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User's Manual

Kyocera Laser Printer **FS-6700**



Caution

NO LIABILITY IS ASSUMED FOR ANY DAMAGE CAUSED BY IMPROPER INSTALLATION.

Notice on Software

SOFTWARE USED WITH THIS PRINTER MUST SUPPORT THE PRINTER'S NATIVE MODE OR ONE OF ITS EMULATION MODES. The printer is factory set to emulate the HP LaserJet 5M. The emulation mode can be changed by following the procedures described in Chapter 2.

Notice

The information in this manual is subject to change without notification. Additional pages may be inserted in future editions. The user is asked to excuse any technical inaccuracies or typographical errors in the present edition.

No responsibility is assumed if accidents occur while the user is following the instructions in this manual. No responsibility is assumed for defects in the printer's firmware (contents of its read-only memory).

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This Kyocera page printer uses PeerlessPrintXL to provide the HP LaserJet compatible PCL6 language emulation. PeerlessPrintXL is a trademark of The Peerless Group, Redondo Beach, CA 90278, U.S.A.

This product was developed using the Tornado™ Real Time Operating System and Tools from Wind River Systems.

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FCC statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

Shielded circular cable should be used for interfacing with the computer.

Caution to user

Any modification without prior permission may cause harmful interference.

If any modification/change is introduced to this equipment without prior permission, Kyocera as the manufacturer cannot guarantee compliance with FCC rules.

To use equipment which does not comply with FCC rules is prohibited.

The printer may be optionally installed with the following units:

Conforming to the Class B limits

- DU-25 Duplexer
- HD-1 Hard Disk Unit
- PF-25 Paper Feeder (B5 to Ledger)

Interface connectors

Important note on the interface connectors

Be sure to turn off printer power before connecting or disconnecting an interface cable* to the printer. For protection against static discharge which may be applied to the printer's internal electronics through the interface connector(s), keep any interface connector which is not in use capped using the protective cap supplied.

* **Use shielded interface cable.**

Safety information

Laser safety

This printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation. Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape from the printer during any phase of user operation.

Laser notice

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 60825-1 and EN60825-1.

CDRH regulations

The Center of Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured after August 1, 1976. Compliance is mandatory for products marketed in the United States. A label indicating compliance with the CDRH regulations must be attached to laser products marketed in the United States.

CAUTION

**Laser Radiation when remove the Laser Scanner Unit Cover in the printer.
DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.**

*** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

KYOCERA FS-6700
120V~ 60Hz 8A
KYOCERA CORPORATION
MIE PLANT TAMAKI BLOCK
704-76 KUNO, TAMAKI-TOWN
WATARAI-COUNTY, MIE-PREF. JAPAN
MANUFACTURED

THIS LASER PRODUCT CONTAINS TO THE APPLICABLE REQUIREMENTS OF FEDERAL REGULATIONS 21 CFR CHAPTER I, SUBCHAPTER J.

FC Tamed To Comply With FCC Standards FOR HOME OR OFFICE USE

UL 8488 UL 1950 **US LISTED**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB 003 du Canada.

MADE IN JAPAN

CAUTION
REMOVE POWER CORD BEFORE SERVICE AND FUSE REPLACEMENT.

ATTENTION
POUR PRÉVENIR LES CHOC ÉLECTRIQUES, COUPER L'ALIMENTATION AVANT DE REMPLACER LE FUSIBLE.

PRECAUZIONE
PRIMA DI CAMBIARE I FUSIBILI O DI ESEGUIRE RIPARAZIONI, STACCARE IL CORDO DI ALIMENTAZIONE.

(U.S.A./Canada)

KYOCERA FS-6700
220-240V~ 50Hz 4A
KYOCERA CORPORATION
MADE IN JAPAN

CLASS 1 LASER PRODUCT TO IEC825
LASER KLASSE 1 NACH IEC825
KLASSE 1 LASER PRODUKT I.H.T. IEC825
LUOKAN 1 LASERLÄITE

CE **GS** **Energy Star**

CAUTION
REMOVE POWER CORD BEFORE SERVICE AND FUSE REPLACEMENT.

VORSICHT
VOR WARTUNG UND SICHERUNGS-WECHSEL, NETZSTECKER ZIEHEN.

ATTENTION
POUR PRÉVENIR LES CHOC ÉLECTRIQUES, COUPER L'ALIMENTATION AVANT DE REMPLACER LE FUSIBLE.

ATENCIÓN
DESENCHUFÉ EL CORDÓN DE ALIMENTACIÓN ANTES DEL SERVICIO Y DEL REEMPLAZO DEL FUSIBLE.

PRECAUZIONE
PRIMA DI CAMBIARE I FUSIBILI O DI ESEGUIRE RIPARAZIONI, STACCARE IL CORDO DI ALIMENTAZIONE.

ACN003852444

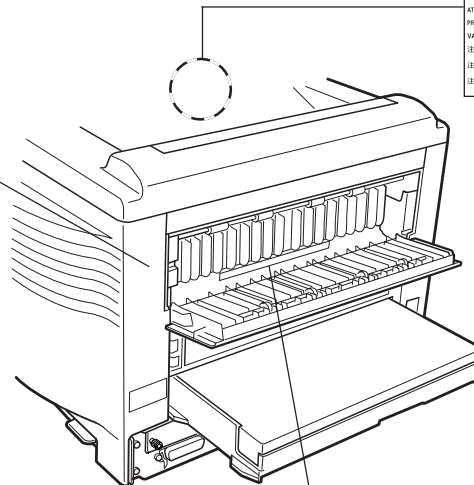
(Europe/Asia)

KYOCERA FS-6700
220-240V~ 50/60Hz 4A
KYOCERA CORPORATION
MADE IN JAPAN

CLASS 1 LASER PRODUCT TO IEC825

CAUTION
REMOVE POWER CORD BEFORE SERVICE AND FUSE REPLACEMENT.

