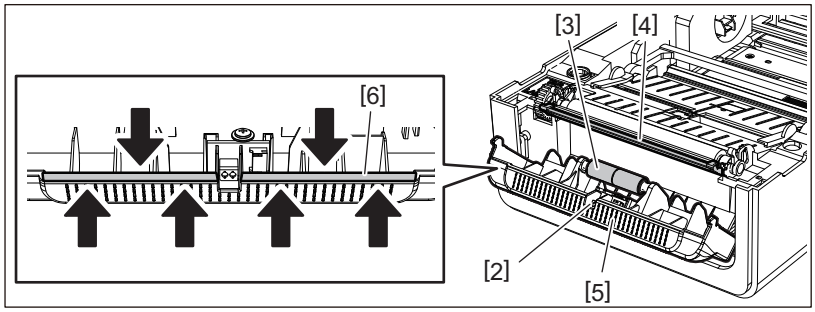


■ Peel-off module (option)

1. **Turn off the POWER button and unplug the power plug from the electric outlet.**
2. **Open the top cover and open the peel-off module [1].**



3. **Wipe dust and dirt around the peel-off sensor [2] and the media outlet with a dry, soft cloth.**
4. **Wipe off any dirt on the peel-off roller [3] as well as any glue adhering to the peel bar [4] and the top surface [5] or the edge [6] of the peel-off module with a soft cloth moistened with dehydrated ethanol.**



Note

- Do not damage the peel-off roller or the peel-off sensor with a sharp object. This could cause issuance failures and malfunctions.
- Never use chemicals such as thinner or benzine. Using them could cause malfunctions.
- Conduct cleaning for each roll of media.

4

Troubleshooting

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Troubleshooting

If any problems occur during use, check the following.
If the printer is not restored to normal, turn off the POWER button, unplug the power cable from the electric outlet, and consult with your service representative.

■ Error messages (BV410T)

If an error message appears, take action according to the details of the error.
Taking action for the error cause and then pressing the [RESTART] button causes the error to be removed.

Display	Cause	Action
PAPER JAM	The media are not loaded correctly.	Load the media correctly. 🕮 P.37 “Loading the media”
	During issuance, a paper jam occurred.	Remove the media jam, load the media again, and press the [RESTART] button. 🕮 P.76 “If the media are jammed”
	The media are not fed correctly.	Load the media again and press the [RESTART] button to continue printing where it left off. 🕮 P.37 “Loading the media”
	Media with a size different from that specified in the program are loaded.	Load media with the specified size and press the [RESTART] button.
	The reflective sensor does not detect the black marks.	Adjust the position of the reflective sensor. 🕮 P.59 “Adjusting the position of the reflective sensor (movable)” If the position is correct, adjust the sensor level or set the threshold. For details, refer to “Key Operation Specification”. If the problem recurs, turn off the power and contact the service personnel.
	The transmissive sensor does not detect the transmissive between labels.	Adjust the sensor level or set the threshold. For details, refer to “Key Operation Specification”. If the problem recurs, turn off the power and contact the service personnel.
	Media of a type not suitable for the sensor specified in the program are set.	Load the media suitable for the specified sensor and press the [RESTART] button.
	Media with a size other than the specified one or not suitable for the sensor were loaded and the [FEED] button was operated.	Load media with the specified size or suitable for the sensor and press the [RESTART] button.
	By using media that have both black marks and inter-label gaps, automatic media measurement was conducted with [CALIBRATE] set to [ON ALL] or [ON ALL+BackFeed].	To conduct automatic media measurement by using media that have both black marks and inter-label gaps, set [CALIBRATE] to either [ON REFLECTIVE] or [ON TRANS+BackFeed]. For details, refer to “Key Operation Specification”.
NO PAPER	The media were used up.	Load new media and press the [RESTART] button to continue printing where it left off. 🕮 P.37 “Loading the media”
	No media are loaded.	Load the media correctly. 🕮 P.37 “Loading the media”
	The detection level of the media sensor does not match the media.	Adjust the sensor by using the media used. For details, refer to “Key Operation Specification”.

Display	Cause	Action
RIBBON ERROR	The ribbon is not loaded correctly.	Load the ribbon correctly. 📖 P.53 “Loading the ribbon (thermal transfer method)”
	The ribbon has a slack.	Rotate the ribbon spooler in the upward direction to remove the slack in the ribbon. 📖 P.53 “Loading the ribbon (thermal transfer method)”
	The ribbon was cut off in the middle.	Paste the cut-off portions of the ribbon together or replace it with a new one. 📖 P.77 “If the ribbon is cut off in the middle” 📖 P.53 “Loading the ribbon (thermal transfer method)”
	The ribbon has run out.	Load a new ribbon and press the [RESTART] button to continue printing where it left off. 📖 P.53 “Loading the ribbon (thermal transfer method)”
	The ribbon is jammed inside.	Load the ribbon again and press the [RESTART] button to continue printing where it left off. 📖 P.53 “Loading the ribbon (thermal transfer method)”
	The ribbon drive sensor is faulty.	Turn off the power and contact the service personnel.
HEAD OPEN	During issuance or media feed, the top cover or the ribbon cover opened.	Close the top cover or the ribbon cover securely.
HEAD ERROR	A disconnection error occurred in the print head. Or, an error occurred in the print head driver.	Turn off the power and contact the service personnel.
EXCESS HEAD TEMP.	The temperature of the print head is too high.	Turn off the POWER button and wait until the temperature reduces. If the problem recurs, turn off the power and contact the service personnel.
COMMS ERROR	During RS-232C communication, a parity error or a framing error occurred.	Make sure that the communication settings on the connected computer side match those on the printer side.
MEMORY WRITE ERR.	An error occurred in writing to the registration memory (USB memory or flash ROM on the CPU board).	Turn off the POWER button and then on again and retry writing. Check the details of the command to register. If the problem recurs, turn off the power and contact the service personnel.
FORMAT ERROR	An error occurred in formatting the registration memory (USB memory or flash ROM on the CPU board).	Turn off the POWER button and then on again and retry formatting. Check the details of the command to register. If the problem recurs, turn off the power and contact the service personnel.
MEMORY FULL	Registration fails because the registration memory (USB memory or flash ROM on the CPU board) does not have enough free space.	Turn off the POWER button and then on again. Confirm the free memory space and the size of the data to register. If the problem recurs, turn off the power and contact the service personnel.
PASSWORD INVALID	The password was entered incorrectly three times in a row.	Turn off the POWER button and then on again.
POWER FAILURE	An instantaneous power outage occurred.	Turn off the POWER button and then on again.

Display	Cause	Action
CUTTER ERROR	A paper jam occurred in the cutter.	Remove the media jam, load the media again, and press the [RESTART] button to continue printing where it left off. 📖 P.76 “If the media are jammed”
	The cutter module cover is open.	Close the cutter module cover securely.
	Due to a cutter fault, the cutter does not move from the home position.	Contact the service personnel.
INTERNAL COM ERR	A hardware error occurred in the internal serial interface port.	Turn off the POWER button and then on again.
SYSTEM ERROR ## (##: 2-digit number)	An operation such as the following was performed: • Fetch an instruction from an odd-numbered address • Access word data from other than a word data boundary • Access long word data from other than a long word data boundary • Access the 80000000H to FFFFFFFFH area in the logical space in user mode • Decode an undefined instruction inside/outside a delay slot • Decode an instruction or rewriting in a delay slot	Turn off the POWER button and then on again. If the problem recurs, turn off the power and contact the service personnel.
RFID CONFIG ERR	The region setting for RFID has not been configured.	Configure the region setting for RFID. For details, refer to “Key Operation Specification”.
SYNTAX ERROR SYNTAX ERROR PC001; 0A00, 0300, 2, 2, A, 00.	If up to 42 alphanumeric characters are displayed, a command error has occurred.	Turn off the POWER button and then on again and send the correct command again. 📖 P.73 “Command error”
RFID ERROR	Unable to communicate with the RFID module.	Turn off the POWER button and then on again. If the problem recurs, turn off the power and contact the service personnel.

