CITIZEN
Micro HumanTech

DOT MATRIX PRINTER
MODEL iDP3420
iDP3421
iDP3423
User's Manual

CITIZEN SYSTEMS JAPAN CO., LTD.

WEEE MARK

En If you want to dispose this product, do not mix with general household waste. There is a separate collection systems for used electronics products in accordance with legislation under the WEEE Directive (Directive 2002/96/EC) and is effective only within European Union.

Ge Wenn Sie dieses Produkt entsorgen wollen, dann tun Sie dies bitte nicht zusammen mit dem Haushaltsmüll. Es gibt im Rahmen der WEEE-Direktive innerhalb der Europäischen Union (Direktive 2002/96/EC) gesetzliche Bestimmungen für separate Sammelsysteme für gebrauchte elektronische Geräte und Produkte.

Fr Si vous souhaitez vous débarrasser de cet appareil, ne le mettez pas à la poubelle avec vos ordures ménagères. Il existe un système de récupération distinct pour les vieux appareils électroniques conformément à la législation WEEE sur le recyclage des déchets des équipements électriques et électroniques (Directive 2002/96/EC) qui est uniquement valable dans les pays de l'Union européenne.
Les appareils et les machines électriques et électroniques contiennent souvent des matières dangereuses pour l'homme et l'environnement si vous les utilisez et vous vous en débarrassez de façon inappropriée.

Sp Si desea deshacerse de este producto, no lo mezcle con residuos domésticos de carácter general. Existe un sistema de recogida selectiva de aparatos electrónicos usados, según establece la legislación prevista por la Directiva 2002/96/CE sobre residuos de aparatos eléctricos y electrónicos (RAEE), vigente únicamente en la Unión Europea.

It Se desiderate gettare via questo prodotto, non mescolatelo ai rifiuti generici di casa. Esiste un sistema di raccolta separato per i prodotti elettronici usati in conformità alla legislazione RAEE (Direttiva 2002/96/CE), valida solo all'interno dell'Unione Europea.

Du Deponeer dit product niet bij het gewone huishoudelijk afval wanneer u het wilt verwijderen. Er bestaat ingevolge de WEEE-richtlijn (Richtlijn 2002/96/EG) een speciaal wettelijk voorgeschreven verzamelsysteem voor gebruikte elektronische producten, welk alleen geldt binnen de Europese Unie.

Da Hvis du vil skille dig af med dette produkt, må du ikke smide det ud sammen med dit almindelige husholdningsaffald. Der findes et separat indsamlingssystem for udtjente elektroniske produkter i overensstemmelse med lovgivningen under WEEE-direktivet (direktiv 2002/96/EC), som kun er gældende i den Europæiske Union.

Por Se quiser deitar fora este produto, não o misture com o lixo comum. De acordo com a legislação que decorre da Directiva REEE – Resíduos de Equipamentos Eléctricos e Electrónicos (2002/96/CE), existe um sistema de recolha separado para os equipamentos electrónicos fora de uso, em vigor apenas na União Europeia.

Pol Jeżeli zamierzasz pozbyć się tego produktu, nie wyrzucaj go razem ze zwykłymi domowymi odpadkami. Według dyrektywy WEEE (Dyrektywa 2002/96/EC) obowiązującej w Unii Europejskiej dla używanych produktów elektronicznych należy stosować oddzielne sposoby utylizacji.

JM74932-00F

Declaration of Conformity

This printer conforms to the following Standards:

Low Voltage Directive 73/23/EEC, 93/68/EEC and the EMC Directive 89/336/EEC, 92/31/EEC, 93/68/EEC.

LVD : EN60950

EMC : EN55022   Class A
         EN61000-3-2
         EN61000-3-3
         EN55024

This declaration is applied only for 230V model.

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IMPORTANT SAFETY INSTRUCTIONS

- Read all of these instructions and save them for future reference.
- Follow all warnings and instructions marked on the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water.
- Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product.
- 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 never be blocked by placing the product on a bed, sofa, rug of other similar surface. This product should never be placed near or over a radiator or heater. This product should not be placed in an 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 re not sure of the type of power available, consult your dealer or local power company.
- Do not allow anything to rest on the power cord. 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 ratings 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.
- Never 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. Never spill liquid of any kind on the product.
- Except as explained elsewhere 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 points or other risks. Refer all servicing on those compartments to service personnel.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  A. When the power cord or plug is damaged or frayed.
  B. If liquid has been spilled into the product.
  C. If the product has been exposed to rain or water.
  D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered be the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  E. If the product has been dropped or the cabinet has been damaged.
  F. If the product exhibits a distinct change in performance, indicating a need for service.
- Please keep the poly bag which this equipment is packed in away from children or throw it away to prevent children from putting it on. Putting it on may cause suffocation.

WICHTIGE SICHERHEITSANWEISUNGEN

- Lesen Sie die nachfolgenden Anweisungen sorgfältig durch und bewahren Sie sie auf.
- Befolgen Sie alle auf dem Drucker vermerkten Hinweise und Anweisungen. Vor dem Reinigen grundsätzlich Stecker aus der Steckdose ziehen. Keine Flüssigkeiten oder Aerosolreiniger benutzen. Nut mit einem feuchten Tuch abwischen.
- Der Drucker darf nicht in der Nähe von Wasser aufgestellt werden.
- Drucker nicht auf einem unstabilen Wagen, Stand oder Tisch aufstellen. Der Drucker könnte herunterfallen und dabel beschädigt werden.
- Schlitze und Öffnungen im Gehäuse, in der Rückwand und im Boden dienen der Belüftung. Sie dürfen keinesfalls zugedeckt oder blockiert werden, da sich der Drucker sonst überhitzt. Drucker nicht auf ein Bett, Sofa, Teppich oder dergleichen stellen. Drucker nicht in der Nähe eines Heizkörpers aufstellen. Drucker darf nicht eingebaut werden, falls nicht für ausreichende Belüftung gesorgt ist.
- Drucker nur mit der auf dem Typschild angegebenen Spannung betreiben. Wenn Sie sich nicht sicher sind, fragen Sie ihren Händler oder ihr zuständiges Elektrizitätswerk.
- Nichts auf das Stromanschlußkabel stellen. Kabel muß so verlegt werden, daß man nicht darauftreten kann.
- Ein etwaiges Verlängerungskabel muß der Stromstärke aller daran angeschlossenen Geräte entsprechen.
- Keine Gegenstände in die Gehäuseschlitze schieben.
- Drucker darf nur da gewartet werden, wo im Handbuch angegeben, Öffnen und. Abnehmen von Abdeckungen, die mit "Do not remove" gekennzeichenet sind, könnte gefährliche spannungführende Stellen oder sonstige Gefahrenpunkte freilegen. Die Wartung solcher Stellen darf grundsätzlich nur von besonders ausgebildetem Fachpersonal vorgenommen werden.
  - A. Wenn das Stromanschlußkabel oder der Stecker beschädigt oder durch-gescheuert ist.
  - B. Wenn Flüssigkeit auf dem Drucker verschüttet wurde.
  - C. Wenn der Drucker im Regen gestanden hat oder Wasser darauf verschüttet wurde.
  - D. Wenn der Drucker trotz genauer Befolgung der Betriebsvorschriften nicht richtig arbeitet. Nur die in der Bedienungsanleitung angegebenen Einstellungen vornehmen. Ein Verstellen anderer Bedienungselemente könnte den Drucker beschädigen und macht umständliche Arbeiten eines qualifizierten Technikers erforderlich, um den Drucker Wieder auf den normalen Betrieb einzustellen.
  - E. Wenn der Drucker heruntergefallen ist oder das Gehäuse beschädigt wurde.
  - F. Wenn der Drucker in seiner Leistung nachläßt.
- Bitte halten Sie den Kunststoffbeutel, in den die Ware verpackt ist, von Kindern entfernt, oder werfen Sie ihn weg, damit er nicht in die Hande von Kindern gerät. Das Überstülpen des Beutels kann zum Ersticken führen.

Lärmemission kleiner 70dBA

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

CAUTION: Use shielded cable for this equipment.

Sicherheitshinweis

Die Steckdose zum Anschluß dieses Druckers muß nahe dem Grät angebracht und leicht zugänglich sein.

For Uses in Canada

This digital apparatus does not exceed the class A limits for radio noise emissions from digital, apparatus, as set out in the radio interference regulations of the Canadian department of communications.

Pour L'utilisateurs Canadiens

Cet appareil numérique ne dépasse pas les limites de carégorie a pour les émissions de bruit radio émanant d'appareils numériques, tel que prévu dans les réglements sur l'interférence radio du départment Canadien des communications.

<CAUTIONS>

1. Prior to using the equipment, be sure to read this User's Manual thoroughly.   Please keep it handy for reference whenever it may be needed.

2. The information contained herein may be changed without prior notice.

3. Reproduction of part or all of this User's Manual without permission is strictly prohibited.

4. Never service, disassemble, or repair parts that are not mentioned in this User's Manual.

5. Note that we will not be responsible for damages attributable to a user's incorrect operation/ handling or an improper operating environment.

6. Operate the equipment only as described in this User's Manual; otherwise accidents or problems may result.

7. Data are basically temporary; they cannot be stored or saved permanently or for a long time.   Please note that we will not be responsible for damages or losses of profit resulting from losses of the data attributable to accidents, repairs, tests, and so on.

8. If you have any questions or notice any clerical errors or omissions regarding the information in this manual, please contact our office.

9. Please note that, notwithstanding Item 8 above, we will not be responsible for any effects resulting from operation of the equipment.

SAFETY PRECAUTIONS ----- BE SURE TO OBSERVE

In order to prevent hazards to an operator or other persons and damage to property, be sure to observe the following precautions.

- The following describes the degrees of hazard and damages that can occur if the given instructions are neglected or the equipment is incorrectly operated.

⚠ **WARNING**	Negligence of this precaution may result in death or serious injury.
⚠ **CAUTION**	Negligence of this precaution may result in injury or damage to property.

⚠ This is an illustration mark used to alert your attention.

ⓘ This is an illustration mark used to indicate such information as an instruction or the like.

⚠ **WARNING**

- Never handle the equipment in the following manners, as it may break, become out of ord er, or overheat causing smoke and resulting in fire or electric shock.
  If the equipment is used in an abnormal condition, such as when broken, then problems, smoke emission, abnormal odor/noise, and fire can result. If an abnormal condition exists, be sure to turn off the power, disconnect the power plug from a plug socket, and contact our dealer. Never repair the equipment on your own - it is very dangerous.
- Do not allow the equipment to receive a strong impact or shock, such as kicking, stomping, hitting, dropping, and the like.
- Install the equipment in a well-ventilated place. Do not use it in such a manner that its ventilation port will be blocked.
- Do not install the equipment in a place like a laboratory where chemical reactions are expected, or in a place where salt or gases are contained in the air.
- Do not connect/disconnect a power cord or a data cable, while holding the cable. Do not pull, install, use, or carry the equipment in such a manner that force will be applied to the cables.
- Do not drop or insert any foreign substances, such as clips or pins, into the equipment.
- Do not spill any liquid or spray any chemical-containing liquid over the equipment. If any liquid is spilled on it, turn off the power, disconnect the power cable and power cord from the plug socket, and so on, and contact our dealer.
- Do not disassemble or remodel the equipment. Negligence of this may cause fire or electric shock.
- Should you drop or break this AC adapter by any chance, unplug it immediately and contact our office. Using it in that condition may result in fire or electric shock.
- Should water enter inside the equipment by any chance, unplug it and contact our office. Using it in that condition may result in fire or electric shock.
- Use the equipment only with the specified commercial power supply. Negligence of this may result in fire, electric shock, or problems.
- Do not damage, break, process, bend/pull by force, twist, or bundle an AC adapter cord. Also, do not put a heavy substance on it or heat it. The AC adapter could be broken, resulting in fire, electric shock, or trouble. If the AC adapter cord is damaged, contact our office.
- Do not connect/disconnect the AC adapter with wet hands. It may result in electric shock or other problems.
- Do not overload a single electrical outlet, using a table tap or a current tap socket. It may result in fire or electric shock.
- An equipment packing bag must be discarded or kept away from children. A child can suffocate if the bag is placed over the head.

⚠ PRECAUTIONS FOR INSTALLATION

- Do not use or store the equipment in a place exposed to fire, moisture, or direct sunlight, or in a place near a heater or a thermal device where the prescribed operating temperature and humidity are not met, or in a place exposed to much oil, iron powder, or dust.   The equipment may become out of order, emit smoke, or catch fire.
- Do not install the equipment in a place like a laboratory where chemical reactions are expected, or in a place where salt or gases are contained in the air.   There is a danger of fire or electric shock.
- Do not put any object on the printer.   It may cause trouble.
- Do not use the equipment near a radio or TV receiver.   Do not share the power from a plug socket a radio or TV receiver is connected to.   It may cause a reception problem.
- Use the equipment only at the specified voltage and frequency.   Otherwise, it may emit smoke and catch fire or cause other problems.
- Confirm that a plug socket used for connection has sufficient capacity.
- Do not overload a single electrical outlet in connecting the power cable.   It may result in the cable catching fire or a power outage.   Also, do not stamp or put any object on the cable.
- Never connect a grounding cable to a gas pipe.   There is a danger of explosion.   When connecting or disconnecting the grounding cable, be sure to disconnect the power plug from the plug socket.
- When connecting/disconnecting the cables, be sure to turn off the power first, including the connected side, and then connect/disconnect them, holding a plug and a connector.   Do not pull or carry the equipment with a load applied to the cable.
- Connect a connector cable securely.   If a reverse-polarity connection is made, internal elements may be broken or a mating device may be adversely affected.
- Use a shielding wire or twisted pair wire for a signal line, in order to minimize noise effect.   Avoid connecting to a device that is likely to generate noise.
- When a drawer kick connector is provided, do not connect any device other than the prescribed solenoid specifications.   Negligence of this could cause trouble.
- Use the equipment in an environment where there is a plug socket near the main body and you can easily disconnect the power plug from it, to shut off the power.
- When the equipment will not be used for a long period of time, unplug it.
- When transporting the equipment, remove the rolled paper from it.
- Install the equipment on a flat, stable desk in a well-ventilated place free from vibrations.   (Do not block the ventilation port.)

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⚠ PRECAUTIONS FOR HANDLING

Do not handle the equipment in the following manners, because problems may result.

- Do not use a power supply other than the specified AC adapter.
- Do not print when there is no recording paper or ink ribbon set in the equipment. The print head may be damaged
- Be careful not to drop foreign substances, such as clips, pins, and screws, into the main body.
- Do not spill any liquid or spray any chemical-containing liquid over the equipment.
- Do not stamp on, drop, hit, or give a strong shock to the equipment.
- Never use a pointed object, such as a pen, to operate the operation panel.
- Do not use Scotch tape to fasten paper together for continuous use.
- Never pull the set paper forcibly. When opening/closing the printer cover, take care that the paper will not be caught.

To Prevent Injury and Spreading of Damage

- Do not touch the printing part of the print head.
- When turning on the power, do not touch the moving parts, such as a cutter and gear inside the main body, or electric parts.
- Be careful to avoid bodily injure or damaging other objects with an edge of sheet metal.
- Should any error occur while operating the equipment, stop it immediately and disconnect the power plug from the plug socket.
- Should a problem occur, leave solving it to our serviceman. Do not disassemble the equipment on your own.
- When opening/closing the cover, and so on, be careful not to catch your hand or finger on the equipment.

ⓘ **DAILY MAINTENANCE**

- Prior to starting maintenance work, be sure to turn off the main body.
- Use a dry soft cloth to wipe off stains and dust from the surfaces of the main body case.   For severe soiling, dip the cloth in water and wring it, for wiping off the soil. Never use org   anic solvents, such as alcohol, thinner, trichlene, benzene, ketone, or chemical dusters.
- If the equipment is contaminated with paper powder, use a soft brush to clean it.

CONTENTS

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1. OUTLINE

This is a small-size dot impact printer developed for various data communication terminals, POS terminals, kitchen-use printers, bank card, terminals, and so on.

Its abundant built-in features allow you to widely use this printer for different applications. Prior to using it, read and understand this manual thoroughly.

1.1 Features

(1) Small size, light weight, and low price

(2) High-speed print (Bi-directional)

(3) Red and black print

(4) Very easy paper loading by the auto loading function

(5) Paper end detecting function

(6) Built-in auto cutter (ACS-230) (iDP3421)

(7) Built-in auto cutter and winder (iDP3423)

(8) Built-in power supply

1.2 Unpacking

(1) When unpacking the printer, confirm that the following parts are provided.

- Printer body   ----- 1 unit
- Cassette ribbon   ----- 1 piece
- Sample paper roll   ----- 1 roll
- User's manual   ----- 1 copy
- Power cord   ---- 1 piece
- Ferrite core   ---- 1 piece
- Fastener   ---- 1 piece

⚠ **CAUTION :**
- Install the printer on a flat and stable desk.
- Do not install the printer near a heater or in a place exposed to direct sunlight.
- Do not use the printer in a high-temperature, high-humidity, and contaminated environment.
- Do not allow dew condensation on the printer. If dew is condensed on it, leave the power turned off until dew condensation is gone.

2.   BASIC SPECIFICATIONS

2.1   Model Classifications

The printer model is classified by the following designation method.

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iDP3420   -   R   F   120
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Supply Voltage

120: For 120 V AC

230: For 230 V AC

Character Set

F: International

Interface
- CBM Mode
    R: Serial (RS-232C)
    P: Parallel (CENTRONICS Compliant)

- Star Mode
    S: Serial (RS-232C)
    C: Parallel (CENTRONICS Co mpliant)

- ESC/POS Mode
    T: Serial (RS-232C)
    I: Parallel (CENTRONICS Compliant)

Model Name
- iDP3420 Standard Model
- iDP3421 With Auto Cutter
- iDP3423 With Auto Cutter and Winder

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2.2 Basic Specifications

Model \ Item	iDP3420	iDP3421	iDP3423
Printer mechanism	DP-410 series (CITIZEN)		
Print method	Serial dot impact method (Bidirectional print)		
Print width	64 mm		
Print head	9 pins		
Print speed	Approx. 3 lines/second (At single-color continuous print)		
Print columns	40 or 42 columns (Selectable with the DIP switch)		
Character size	1.31 mm(W) $\times$ 3.1 mm(H)		
Character types	Alphanumeric, Katakana, International characters, Codepage PC850, PC860, PC863, PC865, PC852, PC857, and Windows codepage		
Line spacing	4.23 mm(1/6 inch) or 2.82(1/9 inch) Minimum paper feed pitch: 1.41 mm(1/18 inch)		
Paper	Ordinary paper and non-carbon paper: 76 +/- 0.5 mm(W) $\times$ ϕ83 mm(OD); Single-sheet paper: 45 to 55 kg/1,000 sheets/1,091 $\times$ 788 mm; Copying paper: Non-carbon paper, 1 original + 1 copy, Total thickness 0.2 mm or less		
Ink ribbon	Special purpose ribbon cartridge red/black or single color(Black)		
Interface	Serial(RS-232C), Parallel(CENTRONICS compliant)		
Command system	CBM mode, Star mode, ESC/POS mode The user can select the mode with the DIP switch and preset jumpers.		
Print function	Provided by operating the on-line, self-test, hex. dump print function power switches and LF switch		
Input buffer	6 KB or 256 bytes (Selectable with the DIP switch)		
Buffer backup function	Within 24 hours (After 10 minutes or more of printer operation)		
Drawer function	2-drawer, 1-drawer switch		
Auto loading function	Automatically feeds the paper by several lines when it is inserted.		
Paper end detection	Stops printing when the paper has run out.		
Paper near end detection	Stops printing when the paper is running out.(Settable with a command)		
Auto cutter	None	ACS-230 (Capable of partial and full cut)	
Winder	None		Special purpose winder
Supply voltage	120 V AC +/- 10 %, 50/60 Hz, 120 V AC special purpose cord set 230 V AC +/- 10 %, 50/60 Hz, 230 V AC special purpose cord set		
Power consumption	Not printing: Approx. 10 W, Printing: Approx. 30 W		
Weight	Approx. 2.4 kg	Approx. 2.6 kg	Approx. 2.8 kg
Outer dimensions	164 (W) $\times$ 248 (D) $\times$ 140 (H) mm		164 (W)$\times$280(D)$\times$183(H)
Operating temperature and humidity	0 to 40°C, 35 to 85 % RH (No dew condensation)		
Storage temperature and humidity	-20 to 60 °C, 10 to 90 % RH (No dew condensation)		
Reliability	Print head: 80,000,000 characters, Mechanism: MCBF 2,500,000 lines (With single-sheet recommended paper), Auto cutter: 300,000 cuts (With single-sheet recommended paper)		
EMI standard	Japanese: Vccl Class-A U.S.A.: Fcc Class-A Europe: EN55022 Class-B CE Marking		
Safety standard	U.S.A., Canada: UL, c-UL Europe: TUV, GS		

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2.3   Paper Specifications

2.3.1   Recommended Paper

- Type   : Normal paper and non-carbon paper
- Paper width   : 76 +/- 0.5 mm
- Paper thickness   : Single-sheet paper   --- 45 to 55 kg/1,000 sheets/1,091 × 788 mm;

                                  Copying paper   --- Non-carbon paper, 1 original + 1 copy,

                                                               Total thickness 0.2 mm or less
- Roll diameter   : ϕ83 mm or less (Normal paper)

                                  ϕ60 mm or less (Normal paper only for journal) (iDP3423)

                                  ϕ80 mm or less (Copying paper) (iDP3423)
- Core   : ϕ12 mm (Inner Diameter), ϕ18 mm (Outer Diameter)

2.3.2   Printing Position
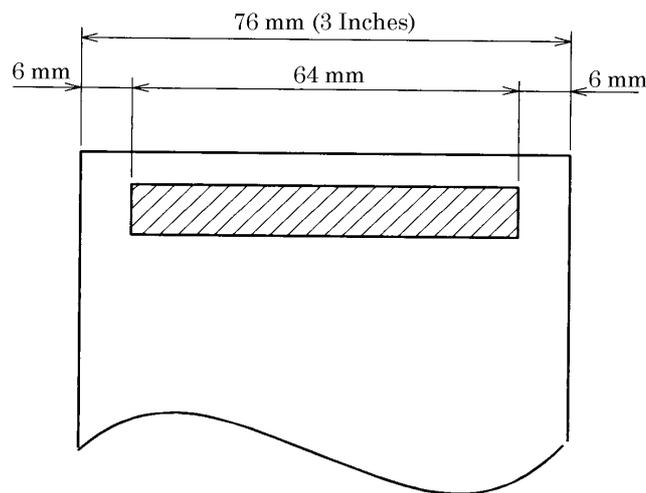
2.3.3   Cutter Layout

iDP3420 tear bar position   : Approx. 21 mm

iDP3421/3423 auto cutter cutting position   : Approx. 22 mm

CITIZEN
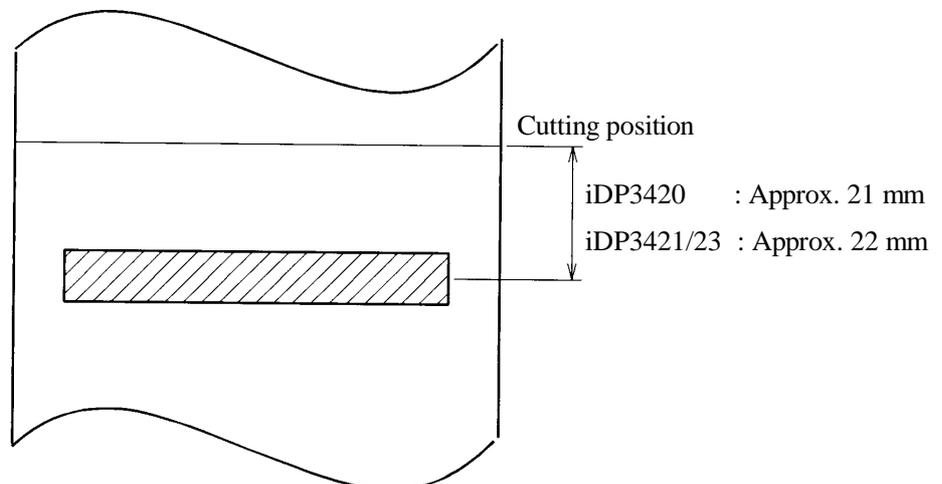
3. OUTER APPEARANCE AND COMPONENT PARTS

3.1 iDP3420

POWER Lamp

ERROR Lamp

FEED Switch

Power Switch

Top Cover

Grounding Terminal

Power Connector

Drawer Kick-Out Connector

Interface Connector

3.2   iDP3421

POWER Lamp

ERROR Lamp

FEED Switch

Power Switch

Top Cover

Grounding Terminal

Power Connector

Drawer Kick-Out Connector

Interface Connector

3.3   iDP3423

POWER Lamp

ERROR Lamp

FEED Switch

Power Switch

Top Cover

Grounding Terminal

Power Connector

Drawer Kick-Out Connector

Interface Connector

4. OPERATION

4.1 Connecting the Power Cord

1. Turn off the Power switch.

2. Connect a power cord connector to the power connector located on the back of the printer.

3. Connect a power cord plug to a plug socket where the specified voltage is available.

⚠ **CAUTIONS :**
- Use the AC power supply different from the one used for any noise-generating device.
- When disconnecting the power cord, be sure to hold its plug.
- Pulling the power cord could damage it and result in a fire, electric shock, or snapping of the wire.
- If lightning has occurred in the nearby area, disconnect the power cord from the plug socket and refrain from using the printer. A lightning strike could result in a fire or electric shock.
- When the printer is not used for a long period of time, be sure to disconnect the power cord from the plug socket for safety.

Power Cord
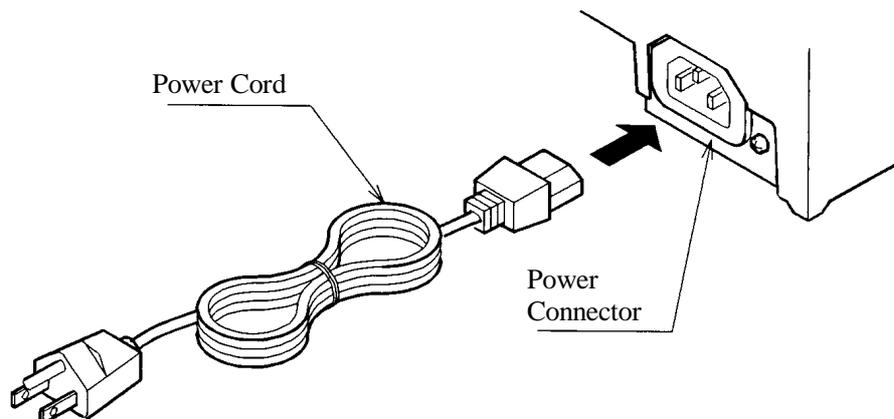
Power Connector

4.2 Connecting the Interface Cable

1. Turn off the power. (Mating side included)

2. Check the top and bottom of the cable terminals, and connect to the interface connector.

3. Secure the cable terminals.

        Serial interface   : Tighten screws to secure.

        Parallel interface   : Turn clamps to secure.

4. Connect the interface cable to the computer.
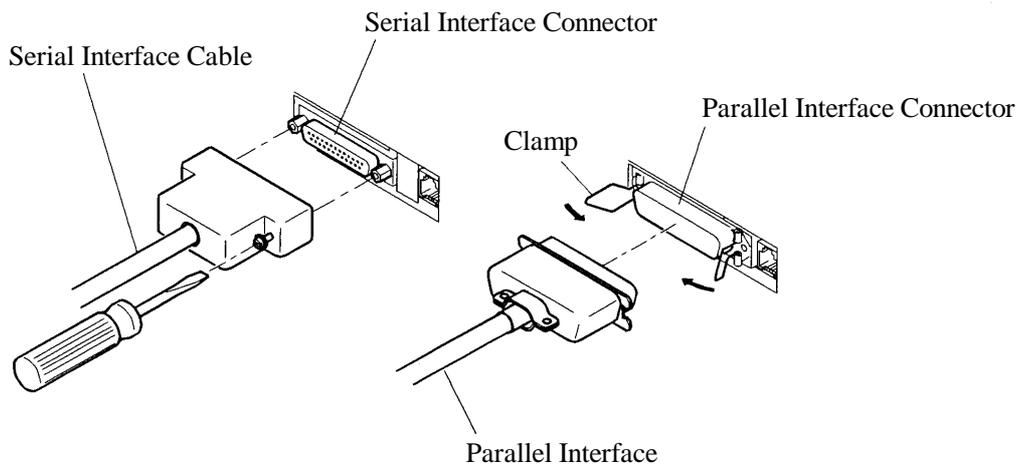
4.3   Attaching the Ferrite Core to the Interface Cable

1. Turn off the power.(Mating side included)

2. With a regular screwdriver, unlatch and open the ferrite core.
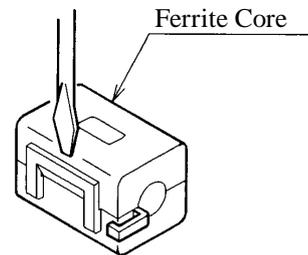
Ferrite Core

3. Attach the ferrite core to the interface cable so that its end face will be within up to 5 cm.

Interface Cable

Ferrite Core

Within 5 cm
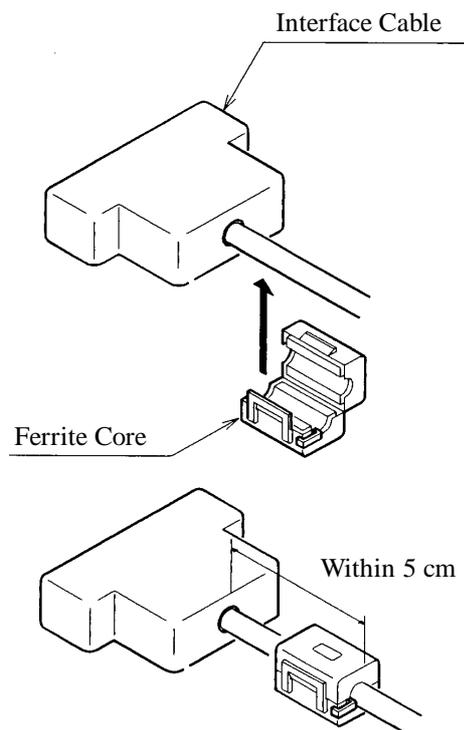
4. Secure the arm of the ferrite core onto the cable with a fastener so that the ferrite core will not move.   Cut off the surplus part of the fastener.

