UP-400

Thermal Printer
User's Manual
Version 1.0

CASIO

Contents

Introduction

**GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A.
(Not applicable to other areas)**

FCC WARNING: 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. Operation 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 expence.

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

The main plug on this equipment must be used to disconnect main power.
Please ensure that the socket outlet is installed near the equipment and shall be easily accessible.

Manufacturer:
CASIO COMPUTER CO., LTD.
6-2, Hon-machi 1-chome, Shibuya-ku, Tokyo 151-8543, Japan
Representative within the European Union:
CASIO EUROPE GmbH
Bornbarch 10, 22848 Norderstedt Germany

LAN Port: Only for CASIO Register

About this Manual

Getting Started

Chapter 1   contains information on unpacking the printer and setting it up.
Chapter 2   contains information on using the printer.
Chapter 3   contains information of maintenance and troubleshooting.
Chapter 4   contains security information.

Specification

Chapter 5   contains printers' specification.
Appendix   contains information on setting and changing the DIP switches.

Safety Definitions

In order to avoid hazards to a user or other persons and damage to the product, be sure to observe the following instructions

For the safety of the personnel and the product, operate the equipment according to the instructions in this user's guide. The manufacturer will not be responsible for any problems or damage that arises from improper use.

⚠ **WARNING :** Warning may result in death or serious injury.

⚠ **CAUTION :** Caution may result in injury or damage to property.

🚫 At least once a year, unplug the power plug and use a dry cloth or vacuum cleaner to clear dust from the area around the prongs of the power plug.

Never use detergent to clean the power cord, especially the power plug and jack.

❗ Keep small parts out of the reach of small children to make sure it is not swallowed accidentally.
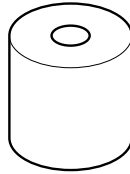
Chapter 1 Set up
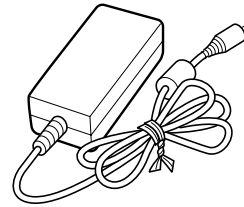
1.1 Unpacking

Check for the following items in your box.

Thermal printer   Roll paper   AC adapter

Ferrite core   Cable tie

Caution
Before use, please be sure to set the attached Ferrite core to the I/F cable as illustrated.

1. Put the attached Ferrite core to I/F cable as illustrated, and then close the core. Be sure two hooks of the core are locked tight. And insert a Cable tie into the hole outside core.

2. To fix the Ferrite core, bind up the I/F cable with the Cable tie.

For RS-232C cable   For LAN cable

To UP-400   Hook (male)   To UP-400   Hook (male)
Cable tie   Cable tie
Hook (female)   Hook (female)
50mm   50mm

To UP-400   Cable tie   To UP-400   Cable tie
Hook   Hook

1.2 Printer Components

Printer cover

Cover open knob

PUSH

Control panel

Power switch   Automatic Paper Cutter Cover
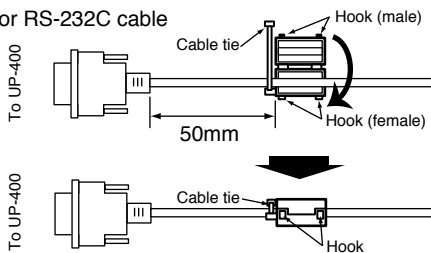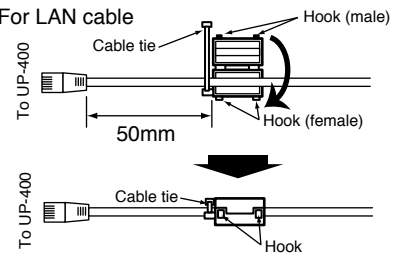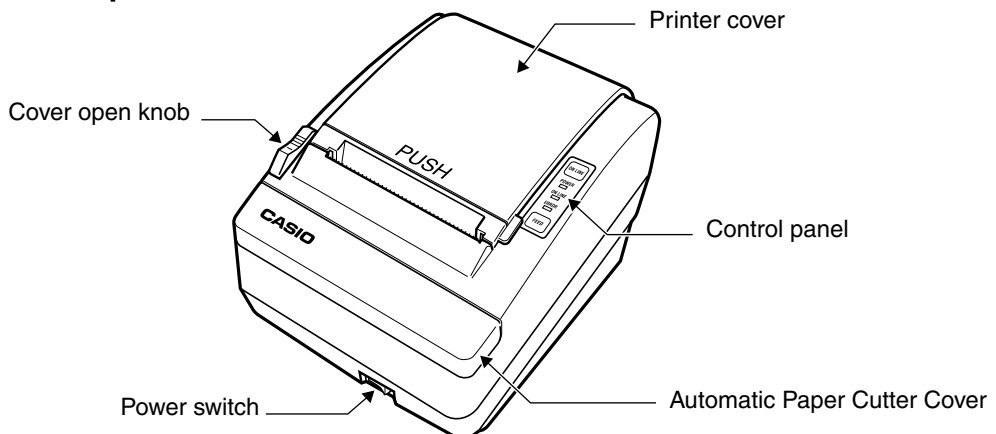
Before connecting any of the cables, please turn off the HOST device.