Display	Cause	Action
RFID WRITE ERROR	Writing RFID data failed a certain number of times in a row.	Press the [RESTART] button to write RFID data to the next label. If the problem recurs, turn off the power and perform the following confirmation and investigation. • Confirm the positional relationship between the RFID tag and the RFID antenna of the printer. If the tag is at a position at which data cannot be written, make adjustment on the issuing software side by using the pre-RFID-issuance write feed amount setting command. • Confirm that the RFID tag supported by the RFID kit is used. • Increase the number of RFID write retries/ time. • Set the RFID write retry position fine-tune value to ±3 mm (0.12") or grater and enable retries. • Replace the RFID label. If an error occurs even after the above actions, the RFID module may be faulty. Turn off the power and contact the service personnel.
Other error messages	A problem has occurred in hardware or software.	Turn off the POWER button and then on again. If the problem recurs, turn off the power and contact the service personnel.

■ ERROR lamp status (BV420T)

If the ERROR lamp lights/blinks, refer to the following information and take action.

When the ERROR lamp lights

- A communication error has occurred. (Only when the RS-232C is used.)
- The following error related to paper occurred.
  - Media jamming has occurred.
  - The media is not loaded correctly.
  - The media sensors differing from the media to be used are selected.
  - The black mark sensor is not correctly aligned to the black marks on the media.
  - The size of the loaded media differs from that for the specified paper size.
  - The media sensor level is not suitable for the actual media.
  - The gap of the pre-printed label cannot be detected.
  - Media jamming has occurred in the cutter unit.
  - No media is left.
- Printing or media feeding is attempted while the top cover is opened.
- There is a problem in the print head.
- The temperature of the print head has exceeded the upper limit.
- An error has occurred during writing into the flash ROM.
- An error has occurred during initialization of the flash ROM.
- Saving has failed due to the flash ROM having insufficient blank space.
- An improper command such as a print command has been received while the firmware is being upgraded in the download mode.
- When any abnormal operations as below are performed, a system error occurs.
  - Command fetch from an odd address.
  - Access to the word data from a place other than the boundary of the word data.
  - Access to the long word data from a place other than the boundary of the long word data.
  - Access to the area of 80000000H to FFFFFFFFH in the logic space in the user system mode.
  - Undefined command placed in other than the delay slot has been decoded.
  - Undefined command in the delay slot has been decoded.
  - Command to rewrite the delay slot has been decoded.
- The following error related to the ribbon occurred.
  - The ribbon has ended.
  - The ribbon is jammed.
  - The ribbon broke.
  - Ribbon is not attached.

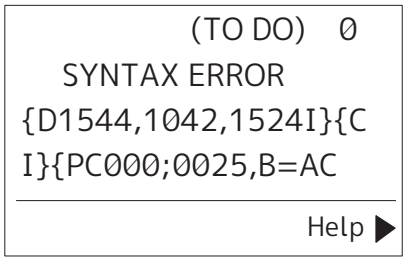
When the ERROR lamp blinks

There are few ribbons left.

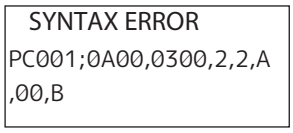
❑ Command error

If a command sent from the computer has an error, 42 bytes are displayed in the third and fourth digits, starting with the command code of the command that has an error. [LF], [NUL], and any portion that exceeds 42 bytes are not displayed.

Command error display examples



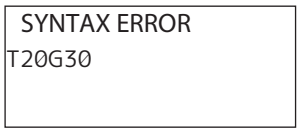
Example 1:



[ESC]PC001;0A00,0300,2,2,A,00,B[LF][NUL]
[1]

1. Command error

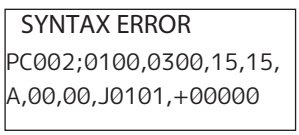
Example 2:



[ESC]T20G30[LF][NUL]
[1]

1. Command error

Example 3:



[ESC]PC002;0100,0300,15,15,A,00,00,J0101,+000000000A,Z10,P1[LF][NUL]
[1]

1. Command error

Tip

When a command error is displayed, codes other than 20H to 7FH and A0H to DFH are displayed as " ?" (3FH).

■ If the printer does not operate correctly

Symptom	Cause	Action
The power is not supplied even though the power is turned on.	The AC adapter is disconnected from the printer.	Insert the AC adapter into the power jack securely. 📖 P.20 “Connecting the AC adapter/power cable”
	The power plug is disconnected from the electric outlet.	Insert the power plug fully and securely into the electric outlet. 📖 P.20 “Connecting the AC adapter/power cable”
	A power outage occurs or the power is not supplied to the electric outlet.	Confirm whether the power is supplied, using another electric appliance. If the power is not supplied, consult with the nearest power company.
	The fuse or the circuit breaker in the building is blown.	Inspect the fuse and the circuit breaker.
The media are not issued.	The media are not loaded correctly.	Load the media correctly. 📖 P.37 “Loading the media”
	The top cover is not closed securely.	Close the top cover securely.
	The communication cable is disconnected.	Confirm the connection states on the printer side and the computer side and connect the communication cable securely. 📖 P.22 “Connecting to a computer”
	The media detection sensors are dirty.	Clean the media detection sensors. 📖 P.63 “Media detection sensors”
The media are not printed.	Direct thermal media are not loaded although the direct thermal method is selected.	Load direct thermal media. 📖 P.37 “Loading the media”
	The media are not loaded correctly.	Load the media correctly. 📖 P.37 “Loading the media”
	No print data is sent from the computer.	Send print data.
Printing is blurry.	Toshiba Tec Corporation certified media are not used.	Replace the media with Toshiba Tec Corporation certified ones. 📖 P.84 “Media”
	The print head is dirty.	Clean the print head. 📖 P.63 “Print head”
	The density setting of the print head is low.	Set the density to high with the density fine-tuning parameter. For details, refer to “Key Operation Specification”.
	The print speed is too high depending on what to print.	If printing is blurry if ruled lines and reversed characters are printed at a maximum speed, reduce the print speed. For details, refer to “Key Operation Specification”.
	The printer has been left unused for a long time with the top cover closed, so that the media are deformed where they are sandwiched between the print head and the platen unit.	If the printer is to be left unused for a long time, such as weekends and long vacations, open the top cover.

Symptom	Cause	Action
There are broken letters.	The print head is dirty.	Clean the print head. 📖 P.63 “Print head”
	Part of the heating portion of the print head is disconnected.	Turn off the power, unplug the power plug from the electric outlet, and contact the service personnel.
	The media stuck to the print head when the print rate or the print density was high.	You can keep the print head from sticking by changing the printing conditions appropriately. • Reduce the number of dots to be printed at a time. • Fine-tune the print density to a lower value. • Increase the print speed setting.
Printing is elongated or contracted.	Printing is attempted by using an inner roll media, a roll media which is set on the external media stand or a fanfold paper while the media damper (bottom) is locked.	Release the lock of the media damper (bottom). 📖 P.38 “Media loading procedure”
Scanning of the printed serial barcode (ladder barcode) and 2 dimensional codes is poor.	Depending on the printing conditions, the print quality may deteriorate and scanning may become poor.	You can improve the print quality by changing the printing conditions appropriately. • Lower the print density. • Decrease the print speed setting. • Increase the cell size (module size). • Locate the barcode at least 10 mm away from the print start position.
Scrap of ribbon stick to the media.	When data that partially has a high print rate, such as serial barcodes, was printed continuously, ribbon debris stuck to the media due to the heat accumulated in the print head.	You can keep scrap of ribbon from sticking by changing the printing conditions appropriately. • Change the print pattern. • Fine-tune the print density to a lower value. • Lower the print speed setting.
A media feed error occurs immediately after the media are issued.	The printer has been left unused for a long time with the top cover closed, so that the media are deformed where they are sandwiched between the print head and the platen unit.	If the printer is to be left unused for a long time, open the top cover.
The label is not peeled off. (When the peel-off module is attached)	Toshiba Tec Corporation certified media are not used.	Replace the media with Toshiba Tec Corporation certified ones. 📖 P.84 “Media”
	The media are not loaded correctly.	Load the media correctly. 📖 P.37 “Loading the media”
The corners of the labels are folded. (When the peel-off module is attached)	Under certain conditions in the printing operation, it has become easy for the labels to be peeled off, folding their corners.	Use the printer while the media damper (bottom) is locked. 📖 P.38 “Media loading procedure”
The media are not cut neatly. (When the cutter module is attached)	The cutter blade is dirty.	Clean the cutter blade. 📖 P.65 “Cutter module (option)”
	The cutter blade has expired.	Turn off the power, unplug the power plug from the electric outlet, and contact the service personnel.