(Philippines)



CAUTION Laser Radiation when open. DO NOT STARE INTO BEAM OR VIEW DIRECTLY. ATTENTION: Ne pas regarder le faisceau laser ni avec un instrument optique. VORSICHT: Nicht in den Laserstrahl blicken oder mit optischen Instrumenten betrachten. ATTENZIONE: Non fissare nel fascio e non osservare direttamente con strumenti ottici. Precaution: No stare into beam or view directly with optical instruments. **DO NOT TOUCH THE GLASS.**

ATTENZIONE Non fissare nel fascio e non osservare direttamente con strumenti ottici. Precaution: No stare into beam or view directly with optical instruments. **VARO!** Astenersi dall'osservare il fascio laser con strumenti ottici. **注意** 直射のレーザー光線を覗き見せず、望遠鏡等の光学器具を用いて覗き見しないこと。 **注意** 内部のガラス面に触れないこと。 **注意** 内部のガラス面に触れないこと。

CAUTION HOT SURFACE AVOID CONTACT **ACHTUNG** HEISSE OBERFLÄCHE NICHT BERÜHREN **ATTENTION** TEMPERATURE ÉLEVÉE NE PAS TOUCHER **ATENCIÓN** EXTERIOR CALIENTE EVITE EL CONTACTO **ATTENZIONE** SUPERFICIE CHE SCOTTA NON TOCCARE **高温注意**

Label Inside the Rear Cover

Label on the Printer's Rear Panel

Ozone concentration

The printer generates ozone gas (O₃) which may concentrate in the place of installation and cause an unpleasant smell. To minimize concentration of ozone gas to less than 0.1 ppm, we recommend you not to install the printer in a confined area where ventilation is blocked.

IMPORTANT SAFEGUARDS

1. Read all of these instructions and save these instructions for later use.
2. Unplug this product from the wall outlet before cleaning.
3. Do not use this product near water.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
5. Slots and openings in the cabinet and the back are provided for ventilation to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
6. This product is equipped with a 3-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
7. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
8. If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating.
9. 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.
10. Except as explained elsewhere in User's Manual, do not attempt to service this product yourself. Removing covers may expose you to dangerous voltage points or other risks. Refer all servicing in those compartments to service personnel.

- 11.** 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 by 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.

Declaration of Conformity (U.S.A.)

Model Number: FS-6700
Trade Name: Kyocera
Responsible Party: Kyocera Electronics Inc.
Address: 11465 John's Creek Parkway, Suite #250 Duluth,
GA30097, U.S.A.
Telephone number: 770-623-2150
Fax number: 770-623-2151
Contact person for technical matter:
Paul Bosak
Phone: 770-623-2163

This device complies with Part 15 of the FCC Rules, Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Marking Directive

according to *Council Directive 89/336/EEC and 73/23/EEC*

Manufacturer's name: Kyocera Corporation, Printer Division
Manufacturer's address: 2-14-9 Tamagawadai, Setagaya Ward, Tokyo 158-8610, Japan

declares that the product

Product name: Page Printer
Model number: FS-6700 (as tested with enhancement optional units:
PF-25, DU-25, and HD-1)

conforms to the following product specifications.

EN 55 022:1994 Class B
EN 61 000-3-2:1995

EN 50 082-1:1992
IEC 801-2:1991
IEC 801-3:1984
IEC 801-4:1988

EN 60 950-1:1992 (+A1+A2+A3+A4)
EN 60 825-1:1994+A11

The manufacturer and its merchandising companies retain the following technical documentation in anticipation of the inspection that may be conducted by the authorities concerned.

User's instruction that conforms to the applicable specifications
Technical drawings
Descriptions of the procedures that guarantee the conformity
Other technical information

Declaration of Conformity (Australia)

Manufacturer's name: Kyocera Corporation, Printer Division
Manufacturer's address: 2-14-9 Tamagawadai, Setagaya Ward, Tokyo 158-8610, Japan

declares that the product

Product name: Page Printer
Model number: FS-6700 (as tested with enhancement optional units: as PF-25, DU-25, and HD-1)

Conforms to the following product specifications.

AS/NZS 3548: 1995	(EN 55 022:1994 Class B)
IEC 60 950-1	(EN 60 950-1:1992+A1+A2+A3+A4)
IEC 60 825-1	(EN 60 825-1:1994+A11/09.91)

Description of device:

This page printer model FS-6700 is the 20-ppm, up to A3 size paper adaptable, printer that utilizes plain paper, laser, dry toner etc. The printer can be equipped with several enhancement optional units such as the paper feeder PF-25, duplexer DU-25, etc.

The manufacturer and its merchandising companies retain the following technical documentation in anticipation of the inspection that may be conducted by the authorities concerned.

- User's instruction that conforms to the applicable specifications
- Technical drawings
- Descriptions of the procedures that guarantee the conformity
- Other technical information

KYOCERA ELECTRONICS AUSTRALIA PTY., LTD

Unit 6, 112 Talavera Road, North Ryde NSW 2113, Australia
Phone: +61 2-9888-9999
Fax: +61 2-9888-9588

Canadian Department of Communications compliance statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

ISO 7779

Maschinenlärminformationsverordnung 3. GSGV, 18.01.1991: Der höchste Schalldruckpegel beträgt 70 dB(A) oder weniger gemäß ISO 7779.

Safety & EMI Requirements

IEC
Laser requirements (U.S.A.)

IEC950:1991 (+A1+A2+A3+A4) / (IEC825-1:1993)
FDA Title 21 CFR, Chapter 1, Subchapter J

CSA C22.2-950/UL1950:1995 (3rd edition)

FCC
CDC
AS/NZS

Rules 47 CFR, Parts 2 and 15, subpart B, Class B
ICES-003 (3rd): 1997, Class B
AS/NZS 3548: 1995, Class B

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Prolonged Non-Use and Moving the Printer

Prolonged Non-use

If you ever leave the printer unused for a long period of time, remove the power cord from the wall outlet.