Fastener

Arm
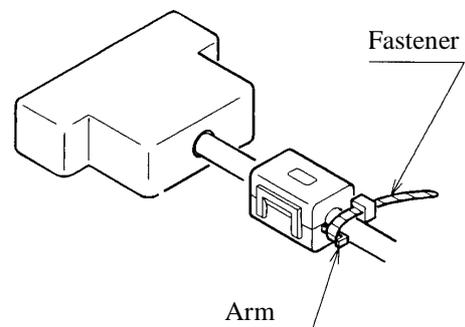
4.4   Connecting the Drawer Kick-Out Connector

1. Turn off the power.

2. Check the top and bottom of the drawer kick-out cable connector and connect it to the drawer kick-out connector located on the back of the printer.

3. Screw the grounding cable of the drawer to the grounding terminal of the printer.

⚠ **CAUTION:** ● Connect only the prescribed drawer (Solenoid) to the drawer kick-out connector.

Drawer Kick-Out Connector

Drawer Kick-Out Cable Connector

Earth Terminal
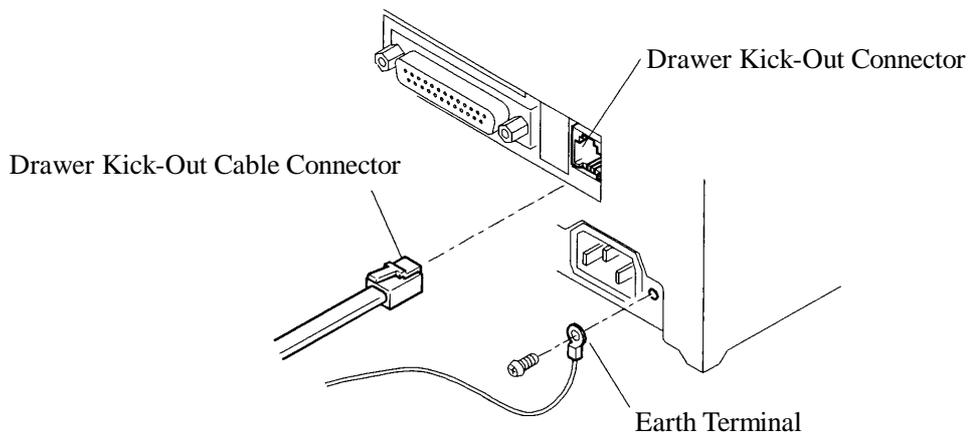
4.5   Opening/Closing the Auto Cutter (iDP3421/3423)

The auto cutter is secured by a magnet.   Hold the auto cutter and turn it in the arrow-indicated direction to open/close it.

⚠ **CAUTION:** ● When closing the auto cutter, do so gently not to give a shock.
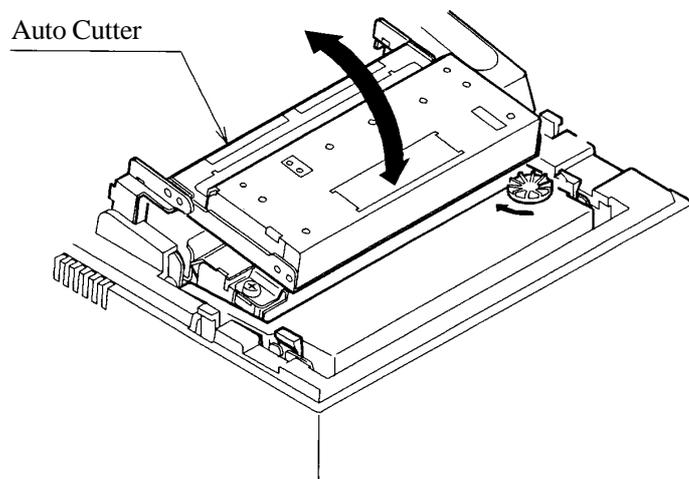
Auto Cutter

4.6   Setting the Cassette Ribbon

(1) Open the printer cover.

(2) Open the auto cutter. (iDP3421/3423)

(3) If the ribbon is slackened, turn the knob in the arrow-indicated direction to give the tension to it before setting.

(4) While putting the ribbon in between the head cover and platen, push the locking claws into the holder of the printer.

(5) Turn the knob of the cassette ribbon in the arrow -indicated direction to eliminate slackness of the ribbon.

(6) To remove the cassette ribbon, lift it while tilting the locking claws on both sides toward the inside.

(7) Close the auto cutter. (iDP3421/3423)

⚠ **CAUTION:** ● When closing the auto cutter, do so gently not to give a shock.
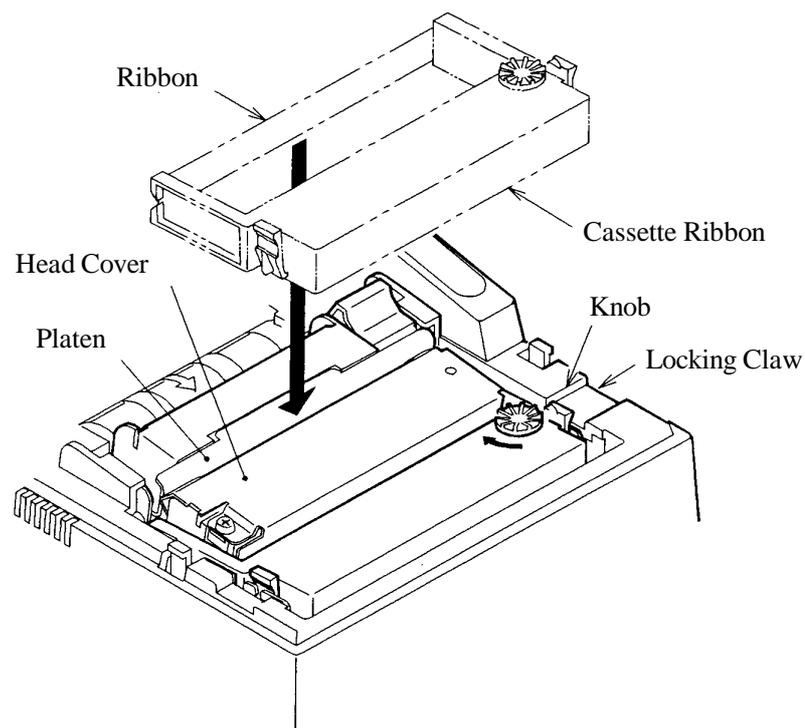
4.7   Inserting the Paper

4.7.1   Inserting the Paper (iDP3420/3421)

(1) Put your hands in the concave parts on both sides of the printer cover, and open it until it comes to a stop.

(2) Cut the end of the paper roll at close to a right angle.

⚠ **CAUTION :**
- Be sure to use the specified paper roll.
- Use of unspecified paper may adversely affect print quality, printer service life, and so on.
- The printer cover is not detachable. Do not apply an excessive force beyond its stopping position.
- Do not insert a frayed or bent end of paper into the printer.

Good	No Good	No Good	No Good
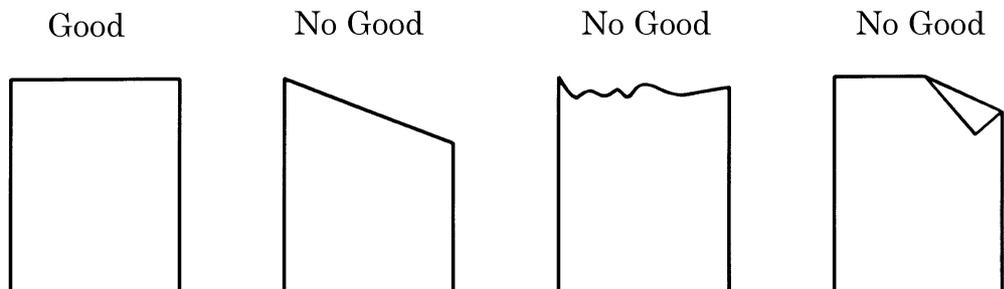
(3) Check the winding direction of the paper roll.

(4) Opening the paper holder, support the center of the paper roll correctly.

(5) Turn on the printer.

(6) Insert the end of the paper roll straight into the paper inlet slot (Indicated by an arrow on the case).

(7) The paper is automatically fed in and comes out the paper outlet of the printer (Paper outlet of the auto cutter for the iDP3421).

(8) iDP3420:   Put the paper into the paper outlet of the printer cover, close the cover, and cut the surplus paper by the tear bar.

iDP3421:   Cut the surplus paper by the tear bar at the paper outlet of the auto cutter and close the printer cover.

⚠ **CAUTION :**
- If the paper is slack, rewind it, to remove the slack.
- If the paper is set slantwise, operate the paper-free lever, to correct the paper position.
- While printing, do not hold the paper.   This ca n cause a paper jam.
- When closing the auto cutter, do so gently not to give a shock.

Paper Roll Setting Direction
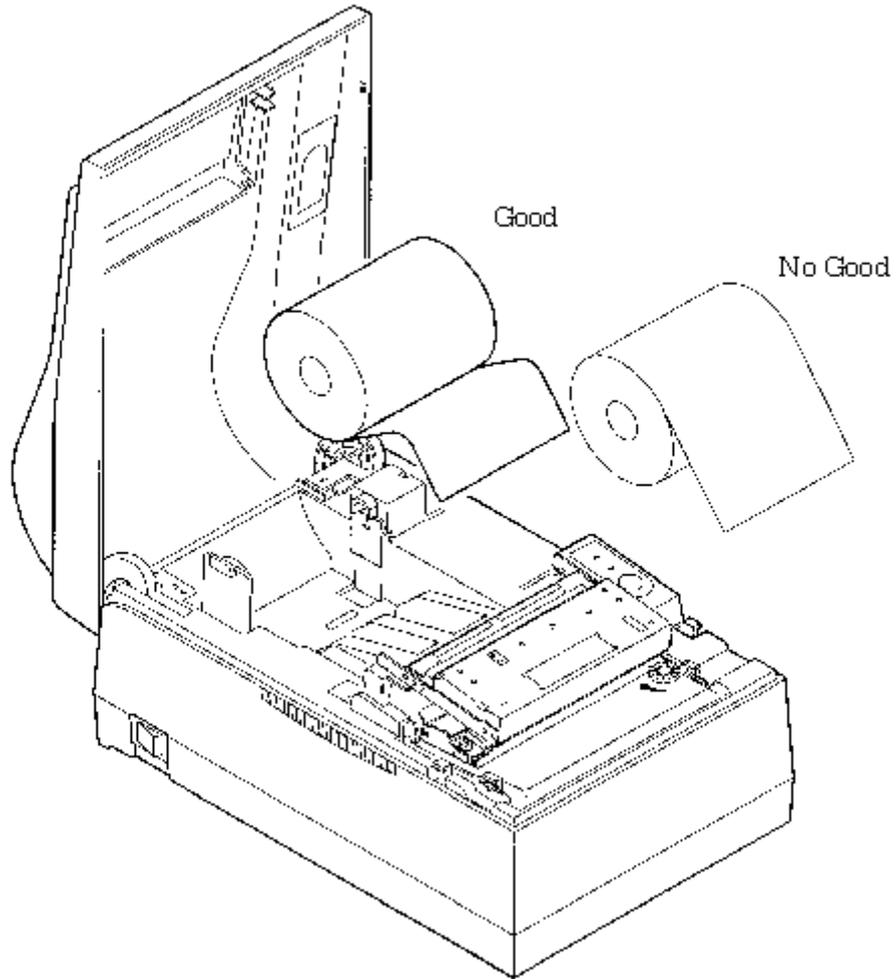
4.7.2 Inserting the Paper Roll (Duplicable 2-sheet Paper) (iDP3423)

1. See Steps 1 to 6 in 4.7.1 Inserting the Paper.

2. Press the FEED switch to feed the paper until the end of the paper comes out of the paper outlet port of the auto cutter by about 25 cm.

3. Open the auto cutter and pull out the paper roll from it.

4. Thread the journal paper (Copying paper) between the auto cutter and platen.

5. Thread the receipt paper (Original paper) tightly through the auto cutter, close the cutter, and cut the surplus receipt paper by the tear bar.

6. Insert the end of the journal paper into the slot in the winding reel and set onto the reel holder .

7. Turn the winding reel to tighten the receipt paper.

8. Close the printer cover.

⚠ **CAUTIONS :** • If the paper is still slackened, wind it back to eliminate slackness.

• If the paper is set slantly, operate the paper free lever to correct a paper positio n.

• Do not hold the paper while printing.   It could cause a paper jam.

• When closing the auto cutter, do so gently not to give a shock.
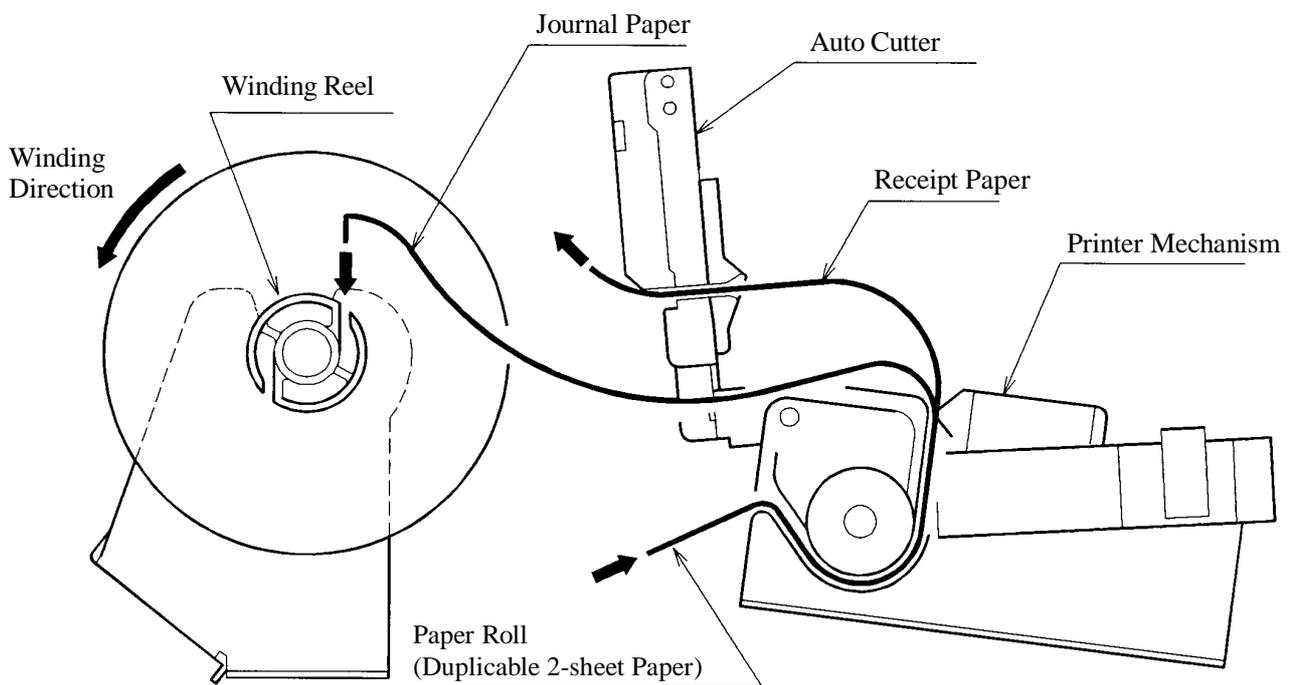
Paper Path (Duplicable 2-sheet Paper) Illustration Drawing

4.7.3 Removing the Wound Paper Roll (iDP3423)

1. Open the printer cover.
2. Remove the paper roll by cutting it halfway or pushing the paper free lever in the arrow-indicated direction.
3. Detach the winding reel.
4. Pull out a flange from one side of the winding reel.
5. Pull out the paper roll from the winding reel.

Flange
Winding Reel
Paper Roll (Receipt Paper)
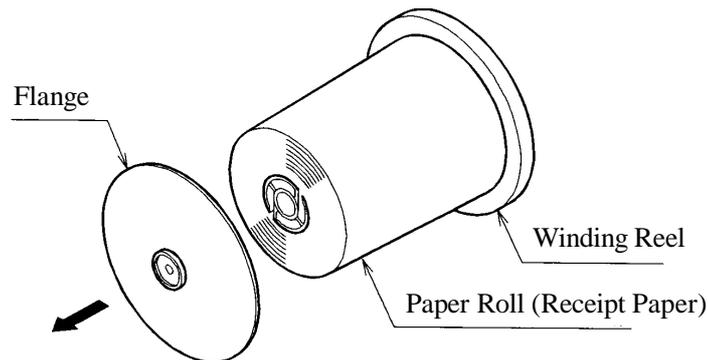
4.8 Adjusting the Paper Near End Sensor

1. Close the printer cover.
2. Loosen a sensor fixing screw.
3. Slide the sensor unit up/down and tighten the fixing screw at an adequate position.

Sensor Position versus Paper Remaining Amount

The following table shows a paper remaining amount depending on the remaining amount mark position on the sensor unit. (When the specified paper roll is used)

Mark Position	Paper Roll Remaining Diameter	Paper Roll Remaining Amount
1	Approx. φ21 mm	Approx. 1.2 m
2	Approx. φ23 mm	Approx. 2.2 m
3	Approx. φ25 mm	Approx. 3.2 m

Sensor Fixing Screw
Remaining Amount Marks
Sensor Unit
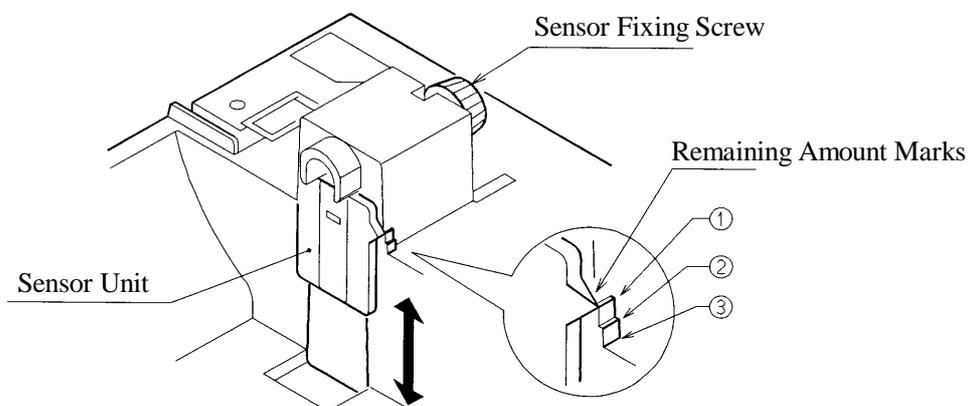
4.9 How to Remove Remaining Paper Roll

(1) Open the printer cover.

(2) Open the auto cutter. (iDP3421/3423)

(3) Pushing the paper-free lever in the arrow direction, pull out the paper roll.

(4) Close the auto cutter. (iDP3421/3423)

⚠ **CAUTION :**   ● When pulling out the paper (Forward/Reverse direction), be sure to operate the paper-free lever.

   ● When closing the auto cutter, do so gently not to give a shock.
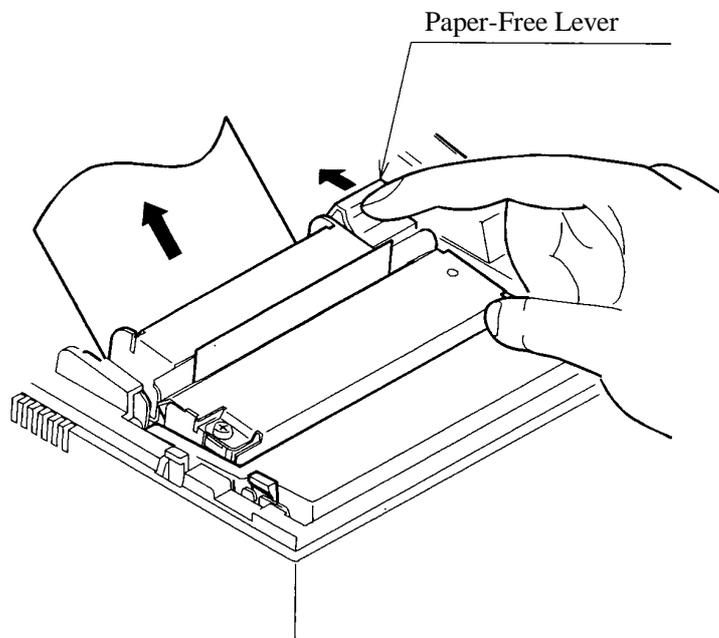
Paper-Free Lever

4.10 Removing Paper Jam

(1) Open the printer cover.

(2) Cut off the paper near the paper inlet slot.

(3) Push the paper-free lever in the arrow direction.   The paper feed roller is disengaged, to free the paper, allowing you to eliminate the jammed paper.

(4) Eliminate completely the paper remaining in the paper route.

⚠ **CAUTION :** ● When pulling out the paper (Forward/Reverse direction), be sure to operate the paper-free lever.

4.11   Unlocking the Cutter (iDP3421/3423)

1. Open the printer cover.

2. Press the FEED switch. The auto cutter is initialized to return its blade and clear an alarm.

3. If the paper is jamming, eliminate the jamming paper completely, seeing "4.9 Removing Paper Jam."

4. If the alarm still cannot be cleared, turn off the power and open the auto cutter.

5. You can see an emergency knob through a small hole in the back of the auto cutter. Using tweezers, screwdriver, etc., turn the knob in the arrow-indicated direction to return the blade. If there is a paper jam or paper refuse, eliminate it completely.

⚠ **CAUTION:**   • When pulling out the paper(Forward/Reverse direction), be sure to operate the paper free lever.

   • When closing the auto cutter, do so gently not to give a shock.

Auto Cutter   Emergency Knob
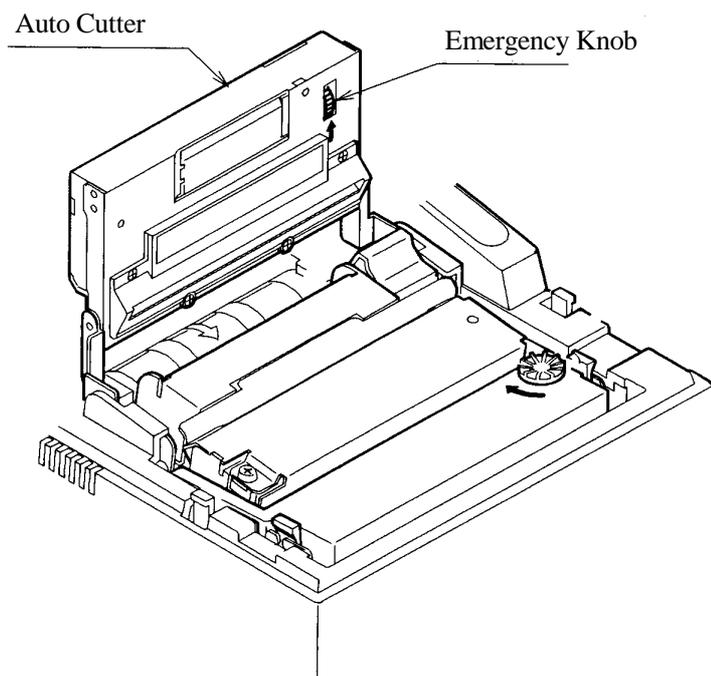
4.12   Operation Panel and Display of Error

1. POWER lamp (Green)

   This lamp is illuminated when the power is supplied.

2. ERROR lamp (Red)

   This lamp is illuminated or blinks to indicate each error.

Error Indication	ERROR Lamp	Buzzer	Resetting Method
Mechanical Error	Quick blinking	Sounds continuously for approx. 1 second	Reset the Power switch.
Paper End	Illuminated	Repeats a short 3-time sound twice at intervals of 0.5 second.	Set a new paper roll.
Paper Near End	Blinks (Once a second)	Repeats a short 3-time sound twice at intervals of 0.5 second.	Set a new paper roll.
Cutter Motor Lock (iDP3421/23 only)	Quick blinking (Twice a second)	Sounds continuously for approx. 1 second.	Eliminate a paper jam.

Mechanical Error : If the printer mechanism has a greater load due to a paper jam, etc., the buzzer will sound and the ERROR lamp will blink to stop the printer mechanism.

Paper End : If the paper has run out, the paper sensor in the paper path near the print head will detect the end of the paper roll, turn on the buzzer, and illuminate the ERROR lamp to stop the printer mechanism.   If the paper is inserted into the paper path, the paper roll will be loaded. (See 4.7 Inserting the Paper)

Paper Near End : If the paper is running out, the paper near end sensor will be activated to turn on the buzzer and make the ERROR lamp blink.   Even after the paper near end is detected, a command can be used to print by the specified number of lines. (See a description on the command for setting the number of print lines after paper near end detection)

Cutter Motor Lock (iDP3421/23 only) : If the cutter position detection sensor in the cutter unit is left turned on or off for approx. 1 second while the cutter motor is running, cutter operation and printing will be suspended, determining it to be motor lock.

3. FEED switch

   If this switch is pressed once for a short time, the paper will be fed by 1 line.   If it is held down, the paper will be fed continuously.

4. FEED switch and Power switch

   When the power is turned on, the printer follows the operation flow at "power-on" on the next page, depending on how the FEED switch is operated.

POWER — POWER Lamp
ERROR — ERROR Lamp
FEED — FEED Switch

4.13   Operation Flow at Power-on

```
                          ( Power-on )
                               │
                               ▼
              OFF        ◇ Feed SW ? ◇
        ◄──────────────                
                               │ ON
                               ▼
                          ◇ Buffer data ◇ ──YES──►  ┌─────────────────────────┐
                               │                    │ "Clear Data in Buffer"  │
                               │ NO                 │ Yes(FEED SW) and Enlarged│
                               ▼                    │      Red Print           │
                      ◇ 1 Sec. Passed ◇ ──NO──►     └─────────────────────────┘
                               │                                 │
                               │ YES                             ▼
                               ▼                        ◇ 1 Sec. Passed ◇ ──YES──►
              OFF     ◇ FEED SW ?   ◇                            │ NO
        ◄─────────────  (CONTINUE)                               ▼
                               │ ON                     ◇ FEED SW ?  ◇
                               ▼                   OFF    (AGAIN)        
        ┌───────────────────┐  ┌───────────┐   ◄───────    │ ON
        │ Prints "=Hexadecimal│  │ Test Print│              ▼
        │ Dump=."   Dump Mode │  └───────────┘      ┌──────────────────┐
        └───────────────────┘                       │ Input Buffer Clear│
                                                     └──────────────────┘
                               │
                               ▼
                          ◇ Buffer Data ◇ ──NO──►
                               │ YES
                               ▼
              ┌──────────────────────────────┐
              │ Prints "Power Down(Data in    │
              │ Buffer)" in Red, Followed by  │
              │ Buffer Contents.              │
              └──────────────────────────────┘
                               │
                               ▼
                     ( Waits for Data Input )
```
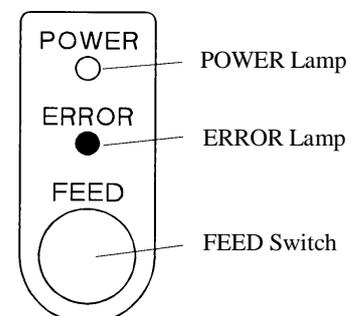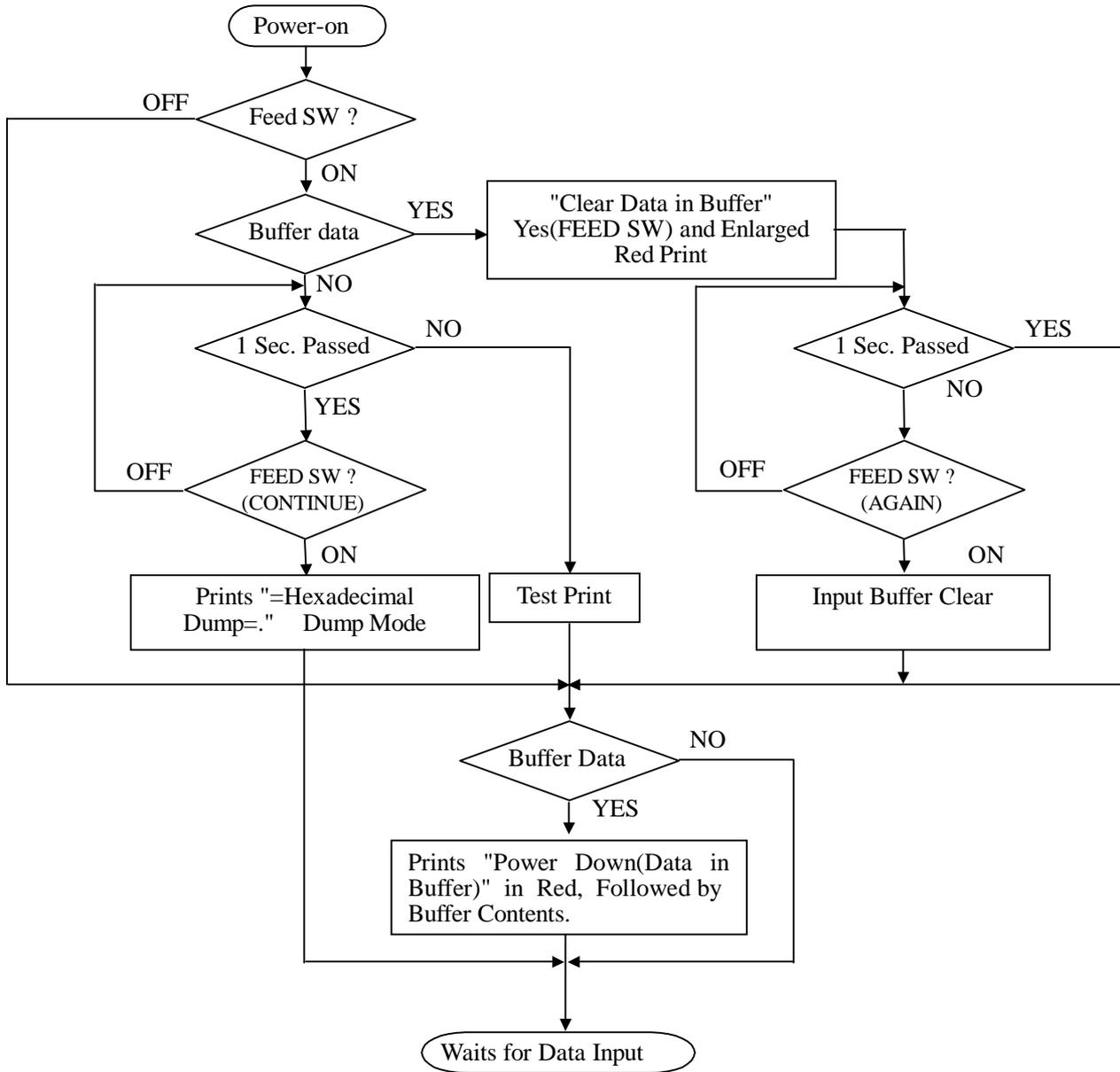
5. DIP SWITCH SETTING

5.1 Location of DIP Switch

1. Turn off the power.

2. Open the printer cover.

3. If the paper roll has been set, remove it from the paper holder.

4. Detach the DIP switch cover.   The DIP switch can be found at the location shown in the figure below.
   (Only DS1 is available for the parallel interface)

DIP Switch Cover

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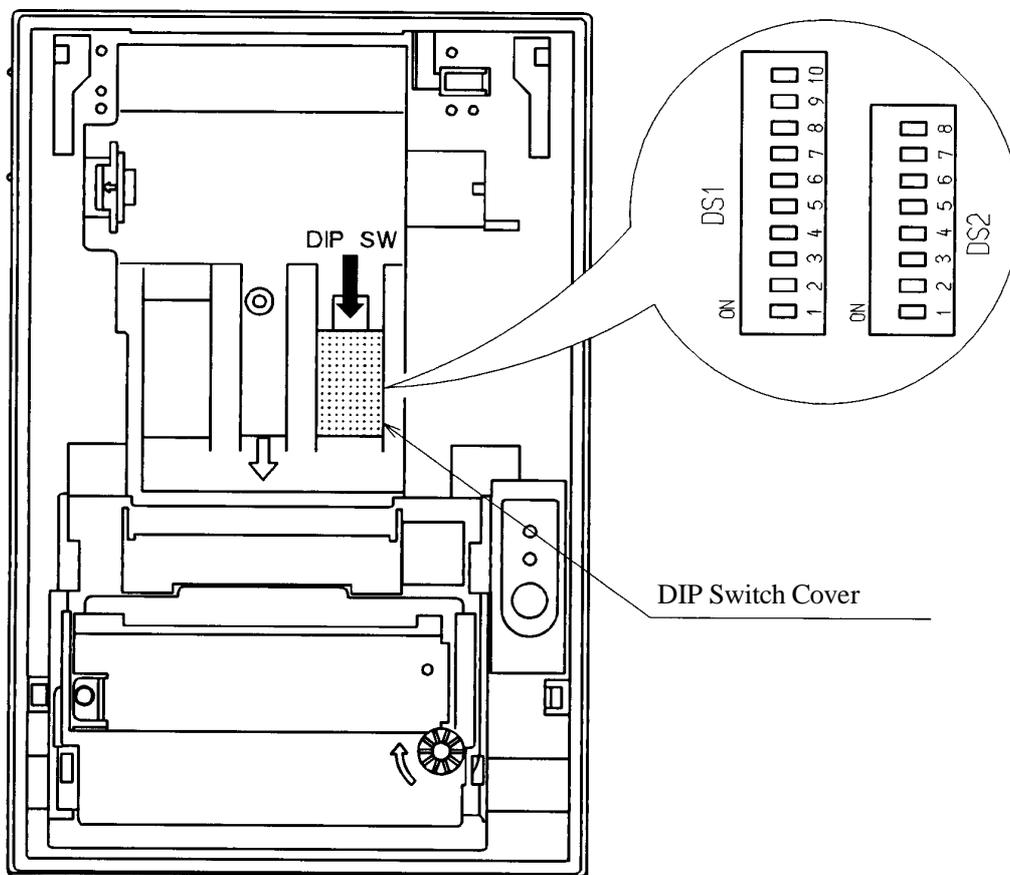
5.2　DIP Switches Setting

1) DIP Switch 1

No.	Function	ON	OFF	Upon Shipment from Factory
DS1-1	Auto cutter	Yes	No	ON *1
DS1-2	International characters			ON *2
DS1-3	"	See the Table below		ON *2
DS1-4	"			ON *2
DS1-5	Paper used	2P	1P	OFF
DS1-6	CR mode	See the Table below		OFF
DS1-7	Columns	42 columns	40 columns	ON
DS1-8	Buffer size	6K bytes	256 bytes	ON
DS1-9	Operation mode	See the table below		OFF *3
DS1-10	"			OFF *3

*1, *3　: Depends on the type.
*2　　: Depends on the destination.