Symptom	Cause	Action
The ribbon is wrinkled.	There is more print data on either the right or left side.	Open the top cover and rotate the ribbon take-up dial in the upward direction to feed the ribbon to a position where the wrinkles disappear. Review the placement of the print format so that there will be equal amounts of print data on the right and left sides.
	Shrinkage has occurred in areas of the ribbon with high print rates.	Set [High reliability mode] to ON from BCP Setting Tool. The shrinkage of the ribbon can be suppressed; however, the throughput will become lowered.
During printing operation, operation is momentarily stopped and then printing is resumed.	When high-density printing continued, operation was temporarily stopped to keep the performance of the printer.	This is not a fault. Continue to use the printer.
During printing operation, operation is stopped for a few seconds and then printing is resumed.	When the temperature of the print head exceeded the specified value, operation was temporarily stopped to keep the performance of the printer.	This is not a fault. Continue to use the printer.
Wireless LAN connection fails.	The wired LAN/wireless LAN settings are not made correctly.	Confirm whether the settings are correct. For details, refer to “Key Operation Specification”. If the problem persists, contact the service personnel.
	Unable to make a connection to a wireless LAN access point.	For details about the establishment of an access point, refer to the instruction manual for the wireless LAN access point used.
A wireless LAN communication error occurs immediately after the power is turned on.	Wireless LAN communication is unavailable immediately after the power is turned on.	After turning on the power, start communication at least 10 seconds after the ONLINE lamp turns on.

■ If the media are jammed

If the media are jammed inside the printer, remove the jam by following the procedure below.

⚠ WARNING

Turn off the POWER button and unplug the power plug from the electric outlet.
Cleaning with the power on could cause fire and electric shock.

⚠ CAUTION

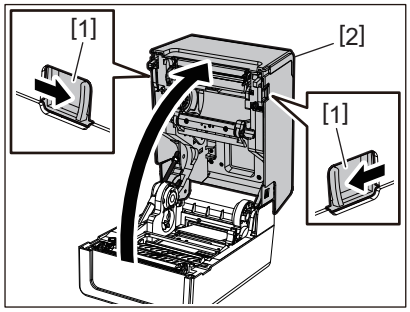
Immediately after printing, do not touch the print head or its surrounding area.
This could cause burns.

Note

- Do not damage the print head or the platen unit with a sharp object. This could cause print failures and malfunctions.
- Do not touch the heating portion of the print head directly. This could cause electrostatic damage to the print head.

1 Turn off the POWER button and unplug the power plug from the electric outlet.

2 **While pulling each of the right and left lock release portions [1] in the arrow direction, fully open the top cover [2].**

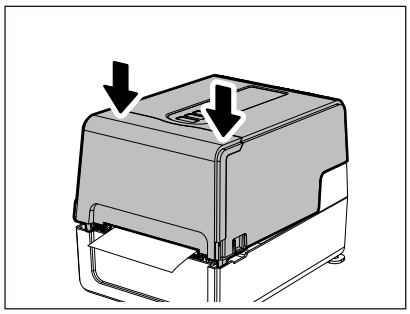


3 **Remove the media jam.**

4 **Load the media correctly.**

P.37 “Loading the media”

5 **Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.**



6 **Turn on the power to resume printing.**

■ If the ribbon is cut off in the middle

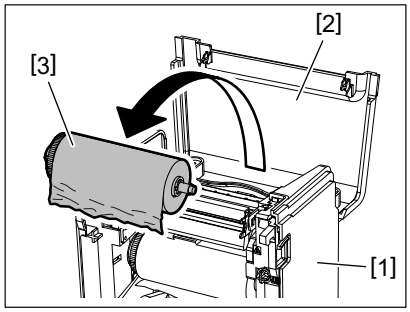
If the ribbon is cut off in the middle, repair it with the procedure below. (Temporary measure)
If you have a new ribbon, replace the ribbon with that one.

P.53 “Loading the ribbon (thermal transfer method)”

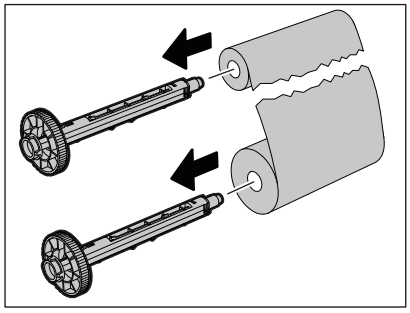
⚠ CAUTION

- **Fully open the ribbon cover by bringing it backward.**
  Leaving it at a halfway position could cause it to close by itself, causing injury.
- **Immediately after printing, do not touch the print head or its surrounding area.**
  This could cause burns.

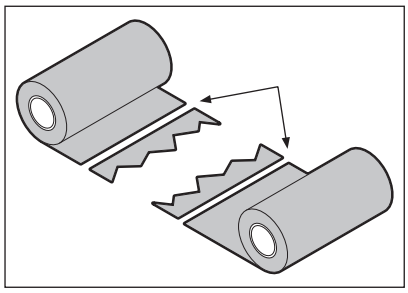
1 **Open the top cover [1] and the ribbon cover [2] and remove the cut off ribbon portions [3] together with the ribbon spoolers.**



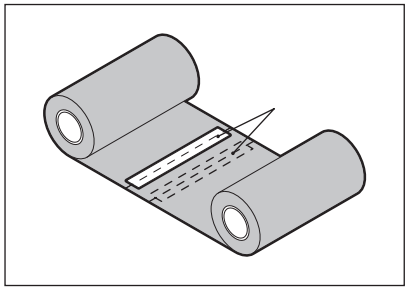
2 Remove the ribbon spoolers from the ribbon cores.



3 Cut the cut off portions neatly.



4 Overlay one portion on the other, aligning them horizontally, and fasten the overlay firmly with adhesive cellophane tape.



5 Make two or three winds of the ribbon around the take-up (used ribbon) side roll.

6 Load the ribbon correctly.

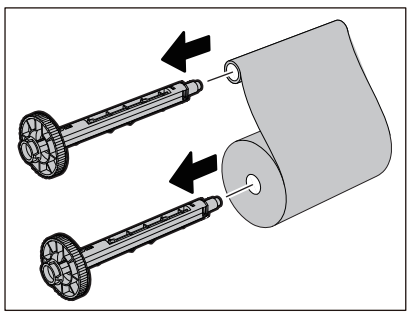
📖 P.53 “Loading the ribbon (thermal transfer method)”

■ If the ribbon winds become disordered

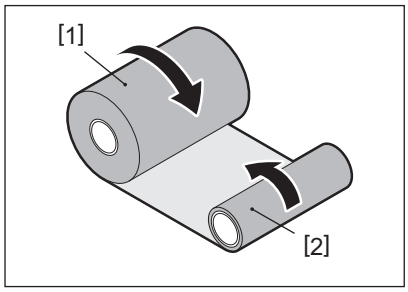
If the ribbon winds become disordered because the ribbon storage condition is poor or you dropped the ribbon when loading it, wind the ribbon again with the procedure below. (Temporary measure)
If you have a new ribbon, replace the ribbon with that one.

📖 P.53 “Loading the ribbon (thermal transfer method)”

1 Remove the ribbon spoolers from the ribbon cores.



2 This step requires two people. One person holds the supply side (unused) ribbon roll [1] and the other holds the take-up side (used) ribbon roll [2]. Wind the ribbon, aligning it horizontally, while keeping the ribbon taut.



Note

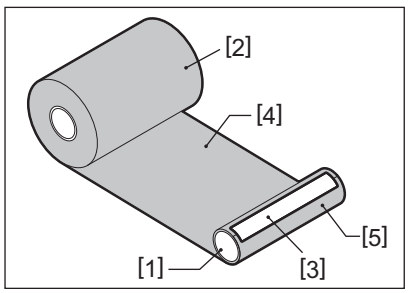
Do not pull the ribbon strongly. Pulling it more strongly than necessary could cut off the ribbon.

3 If the ribbon cannot be wound properly, cut off the used ribbon roll.

Remove the used ribbon roll from the take-up side core.

4 Attach the supply side (unused) ribbon [2] to the take-up side core [1] firmly with adhesive cellophane tape [3].

A ribbon has a back side [4] and a front side (ink side) [5]. Load it carefully.



Note

Attach the ribbon so that it will be vertical to the take-up side core [1].
Attaching it diagonally could cause the ribbon to be wrinkled.