We recommend you consult with your dealer about the additional actions you should take to avoid possible damages that may occur when the printer is used next time.

Moving the Printer

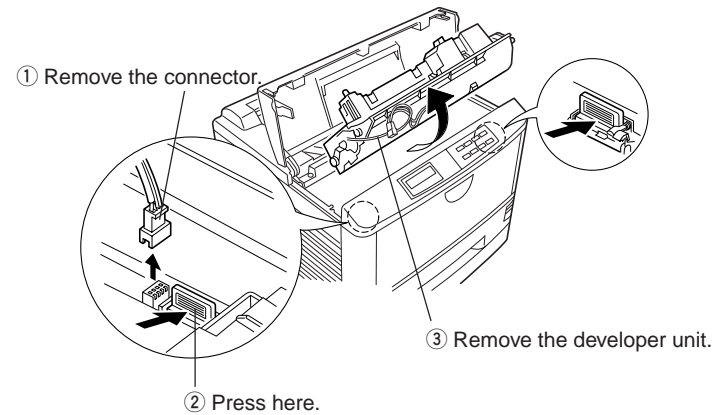
When you move the printer:

- Move it gently.
- Keep it as level as possible, to avoid spilling toner inside the printer.
- If you ship the printer, remove the developer unit and ship it separately. Be sure to consult your Kyocera dealer before attempting long-distance transportation of the printer.

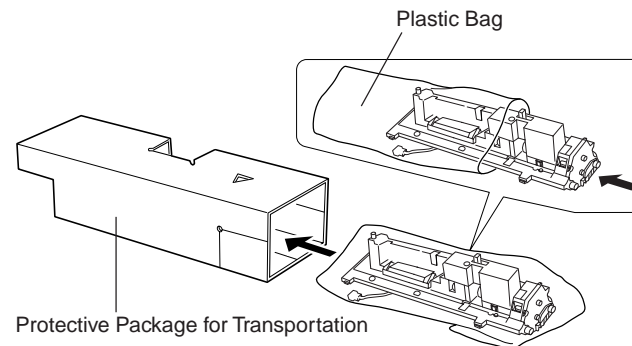
Note

The magnet roller of the developer unit includes a powerful magnet. Do not allow wrist watches, floppy disks, credit cards or magnetic cards near the roller.

1. Remove the developer unit.

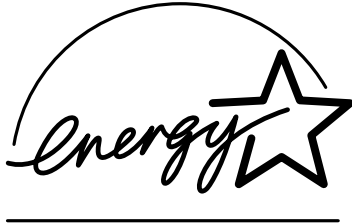


2. Place the developer unit in the protective package for transportation.



Note

Place the toner container and waste toner bottle in the plastic bag included in the toner kit.

ENERGY STARSM

As an ENERGY STAR Partner, Kyocera Corporation has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

The basic objective of the ENERGY STAR Program is to reduce environmental pollution by encouraging the manufacture and sale of equipment that uses energy more efficiently.

This printer is equipped with a sleep timer function that conforms with the standards of the ENERGY STAR Program. This function makes it possible to reduce the amount of electrical power consumed by the printer. For maximum power savings, turn off the printer's power supply when not using the printer for extended periods of time.

For details on the sleep timer function and printer power consumption, refer to the instruction manual provided with the printer.

Initial settings of the sleep timer function and power saved using the sleep timer function:

Initial sleep mode setting	Power consumption in sleep mode
30 minutes (60 minutes)	33 W (45 W)

(): ENERGY STAR program guideline

Kyocera ECO-PRODUCT



This product has been developed and manufactured with the express interest of reducing the impact on the environment.

Using Kyocera's innovative cartridge free technology, Kyocera has created an advanced printing system that does not require the wasteful replacement and disposal of a cartridge.

Introduction

The Kyocera laser printer has many extremely desirable features. It was designed to make a contribution to a cleaner environment as well as to represent the latest generation of page printer technology.

Superb print quality

With an amorphous silicon drum, microfine ceramic toner, and the latest technology from Kyocera such as KIR (Kyocera Image Refinement) function*, this laser printer delivers superb print quality and clarity. (*See page 2-31.)

Ultra long life modules

The main modules in this laser printer such as the drum, developer unit and fuser unit, which are disposable in conventional printers, are specifically designed for extraordinarily long life and need no periodic replacement. The drum is made of amorphous silicon which is environmentally benign. The only maintenance regularly needed therefore is to replenish the toner supply in the developer approximately every 10,000 printed pages in the case of the TK-20 and approximately every 20,000 printed pages in the case of the TK-20H (A4 portrait at a printing rate of approximately 5%) and to clean some parts inside the printer.

Amorphous silicon drum

Kyocera's own unique ceramics technology has led to the development of an extremely hard and durable drum with extraordinarily long service life. Also, the drum has several excellent photoconductive properties, such as stability and reliability in varying temperatures, resistance to heat and solvent, etc., thus providing superb high resolution printing.

High speed printing

A3-size pages typically print at a rate of 11 pages per minute, B4 at 12.5 pages per minute, and A4 (landscape feed) at 20 pages per minute (when printing multiple copies of the same page). (Actual printing time varies depending on what is being printed.)

Environmentally benign waste parts

The toner container is made out of a benign, flammable material. (Be sure to dispose of containers according to local laws and regulations.)

Large paper capacity cassettes

The paper cassette can hold approximately 250 sheets (75 g/m², 0.1 mm thickness). There is also a multi-purpose tray with a capacity of approximately 100 sheets. Paper can be output on a face-down output tray or an optional face-up output tray (PT-3).

Scalable printing

This printer allows reductions between various paper sizes using the page setup function.

Bitmapped and scalable typefaces

In addition to its 80 internal bitmap fonts, the printer provides 45 fully-scalable resident typefaces that are equivalent to HPLJ fonts. The scalable typefaces can be used at any size desired up to 999.75 points, in 0.25-point increments.