International Character Selection

No. Country	DS1-2	DS1-3	DS1-4
U.S.A.	ON	ON	ON
France	OFF	ON	ON
Germany	ON	OFF	ON
U.K.	OFF	OFF	ON
Denmark	ON	ON	OFF
Sweden	OFF	ON	OFF
Italy	ON	OFF	OFF
Japan	OFF	OFF	OFF

Character Code Selection

ESC/POS mode	CBM mode	Star mode
Code 437	CBM (International)	Star (International)
Code 850	Code 850	Code 850
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
Katakana	CBM (Japanese)	Star (Japanese)

See the International Character Codes Table and Character Codes Table.

CR mode(DS1-6)

Mode	OFF	ON
CBM	CR+LF	CR
Star	CR+LF	Ignored
ESC/POS	CR+LF	CR

Operation Mode　　DS1-9　　DS1-10

	DS1-9	DS1-10
CBM	OFF	OFF
ESC/POS	ON	OFF
Star	OFF	ON
Star Auto cut	ON	ON

2) DIP Switch 2

No.	Function	ON	OFF	Factory Setting
DS2-1	Bit length	8 bits	7 bits	ON
DS2-2	Parity	No	Yes	ON
DS2-3	Odd/Even	Odd	Even	ON
DS2-4	Communication mode	DTR/DSR	XON/XOFF	ON
DS2-5	Baud rate			ON
DS2-6	"	See the table below		ON
DS2-7	"			OFF
DS2-8	Unused	–	–	OFF

Baud rate

Baud rate	DS2-5	DS2-6	DS2-7
150	OFF	OFF	OFF
300	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
9600	ON	ON	OFF
19200	ON	ON	ON

∗The DIP switch 2 is used only for the serial interface.

(Note) Setting of the paper used simply changes the drive pulse width to the printing head; it does not mean that 2-ply paper is not available for the 1-ply setting. The same applies to when 1-ply paper is used for the 2-ply setting.

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6. PRESET JUMPER SETTING

6.1 Location of Preset Jumper

(1) Turn off the power.

(2) Remove a cassette ribbon.

(3) Remove the top cover.   The preset jumper is located as shown in the figure below.

Serial Interface   Parallel Interface
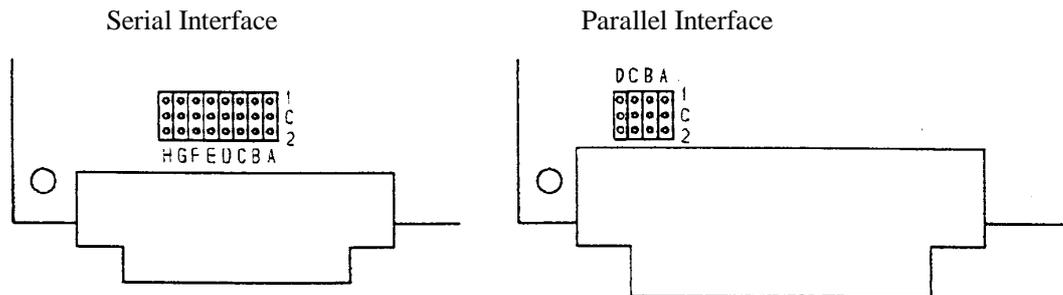
6.2 Preset Jumper Table

Serial

Location \ Mode	CBM	Star	ESC/POS
SCA	1-C *	2-C	2-C
SCB	1-C *	1-C *	2-C
SCC	1-C	2-C	*
SCD	1-C	2-C	*
SCE	1-C *	2-C	1-C *
SCF	1-C *	2-C	1-C *
SCG	1-C *	2-C	1-C *
SCH	1-C	2-C *	2-C *

* = Open

1-C * = 1-C or open

2-C * = 2-C or open

Parallel

Location \ Mode	CBM	Star	ESC/POS
SCA	1-C *	1-C	2-C *
SCB	1-C	1-C	2-C
SCC	1-C *	1-C *	2-C
SCD	1-C	1-C	2-C *

* = Open

1-C * = 1-C or open

2-C * = 2-C or open

7. MODE SETTING METHOD

This printer has the CBM, Star, and ESC/POS mode.   Any desired mode can be selected and set according to your need.

(1) Setting method
  - See 5. DIP SWITCH SETTING.
  - Seeing the settings of the DIP switch segments 1-9 and 1-10 and those of the preset jumper, set each mode.

8. INPUT BUFFER BACKUP FUNCTION

8.1 Buffer Size

With the DIP switch, you can set either 6 K bytes or 256 bytes.

DIP switch segment 1-8   ON   → 6K bytes

                                   OFF   → 256 bytes

8.2 Input Buffer Backup

Even if the power is turned off or fails during the printing process, the data in the input buffer will be saved. If the power is turned on again, the printer will print a power failure mark, "==POWER DOWN==," in red and reprints the data from the beginning of the line where it left off.

8.3 Clearing the Input Buffer

When you want to clear the data in the input buffer, turn on the power, holding down the LF switch. A buzzer will sound to inform you that the input buffer has been cleared. Hold down the LF switch until the buzzer sounds.

> If the printer prints the data erroneously at power-on, clear the input buffer as described above, and then, re-input the data.

9. PARALLEL INTERFACE

9.1 Specifications

- Data input system   : 8-bit parallel system (DATA1 to DATA8)
- Control signals   : $\overline{ACK}$, BUSY, $\overline{STB}$, $\overline{FAULT}$, SELECT, $\overline{RESET}$, COMPULSION
- Applicable connectors   : Printer side   --- 57LE-40360 (Equivalent to anphenol),
                             Cable side   --- 57-30360 (Ditto)

9.2 Connector's Pin Configuration

Mode No.	CBM	Star	ESC/POS	Mode No.	CBM	Star	ESC/POS
1	$\overline{STB}$	←	←	19	TWISTED PAIR GND	←	←
2	DATA 1	←	←	20	↑	←	←
3	DATA 2	←	←	21	↑	←	←
4	DATA 3	←	←	22	↑	←	←
5	DATA 4	←	←	23	↑	←	←
6	DATA 5	←	←	24	↑	←	←
7	DATA 6	←	←	25	↑	←	←
8	DATA 7	←	←	26	↑	←	←
9	DATA 8	←	←	27	↑	←	←
10	$\overline{ACK}$	←	←	28	↑	←	←
11	BUSY	←	←	29	↑	←	←
12	PE(HI-LEVEL)	←	←	30	↑	←	←
13	SELECT	←	←	31	$\overline{RESET}$	←	←
14	GND	←	←	32	$\overline{FAULT}$	←	GND
15	GND	NC	←	33	NC	←	←
16	GND	NC	←	34	COMPULSION	←	←
17	FRAME GND	←	←	35	NC	←	Vcc
18	Vcc	←	NC	36	Vcc	←	NC
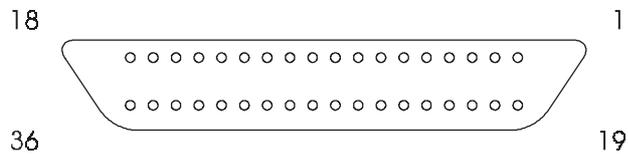
9.3   Input and Output Signals

9.3.1   Input and Output Signals

(1) Input signals to the printer

- DATA : An 8-bit parallel signal. (Positive logic)
- $\overline{\text{STB}}$: A strobe signal to read the 8-bit data. (Negative logic)
- $\overline{\text{RESET}}$: A signal to reset the printer from the outside. (Negative logic)

(2) Output signals from the printer

- $\overline{\text{ACK}}$: An 8-bit data request signal.   A pulse signal output at the end of the BUSY signal. (Negative logic)
- BUSY : A signal to indicate the BUSY status of the printer.   Input new data when at "LOW". (Positive logic)
- $\overline{\text{FAULT}}$: A signal turned to "LOW" when the printer has an alarm.   At this time, all the control circuits in the printer stop. (Negative logic)
- SELECT : A signal to show whether the printer is selected (On-line) or deselected. (Positive logic)
- COMPULSION

    : A signal to show the status of the drawer switch. (Positive logic)
- PE : A signal to show that the paper has run out.   Normal at the "LOW" level, but turned to the "HIGH" level when the paper has run out.

(3) Power related signal

- GND : Common ground on the circuits
- Vcc : A +5 V signal.   Connected via a 3.3k Ω resistor.

9.3.2   Electrical Characteristics

(1) Input signal level

All the input signals are at the TTL level.

"HIGH" level : 2.0 V at minimum

"LOW" level   : 0.8 V at maximum

(2) Output signal level

All the output signals are at the TTL level.

"HIGH" level : 2.4 V at minimum

"LOW" level   : 0.4 V at maximum

(3) Input and output conditions

All the input signals are pulled up at 3.3 kΩ.

[Printer Side]   [Host Side]
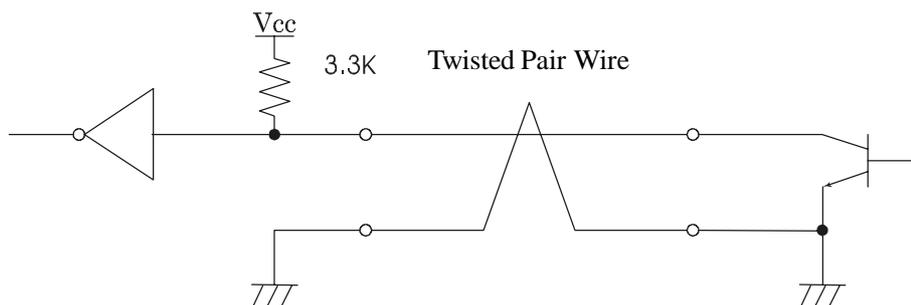
All the output signals are pulled up at 3.3kΩ.

[Printer Side]   [Host Side]
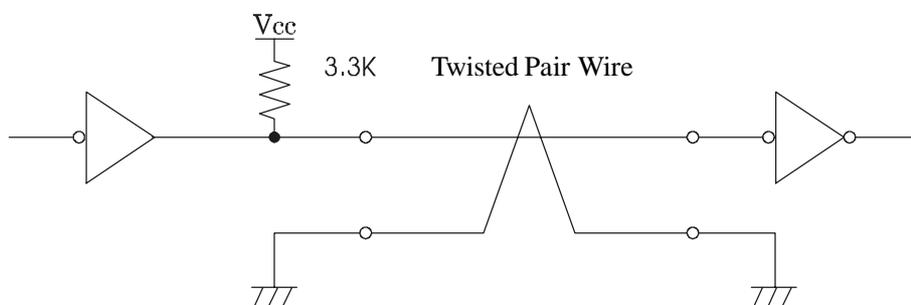
9.3.3   Timing Chart

(1)   Data input and printing timing
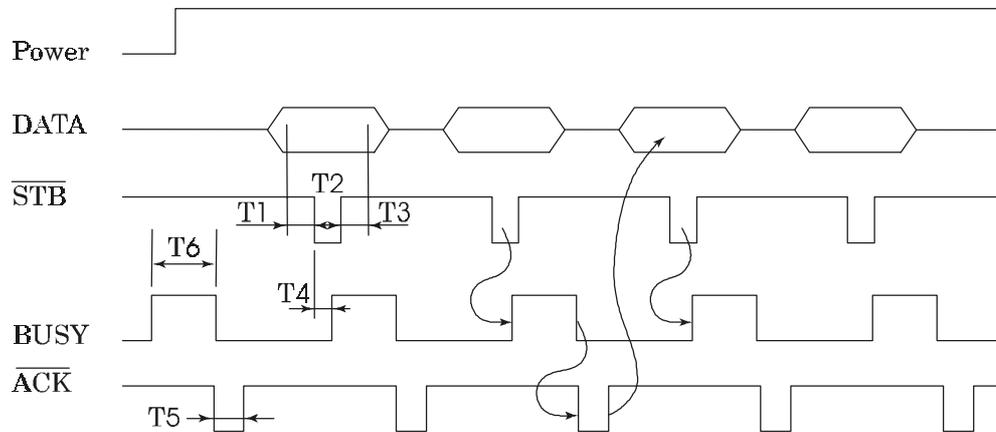
T1, T2, T3	: 0.5 µs MIN
T4	: 270 ns MAX
T5	: 2.3µs TYP
T6	: 500 ms MIN (At power-on)

9.3.4   Data Receiving Control

When the BUSY signal is at "LOW," the printer can receive the data from the host, but when at "HIGH," it cannot.

10.   SERIAL INTERFACE

10.1   Specifications

(1)   Synchronous system: Asynchronous

(2)   Baud rate: 150, 300, 600, 1200, 2400, 4800, 9600, or 19200 bps (User selectable)

(3)   Configuration of one word

- Start bit   : 1 bit

- Data bits   : 7 or 8 bits (User selectable)

- Parity bit   : Odd, even, or none (User selectable)

- Stop bit   : 1 bit or more

(4)   Signal polarity

RS-232C

- Mark   =   Logic "1" (-3 V to -12 V)

- Space   =   Logic "0" (+3 V to +12 V)

(5)   Received data (RXD signal)

RS-232C

- Mark   =   1

- Space   =   0

(6)   Reception control (DTR signal)

RS-232C

- Mark   : Data transfer disabled

- Space   : Data transfer enabled

10.2 Connector's Pin Configuration

Mode No.	CBM	Star	ECS/POS
1	FG	←	←
2	TXD	←	←
3	RXD	←	←
4		RTS	←
5			
6			DSR
7	GND	←	←
8			
9			
10			
11	PE (HI-LEVEL)	RCH	
12	FAULT		
13		GND	
14		FAULT	
15		mTXD	
16		mRXD	
17			
18			
19			
20	DTR	←	←
21			
22			
23	$\overline{\text{RESET}}$		
24			
25			

13 (o o o o o o o o o o o o o) 1
25 (o o o o o o o o o o o o) 14

Cautions: 1. An RS-232C signal is based on the EIA RS-232C.
2. When the data is not being transferred, the received data should be always maintained as a mark.

CITIZEN

10.3   Input and Output Signals

10.3.1   Input and Output Signals

(1) RXD

This is a serial received data signal. When a framing error, overrun error, or parity error occurs, that data is printed as "?".

(2) DTR

When this signal is Ready, write the data or a command.   If written at the time of Busy, an overrun error results, ignoring the previous data.   The data can be written in the input buffer even during printing.   Busy is also issued at the time of power -on, test print, on-line, and reset.

(3) TXD

As data is received, the remaining capacity of the printer's input buffer decreases.

When it becomes less than 128(10) bytes, a DC3(13H)(Data reception disable signal) is output to the host computer. On the other hand, when the remaining capacity of the input buffer increases to 256(20) or more bytes, a DC1(11H)(Data reception enable signal) is output to the host computer. XON (11H) is sent every 3 seconds in the Star mode.

When a command is received, that requests the printer state and printer status, 1-byte corresponding data is output.

Note: The values in ( ) are for when the 256 bytes of the input buffer is selected by DIP switches.

(4) DSR

When this signal is a space, the data is sent from the printer side.   Note that if this signal is a mark when a request to send command is executed, the printer will wait until the signal becomes a space.

(5) FAULT

1 CBM mode

When this signal is Space, a mechanical error has occurred.

2 Star mode

When this signal is Mark, a mechanical error has occurred.

(6) $\overline{\text{RESET}}$

A signal to reset the entire printer. (Negative logic)

(7) RTS

This signal is turned to Space when the printer is turned on.

(8) RCH

When the printer is ready to receive, this signal is turned to Space.   This signal line is the same as DTR.

(9) mTXD

TXD signal for the diode gate.

(10) mRXD

RXD signal for the diode gate.

(11) FG

This is a Frame Ground signal.

(12) GND

This is a common ground on the circuit.

10.3.2 Data Configuration

```
                                                          t
Mark                                              ─────────►

        ┌────┐      ┌─────────────────────────┐
        │    │      │  b₀, b₁, b₂, ● ● ● ●      │
        │    │      │                          │
        │    │      │                          │
        │    │      │                          │
Space   │    └──────┘                          └────────────
             (1)             (2)                  (3)


             ∧         ∧                  ∧        ∧
```

$b_0, b_1, b_2, \bullet\bullet\bullet\bullet$

(1) Start Bit

(2) Data Bit (+ Parity Bit)

(3) Stop Bit (1 or More)
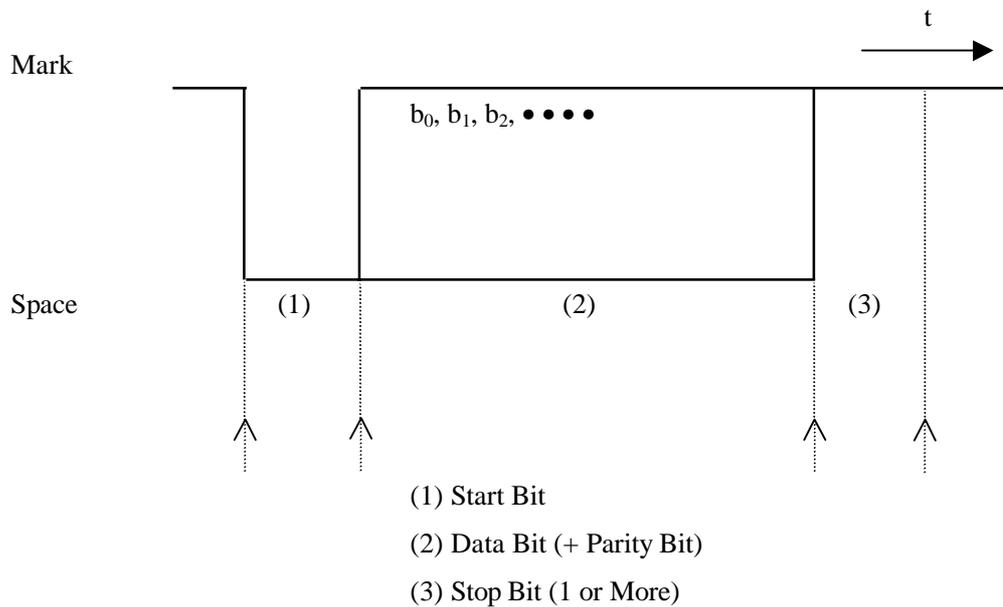
(1) Start bit

After a lapse of 1/2 bit from a mark-to-space fall edge, the state is read again, and if it is a space, it is recognized as the start bit.   If it is a mark, it is assumed neither the start bit nor an error, and it is attempted to detect the start bit again.

(2) Data bit + parity bit

The data bit and parity bit are sampled for 1 bit worth of time from the 1/2 start bit.   The then state is assumed the data for the corresponding bit.   A sequence of the bits are named Bit 0, Bit 1, ..., parity bit, starting from the one closest to the start bit.

(3) Stop bit

The stop bit is a mark level of 1 bit or more.   If a space is detected in detecting the stop bit, a framing error results.

10.3.3 Error Detection

A parity error, framing error, and overrun error are detected. When an error is detected, that data is stored in the buffer as "?".

(1) Framing error

This error results when a space is detected in detecting the stop bit. That data is stored in the buffer as "?".

(2) Parity error

If a parity check has been specified and an error is detected at the time of parity check, that data is stored in the buffer as "?".

(3) Overrun error

If an overrun error is detected, that data is stored in the buffer as "?".

10.3.4 Data Receiving Control

When the DTR signal is a space, the data from the host side can be received. When it is a mark, however, the data cannot be received.

10.3.5 Buffering

The DTR and TXD signals are available as control signals to transfer the data to the input buffer.

10.3.6 Electrical Characteristics

(1) RS-232C circuit

Input (RXD, DSR, mRXD)

[Printer Side]　　　　　　　　　　　　　　　　[Host Side]

Equivalent MAX232

$$RXD \begin{cases} Mark=(-8V) : Stop\ bit \\ Space=(+8V): Start\ bit \end{cases}$$
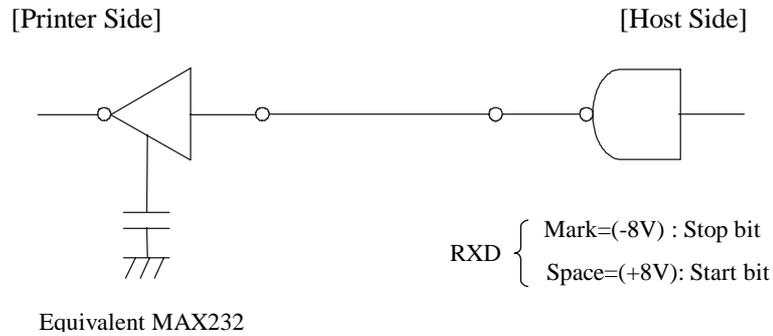
Output (DTR, TXD, mTXD, RCH, RTS, FAULT)

Equivalent to MAX232

$$DTR \begin{cases} Mark=(-8V): At\ Busy \\ Space=(+8V): At\ Ready \end{cases} \qquad TXD \begin{cases} Mark=(-8V): 1 \\ Space=(+8V): 0 \end{cases}$$
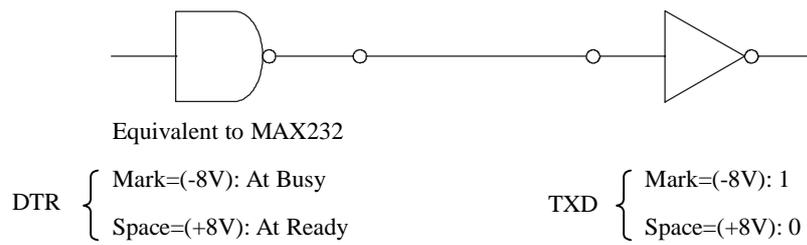
(2) Others

- $\overline{RESET}$: A signal to reset the entire printer.
- PE : A signal to show that the paper has run out.　Normal at the "LOW" level, but turned to the "HIGH" level when the paper has run out.
- GND : Signal ground
- FG : Frame ground

11. DRAWER KICK-OUT CONNECTOR

11.1 Specifications of Drawer Kick-Out Connector

(1) Drawer kick-out drive signal

Parallel ----- Can be learned at the no. 34 pin of the interface connector

Serial ----- Provided with a command to learn the status in the Star and ESC/POS modes.

(2) Electrical characteristics

1) Drive voltage: 24 V DC

2) Drive current: 0.8 A at maximum (Within 510 ms)

3) Switch signal: Signal level   "L" = 0 to 0.5 V

                                     "H" = 3 to 5 V

11.2 Connector's Pin Configuration

No.	Signal	Function
1	FG	Frame Ground
2	DRAWER 1	Drawer 1 drive signal
3	DRSW	Drawer switch input
4	VDR	Drawer drive power
5	DRAWER 2	Drawer 2 drive signal
6	GND	Common ground on the circuit
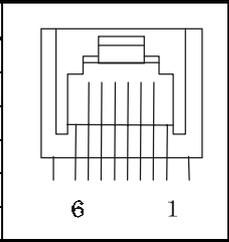
Connector used   : TM5RJ3-66 (HIROSE)

Applicable connector   : TM3P-66P (HIROSE) or equivalent

⚠ **CAUTION** :
- No output is made while printing.
- The drawers 1 and 2 cannot be driven simultaneously.
- A solenoid used for the drawer should be of 36Ω or more.   An output current should be kept below 0.8 A. Use beyond this limit cannot be assured.
- This connector cannot be connected to a telephone line.   Do not connect other than the solenoid.

11.3 Drive Circuit
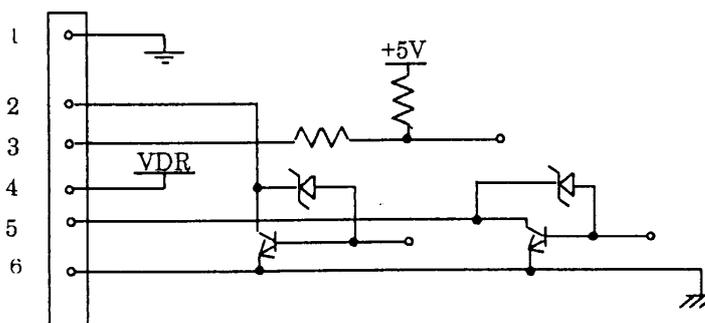
12. MAINTENANCE AND SERVICE

For the information on maintenance and service, please contact our dealer.

13. PRINT CONTROL FUNCTIONS

13.1   CBM Mode

13.1.1   Command List

	Command	Function	Code	Page
1	FF n	n-line paper feed	0CH n	42
2	SO	Specifying the double width character	0EH	42
3	SI	Canceling the double width character	0FH	43
4	LF	Printing and paper feed	0AH	43
5	CR	Printing	0DH	43
6	DC 1	Initializing the printer	11H	44
7	DC 2	Specifying/Canceling the Inverted character	12H	44
8	DC 3	Specifying the red print	13H	45
9	CAN	Canceling the print data	18H	45
10	ESC * n1 n2	Specifying the bit image mode	1BH 2AH n1 n2	46
11	ESC – n	Specifying/Canceling the Underline	1BH 2DH n	46
12	ESC 1	Specifying 1/9-inch line feed rate	1BH 31H	47
13	ESC 2	Specifying 2/9-inch line feed rate	1BH 32H	47
14	ESC 3	Specifying 1/6-inch line feed rate	1BH 33H	47
15	ESC C n	Setting the page length	1BH 43H n	47
16	ESC N n	Specifying the perforation skip	1BH 4EH n	48
17	ESC O	Canceling the perforation skip	1BH 4FH	48
18	ESC f 1	Form feed (Changing the page)	1BH 66H 01H	48
19	ESC t n	Selecting the character code table	1BH 74H n	49
20	ESC BEL n1 n2	Setting the external device drive pulse width	1BH 07H n1 n2	50
21	BEL	Driving command A for Drawer-1	07H	50
22	FS	Driving command B for Drawer-1	1CH	51
23	SUB	Driving command for Drawer-2	1AH	51
24	RS	Buzzer-on	1EH	51
25	ESC P 0	Full cut	1BH 50H 00H	52
26	ESC P 1	Partial cut	1BH 50H 01H	52
27	ESC R 1	Selecting the international character set	1BH 52Hn	52
28	ESC & 0 n1 n2	Defining the download character set	1BH 26H 00H n1 n2	53
29	ESC % n	Specifying/Canceling download character set	1BH 25H n	54
30	ESC ⁄ n	Definition the message	1BH 2FH n	54
31	ESC DC3 n	Printing the message	1BH 13H n	55
32	ESC y n	Setting the print lines after paper near end detection	1BH 79H n	55
33	ESC DC2 n1 n2	Deleting the download character, message, bit image	1BH 12H n1 n2	56
34	GS * n1 n2	Defining the download, bit image	1DH 2AH n1 n2	57
35	GS ⁄ m	Printing the download, bit image	1DH 2FH m	58

CITIZEN

13.1.2 Description of Items

XXXX   ALL

[Function]   Command name

[Code]   A row of command constituent code is represented by a hexadecimal number with < >H,

                  binary number with < >B, and a decimal number with < >.   [ ]k means a repeat count of

                  k-times.