1.3 Attaching Interface Cable to the Printer

1.3.1 Via RS-232C cable
You need an appropriate interface cable. Refer to section 5.3.2 on page 14 for cable details.

1. Plug the cable into the interface connector located on the back of the printer, as indicated nearby.
2. Firmly tighten the screws on both sides of the connector.
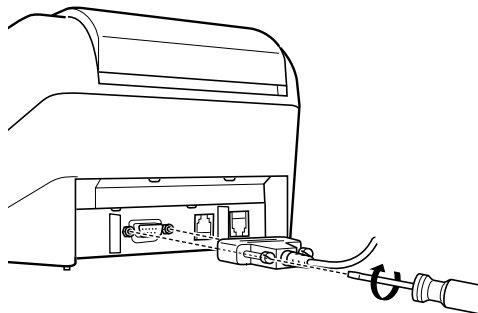3. Attach the other end of the cable to the HOST.

1.3.2 Via LAN cable
You need an appropriate interface cable. Refer to section 5.3.3 on page 15 for cable details.

1. Plug and snap the cable into the interface connector located on the back of the printer, as indicated nearby.
2. Attach the other end of the cable to the Hub.
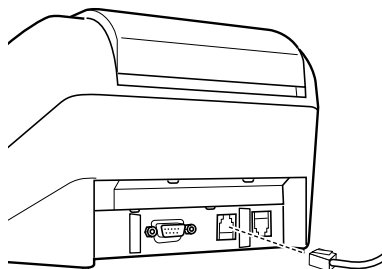
1.4 Attaching the Drawer, Ground Wire and Power Supply

RS-232C   LAN

DC Cable   Ground wire   Drawer kick cable
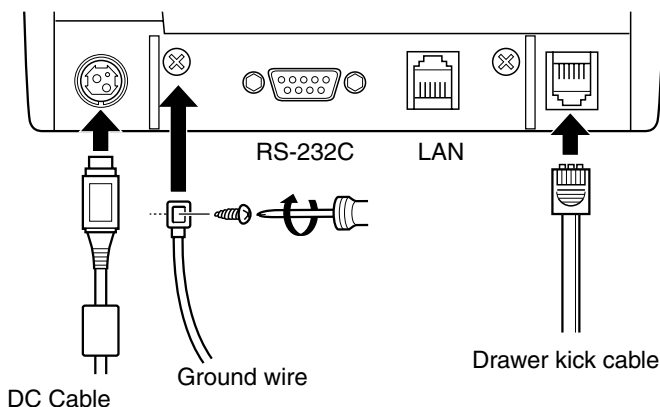
1.4.1 the Drawer
⚠ **CAUTION : *You need a drawer that meets the printer's specification.***

Do not connect a telephone line to the drawer kick-out connector.
Plug the drawer kick cable into the kick-out connector. If two drawers are used, use a Y-cable that meets the specifications on page 16 to ensure that both drawers receive signals correctly.

1.4.2 Ground Wire

Use a ground wire that matches your printer. It is recommended to use a ground wire that is at least the same length as the power cable. Connect the ground wire to the back of the printer with the supplied screw as shown above.

1.4.3 Power Supply

⚠️**CAUTION :** *Before connecting or disconnecting the power supply to the printer, make sure that the power supply is unplugged from the power outlet and connect the power cord into the adapter.*

1. Make sure that the adapter plug is unplugged from the power outlet.
2. Plug the DC cable into power connector with the flat side of the plug turned up.