A new printer control language, PRESCRIBE 2e

PRESCRIBE 2e includes advanced graphics capabilities that allow you to print any conceivable outline shape or solid form. Also provided are a variety of special effects, such as patterned fills, gray-scale shading, a user-accessible print image model, and multiple page orientations and print directions within the same page.

PDF417 two-dimensional bar code

The printer includes the capability that allows the user to implement the two-dimensional stacked bar code symbology, PDF417, or Portable Data File 417. This expanded functionality is achieved by using the PRESCRIBE IIe language commands.

KPDL (Kyocera Printer Description Language)

The printer is equipped with KPDL (Kyocera's implementation of the PostScript page description language) and Adobe PostScript Type 1 compatible 35 fonts.

Automatic rotation of fonts and graphics

Images and scalable fonts are automatically rotated to match the page orientation.

A wide variety of internal symbol sets

The printer supports most Hewlett-Packard LaserJet 5M compatible symbol sets for both bitmap and scalable fonts.

Display of printer messages in any of three languages

English, French, or German. As an option it is also possible to download the messages in other languages. Please contact your Kyocera dealer.

Memory card slot for option fonts, macros, forms, etc.

Data in the memory card can be selectively read or written from the printer's control panel.

Simple Network Management Protocol (SNMP) compliance

Offers network managers complete open system network management.

Large memory capacity

This printer comes standard equipped with 4 MB of memory. This can be extended up to 68 MB of memory through optional expansion of memory.

Equipped with two expansion slots

The printer's expansion slots can be used to install an optional network interface board or hard disk unit. Two network interface boards can be installed simultaneously.

Supports various network environments

Since the printer allows two network interface boards simultaneously, the printer can support a broader network environment. Also coming standard equipped with a bidirectional parallel interface conforming to the IEEE1284 standard, the printer automatically switches to the interface on which data is being input and prints that data.

Kyocera Print Monitor

The Kyocera Print Monitor is a network management tool included on the supplied CD-ROM.

Options

The following options are available for this printer:

BC-1	Barcode reader
DU-25	Duplex printing unit
HD-1	Hard disk unit
PA-25	Paper path adaptor
PF-25	Paper feeder (B5 to Ledger)
PT-3	Face-up Tray

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Chapter 1

Installing the Printer

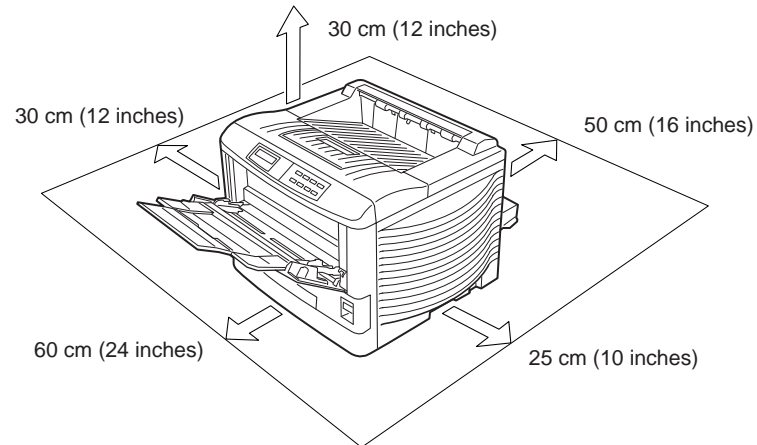
This chapter explains how to unpack and install the printer.
The topics covered are:

- 1.1. Positioning the Printer 1- 2
- 1.2. Unpacking and Inspection 1- 6
- 1.3. Names of Parts 1- 8
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1.1. Positioning the Printer

Clearance

Allow at least the necessary minimum clearance around the printer (see below). A total space of 103 cm by 65 cm by 151 cm (41 by 26 by 59 inches) is needed.



Places to Avoid

Avoid installing the printer in locations subject to:

- Direct drafts of hot or cold air
- Direct drafts from outside (Avoid locations near doors leading outside.)
- Sudden temperature or humidity changes
- Sources of high temperature, for example, near stoves or radiators
- Excessive dust
- Vibration
- Ammonia or other harmful fumes. (If you are planning to fumigate the room, or make liberal use of insecticide, remove the printer first!)
- Excessive sunlight or humidity
- Lack of ventilation
- Low air pressure, e.g., located more than 2000 meters (6500 feet) above sea level

Basic requirements

The printer will work best if it is installed in a location that is:

- Near the computer

If the parallel interface is used to connect the printer to the computer, the connecting cable should be shielded type and not be longer than 3 meters (10 feet).

- Level and well supported

Place the printer on a sturdy table or desk. Do not place the printer on an unstable cart, stand, or table. The printer may fall, causing injury, or serious damage to the printer.

- Near an AC wall outlet, preferably one that can be used for the printer alone (see section *Power Supply* on next page).

Power requirements are:

Voltage	120 V (U.S.A./Canada), 220 V to 240 V (European countries), $\pm 10\%$ at each voltage
Frequency	60 Hz (120 V/220 V to 240 V), $\pm 2\%$ 50 Hz (220 V to 240 V), $\pm 2\%$
Current capacity	Max. 8 A at 120 V, or Max. 4 A at 220 V to 240 V

The outlet should be earthed, or an adapter should be used.

If an extension cord is used, the total length of the power cord plus extension should be 5 meters (17 feet) or less.

- Well ventilated, not too hot or cold, and not too damp or dry

Temperature	10°C to 32.5°C (50°F to 90.5°F)
Humidity	20% to 80%

If you install the printer where the temperature or humidity is outside the above ranges, you may not get the best print quality, and there will be an increased chance of paper jams.

Power Supply

The printer should not be on the same power circuit as an air conditioner, fluorescent light, copier, or shredder, because these devices generate electrical noise on the power line. If it must share a power circuit with equipment like this, a high-frequency noise filter or isolation transformer is advisable. (Filters and transformers are available commercially.)