[Range]   Describes an argument value (Setting range) for the command.

[Outline]   Describes a command function.

[Caution]   Describes a caution as required.

[Default]   Describes an initial value for the command when accompanied by an argument.

XXX   Shows a command.

Details

FF n

[Function]   n-line paper feed

[Code]   <0C>H n

[Range]   1 ≤ n ≤ 127

[Outline]   This command feeds the paper by n-lines.　You can set n = 1 to 127 lines.　If the print buffer contains the data, use of this command feeds the paper by n-lines after printing the data.　Setting n = 0 does not feed the paper.

SO

[Function]   Specifying the double width character

[Code]   <0E>H

[Outline]   The data following this command is printed doubled in the horizontal direction.　Double width characters remain valid until the double width character cancel command is entered, but they are also cancelled after they are printed one line.　Note that the double width characters take up two ordinary characters worth of width.

SI

[Function]	Canceling the double width character
[Code]	<0F>H
[Outline]	This command cancels the double width characters set with SO. The data following this command are printed in the ordinary character width.

LF

[Function]	Printing and paper feed
[Code]	<0A>H
[Outline]	If the print buffer contains the data, this command will feed the line after printing. If not, the command only feeds the line.

CR

[Function]	Printing
[Code]	<0D>H
[Outline]	This command prints the data. If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line. If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

DC1

[Function]   Initializing the printer

[Code]   <11>H

[Outline]   This command initializes the printer.

The input buffer is not cleared.

The settings of the DIP switch segments are not re-read.

DC2

[Function]   Specifying/Canceling the inverted character

[Code]   <12>H

[Outline]   This command selects/deselects the inverted characters.   Enter this command at the beginning of one line.   Otherwise, it is overridden.   Erect and inverted characters cannot be mixed in one line.

DC3

[Function]   Specifying the red print

[Code]   <13>H

[Outline]   This command specifies red-color characters.　All the characters in one line are printed in red by prefixing the print data with this command and sending it to the printer.　When you want to use red characters, use this command for each line.

CAN

[Function]   Canceling the print data

[Code]   <18>H

[Outline]   This command clears the print data in the lines entered prior to this command.

ESC "∗" n1 n2

[Function]   Specifying the bit image mode

[Code]   <1B>H <2A>H n1 n2

[Range] $1 \le n1 + 256 \times n2 \le 378$

[Outline]   This command allows printing in the bit image mode.   Divide the number of dots printed by 256 and assume its quotient to be n2 and remainder to be n1.   Therefore, the number of horizontal dots will be $n1 + 256 \times n2$.

If the bit image data is entered beyond the dot positions printable in one line, the surplus data will be discarded.   Normal data processing is restored after bit image printing.   Printing is done in a single direction.
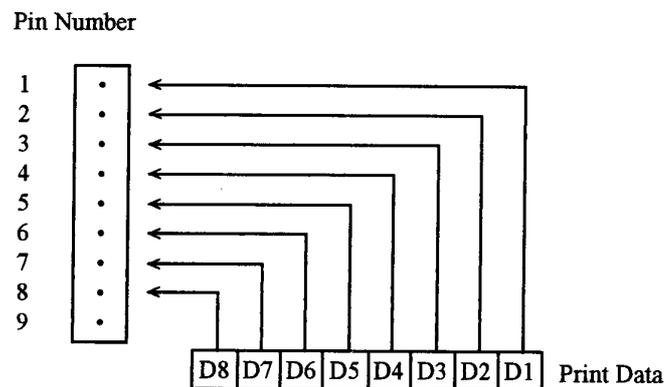
Pin Number

1	•	
2	•	
3	•	
4	•	
5	•	
6	•	
7	•	
8	•	
9	•	

| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | Print Data |

ESC "−" n

[Function]   Specifying/Canceling the underline

[Code]   <1B>H <2D>H n

[Outline]   This command selects/deselects an underline.   The underline is selected at n = 1 and deselected at n = 0.

[Default]   n = 0

ESC "1"

[Function]   Setting the 1/9-inch line feed width

[Code]   <1B>H <31>H

[Outline]   This command sets the line feed width to 1/9 inch.

ESC "2"

[Function]   Setting the 2/9-inch line feed width

[Code]   <1B>H <32>H

[Outline]   This command sets the line feed width to 2/9 inch.

ESC "3"

[Function]   Setting the 1/6-inch line feed width

[Code]   <1B>H <33>H

[Outline]   This command sets the line feed width to 1/6 inch(Default).

ESC "C" n

[Function]   Setting the page length

[Code]   <1B>H <43>H n

[Range] $1 \le n \le 127$

[Outline]   Sets the 1-page length to n-lines.

ESC "N" n

[Function]	Specifying the perforation skip
[Code]	<1B>H <4E>H n
[Range]	$1 \leq n \leq 126$
[Outline]	This command feeds(Skips) the lines specified with n without printing. However, you cannot specify beyond the length of one page.

ESC "O"

[Function]	Canceling the perforation skip
[Code]	<1B>H <4F>H
[Outline]	This command cancels perforation skipping operation.

ESC "f" 1

[Function]	Form feed (Changing the page)
[Code]	<1B>H <66>H <01>H
[Outline]	This command searches for the beginning of the next page after printing the data in the print buffer.

ESC "t" n

[Function]   Selecting the character code table

[Code]   <1B>H <74>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This command selects Page-n of Character Code Table.

[Default]   Depends upon DIP switch setting.

n	Character Code Table	n	Character Code Table
0	CBM International	6	Codepage PC852 (Eastern Europe)
1	CBM Domestic	7	Codepage PC866 (Russian)
2	Codepage PC850 (Multilingual)	8	Codepage PC857 (Turkish)
3	Codepage PC860 (Portuguese)	9	Windows Codepage
4	Codepage PC863 (Canadan-French)		
5	Codepage PC865 (Nordic)	255	Space Page (For user setting)

ESC BEL n1 n2

[Function]   Setting the external device drive pulse width

[Code]   <1B>H <07>H n1 n2

[Range] $1 \leq n1 \leq 127$ $1 \leq n2 \leq 127$

[Outline]   This command sets the power-on time to drive an external device (Cash drawer).

                    Power-on time = $n1 \times 10$ (ms)

                    Delay time = $n2 \times 10$ (ms)

                    To actually drive the drawer, use the <BEL> and <FS> commands.

[Default] $n1 = n2 = 20$

```
ON
                    ┌────────────────┐
OFF  ──────────────┘                └──────────────────
        |←──── 10×n1(ms) ────→|←──── 10×n2(ms) ────→|
```

BEL
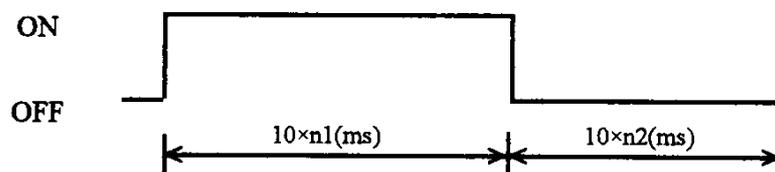
[Function]   Driving command A for drawer-1

[Code]   <07>H

[Outline]   This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command.   This command is executed in order of entry into the input buffer.

FS

[Function]	Driving command B drawer-1
[Code]	<1C>H
[Outline]	This command drives the drawer connector No. 2 pin under the condition set with the <ESC><BEL> n1 n2 command.

SUB

[Function]	Driving command for drawer-2
[Code]	<1A>H
[Outline]	As soon as this command is received, the drawer connector no. 5 pin is driven. The power-on time is 200 ms ON and 200 ms OFF stationary. The drawers 1 and 2 cannot be driven simultaneously.

RS

[Function]	Buzzer-on
[Code]	<1E>H
[Outline]	This command emits a short warning sound from the printer.

ESC "P" 0 (iDP3421/3423 only)

[Function]   Full cut

[Code]   <1B>H<50>H<00>H

[Outline]   This command fully cuts the paper.

ESC "P" 1 (iDP3421/3423 only)

[Function]   Partial cut

[Code]   <1B>H<50>H<01>H

[Outline]   This command partially cuts the paper.

ESC "R" n

[Function]   Selecting the international character set

[Code]   <1B>H <52>H n

[Range] $0 \leq n \leq 10$

[Outline]   This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default]   Depends upon DIP switch setting.

ESC "&" <0> n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

[Function]   Defining the Download character set

[Code]   <1B>H <26>H <00>H n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

[Range] $32 \leq n1 \leq n2 \leq 255$ m0 = 0 or m0 = 128

[Outline]   This command defines he download characters.   n1 is a character code to start definition and n2 is to end definition, respectively.   When defining only one character, set n1 = n2. You can define the ASCII codes ranging from 32 to 255.   Once the download characters are defined, they remain valid until they are redefined or the download deletion command (ESC DC2 n1 n2) is executed.

When m0=(80)H

Pin Number

D8 D7 D6 D5 D4 D3 D2 D1

1
2
3
4
5
6
7
8
9

When m0=(00)H

Pin Number

D8 D7 D6 D5 D4 D3 D2 D1

1
2
3
4
5
6
7
8
9

Horizontal adjacent dots cannot be printed.

CITIZEN

ESC "%" n

[Function]   Specifying/Canceling the download character set

[Code]   <IB>H <25>H n

[Outline]   This command selects/deselects the download character set.   The download characters
               cannot be printed by simply defining them with the above-mentioned ESC & 0 command.
               To print them, send this command to the printer.

n	Download Character Set
0	Deselects
30	
1	Selects
31	

ESC "∕" n "data" CR or LF

[Function]   Defining the Message

[Code]   <1B>H <2F>H n "data" CR or LF

[Range]   1 ≤ n ≤ 10

[Outline]   This command can define up to a 50-byte message in one line.   If the value of n is specified
               beyond the range, the data following n will be treated as the print data.
               Once the message is defined, it remains valid until it is redefined.   The data should end with
               CR (0DH) or LF (0AH).   If the data exceeds 50 bytes, the subsequent data will be treated as
               the print data.
               Once the message is defined, it remains valid until it is redefined or the download deletion
               command (ESC DC2 n1 n2) is executed.

ESC DC3 n

[Function]   Printing the message

[Code]   <1B>H <13>H n

[Range] $1 \leq n \leq 10$

[Function]   This command prints a message.　If the value of n is specified beyond the range, the message will not be printed.

ESC "y" n

[Function]   Setting the print lines after paper near end detection

[Code]   <1B>H<79>H n

[Range] $0 \leq n1 \leq 255$

[Outline]   This command sets the number of print lines after paper near end detection.　It stops printing after printing $n \times 2$ lines since detection of the paper near end, resulting in the paper near end state (See 4.12 Operation Panel and Error Indications).　The PE signal (Serial/Parallel) changes when the paper near end is detected.

[Default]   n = 0

ESC DC2 n1 n2

[Function]   Deleting the download character, message, bit image

[Code]   <1B>H <12>H n1 n2

[Range] $0 \leq n1 \leq 3$

                     $0 \leq n2$ (Specify 0 at n1 = 0)

                                            $(1 \leq n2 \leq 10 \text{ at } n1 = 1)$

                                            $(32 \leq n2 \leq 255 \text{ at } n1 = 2)$

                                            (Specify 0 at n1 = 3)

[Outline]   This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.

n2 = 0   Deletes all the data saved with the download function specified with n1.

n2≠0   Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.

Note) No meaning when n1 = 0 is set.

GS "∗" n1 n2 [d] n1 × n2 × 8

[Function]   Defining the download, bit image

[Code]   <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] $1 \leq n1 \leq 45$ $0 \leq n2 \leq 24$

Note) Take care that the number of data (n1×n2×8) is equal to or smaller than 2,048.

[Outline]   This command defines the download bit image having the dots specified n1 and n2.   The number of horizontal dots is represented by n1 × 8 and that of vertical dots is represented by n2 × 8, respectively.   m denotes the number to be registered.   (See a download bit image printout.)   d denotes the bit image data.   Once the download bit image is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

GS ⁄ m

[Function]   Printing the download, bit image

[Code]   <1D>H <2F>H m

[Range] $0 \leq m \leq 255$

[Outline]   This command prints the bit image saved in the number specified with m.

[Caution]   If the print buffer contains the data, this command will be ignored.   If the bit image has not been saved in the specified number, this command will be ignored.

                        Nothing is printed when m is other than 0,1,2 or 3.

13.2   Star Mode

13.2.1   Command List

	Command	Function	Code	Page
1	ESC R n	Selecting the international character set	1BH 52H n	61
2	ESC 6	NOP	1BH 36H	
3	ESC 7	NOP	1BH 37H	
4	ESC M	NOP	1BH 4DH	
5	ESC P	NOP	1BH 50H	
6	ESC :	NOP	1BH 3AH	
7	SO	Specifying the double width character	0EH	61
8	DC4	Canceling the double width character	14H	62
9	ESC E	Specifying the highlight character	1BH 45H	62
10	ESC F	Canceling the highlight character	1BH 46H	62
11	ESC –	Specifying/Canceling the underline	1BH 2DH n	63
12	ESC _	NOP	1BH 5FH n	
13	ESC 4	Specifying the red print	1BH 34H	63
14	ESC 5	Canceling the red print	1BH 35H	63
15	SI	Specifying the inverted character	0FH	64
16	DC2	Canceling the inverted character	12H	64
17	LF	Printing and paper feed	0AH	65
18	CR	Printing	0DH	65
19	ESC z	Setting the 1/6-inch line feed	1BH 7AH	65
20	ESC 0	NOP	1BH 30H	
21	ESC a n	n-line paper feed	1BH 61H n	66
22	FF	Form feed (Change the page)	0CH	66
23	ESC C n	Setting the n-line page length	1BH 43H n	66
24	ESC C 0 n	Setting the n-inch page length	1BH 43H 00 n	67
25	VT	Vertical tab	0BH	67
26	ESC B n1 n2	Setting the vertical tab position	1BH 42H n1 n2	68
27	ESC N n	Setting the lower margin	1BH 4EH n	68
28	ESC 0	Canceling the lower margin	1BH 4FH	69
29	ESC 1 n	Setting the left margin	1BH 6cH n	69
30	ESC Q [n] k NUL	Setting the right margin	1BH 51H n	69
31	HT	Horizontal tab	09H	70
32	ESC D n1 n2	Setting the horizontal tab position	1BH 44H n1 n2	71
33	ESC 1	Setting the 1/9-inch line feed width	1BH 31H	72
34	ESC A n	NOP	1BH 41H n	
35	ESC 2	Setting the 2/9-inch line feed width	1BH 32H	72
36	ESC J n	NOP	1BH 4AH n	
37	ESC K n1 <0>	Specifying the 8-dot standard density bit image	1BH 4BH n1 00H	73
38	ESC L n1 n2	Specifying the 8-dot double density bit image	1BH 4CH n1 n2	74
39	ESC h n	Specifying/Canceling the double height character	1BH 68H n	75
40	ESC & <0> n1 n2	Defining the download character	1BH 26H 00H n1 n2	76
41	ESC % n	Specifying/Canceling the download character set	1BH 25H n	77

	Command	Function	Code	Page
42	ESC BEL n1 n2	Setting the external device drive plus e width	1BH 07H n1 n2	78
43	BEL	Driving command A for drawer-1	07H	78
44	FS	Driving command B for drawer-1	1CH	79
45	SUB	Driving command for drawer-2	1AH	79
46	RS	Buzzer-on	1EH	79
47	CAN	Canceling the print data	18H	80
48	DC3	Setting the deselect mode	13H	80
49	DC1	Setting the Select mode	11H	80
50	ESC U n	Unidirectional/bidirectional print mode selection command	1BH 55H n	81
51	ESC @	Initializing the printer	1BH 40H	81
52	ENQ	Enquiry	05H	82
53	STX	Text start	02H	83
54	ETX	Text end command	03H	83
55	ESC d 0 ESC d <0>	Full cut	1BH 64H 30H 1BH 64H 00H	85
56	ESC d 1 ESC d <0>	Partial cut	1BH 64H 31H 1BH 64H 01H	85
57	ESC t n	Selecting the character code table	1BH 74H n	85
58	ESC / n	Defining the message	1BH 2FH n	86
59	ESC DC3	Printing the message	1BH 13H n	86
60	ESC y n	Setting the print lines after paper near end detection	1BH 79Hn	87
61	ESC DC2 n1 n2	Deleting the download character, message bit image	1BH 12H n1 n2	87
62	GS * n1 n2	Defining the download, bit image	1DH 2AH n1 n2	88
63	GS / m	Printing the download, bit image	1DH 2FH m	89

CITIZEN

Details

ESC "R" n

[Function]   Selecting the international character set

[Code]   <1B>H <52>H n

[Range]   0 ≤ n ≤ 10

[Outline]   This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default]   Depends upon DIP switch setting.

SO

[Function]   Specifying the double width character

[Code]   <0E>H

[Outline]   The data following this command is printed doubled in the horizontal direction.   Double width characters remain valid until the double width character cancel command is entered, but they are also cancelled after they are printed one line.   Note that the double width characters take up two ordinary characters worth of width.

DC4

[Function]   Canceling the double width character

[Code]   <14>H

[Outline]   This command deselects the double width characters set with SO.   The data following this command will be printed in ordinary characters.

ESC "E"

[Function]   Specifying the highlight character

[Code]   <1B>H <45>H

[Outline]   The data following this command is printed in highlight (Double) characters.   The highlight characters remain valid until the highlight character deselection command is entered.

ESC "F"

[Function]   Canceling the highlight character

[Code]   <1B>H <46>H

[Outline]   This command deselects the highlight characters set with ESC "E".   The data following this command will be printed in ordinary characters.

ESC "−" n

[Function]   Specifying/Canceling the underline

[Code]   <1B>H <2D>H n

[Outline]   This command selects/deselects an underline. The underline is selected at n = 1 and deselected at n = 0.

The space by the horizontal tab is not underlined.

ESC "4"

[Function]   Specifying the red print

[Code]   <1B>H <34>H

[Outline]   This command prints its subsequent data in red.   This command remains valid until the red print deselection command is entered.   Red and black characters cannot be mixed in one line.

ESC "5"

[Function]   Canceling the red print

[Code]   <1B>H <35>H

[Outline]   This command deselects red print.

SI

[Function]   Specifying the inverted character

[Code]   <0F>H

[Outline]   This command selects and prints the inverted characters. Enter it at the beginning of one line. Otherwise, it will be invalid. Erect and inverted characters cannot be mixed in one line.

DC2

[Function]   Canceling the Inverted character

[Code]   <12>H

[Outline]   This command deselects the inverted characters. Enter this command at the beginning of one line.

LF

[Function]   Printing and paper feed

[Code]   <0A>H

[Outline]   If the print buffer contains the data, this command will feed the line after printing.　If not, the command only feeds the line.

CR

[Function]   Printing

[Code]   <0D>H

[Outline]   This command prints the data.　If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line.　If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

ESC "z"

[Function]   Setting the 1/6-inch line feed width

[Code]   <1B>H <7A>H

[Outline]   This command sets the line feed width to 1/6inch (Default).

ESC "a" n

[Function]	Setting the n-line paper feed
[Code]	\<1B>H \<61>H n
[Range]	$1 \leq n \leq 127$
[Outline]	This command feeds the paper by the number of lines specified with n. You can set n = 1 to 127 lines. If the print buffer contains the data, use of this command feeds the paper by n-lines after printing the data.

FF

[Function]	Form feed (Changing the page)
[Code]	\<0C>H
[Outline]	This command searches for the head of the next page after printing the data in the print buffer.

ESC "C" n

[Function]	Setting the n-line page length
[Code]	\<IB>H \<43>H n
[Range]	$1 \leq n \leq 255$
[Outline]	Sets the 1-page length to n-lines.
[Default]	n = 42

ESC "C" <0> n

[Function]   Setting the n-inch page length

[Code]   <1B>H <43>H <0> n

[Range] $1 \leq n \leq 127$

[Outline]   This command sets the length of one page to n -inches.

[Default]   n = 42

VT

[Function]   Vertical tab

[Code]   <0B> H

[Outline]   This command feeds the paper to the next vertical tab position.   It cannot be fed unless the vertical tab position has been set.   If the current position is equal to or greater than the maximum set vertical tab position, it will be fed to the head of the next page.

ESC "B" [n]k NUL

[Function]   Setting the vertical tab position

[Code]   <1B>H <42>H [n]k <00>

[Range]   1 ≤ n ≤ 255
                1 ≤ k ≤ 16

[Outline]   This command cancels the already set vertical tab positions and sets new vertical tab positions.   They are set in the ascending order and ends with <00>.   Up to 16 vertical tabs can be set.   If the tab setting position <nK> is equal or smaller than the preceding set position <nk-1>, it is assumed that setting of the vertical tabs has been completed.

ESC "N" n

[Function]   Setting the lower margin

[Code]   <1B>H <4E>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This command sets the n-line lower margin.

[Default]   n = 0

ESC "O"

[Function]	Canceling the lower margin
[Code]	<1B>H <4F>H
[Outline]	This command deselects the set lower margin.

ESC "l" n

[Function]	Setting the left margin
[Code]	<1B>H <6C>H n
[Range]	$0 \leq n \leq$ (Right margin - 2)
[Outline]	This command sets the left margin and printing starts from the column next to the set margin.

ESC "Q" n

[Function]	Setting the right margin
[Code]	<1B>H <51>Hn
[Range]	$2 \leq n \leq$ (Max. print columns)
[Outline]	This command sets the right margin and printing is performed up to n-columns.

HT

[Function]   Horizontal tab

[Code]   <09>H

[Outline]   This command moves a printing position to the preset next horizontal tab position.   This command will be ignored unless there is the next horizon tal tab position.

ESC "D" [n] k NUL

[Function] Setting the horizontal tab position

[Code] <1B>H <44>H [n] k <00>H

[Range] $1 \leq n \leq$ Max. print columns – 1

   $1 \leq k \leq 16$

[Outline] This command sets the horizontal tab positions.   n indicates the number of lines from the head of the line to the horizontal tab setting position; n equals the set column position - 1." k indicates the number of horizontal tab positions to be set.

   The tab position is set at the character width $\times$ n from the head of the line.   The character width at this time includes the right space of the character and will be doubled if the double width characters are specified.

   The data <n>k indicating the set position is entered in the ascending order and ends with <00>H.   ESC D NUL clears all the set tab positions.   After clearing the tab positions, HT will be ignored.

[Caution] If the data <n>k is equal to or smaller than the preceding data <n>k - 1, it is assumed that horizontal tab setting has been completed.   In that case, the subsequent data will be processed as regular one.

   Up to 16 tab positions can be set.   If the data exceeds this limit, it will be processed as regular data.   If the data <n>k exceeds the one-line print range, the set column position will equal the maximum print columns + 1.

   If the character width is changed after setting the horizontal tab positions, they will not change.

CITIZEN

ESC "1"

[Function]   Setting the 1/9-inch line feed width

[Code]   <1B>H <31>H

[Outline]   This command sets the line feed width to 1/9 inch.

ESC "2"

[Function]   Setting the 2/9-inch line feed width

[Code]   <1B>H <32>H

[Outline]   This command sets the line feed width to 2/9 inch.

CITIZEN

ESC "K" n1 <0> m1 m2 ...

[Function]   Specifying the 8-dot standard density bit image

[Code]   <1B>H <4B>H n1 <00>H m1 m2 ...

[Range] $1 \leq n1 \leq 378/2$

[Outline]   This command prints the bit image by the number of data specified with n1.   Printing will
               be unidirectional.   The surplus data exceeding the printable quantity in one line will be
               ignored.   The printer will automatically return to the character mode after printing the bit
               image.

Pin Number
| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | Print data

1 •
2 •
3 •
4 •
5 •
6 •
7 •
8 •
9 •
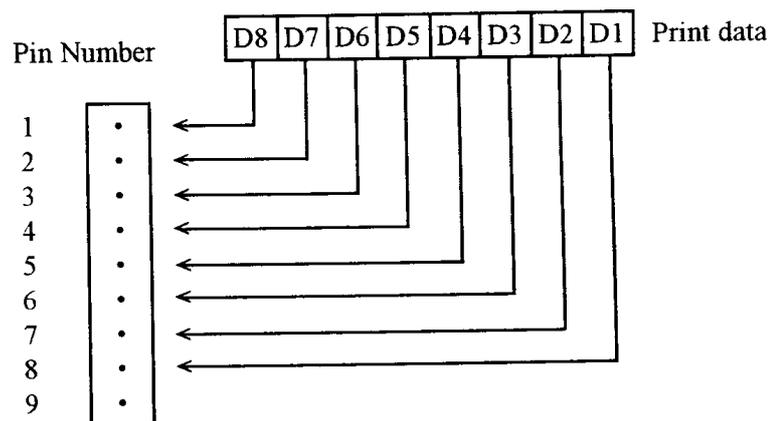
ESC "L" n1 n2 m1 m2 ...

[Function]   Specifying the 8-dot double density bit image

[Code]   <1B>H <4C>H n1 n2 m1 m2 ...

[Range] $1 \le n1 + 256 \times 2 \le 378$

[Outline]   This command prints the 8-dot double density (Half-dot print) bit image.   Printing will be unidirectional.   The surplus data exceeding the printable quantity in one line will be ignored. The printer will automatically return to the character mode after printing the bit ima ge.

The relations between the printing head pin numbers and the data are the same as the 8-dot standard density bit image command.   When printing the double density bit image, the horizontally adjacent dots cannot be printed.

ESC "h" n

[Function]   Specifying/Canceling the double height character

[Code]   <1B>H <68>H n

[Outline]   The data following this command is printed in double height characters, except the bit image mode <ESC> "K" and <ESC> "L".   In combination with the <SO> command, this command can print double height, double width characters.

It cannot be combined with the inverted character command, <SI>.   The double height characters and ordinary characters shall be bottom -justified.

n	Double height character command
0	Deselects
30	
1	Selects
31	

ESC "&" <O> n1 n2 m0 m1 m2 m3 m4 m5 m6 m7 m8 m9] n2 - n1 + 1

[Function]   Defining the download character set

[Code]   <1B>H <26>H <00>H n1 n2 [m0 m1 ... m5 m6 m7 m8 m9] n2 - n1 + 1

[Range] $32 \leq n1 \leq n2 \leq 255$ m0 = 0 or m0 = 128

[Outline]   This command defines he download characters.   n1 is a character code to start definition and n2 is to end definition, respectively.   When defining only one character, set n1 = n2. You can define the ASCII codes ranging from 32 to 255.

The horizontally adjacent dots cannot be printed.   Once the download bit image is defined, it remains valid until it is redefined or the download deletion command(ESC DC2 n1 n2) is executed.

When m0=(80)H
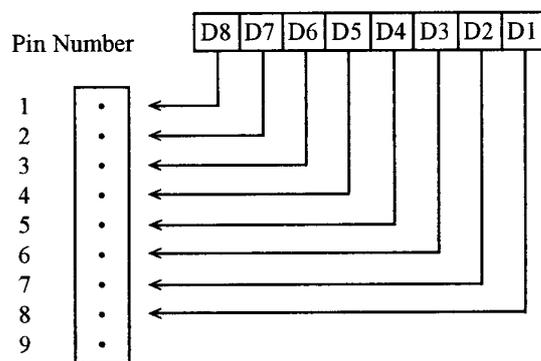
When m0=(00)H
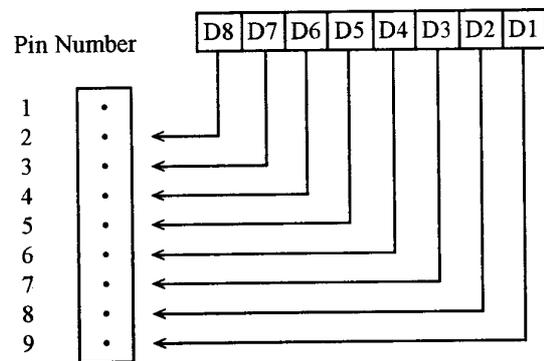
Horizontal adjacent dots cannot be printed.

ESC "%" n

[Function]   Specifying/Canceling the download character set

[Code]   \<IB>H \<25>H n

[Outline]   This command selects/deselects the download character set.   The download characters
               cannot be printed by simply defining them with the above-mentioned ESC & 0 command.
               To print them, send this command to the printer.

n	Download Character Set
0	Deselects
30	
1	Selects
31	

ESC BEL n1 n2

[Function] Setting the external device drive pulse width

[Code] <1B>H <07>H n1 n2

[Range] $1 \leq n1 \leq 127$

$1 \leq n2 \leq 127$

[Outline] This command sets the power-on time to drive an external device(Cash drawer).

Power-on time = $n1 \times 10$ (ms)

Delay time = $n2 \times 10$ (ms)

To actually drive the drawer, use the <BEL> and <FS> commands.

n1=n2=20
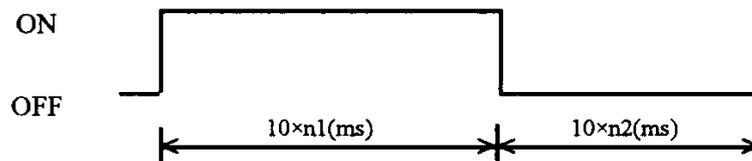
[Default] n1 = n2 = 20 (200ms)

BEL

[Function] Driving command A for drawing-1

[Code] <07>H

[Outline] This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command. This command is executed in order of entry into the input buffer.

FS

[Function]	Driving command B for drawer-1
[Code]	<1C>H
[Outline]	This command drives the drawer connector no. 2 pin under the condition set with the <ESC><BEL> n1 n2 command.

SUB

[Function]	Driving command for drawer-2
[Code]	<1A>H
[Outline]	As soon as this command is received, the drawer connector no. 5 pin is driven. The power-on time is 200 ms ON and 200 ms OFF stationary. The drawers 1 and 2 cannot be driven simultaneously.

RS

[Function]	Buzzer-on
[Code]	<1E>H
[Outline]	This command emits a short warning sound from the printer.

CAN

[Function]   Canceling the print data

[Code]   <18>H

[Outline]   This command clears the input buffer and print buffer. In the STX-EXT mode of the serial interface printer, the command clears the data in the data buffer and ends the STX-ETX mode.

DC3

[Function]   Setting the deselect mode

[Code]   <13>H

[Outline]   If the printer receives <DC3>, it will ignore the subsequent data. The Deselect mode is cancelled by <DC1>.

DC1

[Function]   Setting the select mode

[Code]   <11H>

[Outline]   If the printer receives this command, it will save the subsequent data in the input buffer.