5 Make two or three winds of the ribbon around the take-up side core.

6 Load the ribbon correctly.

P.53 “Loading the ribbon (thermal transfer method)”

5

Appendix

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Replacing the supplies **90**
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■ Printer

Item		Description			
Model		BV410T-GS02-QM-S BV410T-GS14-QM-S	BV410T-TS02-QM-S BV410T-TS14-QM-S	BV420T-GS02-QM-S BV420T-GS14-QM-S	BV420T-TS02-QM-S BV420T-TS14-QM-S
Power supply		AC 100–240 V±10%, 50/60 Hz±3 Hz			
Supply voltage		DC+24 V, 3.6 A (External AC adapter)			
Power consumption		During printing: 65 W (at a print rate of 15%, slant line print format), During standby: AC 100 V: 3.5 W, AC 240 V: 3.35 W (without options)			
Operating temperature range		5 to 40 °C (41 to 104 °F)			
Operating humidity range		25 to 85% (no condensation)			
Printing method		Thermal transfer (ribbon transfer)/Direct thermal (heat direct coloring)			
Resolution		8 dots/mm (203 dpi)*1	11.8 dots/mm (300 dpi)*2	8 dots/mm (203 dpi)*1	11.8 dots/mm (300 dpi)*2
Printing speed *3		Continuous issuance/Cut issuance 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.) 127 mm/sec. (5"/sec.) 152.4 mm/sec. (6"/sec.) 177.8 mm/sec. (7"/sec.)	Continuous issuance/Cut issuance 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.) 127 mm/sec. (5"/sec.)	Continuous issuance/Cut issuance 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.) 127 mm/sec. (5"/sec.) 152.4 mm/sec. (6"/sec.) 177.8 mm/sec. (7"/sec.) Peel-off issuance *4 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.)	Continuous issuance/Cut issuance 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.) 127 mm/sec. (5"/sec.) Peel-off issuance *4 50.8 mm/sec. (2"/sec.) 76.2 mm/sec. (3"/sec.) 101.6 mm/sec. (4"/sec.)
Issue mode		Continuous issuance/Cut issuance (full cut, partial cut)/Peel-off issuance			
LCD		128 x 64 dot graphic LCD, up to 21 digits x 5 lines		–	
Display language		English, German, French, Dutch, Spanish, Japanese, Italian, Portuguese, Simplified Chinese, Korean, Turkish, Polish, Russian, Czech			
Effective print width		Up to 108 mm (4.25")	Up to 105.7 mm (4.16")	Up to 108 mm (4.25")	Up to 105.7 mm (4.16")
Characters	Alpha-numeric/ kana	Times Roman, Helvetica, Presentation, Letter Gothic, Prestige Elite, Courier, OCR-A, OCR-B, Gothic 725 Black			
	Kanji	16x16, 24x24, 32x32, 48x48 (Kaku Gothic) 24x24, 32x32 (Mincho)			
	External characters	16x16, 24x24, 32x32, 48x48 dots: 1 type each, one-size-fits-all: 40 types			
	Other	Outline font (alphanumeric): 5 types, Price font: 3 types, NotoSansFont			

Item	Description
Barcodes	JAN8/13, EAN8/13, EAN8/13 add on 2&5, UPC-A/E, UPC-A/E add on 2&5, Interleaved 2 of 5, NW-7, CODE39/93[*5]/128[*5], EAN128, MSI, Industrial 2 of 5, RM4SCC, KIX code, GS1 Databar, USPS Intelligent mail barcode, Customer Bar Code, POSTNET, MATRIX 2 of 5 for NEC
2D codes	QR code, Micro QR code, Security QR code, PDF417, MaxiCode, DataMatrix, MicroPDF417, GS1 DataMatrix, GS1 QR code, Aztec Code, CP code
Interface	USB port x1 (high-speed 2.0-compliant port) LAN port x1 (10BASE-T/100BASE-TX-compliant) USB host x1 (high-speed USB V2.0-compliant port) Bluetooth (option) x1 (V5.2 (BR/EDR))[*6] Wireless LAN (option) x1 (IEEE802.11a/b/g/n-compliant)[*6] RS-232C interface (option) x1
Dimensions (W x D x H)	200.0 mm x 267.0 mm x 198.3 mm (7.87" x 10.51" x 7.81")
Weight	GS02/TS02 model: 2.9 kg (6.4 lb) GS14/TS14 model: 3.0 kg (6.6 lb)
Options (separately sold)	Full cutter module (BV214-F-QM-S/BV224-F-QM-S) Partial cutter module (BV214-P-QM-S/BV224-P-QM-S) Peel-off module (BV914T-H-QM-S/BV924T-H-QM-S) External media stand (BV904-PH-QM-S) Serial interface board (BV700-RS-QM-S) Wireless LAN module (BV700-WLAN-QM-S)[*6] Bluetooth interface kit (BV700T-BLTH-QM-S)[*6] AC adapter cover (BV914T-AC-QM-S/BV924T-AC-QM-S) UHF band RFID R/W kit (BV704T-RFID-U4-US/EU/AU-S)[*7] Resolution change kit (BV704T-TPH2-QM-S/BV704T-TPH3-QM-S)

*1 You can change the resolution to 300 dpi by using the Resolution change kit (BV704T-TPH3-QM-S, option).
*2 You can change the resolution to 203 dpi by using the Resolution change kit (BV704T-TPH2-QM-S, option).
*3 Depending on the combination of supplies used, the print speed may be restricted.
*4 During peel-off issuance, the maximum print speed is 101.6 mm/sec. (4"/sec.).
*5 When printing a CODE93 or CODE128 serial barcode, locate it at least 10 mm away from the print start position. Otherwise, poor scanning may occur.
*6 The GS14/TS14 models are equipped with Bluetooth and Wireless LAN interfaces as standard.
*7 This is for the BV410T series. BV420T series are not supported.

Tip

Specifications of the printer are subject to change in the future without prior notice.

■ Media

Media include labels, tags, and receipts of the heat direct coloring type.
Use Toshiba Tec Corporation certified genuine media.
For details about ordering and preparing media, contact your service representative.

Unit: mm (inch)

Item		Issue mode		
		Continuous issuance/ Hand cut issuance	**Peel-off issuance**	**Cut issuance**
Media pitch	Label	10.0 to 999.9 (0.39 to 39.37)	25.4 to 152.4 (1 to 6)	25.4 to 999.9 (1 to 39.37)
	Tag	10.0 to 999.9 (0.39 to 39.37)	–	25.4 to 999.9 (1 to 39.37)
	Continuous label	10.0 to 999.9 (0.39 to 39.37)	–	25.4 to 999.9 (1 to 39.37)
Media length	Label	8.0 to 997.9 (0.31 to 39.29)	23.4 to 150.4 (0.92 to 5.92)	22.4 to 996.9 (0.88 to 39.25)
	Continuous label	10.0 to 999.9 (0.39 to 39.37)	–	25.4 to 999.9 (1 to 39.37)
Base width, tag width, and continuous label width		Thermal paper: 25.4 (1) (15.0 (0.59): wristband only) to 118.0 (4.65)*1 Transfer paper: 25.4 (1) to 105.0 (4.13)		
Label width		Thermal label: 22.4 to 115.0 (0.88 to 4.53)*1 Transfer label: 22.4 to 102.0 (0.88 to 4.02) Continuous label: 22.4 to 118.0 (0.88 to 4.65)*1		
Gap/black mark length		2.0 to 10.0 (0.08 to 0.39)	2.0 to 10.0 (0.08 to 0.39)	3.0 to 10.0 (0.12 to 0.39)
Effective print width (Max.)		BV410T-GS02-QM-S/BV410T-GS14-QM-S/BV420T-GS02-QM-S/BV420T-GS14-QM-S: 108.0 (4.25) BV410T-TS02-QM-S/BV410T-TS14-QM-S/BV420T-TS02-QM-S/BV420T-TS14-QM-S: 105.7 (4.16)		
Effective print length	Label	6.0 to 995.9 (0.24 to 39.21)	21.4 to 148.4 (0.84 to 5.84)	20.4 to 994.9 (0.80 to 39.17)
	Tag	6.0 to 995.9 (0.24 to 39.21)	–	20.4 to 994.9 (0.80 to 39.17)
	Continuous label	8.0 to 997.9 (0.31 to 39.29)	–	23.4 to 997.9 (0.92 to 39.29)
Slow up/down section		1.0 (0.04)		
Thickness		0.06 to 0.30, 0.23, 0.40, 0.42 (0.0024 to 0.012, 0.009, 0.016, 0.017)*2		
Max. outer roll diameter		ϕ127.0 (5), ϕ214.0 (8.43) *3		
Core inner diameter		ϕ25.4 (1) ±1 (0.04), ϕ38.1 (1.5) ±1 (0.04), ϕ40.0 (1.57) ±1 (0.04), ϕ42.0 (1.65) ±1 (0.04), ϕ76.2 (3) *3		
Roll direction		• Outer roll • Inner roll - During continuous issuance/hand cut issuance/peel-off issuance, core inner diameter: ϕ38.1 (1.5), ϕ40.0 (1.57), ϕ42.0 (1.65), ϕ76.2 (3) *3 - During cut issuance, core inner diameter: ϕ40.0 (1.57), ϕ42.0 (1.65), ϕ76.2 (3) *3		