Avoid using plug multipliers to connect a large number of devices on the same circuit as the printer.

If the power from the outlet itself appears to be unstable, a line stabilizer should be used. In places where the voltage tends to fluctuate, it may be necessary to install a voltage regulator.

As the disconnect device is not incorporated in the printer's AC primary circuit, an easily accessible socket outlet must be provided near the equipment.

Da kein Trennschalter in den Wechselstrom-Primärkreis des Druckers eingebaut ist, muß eine leicht zugängliche Steckdose in der Nähe des Gerätes vorhanden sein.

1.2. Unpacking and Inspection

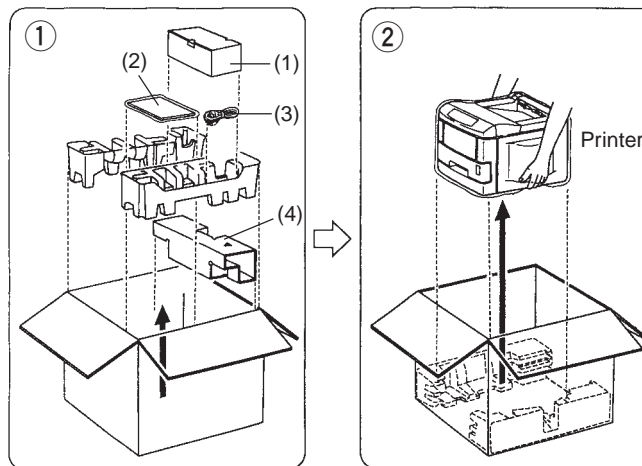
The printer is packed as shown below. Unpack the printer following diagrams ① and ② below. While unpacking it, check that the listed parts are all accounted for.

Examine the package for any signs of damage that may have been caused during transportation. If the carton is found to be badly damaged, leave the carton unopened and immediately notify the dealer from whom you purchased the printer.

Save the box and other packing materials in case you have to repack the printer for transportation at a later date.

List of shipped components

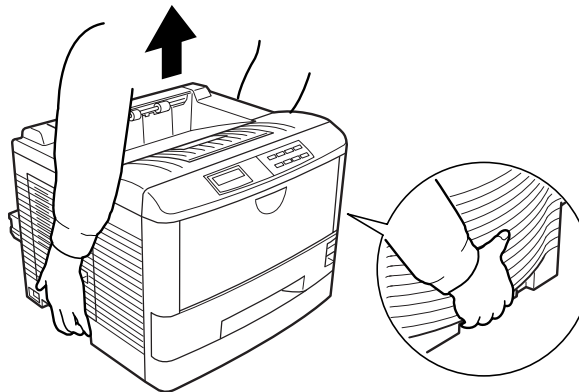
- (1) Toner Kit (toner container, wiper cloth, waste toner bottle)
- (2) User's Manual and *Kyocera Digital Library* (CD-ROM), including the printer drivers and manuals, and cleaning brush.
- (3) Power cord
- (4) Box for the developer unit



To remove the printer from the box, grasp the handholds on either side of the printer. Lift the printer from the carton as shown below. If necessary, have two people lift the printer.

Notes

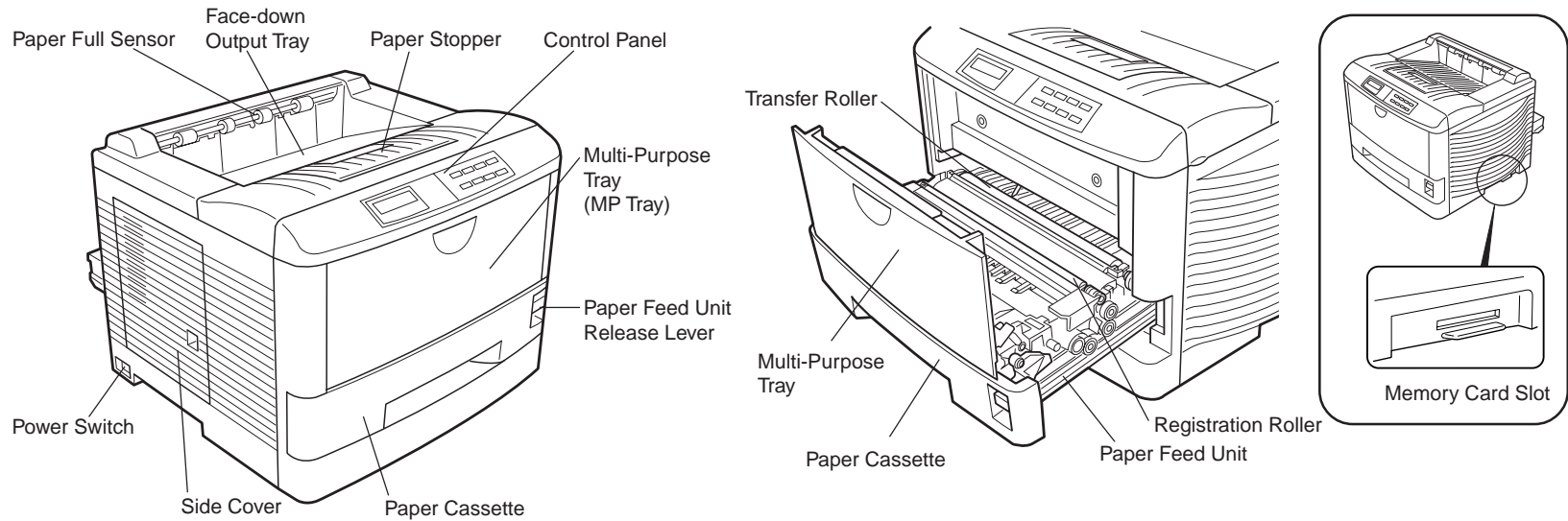
- Always use these handholds whenever you lift or move the printer.
- The handhold on the right side of the printer doubles as the memory card slot. Be sure to remove the memory card first, if inserted, before lifting or moving the printer.