⚠️**CAUTION :** *When disconnecting the adapter, turn the printer off and the DC cable out by gripping the plug. Do not pull it out by the cord.*

1.5 Self Test

Use the self test to check that your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, and displays the firmware version and DIP switch settings.

1. Make sure that the printer cover is closed properly and turn the power off.
2. While holding down the FEED button, turn the printer on and continue holding down the FEED button until the self test starts.
3. The self test will end automatically and detach the self test print out.

NOTE : Refer to **Chapter 3, Maintenance & Troubleshooting** about how to install and replace the paper roll.

1.6 DHCP server recognition

If the printer is connected via Ether-net cable, the system requires ID number and IP number of the printer. Activate DHCP server recognition, if your system has a DHCP server. (By DHCP server, IP numbers are set automatically.)

1. Make sure that the DIP SW 2-5 is set to on.
2. While holding down the ONLINE button, turn the printer on.
3. Check the printout result.

Chapter 2 Operation

Check the indicator lights to monitor the printing status.

2.1 Power Switch

Turn the printer ON or OFF.

2.2 Control Panel

2.2.1 FEED

Press the FEED button to advance the paper by one line. Hold down the FEED button to advance paper continuously.

2.2.2 ONLINE

Press the ONLINE button to put the printer online or offline. The green light indicates the printer is online. Pressing the online button during printing will pause printing until the online button is pressed again.

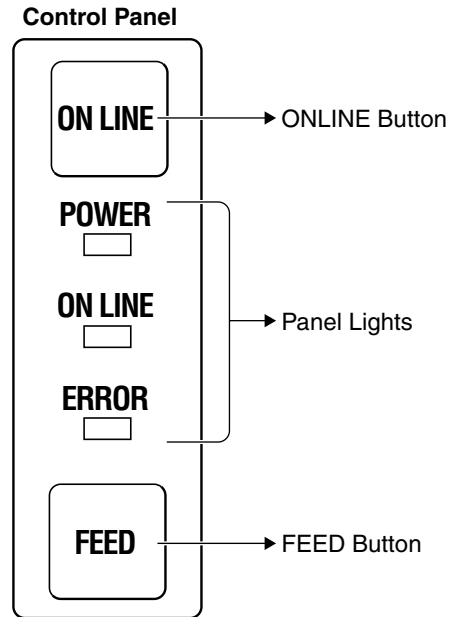## 2.3 Panel Lights

2.3.1 POWER LED

This lights up whenever the printer is on.

2.3.2 ONLINE LED

This lights up when the printer is in online.

2.3.3 ERROR LED

This indicates an error. Refer to page 11, **Troubleshooting** about any action for ERROR LED.

Control Panel

ON LINE → ONLINE Button

POWER
ON LINE → Panel Lights
ERROR

FEED → FEED Button

Chapter 3 Maintenance & Troubleshooting

3.1 Installing or Replacing Paper Roll

⚠️**CAUTION :** *Make sure that paper rolls meets printer's specification. Do not use paper rolls that have one end glued to the core. This causes excessive load on the paper feed.*

1. Make sure that the printer is not printing or receiving data, and open the printer cover by sliding the cover open knob. Unroll 10 to 15 cm of the paper as shown.
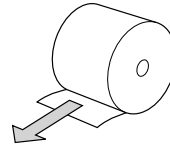
2. Insert the paper roll as shown.
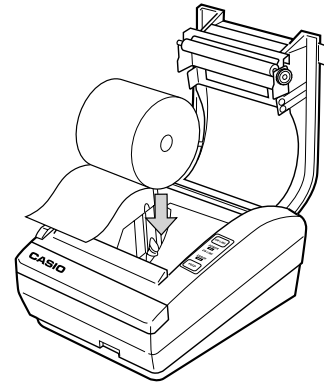
3. Pull out 10 to 15 cm of paper and close the printer cover as shown.
   Tear off the excess paper on the cutter edge.
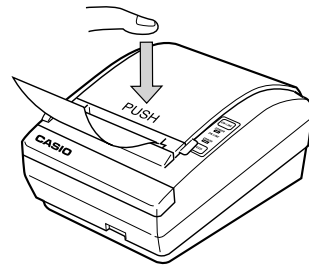
3.2 Adjusting the Paper Near End Sensor

A sensor detects when the paper roll is running out. Due to variation in the width of paper roll cores, it is difficult to measure the exact length of the paper left on the roll when the detector is triggered. The factory setting is based on a paper roll core with an outside diameter of 18 mm and an inside diameter of 12 mm. If you use a paper roll with different widths, adjust the setting as described below.