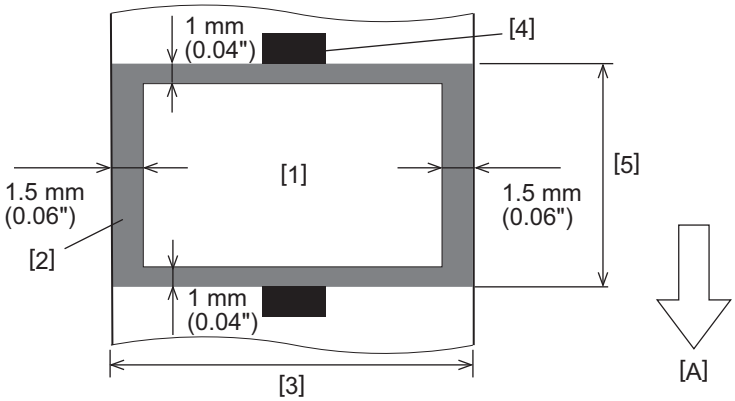
*1 It is recommended that the outer roll media used for the cut issuance be no wider than 110 mm (4.33"). The leading edge of the media may contact the cutter blade caused by peculiar winding.

*2 0.23 mm (0.009") and 0.42 mm (0.017") are for wristbands only. 0.40 mm (0.016") is for RFID tags. RFID chip heights are excluded.

*3 When the external media stand is used

Note

- Near the media end, the print quality may be affected depending on the printing conditions. Confirm the end when creating a print format. It is recommended that the print position of barcodes, etc. be apart from the media end by at least 3 mm (0.12").
- If narrow media are used, the protective film of the print head may be scraped off at the media edge, causing the print head to be disconnected.
- If the tail end of the media is fastened to the core with tape or glue, the load on the media could fluctuate at the moment the tail end is peeled off. This could cause uneven transfer, having an impact on printing. Of particular note is that in that event, the printed barcodes or 2 dimensional codes could become unreadable. Before using such labels, be sure to confirm the codes. (For labels, the impact on printing can be avoided by attaching the media by leaving about 200 mm (7.87") of the base from the last label. Note that in this case, after the last label is printed, a media feed error occurs with the base, instead of a media absence error. For labels for which the media pitch is 37 mm (1.46") or less, it is possible to make a media absence error occur even without leaving the base from the last label, as mentioned above, but for the printing of labels about 180 mm (7.09") before the end of the base, uneven transfer may occur, having an impact on printing).
- Depending on the status of the tape at the tail end of the media, the peeled off tape may affect the sensor, causing a media feed error to occur, not a media absence error.
- If you set [MOVE TO TEAROFF] to ON when using labels, the label gap of the media will be sent up to the end of the peel-off table after the last label is issued, making it easy to cut the label manually. If the next one is issued with the label left uncut manually, the label could be peeled off during back feeding, causing a paper jam.
- RFID labels should be used for continuous issuance. Depending on the pitch of the RFID label, paper jams could occur at the time of issuance with a reversal operation, such as cut issuance, peel-off issuance and continuous issuance with [MOVE TO TEAROFF] enabled.
- The gray portions in the figure below are outside the printing-guaranteed area. Printing in any of these portions could affect the print quality in the printing-guaranteed area.



1. Printing-guaranteed area
2. Area outside the printing-guaranteed area
3. Width of label upper paper/tag
4. Detector
5. Length of label upper paper/tag

A: Media feed direction

- When the peel-off module is attached, perforated media cannot be used.
- If perforated media are used, the perforations could cause transfer failures (bends and protrusions in holes) and sensor detection failures (optical axis disturbance in holes).
- When using the cutter, cut off after the perforations to prevent transfer problems. Make adjustment with [CUT ADJ.] until you can achieve position where the media can be cut securely while avoiding the perforations.
- If you want to use perforated label media, contact your service representative for details.

■ RFID tag

Fundamentally, the specification of RFID tag paper conform to the specifications of print media. Items that differ are listed in the table below. For details about ordering RFID tag paper, contact your service representative.

Unit: mm (inch)

Item		Issue mode		
		Continuous issuance	Peel-off issuance	Cut issuance
Media pitch		16.0 to 999.9 (0.63 to 39.37)	25.4 to 152.4 (1 to 6)	25.4 to 999.9 (1 to 39.37)
Media length		13.0 to 997.9 (0.51 to 39.29)	23.4 to 150.4 (0.92 to 5.92)	22.4 to 996.9 (0.88 to 39.25)
Gap/black mark length		2.0 to 10.0 (0.08 to 0.39)	2.0 to 10.0 (0.08 to 0.39)	3.0 to 10.0 (0.12 to 0.39)
Effective print length	Label	11.0 to 995.9 (0.43 to 39.21)	21.4 to 148.4 (0.84 to 5.84)	20.4 to 994.9 (0.80 to 39.17)
	Tag	11.0 to 995.9 (0.43 to 39.21)	–	20.4 to 994.9 (0.80 to 39.17)
Core inner diameter		ϕ38.1 (1.5), ϕ76.2 (3)		
Roll direction		Outer roll		

❑ Notes on using RFID tag paper

1. **Accuracy of encoding**
   It is not possible to guarantee 100% encoding under all usage environments and conditions, including external factors (noise), apart from the performance of the tag used (IC, inlay shape/size), temperature, and humidity. Thus, be sure to conduct advance confirmation in the environment actually used. If encoding fails, horizontal lines are printed.

2. **Storing RFID tag paper**
   Do not store RFID tag paper near the printer because doing so could affect the reading/writing performance.

3. **RFID tag paper rolls**
   If making RFID tag paper into a roll, pay attention to the rolling pressure. In general, RFID tag paper tends to become curly when rolled depending on the label glue, tag, and base. Besides, for inner rolls, paper jams could result. It is recommended to use outer rolls of RFID tag paper if there is no particular reason.

4. **Sensor**
   If you issue paper by enabling the gap or reflective sensor, the transmittance/reflectance may vary depending on the antenna pattern of the portion in which the RFID tag is encapsulated and other factors. If this occurs, adjust the sensor and set the threshold in the system mode.
   For details, refer to “Key Operation Specification”.

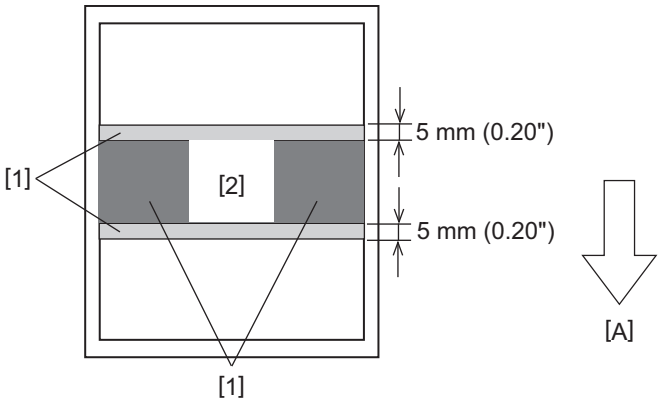
5. **Cutter**
   If performing the cut issuance of RFID tag paper, make sure that the antennas and IC chips of RFID tags are not cut off.

6. **Static electricity**
   If issuing RFID tag paper in a low-humidity environment, for example, use caution because static electricity generated due to the paper or the ribbon could reduce the data write success rate.

7. Printing on the RFID tag-encapsulated portion (chip/antenna portion)

The surface of the portion of the media in which the RFID tag is encapsulated is uneven, and printing in this portion could cause the print around the uneven portion to be discontinuous. In the area of 5 mm (0.20") before and after the RFID tag-encapsulated portion and on both lateral sides of the portion, in particular, printing is likely to be blurred and discontinuous. These areas are outside the printing-guaranteed area. (Refer to the figure below.)