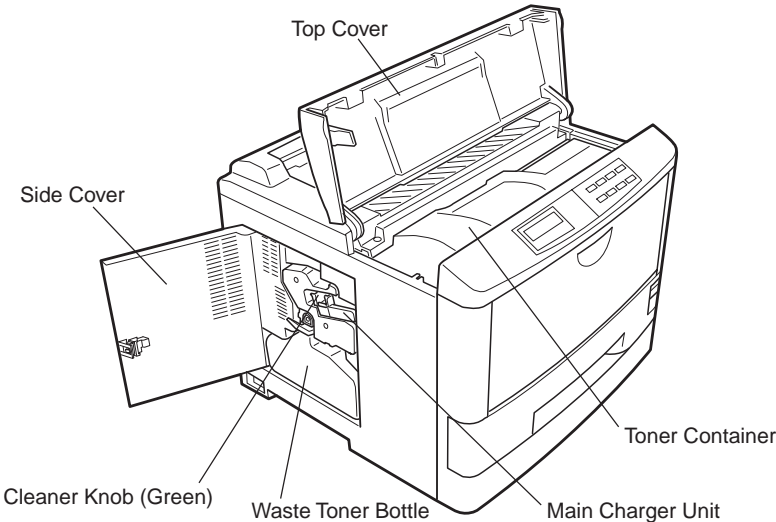
1.3. Names of Parts

This section takes you on a guided tour of the printer, pointing out its major parts. The part names introduced here will be used throughout this manual.

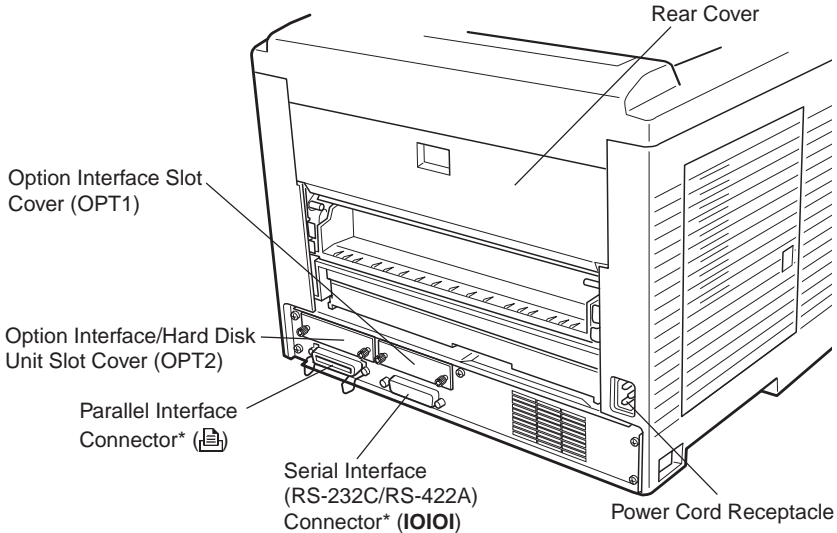
Front View



Interior View



Rear View



*: To protect the printer against static discharge, the connector must be covered with the supplied protective cap when not in use.

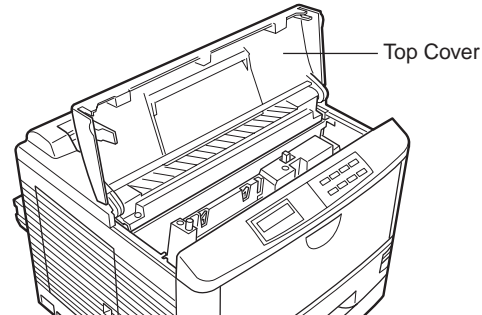
1.4. Setting Up and Interfacing

Before you can use the printer for the first time, you must set up the printer by installing the printer components and interfacing with the computer. The steps to be followed in setting up are:

1. Open the top cover.
2. Install the toner container.
3. Close the top cover.
4. Install the waste toner bottle.
5. Adjust the paper guides of the paper cassette.
6. Add paper.
7. Open the paper stopper on the face-down output tray (if required).
8. Install the face-up output tray (sold separately).
9. Connect the printer to the computer.
10. Attach the power cord.
11. Print a status page.
12. Test the interface with the computer.
13. Set the emulation mode
14. Install the printer driver.

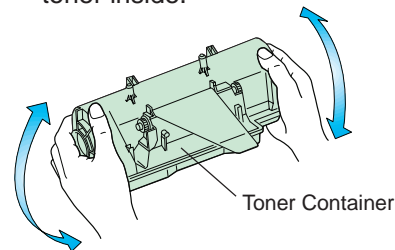
1. Open the Top Cover

1. Remove the packing tape from the printer.
2. Open the printer top cover all the way.



2. Install the Toner Container

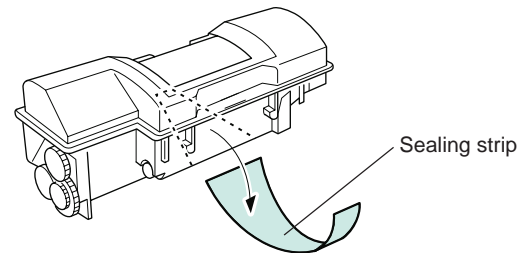
1. Take the toner container from the toner kit.
2. With the side where the toner kit name and precautions are printed facing down, thoroughly shake the toner container (in the direction of the arrow) ten times or more to loosen and mix the toner inside.