ESC "U" n

[Function]   Selecting the Unidirectional/Bidirectional print mode

[Code]   <1B>H <55>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This commands selects or deselects unidirectional print.

n0 = 0	Bidirectional print
n0 = 1	Unidirectional print

ESC "@"

[Function]   Initializing the printer

[Code]   <1B>H <40>H

[Outline]   This command cancels various conditions set after power-on to initializes the printer to the conditions having existed at power-on.   However, the input buffer is not initialized.

ENQ

[Function]   Enquiry

[Code]   <05>H

[Outline]   This command is valid only for the serial interface. The printer sends the status information. If this command is entered after receiving the text information in the STX-ETX mode, the printer will send the status information and check byte.

Status

b7 b6 b5 b4 b3 b2 b1 b0

Vertical Parity Error;
        1: Error
Framing Error;
        1: Error
Mechanical Error;
        1: Error
Paper near-end
        1: Paper near-end
Buffer Empty;
        1: Buffer Empty
Buffer Overflow, Overrun Error;
        1: Overflow or Overrun
Drawer switch;
        1: HIGH Level (Switch ON)
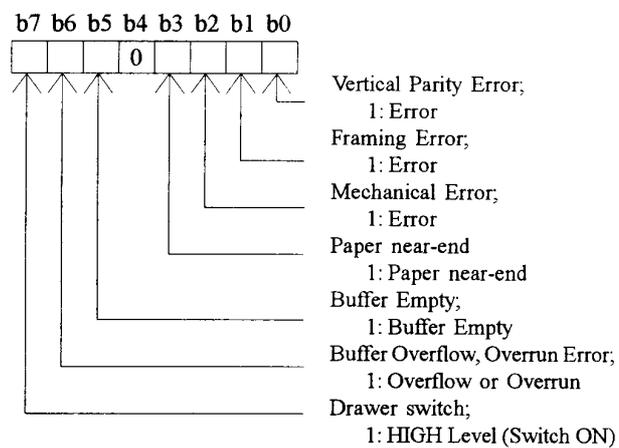
STX

[Function]   Text start

[Code]   <02>H

[Outline]   This command is valid only for the serial interface.   It effectuates the STX-ETX mode.

ETX

[Function]   Text end

[Code]   <03>H

[Outline]   This command is valid only for the serial interface.   It ends the STX-ETX mode and prints the data.

*ETX-STX Mode

```
                                                                    ( 1 )
                                                                      │
        ╭─────────────────────────╮                          ┌───────────────┐
       (   STX/ETX Mode Start      )                         │  Sends ENQ     │
        ╰─────────────────────────╯                          └───────────────┘
                    │                                                 │
        ┌───────────────────┐                              ┌───────────────┐
        │  Sends ENQ         │                             │ Receives Status│
        └───────────────────┘                             └───────────────┘
                    │                                                 │
        ┌───────────────────┐                        ┌────────────────────┐
        │  Receives Status   │                        │ Receives Check Byte │
        └───────────────────┘                        └────────────────────┘
                    │                                                 │
   NO   ╱ Data Buffer Empty ? ╲                          ╱ Status Error ? ╲   YES
  ◄─────◇                      ◇                 ────────◇                 ◇────────►
        ╲                      ╱                          ╲               ╱
                    │ YES                                         │ NO
        ┌───────────────────┐                          ╱ Check Byte      ╲   NO
        │  Sends STX         │                         ◇ = Test Byte ?     ◇──────►
        └───────────────────┘                          ╲                 ╱
                    │                                         │ YES
        ╱ Odd Parity Check ? ╲  NO                   ┌───────────────┐
        ◇                     ◇─────────┐            │  Sends ETX     │      ┌──────────────┐
        ╲                     ╱         │            └───────────────┘      │ Sends CAN     │
                    │ YES               │              (Print)              └──────────────┘
   ┌──────────────────┐   ┌──────────────────┐              │
   │ Sets Test Byte To │   │ Sets Test Byte To │    ┌───────────────┐
   │ FFH               │   │ 00                │    │ STX-ETX        │
   └──────────────────┘   └──────────────────┘    │ Mode End       │
                    │               │              └───────────────┘
   ┌──────────────────────────┐                            │
   │ Exclusive ORs Test Byte  │              ╱ STX-ETX Mode Data   ╲   NO
   │ and Sent Data            │             ◇ Block Ready to Send ?  ◇──────┐
   │     ──► Test Byte        │              ╲                     ╱        │
   └──────────────────────────┘                       │ YES                │
                    │                                                    ╭──────╮
   ┌──────────────────────────┐                                        ( RET  )
   │ Sends Data to Printer     │                                        ╰──────╯
   └──────────────────────────┘
                    │
   NO   ╱ Last Data in 1 Block ? ╲
  ◄─────◇                        ◇
        ╲                        ╱
                    │ YES
                  ( 1 )
```

ESC "d" "0" or ESC "d" <0>   (iDP3421/3423 Only)

[Function]   Full cut

[Code]   <1B>H<64>H<30>H or <IB>H<64>H<00>H

[Outline]   This command fully cuts the paper.

ESC "d" "1" or ESC "d" <1>   (iDP3421/3423 Only)

[Function]   Partial cut

[Code]   <1B>H<64>H<31>H or <1B>H<64>H<01>H

[Outline]   This command partially cuts the paper.

ESC "t" n

[Function]   Selecting the character code table

[Code]   <1B>H <74>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This command selects Page-n of Character Code Table.

[Default]   Depends on DIP switch setting.

n	Character Code Table	N	Character Code Table
0	Star International	6	Codepage PC852 (Eastern Europe)
1	Star Domestic	7	Codepage PC866 (Russian)
2	Codepage PC850 (Multilingual)	8	Codepage PC857 (Turkish)
3	Codepage PC860 (Portuguesel)	9	Windows Codepage
4	Codepage PC863 (Canadan-French)		
5	Codepage PC865 (Nordic)	255	Space Page (For user setting)

ESC "／" n "data" CR or LF

[Function]   Defining the message

[Code]   <1B>H <2F>H n "data" CR or LF

[Range] $1 \leq n \leq 10$

[Outline]   This command can define up to a 50-byte message in one line.   If the value of n is specified beyond the range, the data following n will be treated as the print data.

Once the message is defined, it remains valid until it is redefined.   The data should end with CR (0DH) or LF (0AH).   If the data exceeds 50 bytes, the subsequent data will be treated as the print data.

Once the message is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

ESC DC3 n

[Function]   Printing the message

[Code]   <1B>H <13>H n

[Range] $1 \leq n \leq 10$

[Function]   This command prints a message.   If the value of n is specified beyond the range, the message will not be printed.

ESC "y" n

[Function]	Setting the print lines after paper near end detection
[Code]	<1B>H<79>H n
[Range]	0 ≤ n1 ≤ 255
[Outline]	This command sets the number of print lines after paper near end detection. It stops printing after printing n × 2 lines since detection of the paper near end, resulting in the paper near end state (See 4.12 Operation Panel and Error Indications). The PE signal (Parallel interface only) changes when the paper near end is detected.
[Default]	n = 0

ESC DC2 n1 n2

[Function]	Deleting the download character, message, bit image
[Code]	<1B>H <12>H n1 n2
[Range]	0 ≤ n1 ≤ 3
	0 ≤ n2 (Specify 0 at n1 = 0)
	(1 ≤ n2 ≤ 10 at n1 = 1)
	(32 ≤ n2 ≤ 224 at n1 = 2)
	(Specify 0 at n1 = 3)
[Outline]	This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.

n2 = 0   Deletes all the download function specified with n1.

n2≠0   Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.

Note) No meaning when n1 = 0 is set.

GS "∗" n1 n2 [d] n1 × n2 × 8

[Function]   Defining the download, bit image

[Code]   <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] $1 \leq n1 \leq 45$ $0 \leq n2 \leq 24$

Note) Take care that the number of data(n1×n2×8) is equal to or smaller than 2,048.

[Outline]   This command defines the download bit image having the dots specified n1 and n2.   The number of horizontal dots is represented by n1 × 8 and that of vertical dots is represented by n2 × 8, respectively.   m denotes the number to be registered.   (See a download bit image printout.)   d denotes the bit image data.   Once the download bit image is defined, it remains valid until it is redefined or the download deletion command(ESC DC2 n1 n2) is executed.

GS / m

[Function]   Printing the download, bit image

[Code]   <1D>H <2F>H m

[Range] $0 \leq m \leq 255$

[Outline]   This command prints the bit image saved in the number specified with m.

[Caution]   If the print buffer contains the data, this command will be ignored. If the bit image has not

been saved in the specified number, this command will be ignored.

Nothing is printed when m is other than 0,1,2 or 3.

13.3   ESC/POS Commands

13.3.1   Command List

	Command	Function	Code	Page
1	HT	Horizontal tab	09H	91
2	LF	Printing and paper feed	0AH	91
3	CR	Printing	0DH	92
4	ESC " " n	Setting thr character right space	1BH 20H n	92
5	ESC ! n	Setting print mode batch	1BH 21H n	93
6	ESC % n	Specifying/Canceling the download character set	1BH 25H n	94
7	ESC & s n m [a[p] s × a]	Defining the download character set	1BH 26H s n m [a[p] a×a] m-n+1	95
8	ESC * m n1 n2 [d] n1 + 256 × n2	Specifying the bit image mode	1BH 2AH m n1 n2 [d] n1 + 256×n2	96
9	ESC 2	Setting the 1/6-inch line feed rate	1BH 32H n	97
10	ESC 3 n	Setting the line feed width in minimum pitch increments	1BH 33H n	97
11	ESC <	NOP	1BH 3CH	
12	ESC @	Initializing the printer	1BH 40H	97
13	ESC D [n] k NUL	Setting the Horizontal tab position	1BH 44H [n] k 00	98
14	ESC J n	NOP	1BH 4AH n	
15	ESC R n	Selecting the international character set	1BH 52H n	99
16	ESC U n	Specifying/Canceling the unidirectional print mode	1BH 55H n	100
17	ESC c 0 n	NOP	1BH 63H 30 n	
18	ESC c 4 n	Selecting the paper near end sensor valid for print stop	1BH 63H 34H n	101
19	ESC c 5 n	Selecting the panel switch enable/disable	1BH 63H 35H n	101
20	ESC d n	Printing and n-line paper feed	1BH 64H n	102
21	ESC i	Full cut	1BH 69H	102
22	ESC m	Partial cut	1BH 6DH	102
23	ESC p m n1 n2	Specifying the pulse generation	1BH 70H m n1 n2	103
24	ESC r n	Selecting the printing color	1BH 72H n	104
25	ESC t n	Selecting the character code table	1BH 74H n	104
26	ESC u n	Sending the status for peripheral device	1BH 75H n	105
27	ESC v	Sending the printer status	1BH 76H	106
28	ESC { n	Specifying/Canceling the inverted character print	1BH 7BH n	107
29	GS E n	NOP	1DH 45H n	
30	ESC / n	Defining the message	1BH 2FH n	107
31	ESC DC3 n	Printing the message	1BH 13H n	108
32	ESC y n	Setting the print lines after paper near end detection	1BH 79nH	108
33	ESC DC2 n1 n2	Deleting the download character, message, bit image	1BH 12H n1 n2	109
34	GS * n1 n2	Defining the download, bit image	1DH 2AH n1 n2	110
35	GS / m	Printing the download, bit image	1DH 2FH m	111

Details

HT

[Function]   Horizontal tab

[Code]   <09>H

[Outline]   This command moves a printing position to the next horizontal tab position.   If the next horizontal tab position is not set, this command will be ignored.

[Caution]   The horizontal tab position is set by <ESC> D.   Initial setting of the horizontal tab position is every 8 characters (9th, 17th, 25th culomns, and so on) of the 7×9 font.

LF

[Function]   Printing and paper feed

[Code]   <0A>H

[Outline]   This command prints one line worth of the data saved in the print buffer and feeds the line based on the set line feed value.   The head of the line is assumed to be the next print start position.

CR

[Function]   Printing

[Code]   <0D>H

[Outline]   This command prints the data.   If the DIP switch segments 1 to 6 are set to OFF, the printer will print the data in the print buffer and feed the paper by one line.   If they are set to ON, the printer will print the data in the print buffer and will not feed the paper.

ESC " " n

[Function]   Setting the character right space

[Code]   <1B>H <20>H n

[Range] $0 \leq n \leq 32$

[Outline]   This command sets the right space of the character.

[Caution]   In the double width mode, the right space will be double the set amount.   Set the space in increments of half dot.

[Default]   n = 0

ESC "!" n

[Function]   Setting the print mode batch

[Code]   <1B>H <21>H n

[Range]   0 ≤ n ≤ 255

[Outline]   Sets the print mode. "n" (Each bit) has the following meanings.

Bit	Function	Values	
		0	1
0	Undefined	–	–
1	Undefined	–	–
2	Undefined	–	–
3	High-lighting	Canceled	Specified
4	Double height	Canceled	Specified
5	Double width	Canceled	Specified
6	Undefined	–	–
7	Underline	Canceled	Specified

[Caution]   The entire character print width is underlined, but the portion skipped by HT is not.   If both double height and double width are selected, the characters will be quadrupled.   If the double width characters are selected, some dots may not be printed depending on the preceding one.

When printing the double height characters, there will be less shear in unidirectional printing.

[Default]   n = 0

ESC "%" n

[Function]   Specifying/Canceling the download character set

[Code]   <1B>H <25>H n

[Range] $0 \leq n \leq 255$

[Outline]   This command selects/deselects the download character set.   n is valid only for the least significant bit.

        Setting n0 = 1 selects the download character set.

        Setting n0 = 0 deselects the download character set.

[Default]   n = 0

ESC "&" s n m [a[p] s × a]m - n + 1

[Function]   Defining the download character set

[Code]   <1B>H <26>H s n m [a[p] ... <ps × a>] m - n + 1

[Range]   s = 2

$32 \leq n \leq m \leq 255$

$0 \leq a \leq 9$

$0 \leq p1 ... ps \times a \leq 255$

[Outline]   This command defines the download alphenumerals or Katakana.   s denotes the number of bytes in the vertical direction, n the start character code, and m the end character code, respectively.   When defining only one character, set n = m.

The 224 ASCII code characters, 32 to 255, are definable.   a specifies the number of dots in the horizontal direction to be defined. p is the data you want to define and shows the a -dots worth of pattern in the horizontal direction from the left edge.   The remaining pattern on the right side will be a space.   Once the download characters are defined, they remain valid until they are redefined or the download deletion command (ESC DC2 n1 n2) is executed.

[Default]   Same as the internal character set.

[Caution]   The horizontally adjacent dots cannot be printed.   The 2nd-byte data in the vertical direction is valid only for the most significant bit.

Example
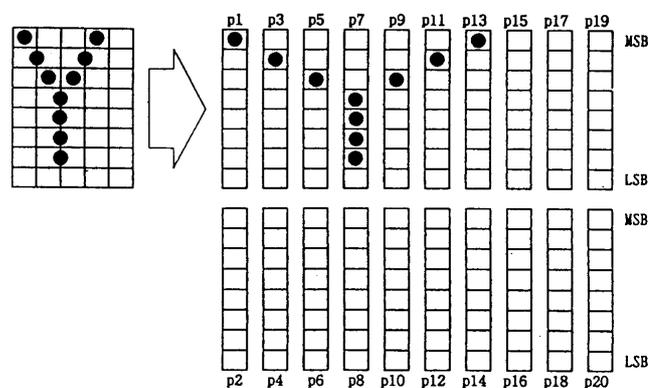
ESC "∗" m n1 n2 [d] n1 + 256 × n2

[Function]   Specifying the bit image mode

[Code]   <1B>H <2A>H m n1 n2 [d] n1 + 256×2

[Range]   m = 0, 1

$0 \le n1 \le 255$

$0 \le n2 \le 3$

$0 \le d \le 255$

[Outline]   This command specifies the bit image for the mode m as to the number of dots specified with n1 and n2. Divide the number of dots printed by 256 and assume its quotient to be n2 and remainder to be n1. Therefore, the number of horizontal dots will be n1 + 256 × n2.

If the bit image data is entered beyond the dot positions printable in one line, the surplus data will be discarded. The following table shows the bit image modes for m.

m	Vertical Dots	Horizontal Direction		
		Dot Density	Adjacent Dot Setting	Total Dots
0	8	Single density	Allowed	189
1	8	Double density	Disallowed	378

[Caution]   If the value of m is beyond the conditions, the data subsequent to n1 will be processed as normal data. Normal data processing will be restored after completing bit image print.
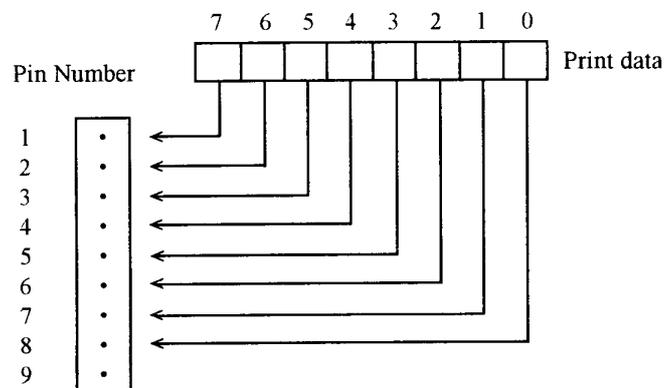
ESC "2"

[Function]	Setting the 1/6-inch line feed width
[Code]	<1B>H <32>H
[Outline]	This command sets the line feed width to 1/6 inch.

ESC "3"

[Function]	Setting the line feed width in minimum pitch increments
[Code]	<1B>H <33>H
[Outline]	This command sets the line feed width to n/18 inch.

ESC "@"

[Function]	Initializing the printer
[Code]	<1B>H <40>H
[Outline]	This command cancels various conditions set after power-on to initializes the printer to the conditions having existed at power-on. However, the print buffer, input buffer, and external device drive pulse width are not initialized. The settings of the DIP switch segments are not re-read.

ESC "D" [n]k NUL

[Function]   Setting the Horizontal tab position

[Code]   <1B>H <44>H [n]k <00>H

[Range] $1 \leq n \leq 255$

                $0 \leq k \leq 32$

[Outline]   This command sets the horizontal tab position. n denotes the number of columns from the head of the line to the horizontal tab setting position and equals the set column position - 1. k denotes the number of horizontal tab positions to be set.   The tab position is set at the character width $\times$ n from the head of the line.   The character width at this time includes the space to the right of the character; it will be double the normal character width if the double width characters are selected.

                The data <n>k denoting the set position is entered in the ascending order and ends with <00>H.   ESC D NUL clears all the set tab positions.   HT is ignored after clearing.

[Caution]   If the data <n>k is equal to or smaller than the preceding data <n>k - 1, it is assumed that horizontal tab setting has been completed.   If this is the case, the subsequent data will be processed as normal data.

                Up to 16 horizontal tabs can be set.   The data beyond this limit are processed as normal ones.   If the data <n>k exceeds the one-line print range, set the "set column position = maximum print columns + 1."

                Even if the character width is changed after setting the horizontal tab position, the latter will not change.

[Default]   7×9 font, every 8 characters (9th, 17th, 25th column, and so on)

CITIZEN

ESC "R" n

[Function]   Selecting the international character set

[Code]   <1B>H <52>H n

[Range] $0 \leq n \leq 10$

[Outline]   This command selects the international characters according to the value of n.

n	Character Set	n	Character Set
0	U.S.A.	6	Italy
1	France	7	Spain
2	Germany	8	Japan
3	U.K.	9	Norway
4	Denmark I	10	Denmark II
5	Sweden		

[Default]   Depends upon DIP switch setting.

               CITIZEN

ESC "U" n

[Function]   Specifying/Canceling the Unidirectional print mode

[Code]   <1B>H <55>H

[Range] $0 \le n \le 255$

[Outline]   This command selects/deselects unidirectional print.   n is valid only for the least significant bit.

n	Function
0	Deselects
1	Selects

[Caution]   If unidirectional print is selected, the printer will print from the left to the right.   When you want to prevent horizontal shear in printing at high accuracy, specify unidirectional print with this command. (Double height print, etc.)

           CITIZEN

ESC "c" "4" n

[Function]   Selecting the paper near end sensor valid for print stop

[Code]   <1B>H<63>H<34>H n

[Range] $0 \leq n \leq 255$

[Outline]   This command selects the no-paper detector state in which printing should be stopped.

Bit	Function	Value	
		0	1
0	Paper near end	Disabled	Enabled
1	Undefined	–	–
2	Undefined	–	–
3	Undefined	–	–
4	Undefined	–	–
5	Undefined	–	–
6	Undefined	–	–
7	Undefined	–	–

[Default]   n = 1

ESC "c" "5" n

[Function]   Selecting the panel switch enable/disable

[Code]   <1B>H <63>H <35>H n

[Range] $0 \leq n \leq 255$

[Outline]   This command enables/disables the panel switches.   n is valid only for the least significant bit.

          Setting n = 1 disables the panel switches.

          Setting n = 0 enables the panel switches.

[Caution]   If the panel switches are disabled with this command, the LF switch will be disabled. Therefore, the paper cannot be fed by the LF switch.

[Default]   n = 0

ESC "d" n

[Function]	Printing and n-line paper feed
[Code]	<1B>H <64>H n
[Range]	$0 \leq n \leq 255$
[Outline]	This command feeds the paper by n-lines after printing the one line worth of data saved in the print buffer.

ESC i   (iDP3421/3423 Only)

[Function]	Full cut
[Code]	<1B>H<69>H
[Outline]	This command fully cuts the paper.

ESC m   (iDP3421/3423 Only)

[Function]	Partial cut
[Code]	<1B>H<6D>H
[Outline]	This command partially cuts the paper.

ESC "p" m n1 n2

[Function]   Specifying the pulse generation

[Code]   <1B>H <70>H m n1 n2

[Range] $0 \leq m \leq 1$

                  $0 \leq n1 \leq n2 \leq 255$

[Outline]   This command outputs the signals specified with n1 and n2 to the connector pins.

m	Connector Pin
0	Drawer kick connector No. 2 pin
1	Drawer kick connector No. 5 pin

The ON time is n1×2 mS and the OFF time is n2×2 mS.

[Caution]   The user should consider driving the drawer at the following duty ratio.

                ON time ÷ (ON time + OFF time) ≤ 0.2

                (It is recommended to make n2 four times higher or more than n1.)

The drawer kick-out solenoid should have a resistance value of 36Ω or more.   Do not use a lower one because an overcurrent will flow.   For the drawer power, be sure to use the printer power (Drawer kick-out connector No. 4 pin).

ESC "r" n

[Function]   Selecting the printing color

[Code]   \<1B>H \<72>H n

[Range]   n = 0, 1

[Outline]   This command selects a print color for each line.   Setting n = 0 selects black.   Setting n = 1 selects red.   The command is valid only when it is entered at the head of the line.

[Default]   n = 0 (Black print)

ESC "t" n

[Function]   Selecting the character code table

[Code]   \<1B>H \<74>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This command selects Page-n of Character Code Table.

[Default]   Depends on DIP switch setting.

n	Character Code Table	N	Character Code Table
0	Codepage PC437 (U.S.A.)	6	Codepage PC852 (Eastern Europe)
1	Codepage Domestic	7	Codepage PC866 (Russian)
2	Codepage PC850 (Multilingual)	8	Codepage PC857 (Turkish)
3	Codepage PC860 (Portugual)	9	Windows Codepage
4	Codepage PC863 (Canadan-French)		
5	Codepage PC865 (Nordic)	255	Space Page (For user setting)

ESC "u" n

[Function]   Sending the status for peripheral device

[Code]   <1B>H <75>H n

[Range]   n = 0

[Outline]   This commands sends the status of the connector no. 3 pin.

n	Connector Pin
0	Drawer kick-out connector No. 3 pin

Status Sent

Bit	Function	Value	
		0	1
0	No. 3 pin's level	"LOW"	"HIGH"
1	Undefined		
2	Undefined		
3	Undefined		
4	Undefined		
5	Undefined		
6	Undefined		

[Caution]   This command is valid only for the serial interface.   If nothing is connected to the connector, the bit 0 will be always "1".   In case of DTR/DSR control, if the host cannot receive (DSR signal has the Mark status), the printer will wait until it will be ready to receive.   In case of XON/XOFF control, only one byte will be sent without confirming the status of the DSR signal.   Note that it may take time to send the status after receiving the command.

CITIZEN

ESC "v"

[Function]   Sending the printer status

[Code]   <1B>H <76>H

[Outline]   This command sends the printer status.

[Caution]   This command is valid only for the serial interface.　 The following table lists the status sent. In case of DTR/DSR control, only one byte will be sent after confirming that the host is ready to receive (DSR signal has the Space status).

The status at command processing time is sent after processing the data received prior to this command.　 If the printing is under way when the command is being processed, however, the then status will be sent after completing print feed of that line.　 Therefore, it may take time to send the status after receiving the command.

Bit	Function	Value	
		0	1
0	Paper near end	With paper	Near end
1	Undefined		
2	Paper near end	With paper	End
3	Undefined		
4	Undefined	0 stationary	–
5	Undefined		
6	Undefined		

ESC "{ " n

[Function]   Specifying/Canceling the inverted character print

[Code]   <1B>H <7B>H n

[Range]   0 ≤ n ≤ 255

[Outline]   This command selects/deselects inverted print.   n is valid only for the least significant bit.

n	Type
0	Deselects the inverted characters.
1	Selects the inverted characters.

[Caution]   This command is valid only if entered at the head of the line.
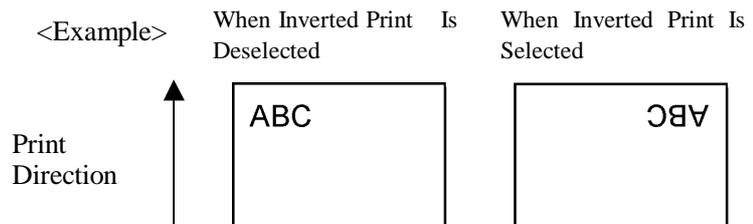
[Default]   n = 0   <Example>   When Inverted Print Is Deselected   When Inverted Print Is Selected

Print Direction

ABC   ⱯBC

ESC "∕" n "data" CR or LF

[Function]   Defining the message

[Code]   <1B>H <2F>H n "data" CR or LF

[Range]   1 ≤ n ≤ 10

[Outline]   This command defines up to a 50-byte message in one line.   If the value of n is specified beyond the range, the data following n will be treated as the print data.
Once the message is defined, it remains valid until it is redefined.   The data should end with CR (0DH) or LF (0AH).   If the data exceeds 50 bytes, the subsequent data will be treated as the print data.
Once the message is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

ESC DC3 n

[Function]	Printing the message
[Code]	<1B>H <13>H n
[Range]	$1 \leq n \leq 10$
[Function]	This command prints a message. If the value of n is specified beyond the range, the message will not be printed.

ESC "y" n

[Function]	Setting the print lines after paper near end detection
[Code]	<1B>H<79>H n
[Range]	$0 \leq n \leq 255$
[Outline]	This command sets the number of print lines after paper near end detection. It stops printing after printing $n \times 2$ lines since detection of the paper near end, resulting in the paper near end state (See 4.12 Operation Panel and Error Indications). The PE signal (Parallel interface only) changes when the paper near end is detected.
[Default]	$n = 0$

ESC DC2 n1 n2

[Function] Deleting the download character, message, bit image

[Code] <1B>H <12>H n1 n2

[Range] $0 \le n1 \le 3$

$0 \le n2$ (Specify 0 at n1 = 0)

(1 ≤ n2 ≤ 10 at n1 = 1)

(32 ≤ n2 ≤ 224 at n1 = 2)

(Specify 0 at n1 = 3)

[Outline] This command deletes the downloaded characters, message, and bit image.

n 1	Object Deleted
0	All(Message, characters, bit image)
1	Download message
2	Download characters
3	Download bit image

With n2, specify which data of the function specified with n1 should be deleted.

n2 = 0 Deletes all the download function specified with n1.

n2≠0 Deletes the data downloaded at the value specified with n2 (Value specified when saving with each download command), of the download function specified with n1.

Note) No meaning when n1 = 0 is set.

GS "∗" n1 n2 [d] n1 × n2 × 8

[Function]   Defining the download, bit image

[Code]   <1D>H <2A>H <n1> <n2> [<d>] n1 × n2 × 8

[Range] $1 \leq n1 \leq 45$

$0 \leq n2 \leq 24$

Note) Take care that the number of data(n1×n2×8) is equal to or smaller than 2,048.

[Outline]   This command defines the download bit image having the dots specified n1 and n2.   The number of horizontal dots is represented by n1×8 and that of vertical dots is represented by n2×8, respectively.   m denotes the number to be registered.   (See a download bit image printout.)   d denotes the bit image data.   Once the download bit image is defined, it remains valid until it is redefined or the download deletion command (ESC DC2 n1 n2) is executed.

GS／m

[Function]   Printing the download, bit image

[Code]   <1D>H <2F>H m

[Range]   0 ≤ m ≤ 255

[Outline]   This command prints the bit image saved in the number specified with m.

[Caution]   If the print buffer contains the data, this command will be ignored. If the bit image has not been saved in the specified number, this command will be ignored.

Nothing is printed when m is other than 0, 1, 2 or 3.