1. Open the printer cover and remove the paper roll.
2. Loosen the adjusting screw and move the tab to fit the core of the paper roll.
3. Tighten the adjusting screw.
4. Replace the paper roll and close the printer cover.

Tab
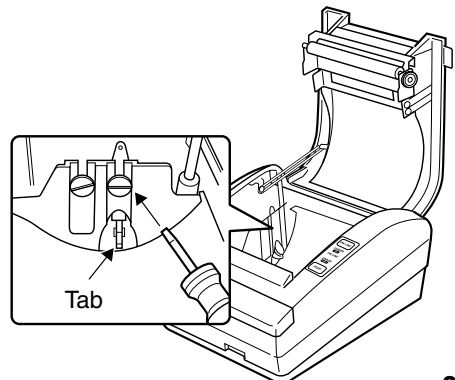
3.3 Paper Jam

⚠️**CAUTION :** *Do not touch the printer head because they are very hot after continuous printing. Do not attempt to clear a paper jam until the printer cools down.*

1. Turn the printer off and slide the cover open knob.
2. Remove the jammed paper and replace the paper roll.

If the printer cover can't be opened after a paper jam, follow the procedure below.

1. Push down and slide to remove the Automatic Paper Cutter Cover.
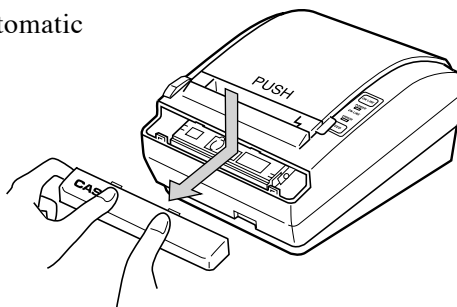
2. Pull up the clear film, and slowly turn the screw inside counter-clockwise until the cutter edge reaches home position.
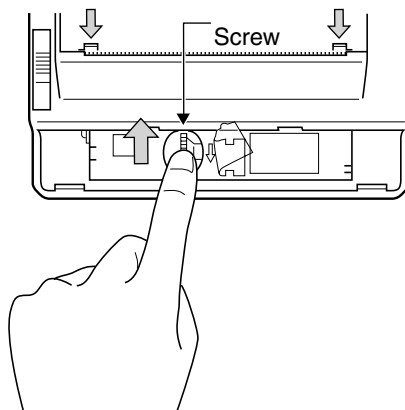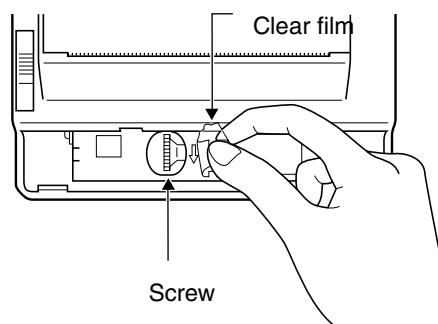
3. Push down and slide to close the Automatic Paper Cutter Cover.