* The degree of blur or discontinuity differs depending on the height of the RFID tag (chip/antenna) encapsulated.



1. Area outside the printing-guaranteed area
2. RFID tag-encapsulated portion

A: Media feed direction

8. Ambient temperature

The performance of the wireless system changes depending on the ambient temperature. If the ambient temperature changes from the one at the time of making the RFID settings, writing to data to the RFID tag may fail.

9. Peel-off issuance

If you perform the peel-off issuance of RFID labels, the peel-off performance varies depending on the glue of the label used, tag, and base. Depending on the media, peel-off issuance cannot be performed normally.

10. Notes on using short-pitch media

If media with a short pitch (RFID tag placement interval) are used, there are cases in which even if an attempt is made to write data to the tag to which it should be written, the data is written to a neighboring tag. The position at which data can be written differs depending on the tag type, and it is necessary to conduct measurement by using actual tags so that data cannot be written to a neighboring tag. To diagnose read/write positions, use the BCP RFID analyze tool. For details, contact your service representative.

11. Defective RFID tag

RFID tag paper may contain defective tags before shipment from the manufacturer. The defect rate differs depending on the tag type, the method of manufacturing the RFID tag paper, and other factors. It is necessary to have the RFID tag paper manufacturer remove defective tags in the manufacture process or to have them make defective tags identifiable by, for example, placing marks on defective tags and confirm the identification method.

12. Automatic media setting

If issuing RFID tag paper, do not use the automatic media setting function. Set [CALIBRATE] in the parameter setting to [OFF].

For details, refer to “Key Operation Specification”.

■ Ribbon

Use a Toshiba Tec Corporation certified genuine ribbon.
For details about ordering a ribbon, contact your service representative.

Item		Description
Ribbon shape		Spool method
Ribbon width		40 to 110 mm (1.57" to 4.33") Standard width ϕ12.7 mm (0.5") inner diameter core: 55 mm (2.17"), 110 mm (4.33") ϕ25.4 mm (1.0") inner diameter core: 60 mm (2.36"), 83 mm (3.27"), 110 mm (4.33")
Ribbon width tolerance		±1 mm (0.04")
Ribbon winding width		Ribbon width -0/+1 mm (0.04")
Maximum ribbon length		ϕ12.7 mm (0.5") inner diameter core: 100 m (328.1 ft). The maximum ribbon outer diameter shall not be exceeded. ϕ25.4 mm (1.0") inner diameter core: 300 m (984.3 ft). The maximum ribbon outer diameter shall not be exceeded.
Maximum ribbon outer diameter		ϕ12.7 mm (0.5") inner diameter core: ϕ40 mm (1.57") ϕ25.4 mm (1.0") inner diameter core: ϕ65 mm (2.56")
Back treatment		Yes
Ribbon core	Material	Paper
	Inner diameter	ϕ12.7 mm (0.5") -0/+0.5 mm (0.02") ϕ25.4 mm (1.0") -0/+0.5 mm (0.02")
	Length	110 mm (4.33") ±1 mm (0.04")
Leader tape		Polyester film (opaque) 150 mm (5.91") ±5 mm (0.20") or greater
End tape		None
Winding method		Outer roll

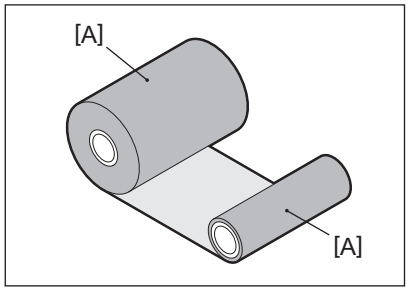
Note

- Use a ribbon to match the width of the media (base). Too small a ribbon width makes the printable width small. Conversely, too large a ribbon width could cause the ribbon to be wrinkled. Use a ribbon wider than the media (base) by at least 5 mm (0.20") as indicated below.

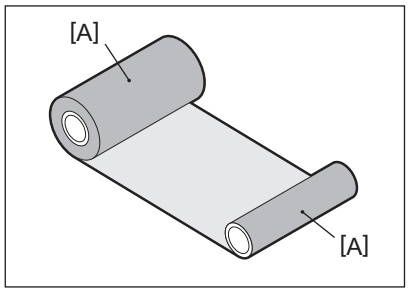
Media width	25.4* to 50 mm (1" to 1.97")	25.4* to 55 mm (1" to 2.17")	56 to 78 mm (2.2" to 3.07")	79 to 105 mm (3.11" to 4.13")
Ribbon width	55 mm (2.17")	60 mm (2.36")	83 mm (3.27")	110 mm (4.33")

* When a wristband is used, the minimum media width is 15 mm (0.59").

- Cores with notches can also be used.
- For cores with an inner diameter of 12.7 mm (0.5") and for 25.4 mm (1.0") cores for domestic use
  - Align the center of the ribbon with the center of the core and wind the ribbon with the ink side [A] outside.
  - Make sure that the misalignment between the centers of the ribbon and the core is within ±1 mm (0.04").



- For cores with an inner diameter of 25.4 mm (1.0") for overseas and domestic use
  - Align the length of the core with the width of the ribbon and wind the ribbon with the ink side [A] outside.
  - If the width of the ribbon is smaller than the length of the core, align the center of the ribbon with the center of the core and wind it.



- If the printer is left in a hot place with the top cover closed, depending on the type of ribbon used, the ink from the ribbon may be transferred to the paper in contact with the ribbon at the position of the print head as a black line.
- Depending on the combination of the ribbon and the media, horizontal ruled lines printed around the leading edge of the media (within 5 mm (0.2") from the print start position) are sometimes blurry. In such cases, it is recommended to reduce the print speed or change the type of ribbon.

❑ Notes on using options

⚠ WARNING

Before incorporating an option, turn off the POWER button of the printer and unplug the power plug from the electric outlet.
Incorporating an option with the power on could cause fire, electric shock, and injury. To protect the electric circuit inside the printer, connect and disconnect cables at least 1 minute after turning off the power of the printer.

⚠ CAUTION

- **Make sure that your fingers and hands do not get caught in covers and so on.**
- **Immediately after printing, do not touch the print head, stepping motor, or their surrounding areas.**
  This could cause burns.
- **When mounting and cleaning the cutter module, do not touch the cutter blade directly.**
  This could cause injury.

Note

- If you attach the cutter module and perform the cut issuance of label media, cut off the media at the gaps (base). Avoid issuing the media by cutting off the labels. This could cause paper jams, malfunctions, and short cutter life.
- When you use the inner roll media for the cut issuance, the one with a label gap of 3 mm is recommended. A wider gap between labels could cause paper jams.
- If the cut position is not appropriate, adjust the position with [CUT ADJ.].
  For details, refer to “Key Operation Specification”.
- If, during cut issuance, the media are wound onto the platen unit, change [MOVE TO TEAROFF] in the parameter setting to [ON].
  For details, refer to “Key Operation Specification”.
- If, during cut issuance, the media are wound onto the platen unit, use the BCP Setting Tool to set [MOVE TO TEAROFF] to ON.
- Using media or a ribbon that can easily generate static electricity could cause labels to stick the cutter outlet. If this occurs, the order in which labels are ejected may be changed.
- If you attach the peel-off module and perform the peel-off issuance of label media, it may be impossible to peel off labels correctly depending on the material of the label or the base. For details about the materials of labels and bases, contact your service representative.
- After peel-off issuance, labels may sag down in the forward direction under their own weight, sticking to the front of the printer or the floor. If using labels of 150 mm (5.91") or greater, make sure that they do not stick to the floor.
- In partial cut mode, a margin of 32 mm (1.26") in length is automatically added before the effective print range.

■ Media

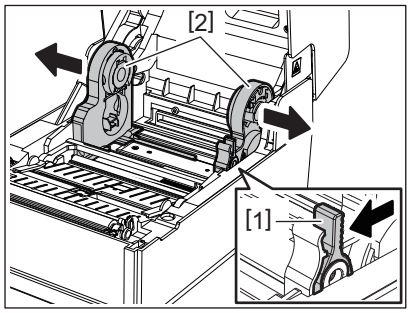
This section explains the procedure for replacing media with new media of the same type and the same width.
Use Toshiba Tec Corporation certified genuine media.