14. CHARACTER CODES TABLE

14.1 CBM (Japanese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p			SP	—	タ	ミ	円	σ
1		DC1	!	1	A	Q	a	q			.	ア	チ	ム	日	$\bar{\mathrm{x}}$
2		DC2	"	2	B	R	b	r			「	イ	ツ	メ	月	¢
3		DC3	#	3	C	S	c	s			」	ウ	テ	モ	年	×
4			$	4	D	T	d	t			、	エ	ト	ヤ	↕	∞
5			%	5	E	U	e	u			・	オ	ナ	ユ	≠	±
6			&	6	F	V	f	v			ヲ	カ	ニ	ヨ	θ	÷
7	BEL		'	7	G	W	g	w			ァ	キ	ヌ	ラ	λ	π
8		CAN	(	8	H	X	h	x			ィ	ク	ネ	リ	φ	
9			)	9	I	Y	i	y			ゥ	ケ	ノ	ル	〒	
A	LF		*	:	J	Z	j	z			ェ	コ	ハ	レ	£	
B		ESC	+	;	K	[	k	{			ォ	サ	ヒ	ロ	℃	
C	FF		、	<	L	¥	l	|			ャ	シ	フ	ワ	°F	
D	CR		—	=	M	]	m	}			ュ	ス	ヘ	ン	Ω	
E	SO		。	>	N	^	n	~			ョ	セ	ホ	゛	μ	
F	SI		/	?	O	_	o	■			ッ	ソ	マ	゜	Σ	

14.2 CBM (International)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	'	p			£	Ü	e	û		
1		DC1	!	1	A	Q	a	q			℃	ß	ê	ç		
2		DC2	"	2	B	R	b	r			°F	§	ï	¿		
3		DC3	#	3	C	S	c	s			Ω	a	í	Ñ		
4			$	4	D	T	d	t			μ	o	ì	ñ		
5			%	5	E	U	e	u			Σ	·	ì	E		
6			&	6	F	V	f	v			σ	TL	î	Ɔ		
7	BEL		'	7	G	W	g	w			x̄	½	ö	¡		
8		CAN	(	8	H	X	h	x			¢	Ɲ	ó	Å		
9			)	9	I	Y	i	y			×	x̄	ò	φ		
A	LF		*	:	J	Z	j	z			∞	¥	õ	θ		
B		ESC		;	K	[	k	{			±	¼	ô	ä		
C	FF		`	<	L	\	l	|			÷	Ã	ü	á		
D	CR		—	=	M	]	m	}			π	ë	ú	à		
E	SO		.	>	N	^	n	~			Ä	é	ù	ã		
F	SI		/	?	O	_	o	■			Ö	è	û	â		

14.3   Star (Japanese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	SP	⌐	SP	—	タ	ミ			⊤
1		DC1	!	1	A	Q	a	q			⌐	°	ア	チ	ム	—	—
2	STX	DC2	"	2	B	R	b	r	—	■	⌐	イ	ツ	メ	—	—
3	ETX	DC3	#	3	C	S	c	s			■	⌐	ウ	テ	モ			—
4		DC4	$	4	D	T	d	t	—	■	、	エ	ト	ヤ	+		
5	ENQ		%	5	E	U	e	u			■	・	オ	ナ	ユ	⌐		
6			&	6	F	V	f	v	—	/	ヲ	カ	ニ	ヨ	└		
7	BEL		'	7	G	W	g	w			\	ア	キ	ヌ	ラ	⌐	◪
8		CAN	(	8	H	X	h	x	—	◣	イ	ク	ネ	リ	■	◪
9	HT		)	9	I	Y	i	y			◢	ゥ	ケ	ノ	ル	▒	◢
A	LF	SUB	*	:	J	Z	j	z	—	⌐	エ	コ	ハ	レ	⊥	◤
B	VT	ESC	+	;	K	[	k	{			⊥	ォ	サ	ヒ	ロ	←	=
C	FF	FS	、	<	L	¥	l			├	⊤	ャ	シ	フ	ワ	↑	‖
D	CR	GS	—	=	M	]	m	}	—	┤	ュ	ス	ヘ	ン	→	＼
E	SO	RS	.	>	N	^	n	~	└	◆	ョ	セ	ホ	"	↓	ノ
F	SI		/	?	O	_	o	▒	⌐	×	ッ	ソ	マ	・	⌐	＼

14.4   Star (International)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	SP	⌐	Ä	é	ù	ã	|	⊤
1		DC1	!	1	A	Q	a	q	|	⌐	Ö	è	û	â	—	—
2	STX	DC2	"	2	B	R	b	r	—	■	Ü	e	û	°	—	—
3	ETX	DC3	#	3	C	S	c	s	|	■	ß	ê	ç	℃	|	—
4		DC4	$	4	D	T	d	t	—	■	§	ï	¿	°F	+	|
5	ENQ		%	5	E	U	e	u	|	■	a	í	Ñ	Ω	⌐	|
6			&	6	F	V	f	v	—	/	o	ì	ñ	µ	∟	|
7	BEL		'	7	G	W	g	w	|	\	£	ì	E	Σ	¬	■
8		CAN	(	8	H	X	h	x	—	◤	¢	î	ↄ	σ	■	■
9	HT		)	9	I	Y	i	y	|	◢	½	ö	¡	x̄	▒	◢
A	LF	SUB	*	:	J	Z	j	z	—	⌐	Ŋ	ó	Å	℡	⊥	◣
B	VT	ESC	+	;	K	[	k	{	|	⊥	X̄	ò	φ	×	←	=
C	FF	FS	،	<	L	\	l	|	⊢	⊤	¥	õ	θ	∞	↑	‖
D	CR	GS	—	=	M	]	m	}	—	⊣	¼	ô	ä	±	→	╲
E	SO	RS	.	>	N	^	n	~	⌐	◆	Ä	ü	á	÷	↓	╯
F	SI		/	?	O	_	o	■	¬	×	ë	ú	à	π	┌	╲

14.5   Codepage PC437(USA,European Standard)

128	144	160	176	192	208	224	240
8-	**9-**	**A-**	**B-**	**C-**	**D-**	**E-**	**F-**
Ç	É	á	▓	└	⊥	α	≡
ü	æ	í	▓	⊥	╤	β	±
é	Æ	ó	▓	┬	╥	Γ	≥
â	ô	ú	│	├	╙	π	≤
ä	ö	ñ	┤	─	╘	Σ	⌠
à	ò	Ñ	╡	┼	╒	σ	⌡
å	û	ª	╢	╞	╓	µ	÷
ç	ù	º	╖	╟	╫	τ	≈
ê	ÿ	¿	╕	╚	╪	Φ	°
ë	Ö	⌐	╣	╔	┘	Θ	∙
è	Ü	¬	║	╩	┌	Ω	·
ï	¢	½	╗	╦	█	δ	√
î	£	¼	╝	╠	▄	∞	ⁿ
ì	¥	¡	╜	═	▌	ø	²
Ä	₧	«	╛	╬	▐	ε	■
Å	ƒ	»	┐	╧	▀	∩	

14.6 Codepage Katakana(Japanese)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL		SP	0	@	P	`	p	▬	⊥	SP	▔	タ	ミ	―	×
1		XON	!	1	A	Q	a	q	▬	┬	°	ア	チ	ム	├	円
2			"	2	B	R	b	r	▬	┤	┌	イ	ツ	メ	╋	年
3		XOF	#	3	C	S	c	s	▬	├	┘	ウ	テ	モ	┤	月
4			$	4	D	T	d	t	■	─	、	エ	ト	ヤ	◤	日
5			%	5	E	U	e	u	■	⊥	・	オ	ナ	ユ	◣	時
6			&	6	F	V	f	v	■	│	ヲ	カ	ニ	ヨ	◢	分
7			'	7	G	W	g	w	■	│	ァ	キ	ヌ	ラ	◥	秒
8			(	8	H	X	h	x	│	┌	ィ	ク	ネ	リ	♠	〒
9	HT		)	9	I	Y	i	y	│	┐	ゥ	ケ	ノ	ル	♥	市
A	LF		*	:	J	Z	j	z	▌	└	ェ	コ	ハ	レ	◆	区
B		ESC	+	;	K	[	k	{	▐	┘	ォ	サ	ヒ	ロ	♣	町
C		FS	、	<	L	¥	l	|	▐	⌐	ャ	シ	フ	ワ	●	村
D	CR	GS	─	=	M	]	m	}	█	＼	ュ	ス	ヘ	ン	○	人
E			.	>	N	^	n	~	▐	＿	ョ	セ	ホ	"	／	▓
F			／	?	O	_	o	SP	＋	／	ッ	ソ	マ	°	＼	SP

14.7 Codepage PC 850(Multilingual)

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	░	└	ð	Ó	-
ü	æ	´	▒	┴	Đ	ß	±
é	Æ	ó	▓	┬	Ê	Ô	=
â	ô	ú	│	├	Ë	Ò	¾
ä	ö	ñ	┤	─	È	õ	¶
à	ò	Ñ	Á	┼	€	Õ	§
å	û	ª	Â	ã	Í	µ	÷
ç	ù	º	À	Ã	Î	þ	¸
ê	ÿ	¿	©	╚	Ï	Þ	°
ë	Ö	®	╣	╔	┘	Ú	¨
è	Ü	¬	║	╩	┌	Û	·
ï	ø	½	╗	╦	█	Ù	¹
î	£	¼	╝	╠	▄	ý	³
ì	Ø	¡	¢	═	Ì	Ý	²
Ä	×	«	¥	╬	I	¯	■
Å	ƒ	»	¬	¤	▀	´	

14.8 Codepage PC860(Portuguese)

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▒	└	╨	α	≡
ü	Æ	´	▓	┴	╤	β	±
é	Ê	ó	▌	┬	╥	Γ	≥
â	ô	ú	│	├	╙	π	≤
ã	õ	ñ	┤	─	╘	Σ	⌠
à	ò	Ñ	╡	┼	╒	σ	⌡
Á	Ú	ª	╢	╞	╓	µ	÷
ç	ù	º	╖	╟	╫	τ	≈
ê	Ì	¿	╕	╚	╪	Φ	°
Ê	Õ	⌐	╣	╔	┘	Θ	∙
è	Ü	¬	║	╩	┌	Ω	·
Í	¢	½	╗	╦	█	δ	√
Ô	£	¼	╝	╠	▄	∞	ⁿ
	Ù	¡	╜	═	▌	ø	²
Ã	₧	«	╛	╬	▐	ε	■
Â	Ó	»	┐	╧	▀	∩	

14.9 Codepage PC863(Canadian-French)

128	144	160	176	192	208	224	240
8-	**9-**	**A-**	**B-**	**C-**	**D-**	**E-**	**F-**
Ç	É	¦	▒	└	╨	α	≡
ü	E	´	▓	┴	╤	β	±
é	Ê	ó	▌	┬	╥	Γ	≥
â	ô	ú	│	├	╙	π	≤
Â	Ë	¨	┤	─	╘	Σ	⌠
a	Ï	¸	╡	┼	╒	σ	⌡
¶	û	³	╢	╞	╓	μ	÷
ç	u	¯	╖	╟	╫	τ	≈
ê	¤	î	╕	╚	╪	Φ	°
ë	Ô	┌	╣	╔	┘	Θ	∙
e	Ü	┐	║	╩	┌	Ω	·
¨	¢	½	╗	╦	█	δ	√
^	£	¼	╝	╠	▄	∞	ⁿ
‗	U	¾	╜	═	▐	φ	²
A	Û	«	╛	╬	▌	ε	■
§	ƒ	»	┐	⊥	▀	∩	

14.10 Codepage PC865(Nordic)

128	144	160	176	192	208	224	240
8-	**9-**	**A-**	**B-**	**C-**	**D-**	**E-**	**F-**
Ç	É	á	▓	└	╨	α	≡
ü	æ	í	▓	┴	╤	β	±
é	Æ	ó	▓	┬	╥	Γ	≥
â	ô	ú	│	├	╙	π	≤
ä	ö	ñ	┤	─	╘	Σ	⌠
à	ò	Ñ	╡	┼	╒	σ	⌡
å	û	ª	╢	╞	╓	µ	÷
ç	ù	º	╖	╟	╫	τ	≈
ê	ÿ	¿	╕	╚	╪	Φ	°
ë	Ö	⌐	╣	╔	┘	Θ	•
è	Ü	¬	║	╩	┌	Ω	·
ï	ø	½	╗	╦	█	δ	√
î	£	¼	╝	╠	▄	∞	ⁿ
ì	Ø	¡	╜	═	▌	φ	2
Ä	Pts	«	╛	╬	▐	ε	■
Å	ƒ	¤	┐	╧	▀	∩	(RSP)

14.11 Codepage PC852(Eastern Europe)

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▓	└	đ	Ó	—
ü	Ĺ	´	▒	┴	Đ	ß	˝
é	Í	ó	▐	┬	Ď	Ô	ˇ
â	ô	ú	│	├	Ë	Ń	˘
ä	ö	Ą	┤	─	ď	ń	˜
ů	Ľ	ą	Á	┼	Ň	ň	§
ć	ľ	Ž	Â	Ă	Í	Š	÷
ç	Ś	ž	Ě	ă	Î	š	¸
ł	ś	Ę	Ş	╚	ě	Ŕ	°
ë	Ö	ę	╣	╔	┘	Ú	¨
Ő	Ü	¬	║	╩	┌	ŕ	·
ő	Ť	ź	╗	╦	█	Ű	ű
î	ť	Č	╝	╠	▄	ý	Ř
Ź	Ł	ş	Ż	═	Ţ	Ý	ř
Ä	×	«	ż	╬	Ů	ţ	■
Ć	č	»	┐	¤	▀	´	

14.12 Codepage PC866(Russian)

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
А	Р	а	▒	└	╨	р	Ё
Б	С	б	▓	┴	╤	с	ё
В	Т	в	║	┬	╥	т	Є
Г	У	г	│	├	╙	у	є
Д	Ф	д	┤	─	╘	ф	Ї
Е	Х	е	╡	┼	╒	х	ї
Ж	Ц	ж	╢	╞	╓	ц	Ў
З	Ч	з	╖	╟	╫	ч	ў
И	Ш	и	╕	╚	╪	ш	°
Й	Щ	й	╣	╔	┘	щ	∙
К	Ъ	к	║	╩	┌	ъ	·
Л	Ы	л	╗	╦	█	ы	√
М	Ь	м	╝	╠	▄	ь	№
Н	Э	н	╜	═	▌	э	¤
О	Ю	о	╛	╬	▐	ю	■
П	Я	п	┐	╧	▀	я	

14.13 Codepage PC857(Turkish)

128	144	160	176	192	208	224	240
8-	9-	A-	B-	C-	D-	E-	F-
Ç	É	á	▓	└	º	Ó	—
ü	æ	´	▒	┴	ª	β	±
é	Æ	ó	▌▌▌	┬	Ê	Ô	
â	ô	ú	│	├	Ë	O	¾
ä	ö	ñ	┤	─	È	õ	¶
à	ò	Ñ	Á	┼		Õ	§
a	û	Ğ	Â	ã	Í	µ	÷
ç	ù	ğ	À	Ã	Î	,	‚
ê	İ	¿	©	└	Ï	×	º
ë	Ö	®	╣	┌	┘	Ú	¨
è	Ü	¬	║	┴	┌	Û	·
ï	ø	½	╗	┬	■	U	¹
î	£	¼	╝	├	▬		³
ı	Ø	¡	¢	═	¦	ÿ	²
Ä	Ş	«	¥	┴	Ì	¯	■
Å	ş	»	┐	¤	▬	´	

14.14 Windows Codepage

8	9	A	B	C	D	E	F
€			°	À	Ð	À	ð
	'	¡	±	Á	Ñ	Á	ñ
,	'	¢	²	Â	Ò	Â	ò
ƒ	"	£	³	Ã	Ó	Ã	ó
„	"	¤	´	Ä	Ô	Ä	ô
…	•	¥	µ	Å	Õ	Å	õ
†	–	¦	¶	Æ	Ö	Æ	ö
‡	—	§	·	Ç	×	Ç	÷
ˆ	~	¨	¸	È	Ø	è	ø
‰	™	©	¹	É	Ù	é	ù
Š	š	ª	º	Ê	Ú	ê	ú
‹	›	«	»	Ë	Û	ë	û
Œ	œ	¬	¼	Ì	Ü	ì	ü
		-	½	Í	Ý	í	ý
		®	¾	Î	Þ	î	þ
	Ÿ		¿	Ï	ß	ï	ÿ

125

CITIZEN

14.15 International Character Codes Table

	Nation	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A.	#	$	@	[	\	]	^	'	{	|	}	~
1	France	#	$	à	°	ç	§	^	'	é	ù	è	¨
2	Germany	#	$	§	Ä	Ö	Ü	^	'	ä	ö	ü	β
3	U.K.	£	$	@	[	\	]	^	'	{	|	}	~
4	Denmark 1	#	$	@	Æ	Ø	Å	^	'	æ	ø	å	~
5	Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
7	Spain	Pt	$	@	¡	Ñ	¿	^	'	¨	ñ	}	~
8	Japan	#	$	@	[	¥	]	^	'	{	|	}	~
9	Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
1 0	Denmark 2	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü

APPENDIX 1.   BLOCK DIAGRAM

OSC16MHz

POWER LED
ERROR LED
FEED Switch

Winder
(iDP3423 only)

DIP Switch

CPU

Driver → Print Head

Paper End

Driver → DC Motor

Printer Mechanism

Drawer ← Driver

Parallel ← Interface
(CENTRONICS Based)

Serial
(RS-232C Based)

ROM

RAM

Auto Cutter
(iDP3421/3423 only)

Reset

Filter

Vp   Vcc

Power Supply

Vp : For mechanism drive,
       For drawer kick
Vcc:For circuit drive
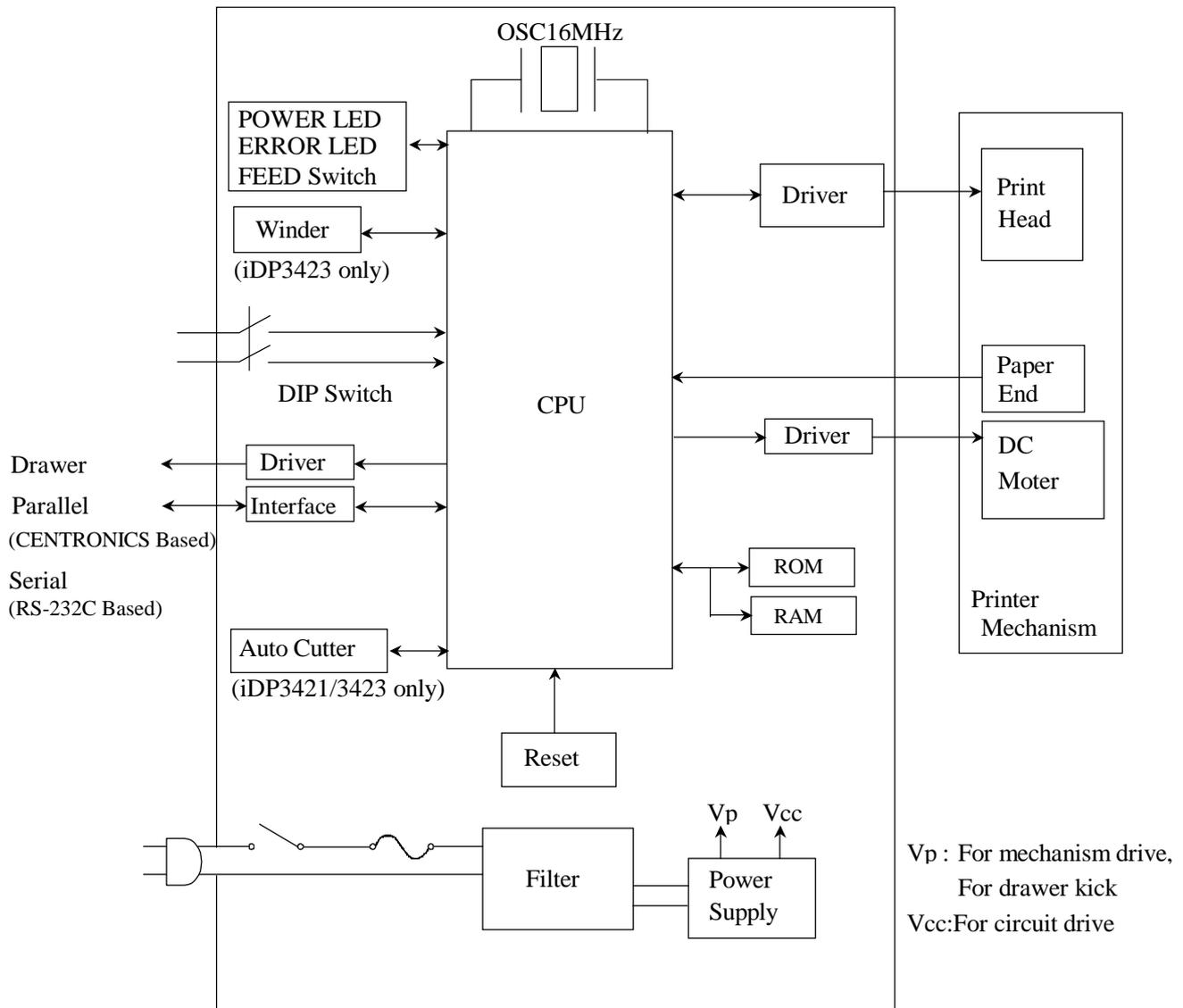
Power Supply
120 V AC, 50/60 Hz
230 V AC, 50/60 Hz

APPENDIX 2.   OUTLINE DRAWING for iDP3420
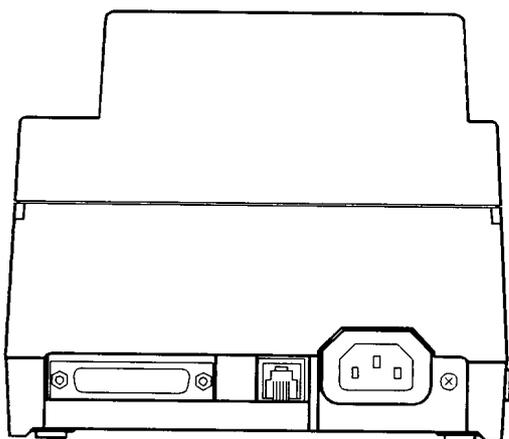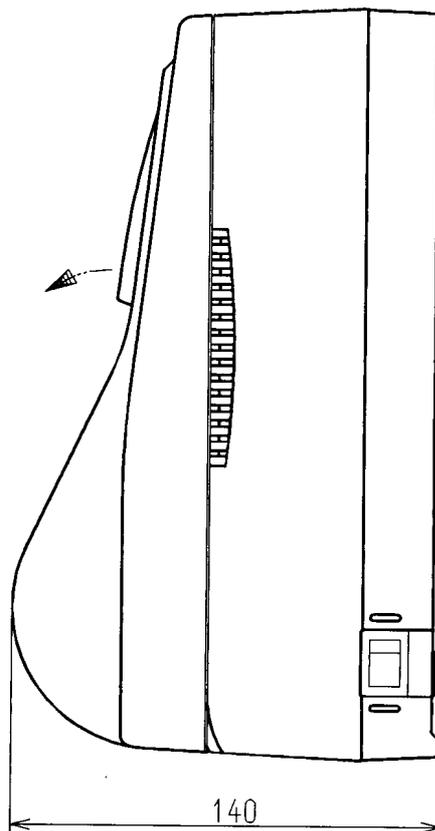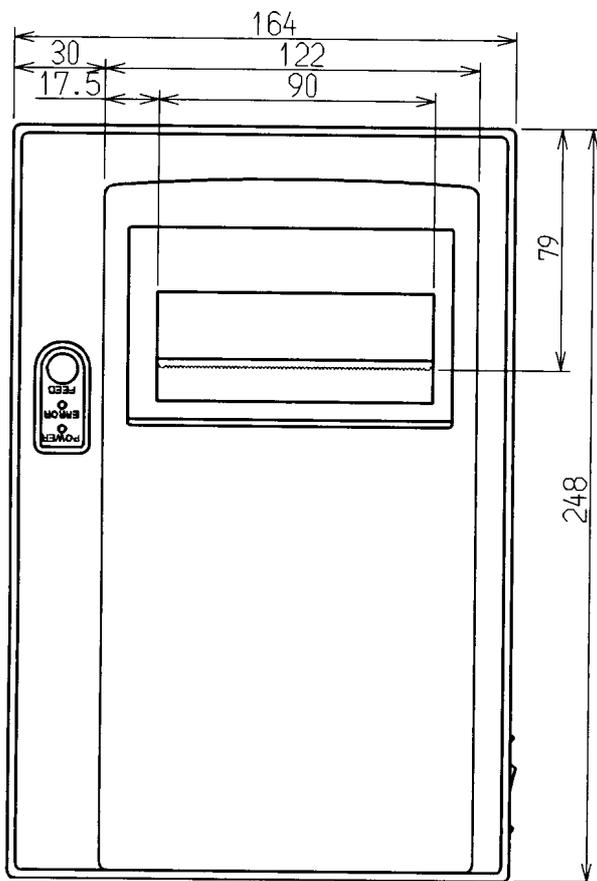
APPENDIX 3.   OUTLINE DRAWING for iDP3421
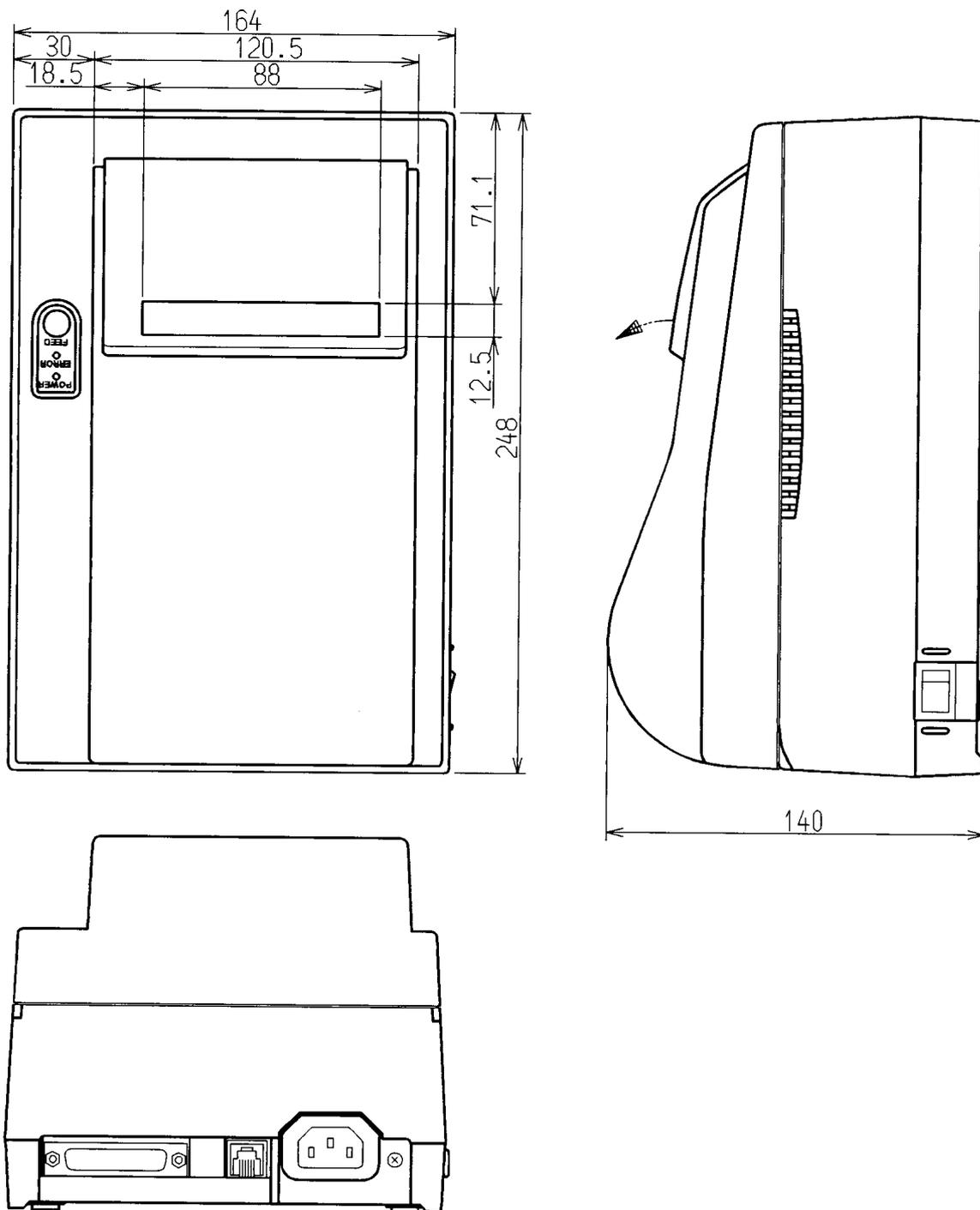
APPENDIX 4. OUTLINE DRAWING for iDP3423

<<<German>>>

<VORSICHT>
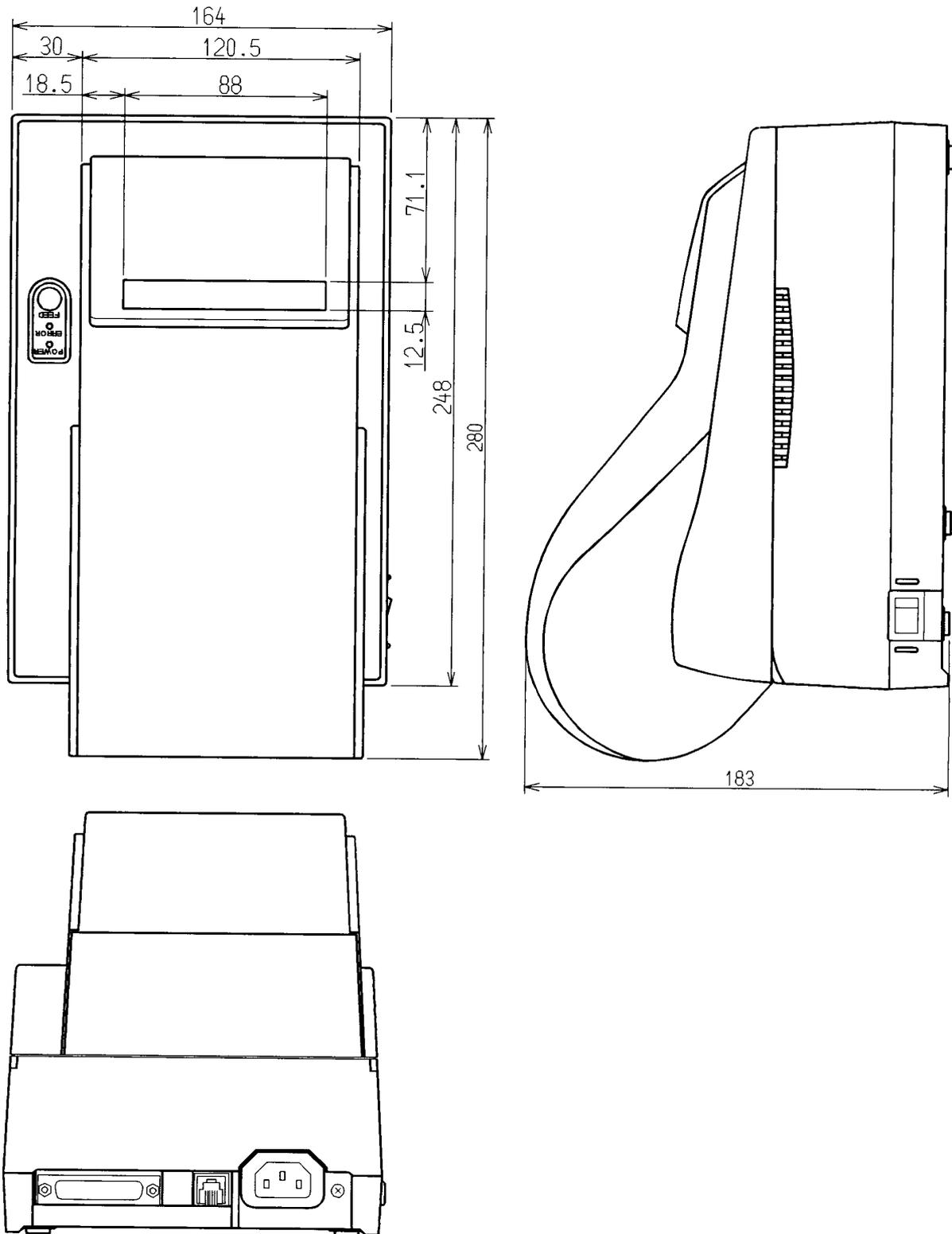
1. Bitte lesen Sie die Bedienungsanleitung vor dem Betrieb des Geräts aufmerksam durch und bewahren Sie die Anleitung anschließend für späteres Nachschlagen an einem sicheren Platz auf.