4. Now, the printer cover should open easily. Remove the paper jam and replace the paper roll.

3.4 Troubleshooting

Error Contents	Causes/Points to check	Solutions
Can't turn the printer ON	Is the power switch turned ON?	Turn the power switch ON
	Is the connector on the power adapter properly connected?	Connect the connector firmly
	Does the printer reset when you turn the power switch ON?	If it does, something is wrong with the operation panel. Call for SERVICE*
	Does the LED on the adapter light up when connected to the wall?	If it doesn't, check the connection of the power supply cord. If the connection is OK, something is wrong with the adapter. Call for SERVICE*
	Other	Something may be wrong with the power switch parts or with the main board. Call for SERVICE*
The ON LINE indicator doesn't light up	Is the ERROR indicator ON?	If it is, see "the ERROR indicator is ON"
	Press the ON LINE button	If the ON LINE indicator turns on, it's normal
The ERROR indicator is ON	Check if the printer is out of paper	If paper is out, replace with a new roll
	The cover doesn't open even if you slide the cover open knob	The Automatic Paper Cutter may be locked. 3.3, "Printer Jam"
	The printer cover doesn't close completely	Open the cover by sliding the cover open knob, and close it again by pushing at center of the cover.
The ERROR indicator doesn't light up while paper is exhausted (The printer cover is close)	The ON LINE indicator lights up by using the ON LINE button	Something is wrong with the paper sensor of the main board inside the printer
	Other	Something is wrong with the operating panel
Can't print the self test	The ONLINE indicator is not ON	See "the ON LINE indicator doesn't light up"
	Printing causes the paper to feed	Something is wrong internally or with the printer head. Call for SERVICE*
Printing cannot be done by the commands from the HOST or printing garbled	Check print capability by running the self-test	If printing fails, call for SERVICE*
	Is the connector of interface firmly connected with screws?	Set the connector firmly and tighten the screws
	Check the setting of DIP switch	Refer Appendix and set the switches correctly, then power cycle the printer
The drawer kick doesn't work	Is the drawer kick connected properly?	Re-plug in the cable. You should hear or feel a click if the proper connection is made.
	Is Y-cable connected in reverse order?	Check the Y-cable and verify it is connected in the correct order
	Other	Something may be wrong with the main board inside the printer, and needs SERVICE CALL*
The ERROR indicator and ON LINE indicator flash on and off alternately	Check the setting of DIP switch	Refer to Appendix. Turn the printer off, make any necessary changes, then turn the printer on

* "SERVICE" or "SERVICE CALL" : Do not attempt to repair problems without requiring SERVICE CALL. It can be dangerous to your health and or cause additional damage to the product. Entries requiring SERVICE CALL are hardware failures and require repair by qualified service personnel.

Chapter 4 Important Safety Information

- Read all the direction and keep this manual for future use.
- Follow all of the warnings and instructions marked on the product and in this manual.
- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand or table. The product could fall, causing serious damage to the product and bystanders.
- Slots and openings on the back or bottom of the case are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, do not block or cover these openings. The openings should not be placed near or over a radiator or heater. This product should not be placed in a built-in installation unless proper ventilation is provided.
- This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Do not place this product where the cord will be walked on.
- If an extension cord is used with this product, make sure that the total of the ampere rating of the products plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- Do not push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Do not spill liquid of any kind on the product.
- Except as specifically explained in this manual, do not attempt to service this product by yourself. Opening and removing the covers that are marked "Do Not Remove" may expose you to dangerous voltage or other risks. Refer all servicing in these compartments to qualified service personnel.
- Unplug this product from the wall outlet and contact qualified service personnel after any of the following events:
  - The power cord or plug is damaged or frayed.
  - Liquid has been spilled into the product.
  - The product has been exposed to rain or water.
  - The product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require service by a qualified technician to restore the product to normal operation.
  - The product has been dropped or the cabinet has been damaged.
  - The product exhibits a distinct change in performance, indicating a need for service.
- Keep the poly bag which this equipment came packed in away from children, and or dispose of it safely to prevent children from putting it on. Putting it on can cause suffocation.

Chapter 5 Specification

5.1 Printing Specification

Type	UP-400	
Printing method	Direct Line Thermal	
Dot pitch	8 dot/mm	
Printing speed	210 mm per second (Max.)	
Printing width	72 mm / 576 dots	
Character structure	8×16 (font B)	12×24 (font A)
Printing columns	64 columns/line	44 columns/line
Character size	1.00×2.00	1.50×3.00
Fonts	US-ASCII, Katakana, international characters	
Feed speed	220 mm per second	
Interface	RS232C (serial), 10/100 Base - T/ TX	
Command	ESC/POS compliant	
Paper width & diameter	80 mm(W) $\times$ 80 mm Dia. Max.	
Thermal head life	100 km or more	
Cutting method *[1]	Partial cut (one point left uncut) *[1]	
Operating temperature	5 °C ~ 35 °C	
Storage temperature	-20 °C ~ 60 °C	
Dimension	145 mm(W) $\times$ 193.2 mm(L) $\times$ 120.1 mm(H)	
Transfer speed	38.4 kBps (Max.) : RS-232C	
Supply current in standby	24 V DC / 100 mA	
Mean current	Approx. 1.3 A *[2]	
Power consumption	Approx. 40 W *[2]	
Weight	1.1 kg	
Barcode alignment	○	
Near end sensor	Near end sensor	

*1 ⚠ **CAUTION :** *Paper must be fed 3 mm after cutting to prevent paper jam.*

*2 These values vary according to environmental temperature when printed font A (12×24) with a rolling pattern.