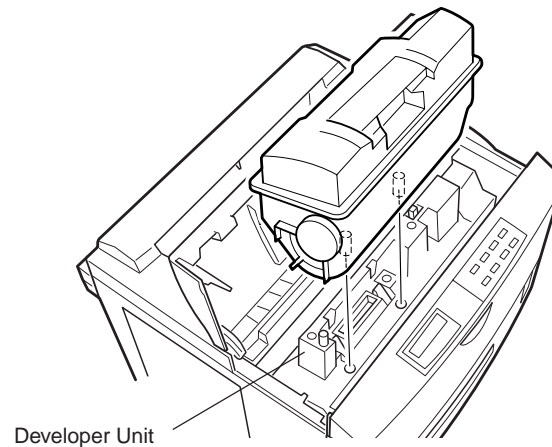
3. The bottom of the toner container is sealed with a sealing strip. Peel off the seal on the toner container and carefully pull off and dispose of the sealing strip.

Note

Be sure to peel the seal off the toner container before the toner container is fitted into the developer unit.



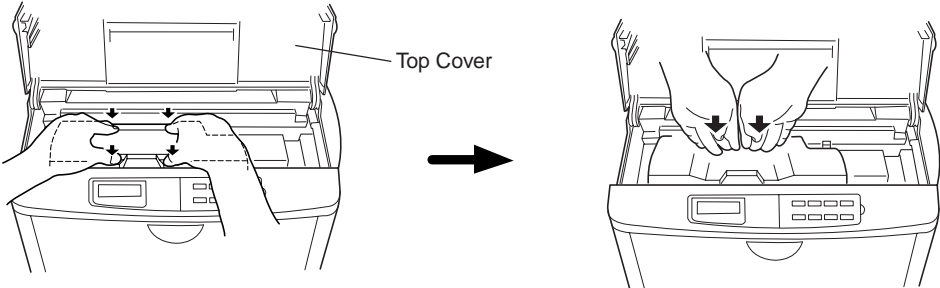
4. Install the toner container on the developer as shown in the diagram.



5. When the toner container is installed correctly on the developer, push the top of the container unit ("**PUSH HERE**") until it locks in.

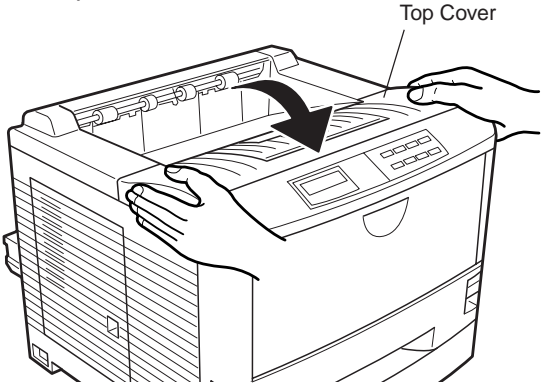
Note

Make sure that the toner container is properly locked in the printer.



3. Close the Top Cover

Close the top cover.



4. Install the Waste Toner Bottle

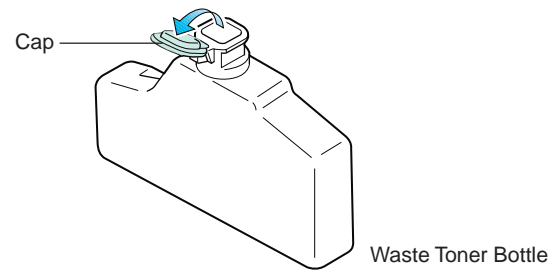
The waste toner bottle is in the toner kit supplied with the printer. The waste toner bottle must be installed in the printer.

Install the waste toner bottle in the printer as follows.

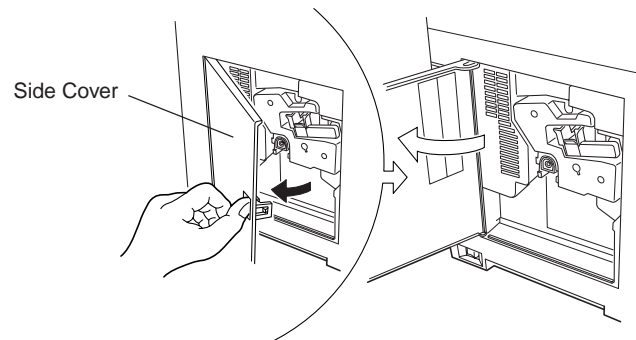
1. Take the waste toner bottle from the toner kit supplied.

Note

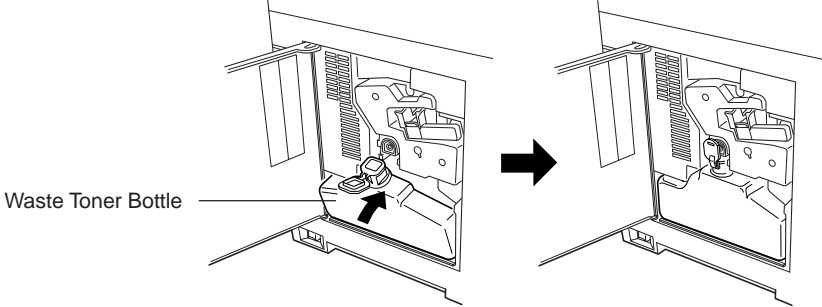
Do not cap the waste toner bottle.



2. Open the side cover on the left side of the printer.



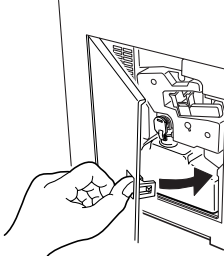
3. Insert the waste toner bottle with the bottle tilted slightly towards you as shown in the figure.