2. Änderungen des Inhalts dieser Anleitung bleiben ohne Vorankündigung vorbehalten.

3. Die Vervielfältigung dieser Bedienungsanleitung ohne vorherige Genehmigung verstößt, auch auszugsweise, gegen das Urheberschutzrecht.

4. Niemals versuchen, in dieser Anleitung nicht erwähnte Geräteteile eigenhändig zu warten, zerlegen oder zu reparieren.

5. Bitte beachten Sie, daß wir keinerlei Haftung für Schäden übernehmen, die auf unsächgemäße Bedienung, falsche Handhabung oder eine ungeeignete Betriebsumgebung zurückzuführen sind.

6. Zur Vermeidung von Unfällen und sonstigen Problemen ist das Gerät ausschließlich auf die in der Bedienungsanleitung beschriebene Weise zu betreiben.

7. Daten sind grundsätzlich temporär, d.h. sie können nicht permanent gesichert oder über längere Zeit gespeichert werden. Es sei deshalb darauf hingewiesen, daß wir für finanzielle Schäden oder Profitrückgänge als Folge von Datenverlust, Unfällen, Reparaturen, Tests usw. keinerlei Haftung übernehmen.

8. Bitte wenden Sie sich mit Fragen oder Hinweisen auf Fehler oder Auslassungen im Text dieser Anleitung an unsere Geschäftsstelle.

9. Beachten Sie jedoch, daß wir, ungeachtet des obigen Punkts 8, keinerlei Haftung für negative Folgeerscheinungen im Zusammenhang mit dem Betrieb dieses Geräts übernehmen.

ZU BEACHTENDE SICHERHEITSMASSREGELN

Zur Vermeidung von Gefahren gegenüber dem Bediener und anderen Personen und Sachschäden sind die folgenden Vorsichtsmaßregeln unbedingt zu beachten.

- Der folgende Text beschreibt das Ausmaß der Gefahren und potentiellen Sachschäden, die durch eine Mißachtung der Bedienungshinweise oder durch die unsachgemäße Handhabung des Geräts entstehen können.

⚠ **WARNUNG**	Die Mißachtung dieser Vorsichtsmaßregel kann zu Körperverletzungen mit möglicher Todesfolge führen.
⚠ **VORSICHT**	Die Mißachtung dieser Vorsichtsmaßregel kann zu Körperverletzungen oder Sachschäden führen.

⚠ Dieses Symbol ruft den Bediener zu erhöhter Wachsamkeit auf.

ⓘ Dieses Symbol weist auf wichtige Informationen, wie z.B. Bedienungsschritte oder dergleichen, hin.

⚠ WARNUNG

- Beim Betrieb des Geräts sind die nachfolgenden Vorsichtsmaßregeln unbedingt zu beachten. Eine Mißachtung dieser Hinweise kann zu Schäden, Funktionsstörungen, Rauchentwicklung und Brandgefahr durch Überhitzen und zu elektrischen Schlägen führen.
  Der fortgesetzte Betrieb des Geräts in anormalem Zustand, wie z.B. nach einer Beschädigung, kann Funktionsstörungen, Rauchentwicklung, fremde Gerüche/Geräusche und Brände verursachen. Bei anormalem Betriebszustand das Gerät sofort ausschalten und an einen Fachhändler wenden. Niemals versuchen, das Gerät eigenhändig zu reparieren, um ernsthafte Gefahren zu vermeiden.
- Das Gerät vor starken Stößen und Erschütterungen, wie z.B. Tritte, Stampfen, Schläge, Herunterfallen usw., schützen.
- Das Gerät an einem gut belüfteten Platz aufstellen, und darauf achten, die Belüftungsöffnung nicht zu blockieren.
- Bei der Aufstellung des Geräts Plätze vermeiden, an denen chemische Reaktionen auftreten, wie z.B. in einem Labor, sowie Plätze mit salz- oder gashaltiger Umgebungsluft.
- Netz- und Datenkabel niemals am Kabel haltend anschließen oder abziehen. Bei Betrieb, Verrücken oder Tragen des Geräts darauf achten, daß die Kabel keiner Gewalteinwirkung ausgesetzt sind.
- Darauf achten, daß keine Fremdköper, wie z.B. Nadeln oder Büroklammern, in das Gerät gelangen.
- Darauf achten, keine Flüssigkeiten auf dem Gerät zu vergießen oder chemische Substanzen enthaltende Sprays darüber zu versprühen. Bei versehentlichem Naßwerden das Gerät sofort ausschalten, das Stromanschlußkabel abziehen, das Netzkabel von der Steckdose trennen usw. und an einen Fachhändler wenden.
- Das Gerät niemals eigenhändig zerlegen oder modifizieren. Eine Mißachtung dieser Vorsichtsmaßregel kann zu Bränden und elektrischen Schlägen führen.
- Das Netzteil bei versehentlichem Herunterfallen sofort von der Steckdose trennen und sich an einen Fachhändler wenden. Der fortgesetzte Betrieb in diesem Zustand kann Brände und elektrische Schläge verursachen.
- Sollte unbeabsichtigt Wasser in das Gerät eindringen, sofort den Netzstecker abziehen und an einen Fachhändler wenden. Der fortgesetzte Betrieb in diesem Zustand kann zu Bränden und elektrischen Schlägen führen.
- Das Gerät ausschließlich mit der vorgeschriebenen Netzspannung betreiben. Eine Mißachtung dieser Vorsichtsmaßregel kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Das Kabel des Netzteils niemals beschädigen, knicken, modifizieren, biegen, verdrehen, bündeln oder gewaltsam daran ziehen. Das Kabel darüber hinaus von Wärmequellen fernhalten und keine schweren Gegenstände darauf stellen. Ein beschädigtes Netzteil kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Wenden Sie sich bei einer Beschädigung des Netzteilkabels bitte an unsere Kundendienstvertretung.
- Das Netzteil niemals mit nassen Händen anschließen oder trennen. Hierdurch können Brände, elektrische Schläge und sonstige Probleme entstehen.
- Verpackungsbeutel sind vorschriftsgemäß zu entsorgen oder ansonsten von Kindern fernzuhalten. Kleinkinder können durch Überstreifen eines Plastikbeutels ersticken.

⚠	**VORSICHTSMASSREGELN FÜR DIE AUFSTELLUNG**

- Das Gerät nicht an Plätzen abstellen oder betreiben, an denen es Feuer, Feuchtigkeit oder direkter Sonnenbestrahlung ausgesetzt ist. Ebenso sind Plätze in der Nähe von Heizkörpern und sonstigen Wärmenquellen zu vermeiden, an denen Umgebungstemperatur und Luftfeuchtigkeit nicht den vorgeschriebenen Betriebsbedingungen entsprechen, sowie Plätze, an denen das Gerät Öl, Metallspänen oder Staub ausgesetzt ist. Andernfalls können Funktionsstörungen sowie Rauch- und Brandentwicklung die Folge sein.
- Bei der Aufstellung des Geräts Plätze vermeiden, an denen chemische Reaktionen auftreten, wie z.B. in einem Labor, sowie Plätze mit salz- oder gashaltiger Umgebungsluft. Hierbei besteht die Gefahr von Bränden und elektrischen Schlägen.
- Keine schweren Gegenstände auf den Drucker stellen, um mögliche Probleme zu vermeiden.
- Das Gerät nicht in der Nähe eines Radios oder Fernsehers verwenden und nicht zusammen mit einem Radio oder Fernseher an die gleiche Steckdose anschließen. Hierdurch können Empfangsstörungen auftreten.
- Das Gerät ausschließlich mit der vorgeschriebenen Netzspannung und -frequenz betreiben. Eine Mißachtung dieser Vorsichtsmaßregel kann Brände, elektrische Schläge und Funktionsstörungen verursachen.
- Vergewissern, daß die für den Anschluß des Netzkabels verwendete Steckdose über eine ausreichende Kapazität verfügt.
- Darauf achten, eine einzelne Steckdose nicht durch den Anschluß des Netzkabels zu überlasten. Andernfalls können Brände und Stromausfälle die Folge sein. Darüber hinaus nicht fest auf das Netzkabel treten oder schwere Gegenstände darauf abstellen.
- Erdungskabel niemals an ein Gasrohr anschließen, da hierbei Explosionsgefahr besteht. Vor dem Anschließen oder Trennen eines Erdungskabels unbedingt zuerst den Netzstecker aus der Steckdose ziehen.
- Beim Anschließen oder Trennen der Kabel zuerst die Netzversorgung ausschalten, einschließlich der angeschlossenen Seite, und dann an Stecker und Steckdose haltend anschließen bzw. trennen. Bei einem Transport des Geräts darauf achten, daß das Kabel keinem Zug ausgesetzt ist.
- Steckerkabel sind fest anzuschließen. Durch Anschluß mit umgekehrter Polarität können Innenbauteile oder Paßflächen beschädigt werden.
- Für Datensignalleitungen abgeschirmte Kabel oder verzwirbelte Doppeladerkabel verwenden, um Rauschstörungen möglichst gering zu halten. Der Anschluß an ein Rauschstörungen erzeugendes Gerät ist zu vermeiden.
- Falls ein Geldschubladen-Ausschubmechanismusstecker vorhanden ist, sollten keine anderen Vorrichtungen, die nicht den vorgeschriebenen Solenoidspezifikationen entsprechen, angeschlossen werden. Eine Mißachtung dieser Vorsichtsmaßregel kann zu Fehlfunktionen führen.
- Das Gerät an einem Platz in der Nähe einer Steckdose betreiben, wo sich der Netzstecker zum Unterbrechen der Stromversorgung jederzeit schnell und mühelos abziehen läßt.
- Das Netzkabel aus der Steckdose ziehen, wenn das Gerät längere Zeit lang nicht benutzt werden soll.
- Vor einem Transport die Papierrolle aus dem Gerät herausnehmen.
- Das Gerät auf einer ebenen, stabilen Tischplatte an einem gut belüfteten Platz und frei von Erschütterungen aufstellen. (Darauf achten, die Belüftungsöffnung nicht zu blockieren.)

<div style="border: 1px solid black;">

⚠ VORSICHTSMASSREGELN FÜR DIE HANDHABUNG

Zur Vermeidung von Problemen sind bei der Handhabung des Geräts die folgenden Vorsichtsmaßregeln zu beachten.

- Für die Stromversorgung ausschließlich das vorgeschriebene Netzteil verwenden.
- Den Druckbetrieb nicht ohne eingelegtes Papier oder ohne Farbband starten, da hierdurch der Druckkopf beschädigt werden kann.
- Darauf achten, daß keine Fremdköper, w ie z.B. Nadeln, Büroklammern oder Schrauben, in das Gehäuse gelangen.
- Darauf achten, keine Flüssigkeiten auf dem Gerät zu vergießen oder chemische Substanzen enthaltende Sprays darüber zu versprühen.
- Das Gerät vor starken Stößen und Erschütterungen bewahren und nicht fallen lassen.
- Niemals mit spitzen Objekten, wie z.B. einem Kugelschreiber, auf das Bedienfeld drücken.
- Papierblätter niemals zum fortlaufenden Drucken mit Klebestreifen zusammenkleben.
- Ein bereits eingezogenes Blatt niemals gewaltsam herausziehen. Beim Öffnen/Schließen der Druckerabdeckung darauf achten, daß sich das Papier nicht verfängt.

Zur Vermeidung von Verletzungen und Schäden

- Den druckenden Abschnitt des Druckkopfes nicht berühren.
- Bei Einschalten keine beweglichen Teile, wie z.B. Schneidklinge und Zahnrad im Druckergehäuse, oder elektrische Teile berühren.
- Darauf achten, körperliche Verletzungen und die Beschädigung anderer Objekte durch scharfe Kanten zu vermeiden.
- Bei Auftreten jeglicher Störungen während des Betriebs den Drucker sofort ausschalten, und das Netzkabel aus der Steckdose ziehen.
- Die Beseitigung von Betriebsstörungen ist qualifiziertem Fachpersonal zu überlassen. Niemals versuchen, das Gerät eigenhändig zu zerlegen.
- Beim Öffnen/Schließen der Druckerabdeckung darauf achten, nicht die Hand oder Finger am Drucker einzuklemmen.

</div>

ⓘ TÄGLICHE WARTUNG

- Vor der Wartung zuerst den Drucker ausschalten.

- Schmutz und Staub mit einem trockenen, weichen Tuch vom Druckergehäuse abwischen. Bei starker Verschmutzung einen Lappen in Wasser anfeuchten, auswringen und damit abwischen. Hierzu niemals flüchtige organische Lösungsmittel, wie z.B. Alkohol, Terpentin, Trichlorethan, Benzol, Keton oder chemische Staubentfernungsmittel, verwenden.

- Papierstaub mit einer weichen Bürste vom Gehäuse entfernen.

4. BETRIEB

4.1 Anschluß des Netzkabels

1. Den Drucker ausschalten.

2. Den Drucker-Anschlußstecker des Netzkabels an die Netzanschlußbuchse an der Rückseite des Druckers anschließen.

3. Den anderen Stecker des Netzkabels an eine Netzsteckdose mit der vorgeschriebenen Betriebsspannung anschließen.

⚠️ **VORSICHT:** • Den Drucker nicht zusammen mit störungserzeugenden Geräten an die gleiche Steckdose anschließen.

• Das Netzkabel stets am Stecker haltend aus der Steckdose ziehen.

• Direktes Ziehen am Kabel kann zu Bränden, elektrischen Schlägen oder Kabelschäden führen.

• Bei Blitzschlag den Netzstecker aus der Steckdose ziehen und den Drucker während der Dauer des Gewitters nicht benutzen. Blitzschlag kann Brände und elektrische Schläge verursachen.

• Wenn der Drucker längere Zeit nicht benutzt werden soll, den Netzstecker zur Sicherheit aus der Steckdose ziehen.



Netzkabel

Netzanschlußbuchse
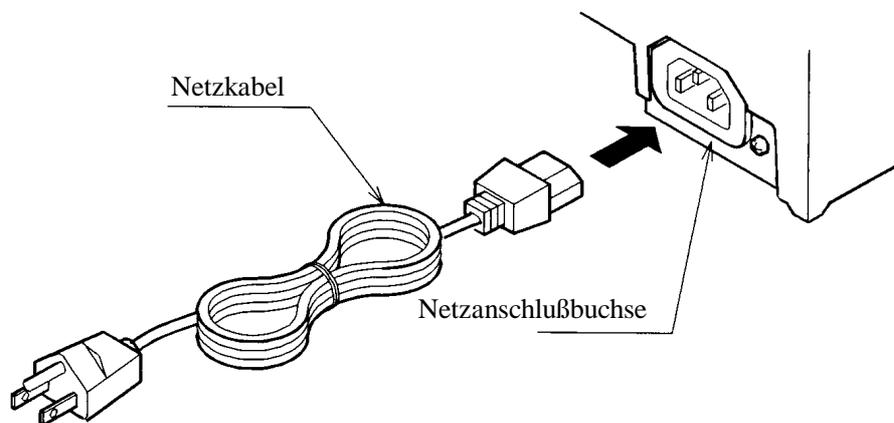
4.2   Anschluß des Schnittstellenkabels

1. Den Drucker ausschalten. (Einschließlich Kontaktseite)

2. Den Stecker korrekt ausrichten und an die Schnittstellenbuchse anschließen.

3. Den Kabelstecker an der Buchse befestigen.

   Serienschnittstelle   : Die Steckerschrauben eindrehen.

   Parallelschnittstelle   : Die Klemmen andrücken.

4. Das Schnittstellenkabel an den Computer anschließen.

Serienschnittstellenbuchse

Serienschnittstellenkabel

Parallelschnittstellenbuchse

Steckerklemme

Parallelschnittstellenkabel Schnittstelle
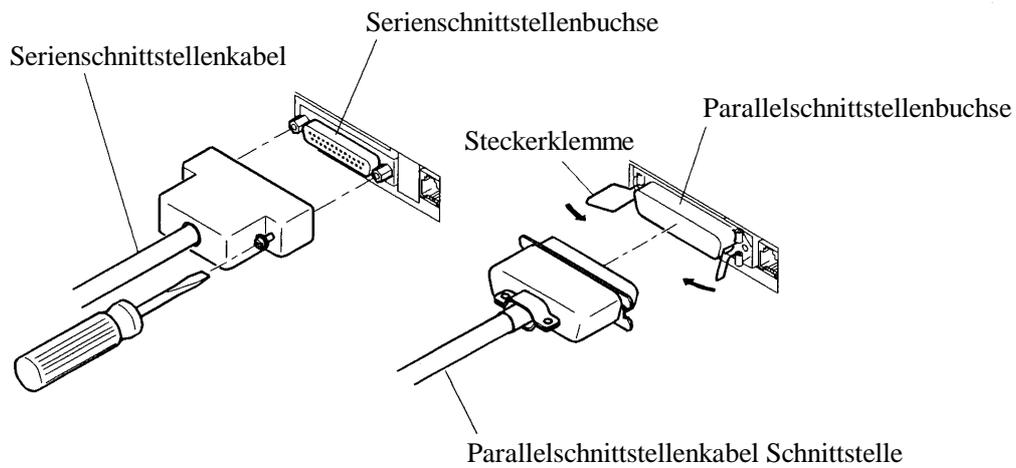
4.3 Anbringen des Ferritkerns am Schnittstellenkabel

1. Das Gerät ausschalten.(Paßseite eingeschlossen.)

2. Mit einem normalen Schraubenzieher den Ferritkern lösen und öffnen.
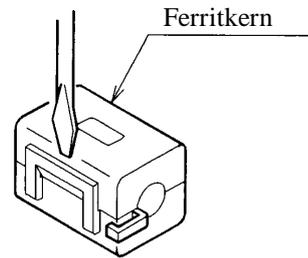
Ferritkern

3. Den Ferritkern so am Schnittstellenkabel anbringen, daß seine Endfläche innerhalb von 5 cm liegt.


Schnittstellenkabel

Ferritkern

Bis zu 5 cm
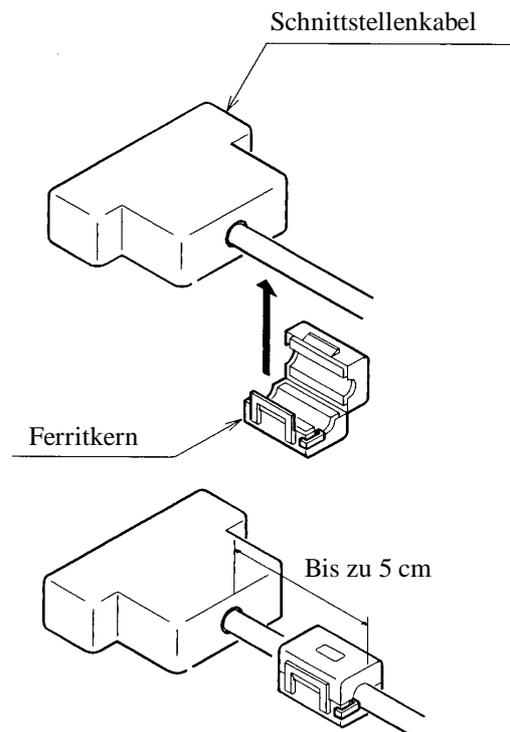
4. Den Arm des Ferritkerns mit einem Kabelbinder am Kabel befestigen, so daß sich der Ferritkern nicht verschieben kann. Den überstehenden Teil des Kabelbinder abschneiden.

Kabelbinder

Arm
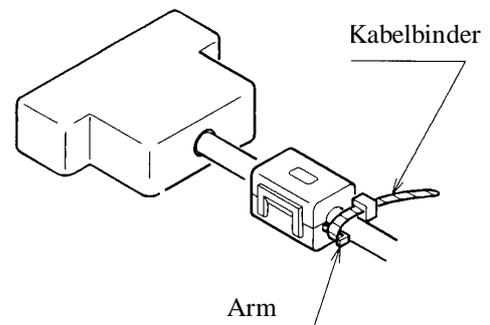
4.4 Anschluß des Schubladenausschubsteckers

1. Das Gerät ausschalten.

2. Den Schubladenausschubstecker korrekt ausrichten und an die Schubladenausschubbuchse an der Rückwand des Druckers anschließen.

3. Das Erdungskabel der Schublade an den Erdungsanschluß des Druckers anschrauben.

⚠ **VORSICHT :**   Nur den vorgeschriebenen Lade-(Magneten) an den Laden-Auszugstecker anschließen.
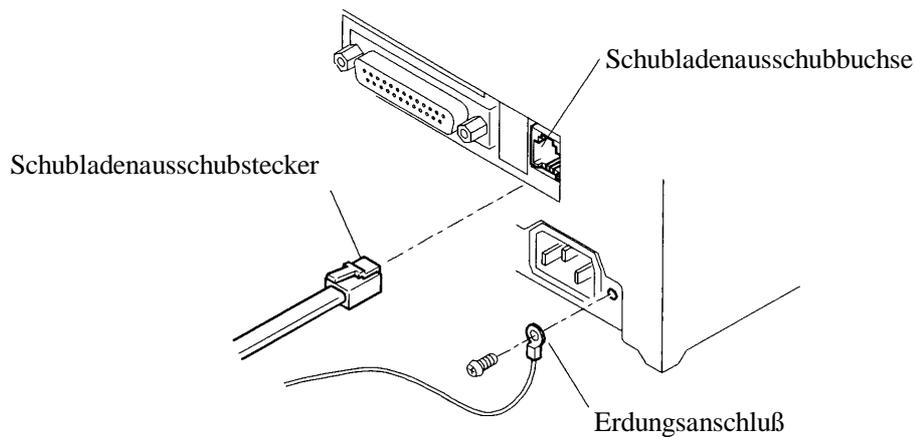
4.5 Öffnen/Schließen des automatischen Schneidemechanismus

Der automatische Schneidemechanismus wird vom einem Magnet gehalten. Den des automatischen Schneidemechanismus halten und zum Öffnen/Schließen in die durch den Pfeil angezeigte Richtung drehen.

⚠ **VORSICHT:**   Den automatischen Schneidemechanismus behutsam schließen, um Stöße zu vermeiden.
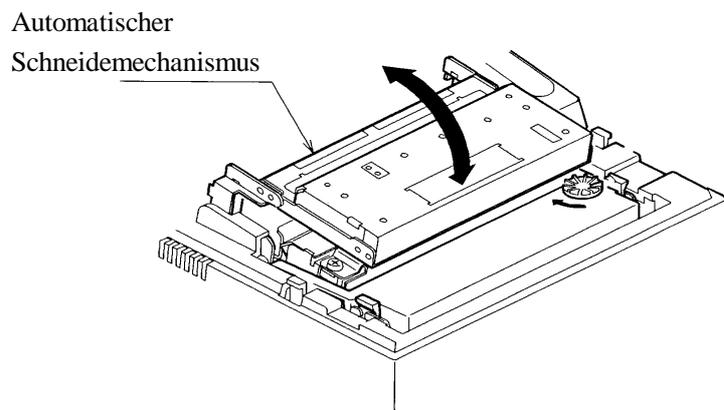
4.6   Einlegen der Farbbandkassette

(1) Die Druckerabdeckung öffnen.

(2) Den automatischen Schneidemechanismus öffnen.

(3) Vor dem Einsetzen der Kassette das Farbband durch Drehen des Knopfes in die durch den Pfeil angezeigte Richtung straffen.

(4) Das Farbband zwischen Druckkopfabdeckung und Walze einführen und gleichzeitig die Halteklemme in den Halter am Drucker einpassen.

(5) Den Knopf an der Farbbandkassette in die durch den Pfeil angezeigte Richtung drehen, um das Band zu straffen.

(6) Die Farbbandkassette zum Herausnehmen anheben und dabei gleichzeitig die Halteklemmen nach innen drücken.

(7) Den automatischen Schneidemechanismus (iDP3421/3423) schließen.

⚠ **VORSICHT:** • Den automatischen Schneidemechanismus vorsichtig schließen.
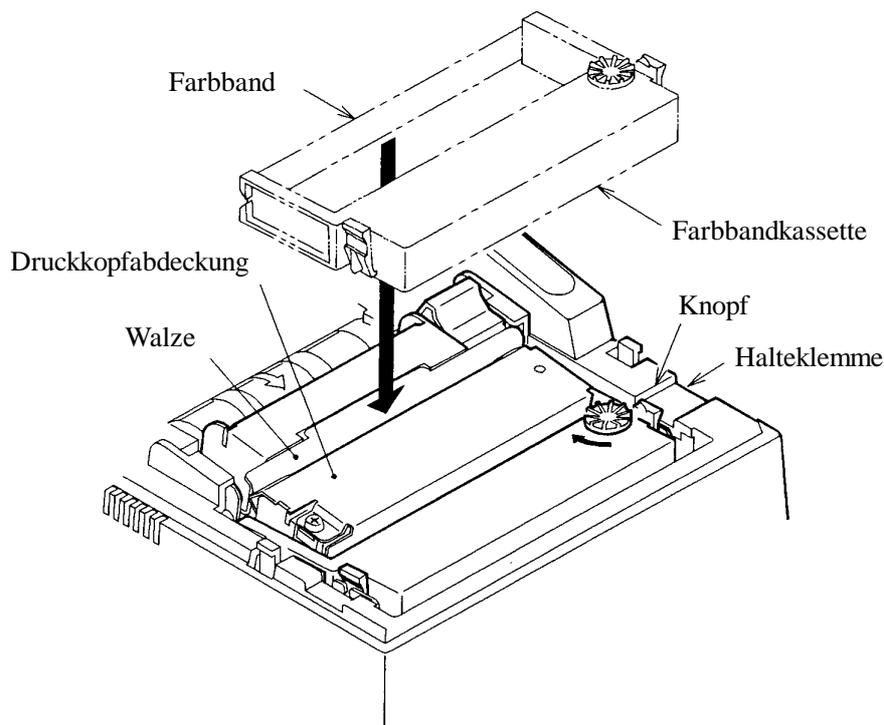
4.7 Einlegen des Papiers

4.7.1 Das Papier (iDP3420/3421) einlegen.

(1) Mit den Fingern in die Aussparungen der Druckerabdeckung greifen und die Abdeckung bis zum Anschlag öffnen.

(2) Das Ende der Papierrolle im rechten Winkel abschneiden.

⚠ **VORSICHT:**
- Ausschließlich die vorgeschriebene Papiersorte verwenden.
- Die Verwendung anderer Papiersorten kann zu verminderter Druckqualität, verkürzter Betriebslebensdauer des Druckers u. dergl. führen.
- Die Druckerabdeckung ist nicht abnehmbar und sollte deshalb nicht über den Anschlag hinaus geöffnet werden.
- Das in den Drucker einzuführende Papierende darf nicht geknickt oder eingerissen sein.

(3) Die Wickelrichtung der Papierrolle bestätigen.

| Gut | Schlecht | Schlecht | Schlecht |
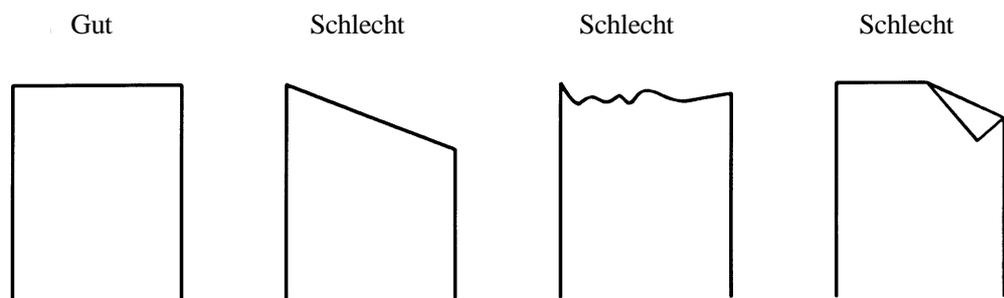
(4) Den Papierhalter öffnen und die Papierrolle korrekt einlegen.

(5) Den Drucker einschalten.

(6) Das Papierrollenende gerade in die Papiereinzugöffnung (markiert durch einen Pfeil am Gehäuse) einführen.

(7) Das Papier wird automatisch eingezogen und tritt am Papierauslauf des Druckers aus (Papierauslauf des automatischen Schneidemechanismus für den iDP3421).

(8) iDP3420: Das Papierende in den Papierauslauf der Druckerabdeckung einführen und überschüssiges Papier an der Papierabreißkante abtrennen.

     iDP3421: Überschüssiges Papier an der Papierabreißkante am Papierauslauf des automatischen Schneidemechanismus abreißen und die Druckerabdeckung schließen.

⚠ **VORSICHT:**
- Lockeres Papier straffwickeln.
- Bei schräg eingezogenem Papier, den Papierfreigabehebel hochstellen und das Papier ausrichten.
- Das Papier während des Druckens nicht festhalten, da hierdurch Papierstaus entstehen können.
- Den automatischen Schneidemechanismus vorsichtig schließen, um Stöße zu vermeiden.