1 Open the top cover.

⚠ CAUTION

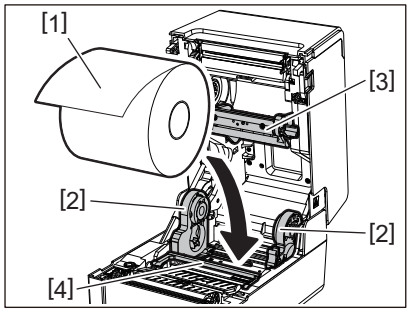
- **Immediately after printing, do not touch the print head or its surrounding area.**
  This could cause burns.

2 While holding the holder lock lever [1], extend the media holder [2] to the right and left.



3 Remove the core or the remaining portion of the media.

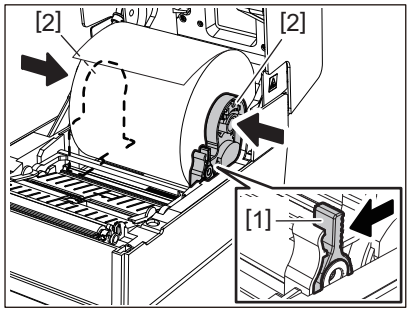
4 Place the new roll media [1] between the right and left parts of the media holder [2] so that the print side will face upward.



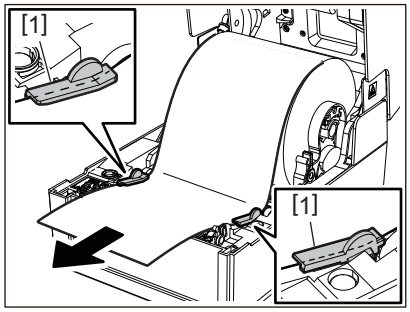
Note

- Pay attention to the rolling direction of the media when loading the media. If you load the media in the opposite direction, printing fails.
- Cut the end of the media straight with scissors. For labels, cut the base between labels straight.
- When loading media, be careful not to damage the media damper (top) [3] and the media damper (bottom) [4].

5 While holding the holder lock lever [1], slide the right and left parts of the media holder [2] inward to lock the roll media firmly. Confirm that the convex portions of the core holder [2] fit the core.



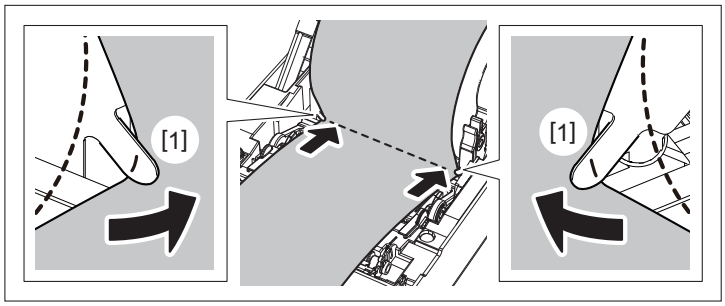
6 Pass the media under the right and left media guides [1] and pull out the media so that the end of the media will be slightly outside the media outlet.



Note

Make sure that the media guides [1] do not tighten the media too much. Tightening the media too much could bend the media, causing paper jams and media feed failures.

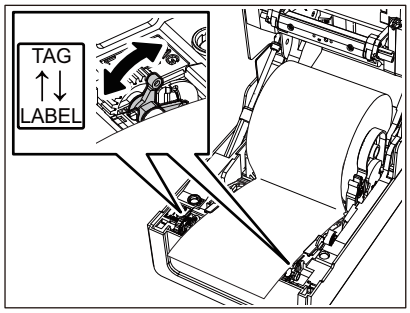
7 In the case of an outer roll media, push the right and left edges of the media to pass it through the outer roll paper hooks [1].



Note

When passing the media through the outer roll paper hooks [1], be careful not to create wrinkles or damage it in any way. Using a media with wrinkles or other damage could cause a print failure.

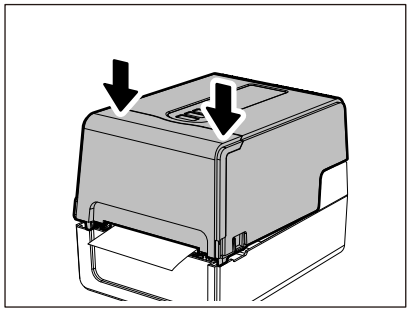
8 Set the right and left levers of the platen unit holder in accordance with the type of the media loaded. (Label: Tilt the lever forward, Tag: Tilt the lever backward.)



Note

When tags whose width is less than 50.8 mm (2") are used, set the levers to the [LABEL] side.

9 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.



10 Press and hold down the [FEED] button to feed the media by about 10 to 20 cm (3.94" to 7.87") to confirm that the media can be fed correctly.

For details about loading media, be sure to carefully read the information referenced below.
📖 P.37 “Loading the media”

■ Ribbon

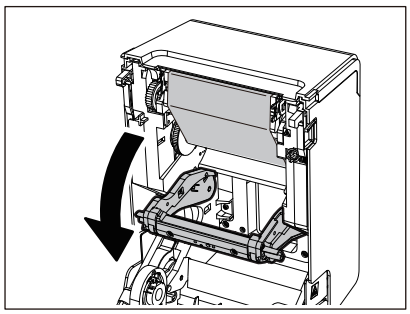
This section explains the procedure for replacing the ribbon with a new one of the same type and the same width. Use a Toshiba Tec Corporation certified genuine ribbon.

1 Open the top cover.

⚠ CAUTION

- **Immediately after printing, do not touch the print head or its surrounding area.**
  This could cause burns.

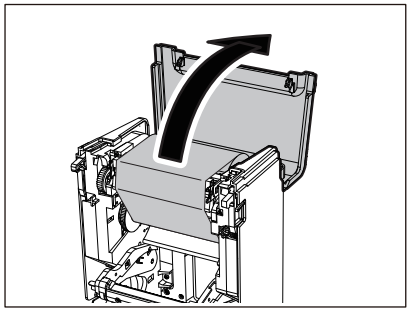
2 Push down the media damper (top).



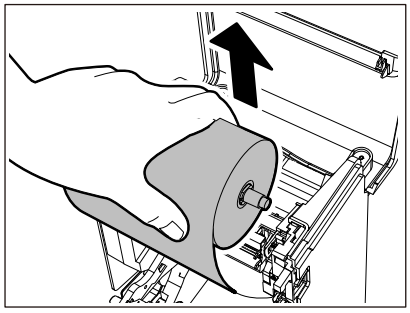
Note

Push down the media damper (top) gently. Holding or pulling the media damper (top) strongly could cause malfunctions.

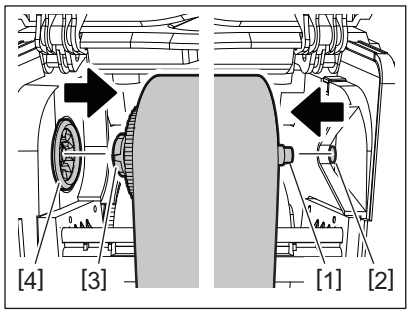
3 Open the ribbon cover.



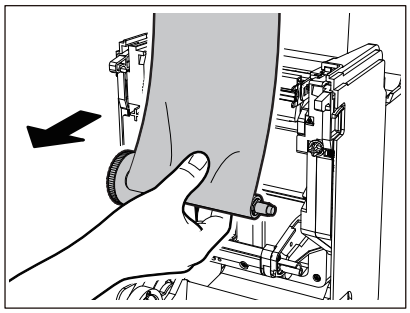
4 **Remove the take-up side roll of the ribbon from the guide.**



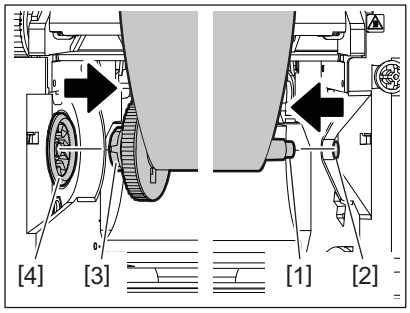
1. Remove the right side [1] of the ribbon spooler from the guide hole [2].
2. Remove the left side [3] of the ribbon spooler inserted into the roll from the guide wheel [4].