5.2 Paper Specification

Paper width: 79.5 ±0.5 mm(3.13 ±0.02")
Paper roll size: Roll diameter: Maximum 80 mm (3.15")
                         Take-up paper roll width: 80 +0.5/ -1.0 mm (3.15 +0.02/ -0.04")
Specified paper: Specified thermal roll paper: NTP080-80
                             [Paper: TF50KS-E2D Nippon Paper Industries Co., Ltd.]
                         Packaged roll paper:
                             [Paper: PD160R-N (Oji Paper Mfg. Co., Ltd.)]
                         The following paper can be used instead of the paper above:
                         Paper: HP220AB1 (Mitsubishi Paper Mills Ltd.)

Paper roll spool diameter: Inside   12 mm (0.47")
                           Outside   18 mm (0.71")

NOTE : The end of the paper roll must be free to come off the spool when finished. It must not be adhesively attached or attached in another semi-permanent manner.

5.3 Interface Specification

5.3.1 RS-232C Specification

Data transmission: Serial. EIA RS232C compliant
Synchronization: Asynchronous
Handshaking: DTR/DSR or XON/XOFF control (*)
Signal levels: MARK = -3 to -15 V: Logic "1"/OFF
                         SPACE = +3 to +15 V: Logic "0"/ON
Baud rate: 4800, 9600, 19200, 38400 bps (*)
Data word length: 8 bits, 7 bits (*)
Parity Settings: None, even, odd (*)
Stop bits: 1 or more
Connector (printer side): Male DSUB-9 pin connector
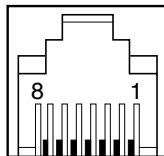
*The data word length, baud rate, and parity depend on the DIP switch settings. (Refer to **Appendix DIP Switch**.)

5.3.2 RS-232C Interface Connection Example

Host Side		Printer Side
(DTE ex.8251)		(Pin No.)
TxD	⟶	RxD (2)
RxD	⟵	TxD (3)
DTR	⟶	DSR (6)
DSR	⟵	DTR (4)
RTS	⟵┐	
CTS	⟵┘	
GND	⟷	GND (5)

5.3.3 LAN Connector

Pin	Description
1	TX+
2	TX-
3	RX+
4	Isolated GND
5	Isolated GND
6	RX-
7	Isolated GND
8	Isolated GND

5.3.4 Power Supply Connector
The connector is connected the printer to an external power source.

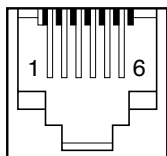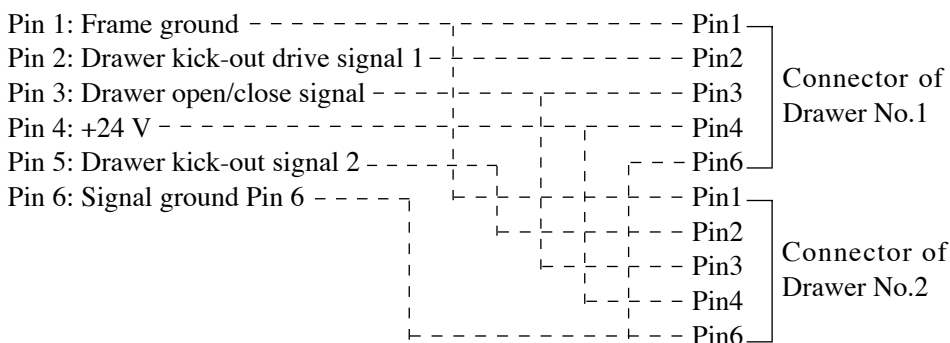| Pin	Description
1	+24 V
2	GND
3	NC
Shell	FG

Shell
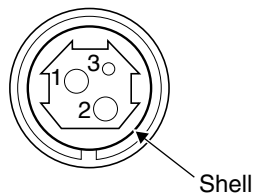
5.3.5 Drawer Kick-out Connector

The pulse specified by ESC p or DLE DC4 is output to this connector. The HOST can confirm the status of the input signal by using the DLE EOT, GS a, or GS r commands.