Einlegerichtung der Papierrolle

Richtig

Falsch
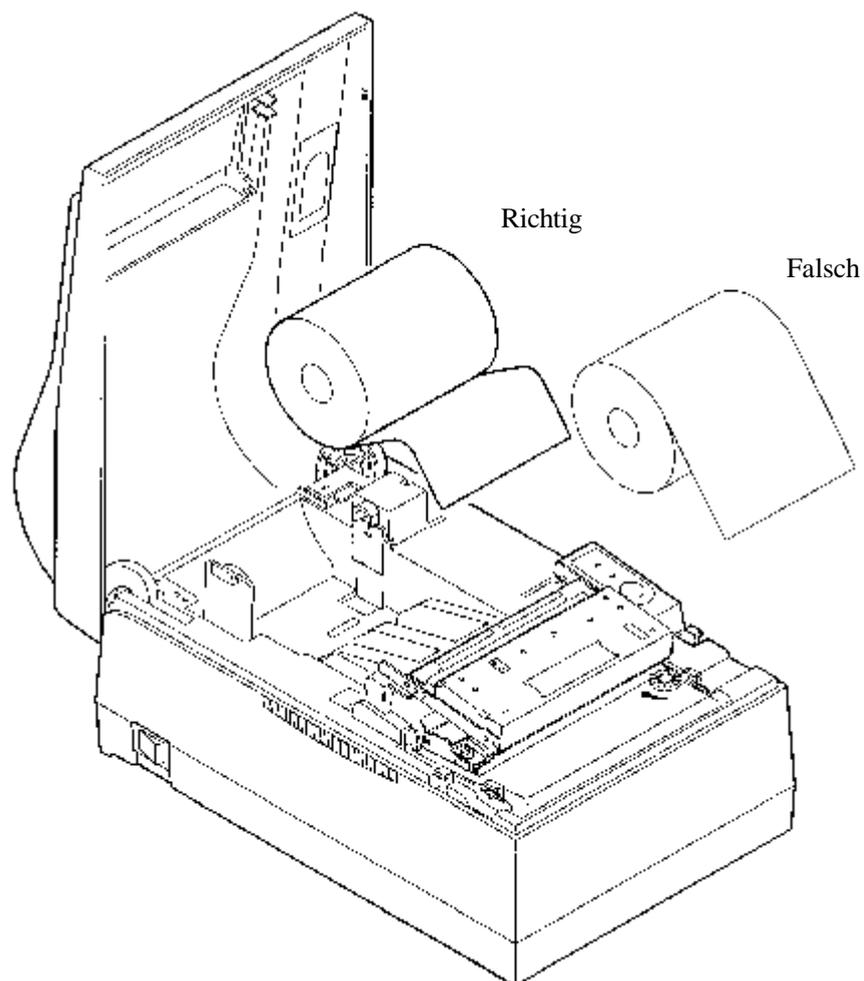
4.7.2 Einlegen der Papierrolle (doppellagiges Durchschlagpapier) (iDP3423)

1. Siehe Schritt 1 bis 6 unter 4.7.1 "Das Papier einlegen".
2. Die Papiervorschubtaste FEED drücken, um das Papier vorzuschieben, bis etwa 25 cm Papier aus der Papierauslauföffnung des Schneidemechanismus ausgelaufen sind.
3. Den automatischen Schneidemechanismus öffnen und das Papier herausziehen.
4. Den Journalstreifen (Durchschlagpapier) zwischen automatischem Schneidemechanismus und Walze einführen.
5. Das Kassenzettelpapier (Originalpapier) durch die enge Öffnung des automatischen Schneidemechanismus führen, den Schneidemechanismus schließen und das überschüssige Kassenzettelpapier an der Abreißkante abtrennen.
6. Den Journalstreifen in den Schlitz in der Wickelspule einführen und die Spule auf den Spulenhalter setzen.
7. Das Kassenzettelpapier durch Drehen der Wickelspule straffen.
8. Die Druckerabdeckung schließen.

⚠ **VORSICHT:**
- Schlaffes Papier durch Drehen der Wickelspule nochmals straffen.
- Bei schräg eingezogenem Papier, den Papierfreigabehebel hochstellen und das Papier ausrichten.
- Das Papier während des Druckens nicht festhalten, da hierdurch Papierstaus entstehen können.
- Den automatischen Schneidemechanismus vorsichtig schließen, um Stöße zu vermeiden.
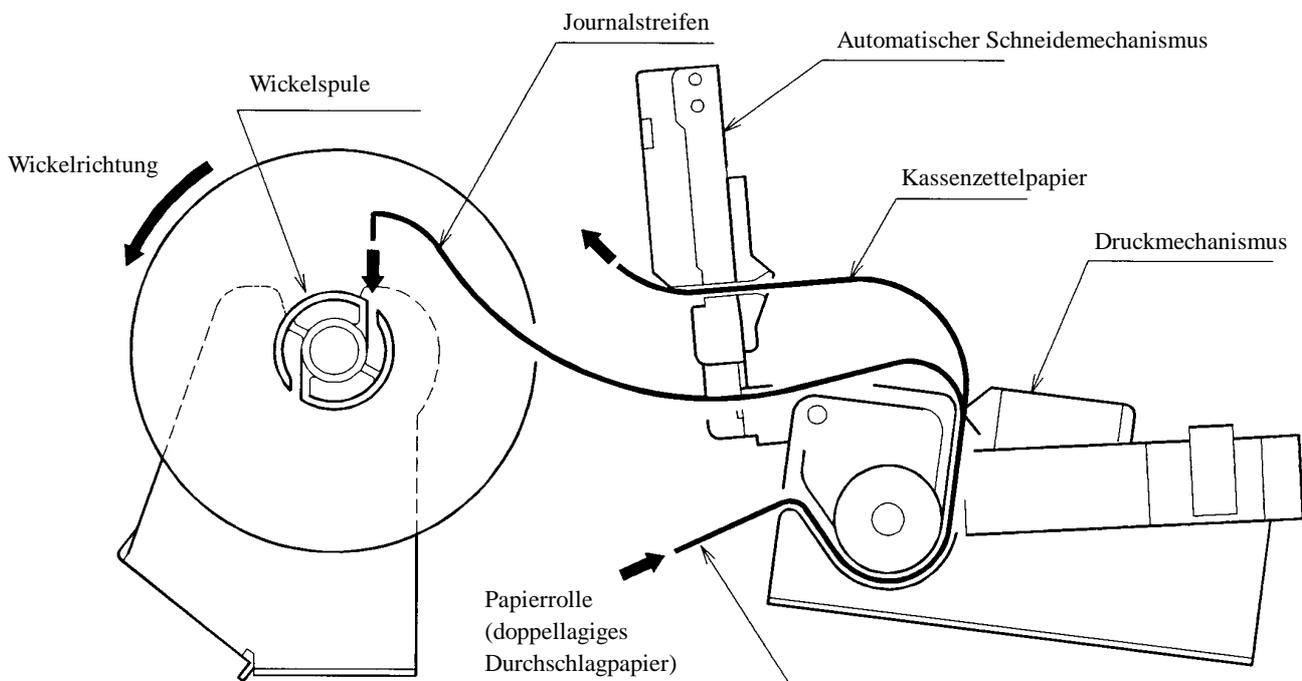
Querschnittdarstellung des Papierwegs (doppellagiges Durchschlagpapier)

4.7.3   Herausnehmen der vollen Papierrolle (iDP3423)

1. Die Druckerabdeckung öffnen.
2. Die Papierrolle zum Herausnehmen halb durchschneiden oder den Freigabehebel in die durch den Pfeil angezeigte Richtung stellen.
3. Die Wickelspule abnehmen.
4. Den Flansch an der Seite der Wickelspule abziehen.
5. Die Papierrolle von der Wickelspule herunterziehen.

Flansch

Wickelspule

Papierrolle (Kassenzettelpapier)
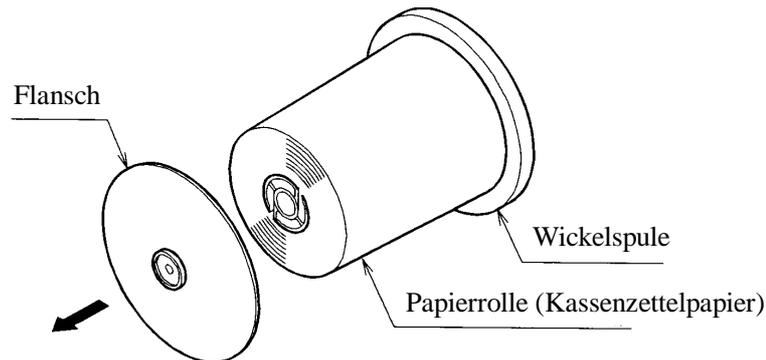
4.8   Ausrichten des Papierrestsensors

1. Die Druckerabdeckung öffnen.
2. Die Sensorbefestigungsschraube lösen.
3. Die Sensoreinheit nach oben/unten verschieben und die Befestigungsschraube in der korrekten Stellung festziehen.

Sensorposition im Verhältnis zur restlichen Papiermenge

Die folgende Tabelle zeigt die restliche Papiermenge, die durch die Position der Papierrestmarkierung an der Sensoreinheit angezeigt wird (bei Verwendung der vorgeschriebenen Papierrolle).

Markierungsposition	Durchmesser der Restpapierrolle	Restliche Papierlänge
1	Etwa ø21 mm	Etwa 1,2 m
2	Etwa ø23 mm	Etwa 2,2 m
3	Etwa ø25 mm	Etwa 3,2 m

Sensorbefestigungsschraube

Papierrestmarkierungen

①
②
③

Sensoreinheit
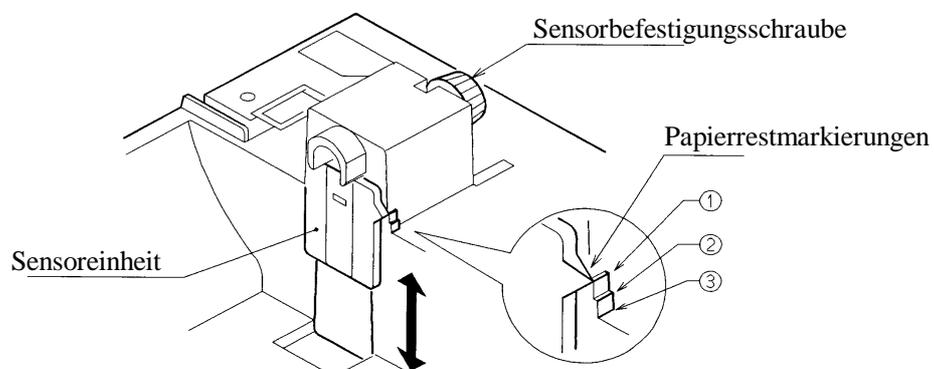
4.9 Herausnehmen der Restpapierrolle

(1) Die Druckerabdeckung öffnen.

(2) Den automatischen Schneidemechanismus (iDP3421/3423) öffnen.

(3) Den Papierfreigabehebel in die durch den Pfeil angezeigte Richtung stellen und die Papierrolle herausziehen.

(4) Den automatischen Schneidemechanismus schließen.

⚠ **VORSICHT:**   Beim Herausziehen des Papiers (in Vorwärts- oder Rückwärtsrichtung) unbedingt den Papierfreigabehebel betätigen.

Den automatischen Schneidemechanismus behutsam schließen, um Stöße zu vermeiden.

Papierfreigabehebel
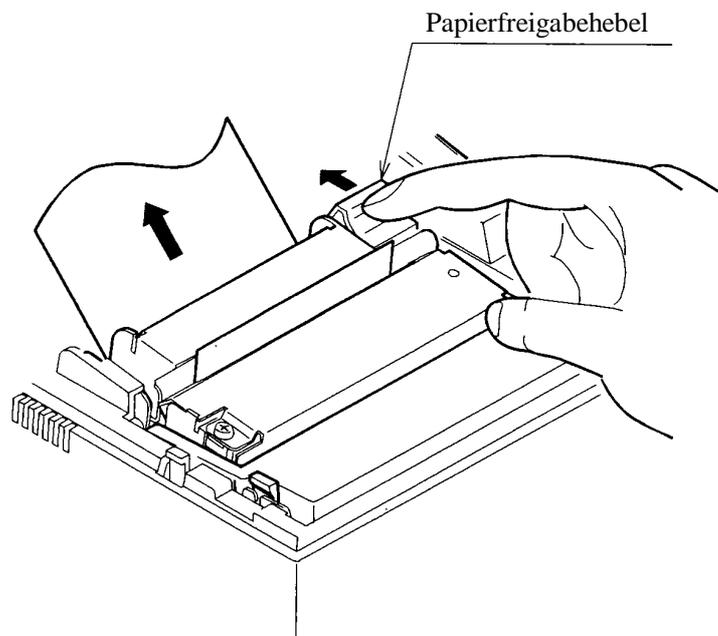
4.10 Beseitigung von Papierstaus

(1) Die Druckerabdeckung öffnen.

(2) Das Papier an der Papiereinzugöffnung abtrennen.

(3) Den Papierfreigabehebel in Pfeilrichtung stellen. Die Papiervorschubwalze gibt hierdurch das Papier frei, so daß der Papierstau beseitigt werden kann.

(4) Jegliches im Papierweg aufgestaute Papier beseitigen.

⚠ **VORSICHT:**   Beim Herausziehen des Papiers (in Vorwärts- oder Rückwärtsrichtung) unbedingt den Papierfreigabehebel betätigen.

4.11   Initialisierung des Schneidemechanismus

1. Die Druckerabdeckung öffnen.

2. Die FEED-Taste drücken. Hierdurch wird der automatische Schneidemechanismus initialisiert, die Schneidklinge zurückgezogen und der Alarm gelöscht.

3. Bei Auftreten eines Papierstaus das gestaute Papier vollständig entfernen. Siehe hierzu 4.9 "Beseitigung von Papierstaus".

4. Falls sich der Alarm hierdurch nicht löschen läßt, die Netzversorgung ausschalten und den automatischen Schneidemechanismus öffnen.

5. Durch ein kleines Loch an der Rückseite des automatischen Schneidemechanismus läßt sich ein Notfallknopf erkennen. Diesen Knopf mit einer Pinzette, einem Schraubendreher o. dergl. in die durch den Pfeil angezeigte Richtung drehen, um die Schneidklinge zurückzuziehen. Gestautes Papier oder Papierreste vollständig entfernen, falls vorhanden.

⚠ **VORSICHT:**
- Beim Herausziehen des Papiers (in Vorwärts- oder Rückwärtsrichtung) unbedingt den Papierfreigabehebel betätigen.
- Den automatischen Schneidemechanismus behutsam schließen, um Stöße zu vermeiden.


Automatischer Schneidemechanismus

Notfallknopf
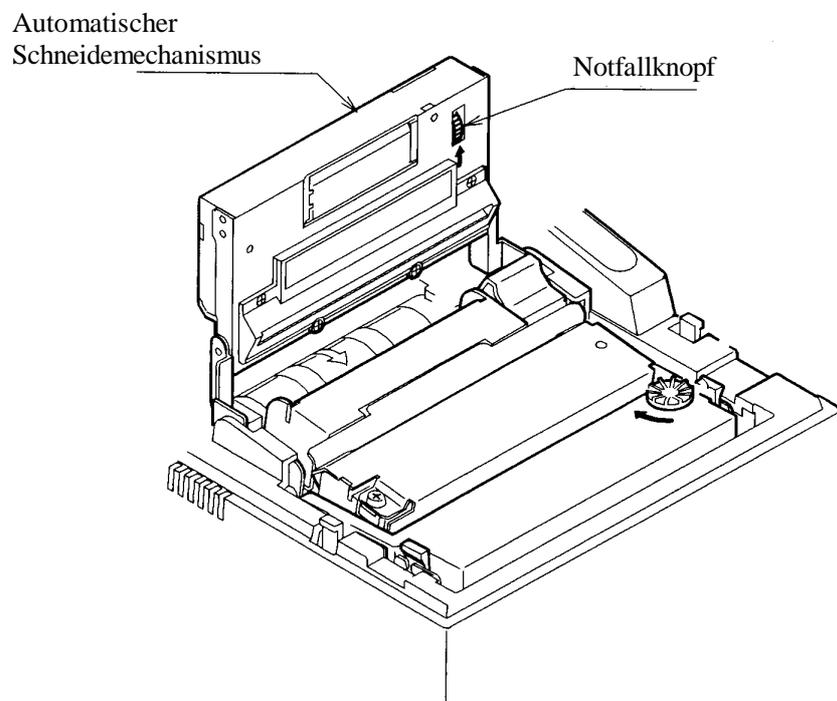
4.12 Bedienfeld und Fehleranzeigen

1. Netzanzeigelämpchen (POWER) (grün)

   Dieses Lämpchen leuchtet bei eingeschalteter Netzversorgung.

2. Fehlerlämpchen (ERROR) (rot)

   Dieses Lämpchen leuchtet oder blinkt zur Anzeige eines Fehlers.

Fehleranzeige	ERROR-Lämpchen	Signalgeber	Rückstellmethode
Mechanischer Fehler	Rasches Blinken	Etwa 1 Sekunde anhaltender Signalton	Den Netzschalter rückstellen.
Papierende	Leuchtet	Drei kurze Signaltöne, in Abstand von 0,6 Sekunden wiederholt werden	Eine neue Papierrolle einlegen.
Papierrolle fast leer	Blinkt (in Sekundenabständen)	Drei kurze Signaltöne, in Abstand von 0,6 Sekunden wiederholt werden	Eine neue Papierrolle einlegen.
Motorsperre des Schneidemechanismus (nur iDP3421/23)	Rasches Blinken (zweimal pro Sekunde)	Etwa 1 Sekunde langer Signalton	Den Papierstau beseitigen.

Mechanischer Fehler : Wenn der Druckmechanismus aufgrund eines Papierstaus o. dergl. höher als normal belastet wird, erklint ein Signalton, und das ERROR-Lämpchen blinkt, um den Druckmechanismus zu stoppen.

Papierende : Bei aufgebrauchte-m Papiervorrat erkennt der Sensor im Papierweg in der Nähe des Druckkopfes das Ende der Papierrolle, schaltet den Signalgeber und das ERROR-Lämpchen ein, um den Druckmechanismus zu stoppen. Durch Einschieben des Papiers in den Papierweg wird die Papierrolle geladen (siehe 4.7 "Einlegen des Papiers").

Papiervorrat fast leer : Bei aufgebrauchtem Papiervorrat wird der Papierrestsensor zum Einschalten des Signalgebers und des ERROR-Lämpchens aktiviert. Selbst nach Erkennen des zuende gehenden Papiervorrats kann die gewünschte Anzahl von Zeilen durch Eingegeben eines Befehls gedruckt werden. (Siehe die Beschreibung des Befehls zum Einstellen der Druckzeilenanzahl nach der Erkennung des zuende gehenden Papiervorrats.)

Schneidemechanismus-Motorsperre :
(nur iDP3421/23)

Wenn der Schneidepositionssensor in der Papierschneideeinheit bei laufendem Schneidemotor länger als 1 Sekunde ein- oder ausgeschaltet ist, wird die Schneide- und Druckfunktion durch Sperren des Motors ausgeschaltet.

3. FEED-Taste

Durch einmaliges kurzes Drücken dieser Taste wird das Papier 1 Zeile vorgeschoben. Durch anhaltendes Drücken wird das Papier fortlaufend vorgeschoben.

4. FEED-Taste und Netzschalter

Durch Einschalten der Netzversorgung folgt der Drucker, je nachdem wie die FEED-Taste gedrückt wird, dem auf der nächsten Seite beschriebenen Betriebsablauf beim "Einschalten".

Netzanzeigelämpchen (POWER)

Fehlerlämpchen (ERROR)

Papiervorschubtaste (FEED)
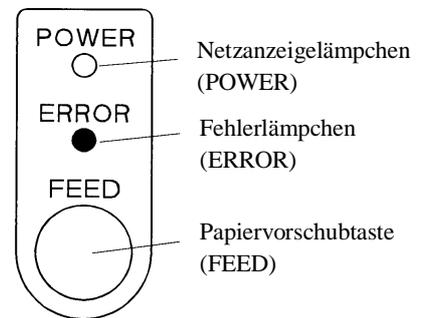
4.13   Betriebsfluß beim Einschalten

```
                        ┌─────────────────┐
                        │   Einschalten   │
                        └─────────────────┘
                                 │
            OFF        ◇─────────────────◇
         ◄─────────────   Feed SW ?
                        ◇─────────────────◇
                                 │ ON
                                 ▼
                        ◇─────────────◇      JA    ┌──────────────────────┐
                           Pufferdaten  ─────────► │ "Pufferdaten löschen" │
                        ◇─────────────◇            │ Ja (FEED SW) und       │
                                 │ NEIN            │ vergrößerter Rot-Druck │
                                 ▼                 └──────────────────────┘
                   ◇─────────────────◇   NO
                      1 Sek. vergangen  ──────────┐
                   ◇─────────────────◇            │         ◇─────────────────◇   YES
                                 │ YES            │            1 Sek. vergangen  ────┐
                                 ▼                │         ◇─────────────────◇      │
       OFF         ◇─────────────────◇           │                    │ NO          │
      ◄────────────   FEED SW ?                   │                    ▼             │
                       (FORTSETZEN)               │       OFF  ◇─────────────────◇   │
                   ◇─────────────────◇           │      ◄─────   FEED SW ?          │
                                 │ ON             │            (ERNEUT)              │
                                 ▼                │         ◇─────────────────◇      │
      ┌─────────────────────────┐   ┌──────────┐ │                    │ ON          │
      │ Druckt "=Hexadecimal Dum="│ │ Testdruck│ │                    ▼             │
      │ Datenausgabe-Modus        │ └──────────┘ │       ┌──────────────────┐       │
      └─────────────────────────┘               │       │ Eingabepuffer leer│       │
                                                 │       └──────────────────┘       │
                                                 ▼                    │             │
                              ◇─────────────◇   NEIN                  │             │
                                 Pufferdaten  ──────────┐             │             │
                              ◇─────────────◇           │             │             │
                                    │ JA                │
                                    ▼                   │
                      ┌──────────────────────────┐      │
                      │ Druckt "Power Down (Data in│     │
                      │ Buffer)" in rot, gefolgt von│    │
                      │ Pufferinhalten.            │      │
                      └──────────────────────────┘      │
                                    │                    │
                                    ▼                    │
                        ┌─────────────────────────┐
                        │ Wartet auf Dateneingabe. │
                        └─────────────────────────┘
```

5. DIP-SCHALTER-EINSTELLUNG

5.1 Lage der DIP-Schalter

1. Das Gerät ausschalten.

2. Die Druckerabdeckung öffnen.

3. Wenn die Papierrolle eingesetzt ist, diese vom Papierhalter entfernen.

4. Die DIP-Schalterabdeckung entfernen. Der DIP-Schalter befindet sich an der Stelle, wie in der Abbildung unten gezeigt. (Nur DS1 steht für die parallele Schnittstelle zur Verfügung.)

DIP-Schalterabdeckung
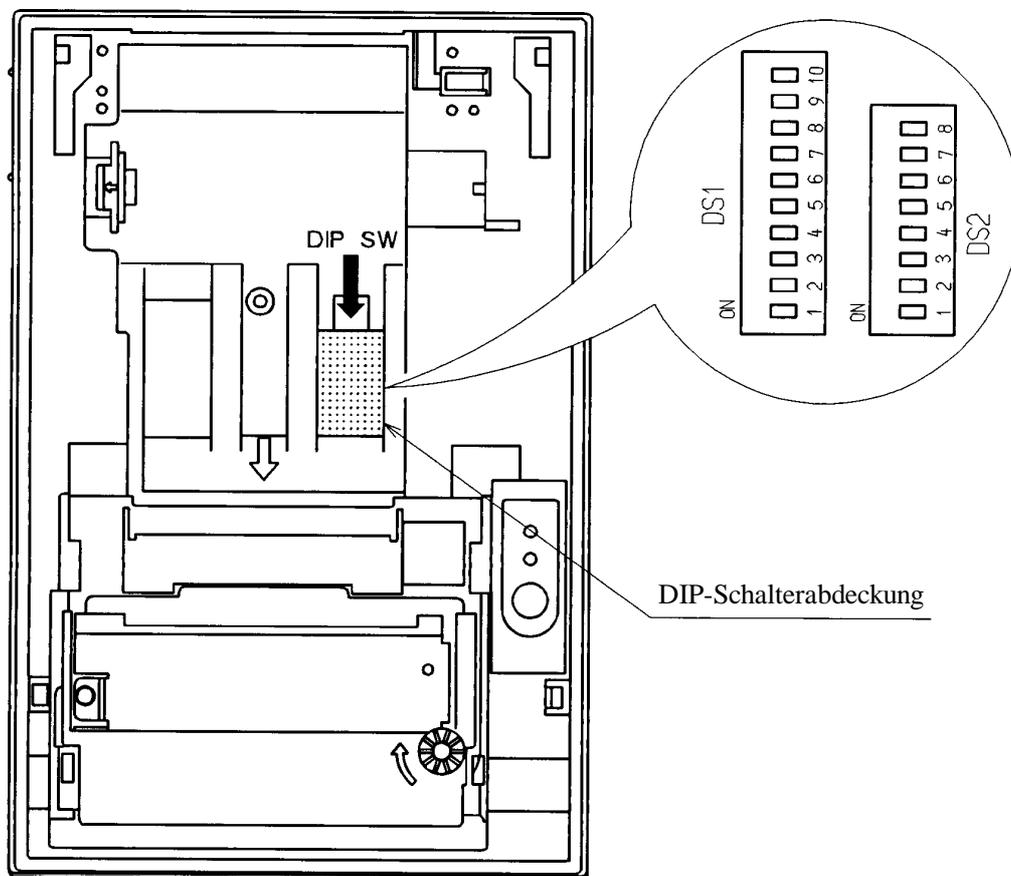
5.2   DIP-Schalter-Einstellungen

1) DIP-Schalter 1

No.	Funktion	ON	OFF	Bei Auslieferung ab Werk
DS1-1	Automatische Schneideinheit	Ja	Nein	ON *1
DS1-2	Internationale Zeichen			ON *2
DS1-3	″	Siehe Tabelle unten		ON *2
DS1-4	″			ON *2
DS1-5	Verwendetes Papier	2P	1P	OFF
DS1-6	CR-Modus	Siehe Tabelle unten		OFF
DS1-7	Stellen	42 Stellen	40 Stellen	ON
DS1-8	Puffergröße	6K Byte	256 Byte	ON
DS1-9	Betriebsmodus	Siehe Tabelle unten		OFF *3
1-10	″			OFF *3

*1, *3 : Je nach Typ.
*2   : Je nach Bestimmungsort.

Internationale Zeichenwahl

No. / Land	DS1-2	DS1-3	DS1-4
U.S.A.	ON	ON	ON
Frankreich	OFF	ON	ON
Deutschland	ON	OFF	ON
Großbritannien	OFF	OFF	ON
Dänemark	ON	ON	OFF
Schweden	OFF	ON	OFF
Italien	ON	OFF	OFF
Japan	OFF	OFF	OFF

Zeichencode-Wahl

ESC/POS-Modus	CBM-Modus	Star-Modus
Code 437	CBM (international)	Star (international)
Code 850	Code 850	Code 850
″	″	″
″	″	″
″	″	″
″	″	″
″	″	″
Katakana	CBM (japanisch)	Star (japanisch)

Siehe internationale Zeichencode-Tabelle und Schriftzeichen-Tabelle

CR-Modus(DS1-6)

Modus	OFF	ON
CBM	CR+LF	CR
Star	CR+LF	Ignoriert
ESC/POS	CR+LF	CR

Betriebsmodus

	DS1-9	DS1-10
CBM	OFF	OFF
ESC/POS	ON	OFF
Star	OFF	ON
Star Auto-Schneidfunktion	ON	ON

2) DIP-Schalter 2

No.	Funktion	ON	OFF	Werksseitige Einstellung
DS2-1	Bitlänge	8 Bit	7 Bit	ON
DS2-2	Parität	Nein	Ja	ON
DS2-3	Ungerade/Gerade	Ungerade	Gerade	ON
DS2-4	Kommunikationsmodus	DTR/DSR	XON/XOFF	ON
DS2-5	Baudrate			ON
DS2-6	″	Siehe Tabelle unten		ON
DS2-7	″			OFF
DS2-8	Nicht verwendet	–	–	OFF

Baudrate

| Baudrate	DS2-5	DS2-6	DS2-7
150	OFF	OFF	OFF
300	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
9600	ON	ON	OFF
19200	ON	ON	ON

∗Der DIP-Schalter 2 wird nur für die serielle Schnittstelle verwendet.

(Hinweis)   Die Einstellung des verwendeten Papiers ändert einfach den Treiberimpuls für den Druckkopf; sie bedeutet nicht, daß 2-Seiten-Papier nicht für die Einstellung 1P verfügbar ist. Das gleiche gilt, wenn 1-Seiten-Papier für die Einstellung 2P verwendet wird.

6. EINSTELLUNG DER VORWAHL-JUMPERSTECKER

6.1 Lage der Vorwahl-Jumperstecker

(1) Betriebsstrom ausschalten.

(2) Ein Kassettenband entfernen.

(3) Die Oberabdeckung entfernen. Der Vorwahl-Jumperstecker liegt, wie in der Abbildung unten gezeigt.

Serielle Schnittstelle

Parallele Schnittstelle
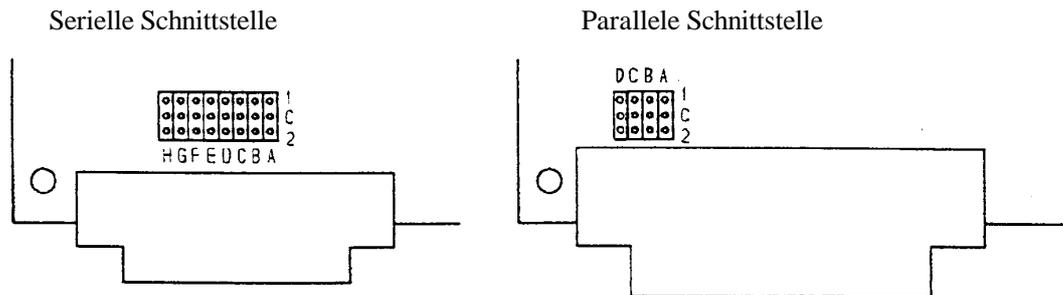
6.2 Vorwahl-Jumperstecker-Tabelle

Seriell

Modus / Lage	CBM	Star	ESC/POS
SCA	1-C *	2-C	2-C
SCB	1-C *	1-C *	2-C
SCC	1-C	2-C	*
SCD	1-C	2-C	*
SCE	1-C *	2-C	1-C *
SCF	1-C *	2-C	1-C *
SCG	1-C *	2-C	1-C *
SCH	1-C	2-C *	2-C *

* = Offen

1-C* = 1-C oder offen

2-C* = 2-C oder offen

Parallel

Modus / Lage	CBM	Star	ESC/POS
SCA	1-C *	1-C	2-C *
SCB	1-C	1-C	2-C
SCC	1-C *	1-C *	2-C
SCD	1-C	1-C	2-C *

* = Offen

1-C* = 1-C oder offen

2-C* = 2-C oder offen

CITIZEN

7. METHODE FÜR MODUSEINSTELLUNG

Dieser Drucker hat die Modi CBM, Star und ESC/POS. Jeder gewünschte Modus kann gewählt und nach Bedarf eingestellt werden.

(1) Einstellmethode

- Siehe 5. DIP-SCHALTER-EINSTELLUNG
- Unter bezug auf die Einstellungen der DIP-Schalter-Segmente 1-9 und 1-10 und die der Vorwahl-Jumperstecker jeden Modus einstellen.

12. WARTUNG UND KUNDENDIENST

Für Informationen über Wartung und Kundendienst wenden Sie sich bitte an unseren Händler.