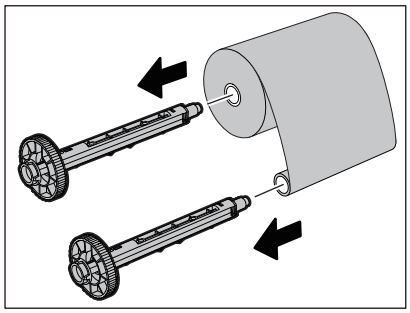
5 **Remove the supply side roll of the ribbon from the guide.**



1. Remove the right side [1] of the ribbon spooler from the guide hole [2].
2. Remove the left side [3] of the ribbon spooler inserted into the roll from the guide wheel [4].

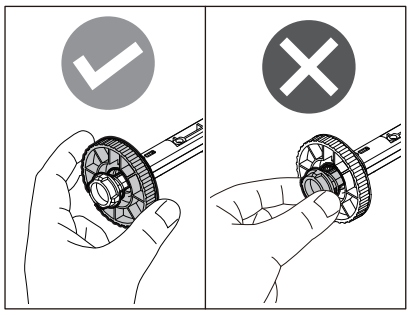


6 **Remove the ribbon spoolers [2] from the ribbon [1] cores.**

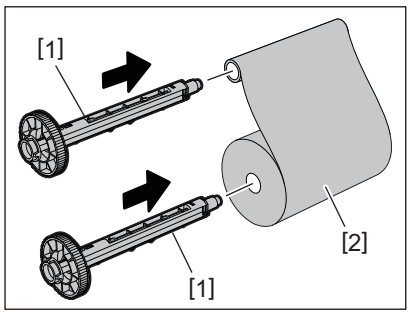


Note

To hold the ribbon spooler, hold the green portion. Handling it by holding the black protrusion at the end could cause malfunctions.



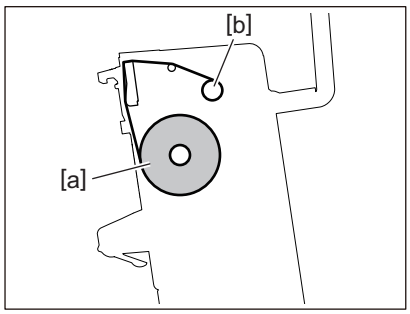
7 Insert the ribbon spoolers [1] into the replacement ribbon [2] cores.



Note

Insert the ribbon spoolers into both supply side roll core and take-up side roll core.

8 Load the ribbon according to the figure below.

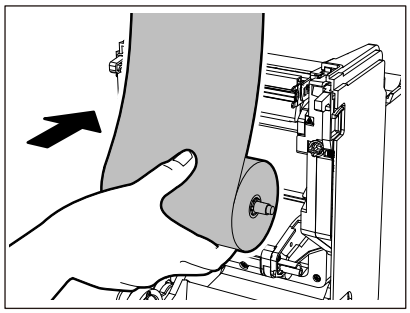


- [a] Supply side
- [b] Take-up side

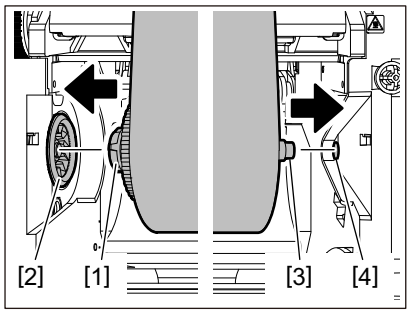
Note

Pay attention to the front and back sides of the ribbon.

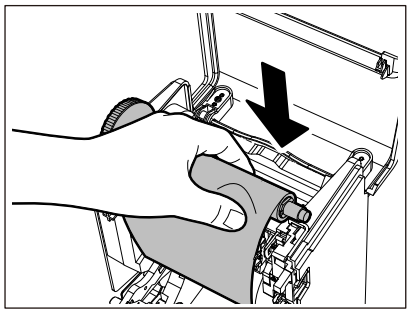
9 Mount the supply side roll of the ribbon on the guide.



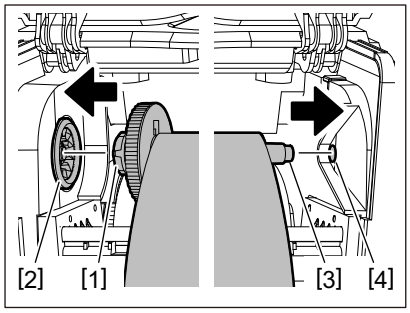
1. Fit the left side [1] of the ribbon spooler inserted into the roll in the guide wheel [2].
2. Fit the right side [3] of the ribbon spooler in the guide hole [4].



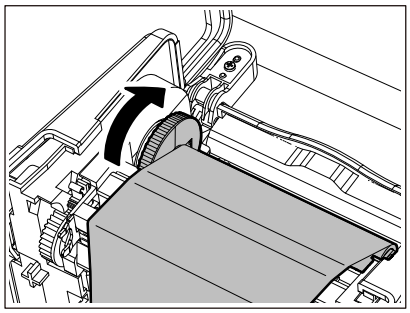
10 Mount the take-up side roll of the ribbon on the guide.



1. Fit the left side [1] of the ribbon spooler inserted into the roll in the guide wheel [2].
2. Fit the right side [3] of the ribbon spooler in the guide hole [4].



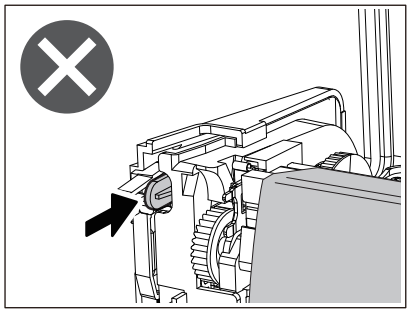
11 Rotate the ribbon spooler in the upward direction to remove any slack in the ribbon.



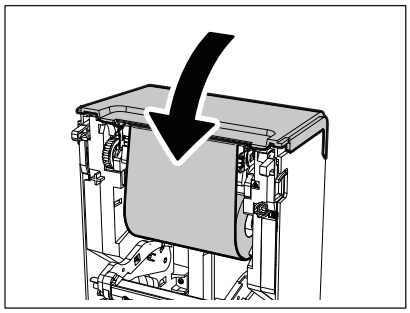
Note

- Any slack in the ribbon could cause poor print quality. After removing the slack in the ribbon, turn the ribbon spooler two more times to ensure that all the slack in the ribbon is removed.
- The portion of the ribbon that you touched when loading the ribbon may have poor printing quality. Thus, rotate the ribbon spooler until the portion you touched passes the print head passing position.

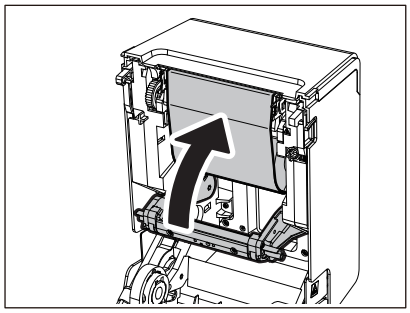
- Pressing the lever in the figure below releases the ribbon spooler reverse rotation preventing lock, giving the ribbon a slack. Be careful not to press the lever by mistake after winding the ribbon.



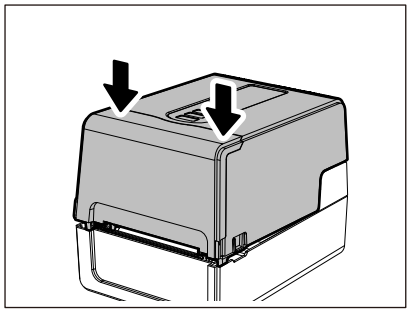
12 Close the ribbon cover until it “snaps” into place.



13 Raise the media damper (top).



14 Lower the top cover gently, press on the front of the top cover with both hands until it “snaps” into place to make sure that it is closed securely.



15 Press and hold down the [FEED] button to feed the media by about 10 to 20 cm (3.94" to 7.87") to confirm that the media can be fed correctly.

For details about loading a ribbon, be sure to carefully read the information referenced below.
📖 P.53 “Loading the ribbon (thermal transfer method)”

Note

When the ribbon has run out, printing may stop halfway depending on the ribbon end detection timing. After the ribbon is replaced with a new one and the [RESTART] key is then pressed, printing will restart from the error label.

BARCODE PRINTERS

Owner's Manual

BV410T-GS02-QM-S/BV410T-GS14-QM-S
BV410T-TS02-QM-S/BV410T-TS14-QM-S
BV420T-GS02-QM-S/BV420T-GS14-QM-S
BV420T-TS02-QM-S/BV420T-TS14-QM-S

Toshiba Tec Corporation

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