Pin	I/O	Description
1	-	Frame ground
2	Output	Drawer kick-out drive signal 1
3	Input	Drawer open/ close signal
4	Output	+24 V
5	Output	Drawer kick signal 2 *
6	-	Signal ground

*Two drawers can be used with a Y-cable that meets the following specifications.

Pin 1: Frame ground — — — — — — — — — — — — — — — Pin1
Pin 2: Drawer kick-out drive signal 1 — — — — — — — — — Pin2
Pin 3: Drawer open/close signal — — — — — — — — — Pin3   Connector of
Pin 4: +24 V — — — — — — — — — — — — — — — Pin4   Drawer No.1
Pin 5: Drawer kick-out signal 2 — — — — — Pin6
Pin 6: Signal ground Pin 6 — — — — Pin1
                                    Pin2
                                    Pin3   Connector of
                                    Pin4   Drawer No.2
                                    Pin6

Connector Model:
Printer side: MOLEX52065-6615 or equivalent
Used side: 6-position 6-contact (RJ12 telephone jack)

APPENDIX Dip Switch/ ID setting

A.1 Setting & Checking the Dip Switchs

A.1.1 Dip switch 1 setting

No.	Contentes	Status		Status	
1	Reset By Dtr Signals	Off	Invalid	On	Valid
2	Reserved	Off	Fixed to Off		
3	Protocol *2	Off	XON/XOFF	On	DTR/DSR
4	Baid rate	Refer to the table "a" below.			
5					
6	Parity	Refer to the table "b" below.			
7					
8	Busy status	Off	Buffer full	On	Buffer full + OFFLINE
9	Low power consumption mode *1	Off	Off	On	On
10	3 mm feed after auto cut	Off	Valid	On	Invalid

*1 Printing speed is fixed to 150 mm/sec. max. and power consumption to approx. 8 A max.
(instantaneous value).

*2 In case of connecting by LAN, select "ON".

Table "a" Baud rate

No.	4800 bps	9600 bps	19200 bps	38400 bps
4	off	off	on	on
5	off	on	off	on

Table "b" Parity

No.	NON	EVEN	ODD	NON
6	off	off	on	on
7	off	on	off	on

A.1.2 Dip switch 2 setting

| No.	Contentes	Status		Status	
1	Data reception error	Off	Print "?"	On	Ignore
2	Bit length	Off	8 bit	On	7 bit
3	Reception buffer full	Off	*1	On	*2
4	Set ID/ set IP	Off	Set ID	On	Set IP
5	Use DHCP server	Off	Disable	On	Enable
6	Set default value	Off		On	Set default value
7	Undefined	Off	/	On	/
8	Undefined	Off	/	On	/

*1 Until the room of the reception buffer increases from 1k bytes to 2k bytes

*2 Until the non-processing data in the reception buffer decreases from 31 bytes to 21 bytes

For changing DIP switch setting

1. Make sure that Power of the printer is turned off.
2. Loose the screw and remove the metal plate at the bottom of the printer.
3. Change the status of DIP switch by using something with a point.
4. Replace the metal cover and fasten the screw.
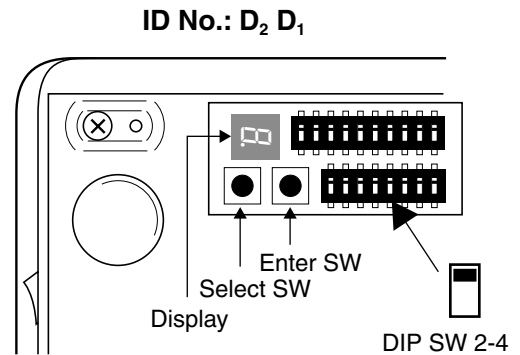
DIP Switch Position

Remove the screw and metal cover.
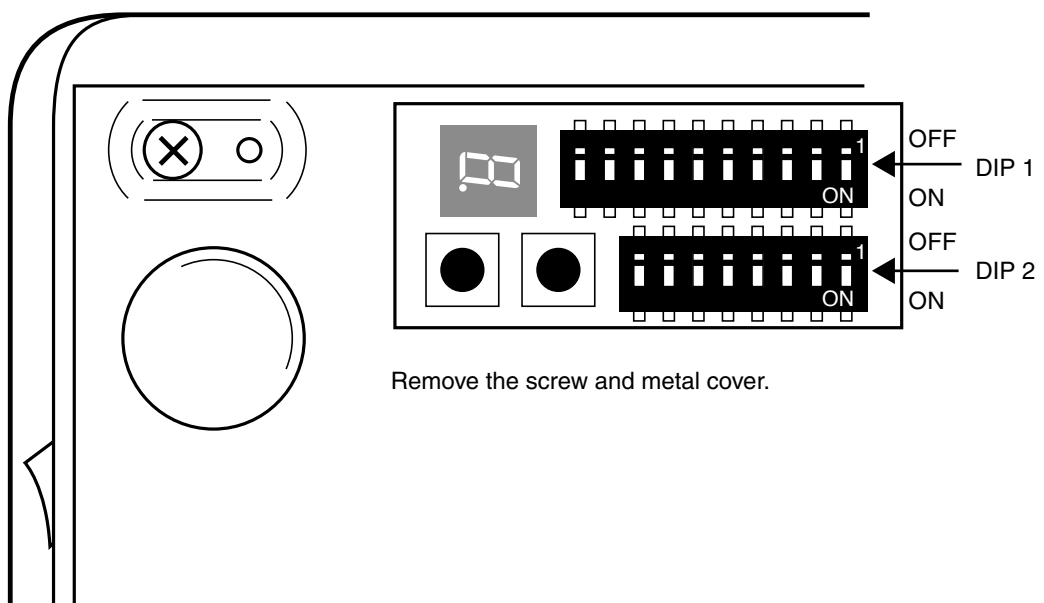
⚠ **CAUTION :** *The new status becomes effective when the printer power is turned on.*

A.2 Setting ID or IP number

A.2.1 ID number setting

1. Loose the screw and remove the metal plate at the bottom of the printer.
2. Make sure that the Dip switch 2-4 is in "Off" positon (Set ID).
3. Turn on the printer.
4. Press the "Enter SW" until the display blinking.
 (after a while, the printer blinks "0" twice and displays "0" continuously)
5. Press the "Select SW" until the appropriate number (upper digit) appearing on the display.
6. Press the "Enter SW".
 (after a while, the printer blinks "0" twice and displays "0" continuously)
7. Press the "Select SW" until the appropriate number (lower digit) appearing on the display.
8. Press the "Enter SW".
 (after setting D_1, the display is turned off.)
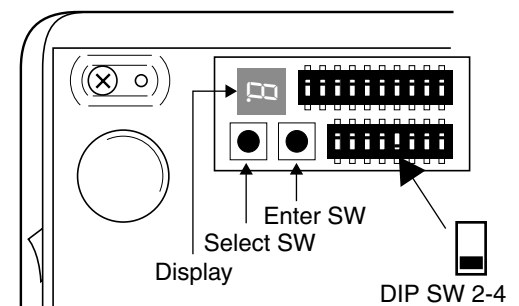9. Replace the metal cover and fasten the screw.

Note: Perform "1-5 Self test" to confirm the ID number setting.

ID No.: D_2 D_1

A.2.2 IP number setting

1. Loose the screw and remove the metal plate at the bottom of the printer.
2. Make sure that the Dip switch 2-4 is in "On" positon (Set IP).
3. Turn on the printer.
4. Press the "Enter SW" until the display blinking.
 (after a while, the printer blinks "0" twice and displays "0" continuously)
5. Press the "Select SW" until the appropriate number (10-th digit) appearing on the display.
6. Press the "Enter SW".
 (after a while, the printer blinks "0" twice and displays "0" continuously)
7. Repeat step 5. and 6, 11-times to set the lower digits.
 (after setting D_1, the display is turned off.)
8. Replace the metal cover and fasten the screw.

Note: Perform "1-5 Self test" to confirm the IP number setting.

IP : $D_{12}D_{11}D_{10}D_9 D_8 D_7 D_6 D_5 D_4 D_3 D_2 D_1$

Example:

In case of setting "192.168.0.15", enter "1", "9", "2", "1", "6", "8", "0", "0", "0", "0", "1", "5".

CASIO.