4. Ensuring that it is correctly inserted, close the side cover.

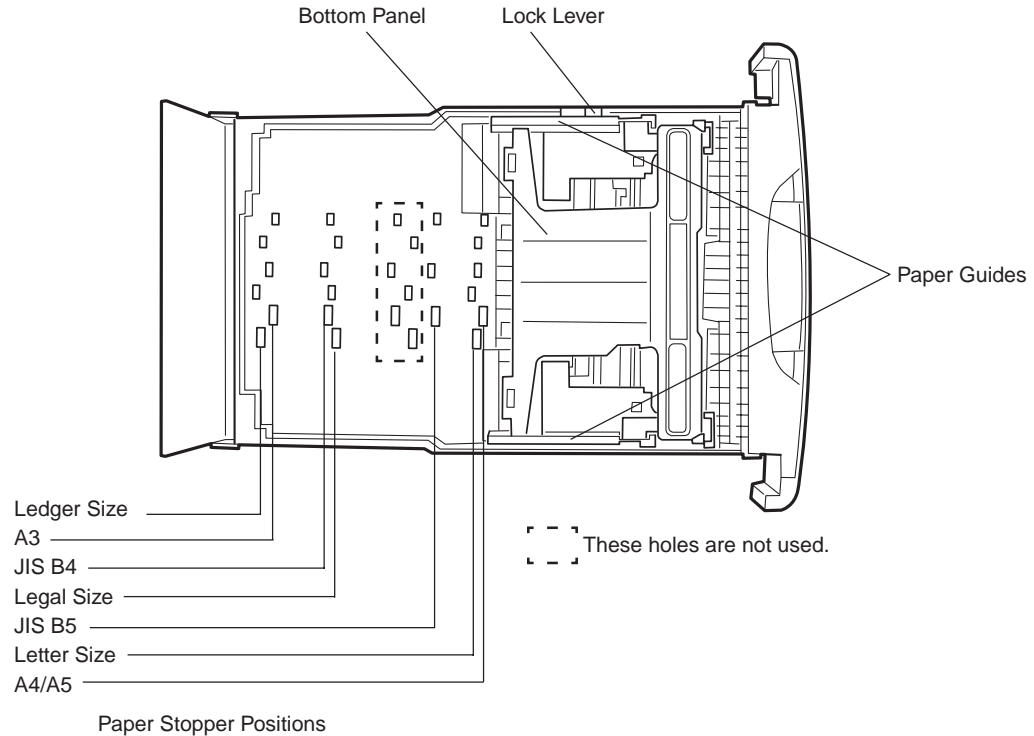
Note

Although the waster toner bottle will be tilted slightly toward you, it will install properly when the side cover is closed.



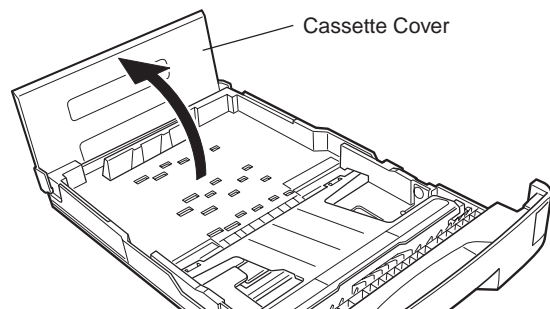
5. Adjusting the Paper Guides of the Paper Cassette

By adjusting the position of the paper guides and paper stopper inside the cassette included with this printer, the cassette may be set to supply paper of standard sizes from A5 size to ledger size. The cassette is set to accommodate A4 or letter size when shipped from the factory.

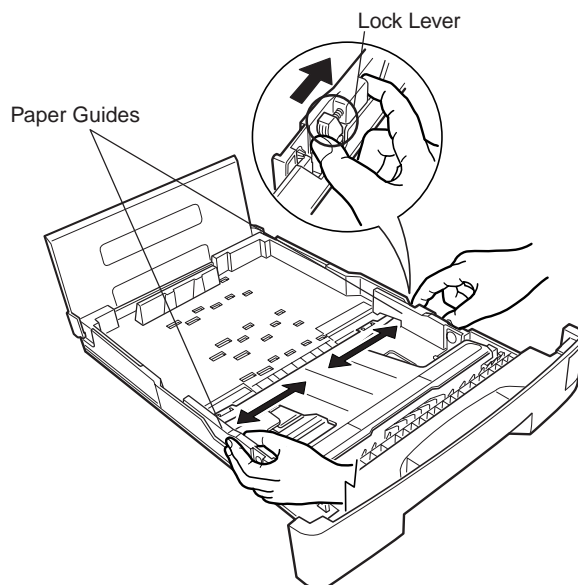


Paper size indications are given inside the paper cassette for each fixed position.

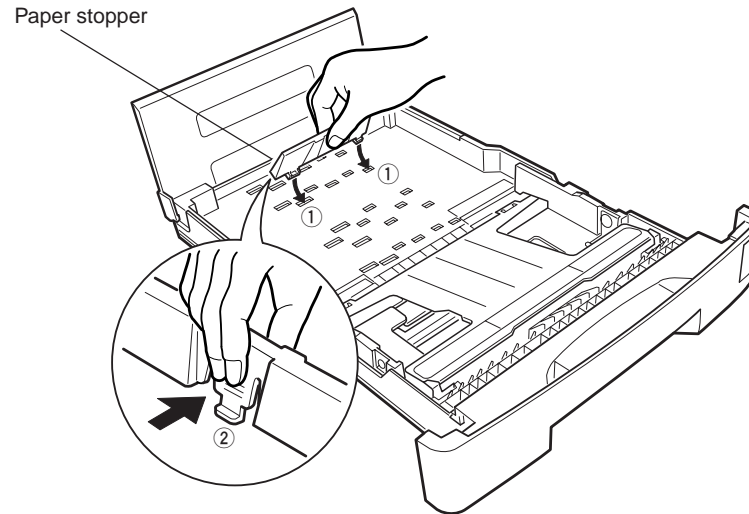
1. Open the cassette cover.



2. Adjust the paper guides. Adjust by pressing the lock levers as shown in the figure and aligning the paper guides to the paper size to be used.



3. Check the position of the paper guides and release the lock levers.
4. Align the paper stopper to the correct position for the paper size to be used and firmly push it into place in the order ①, ②.

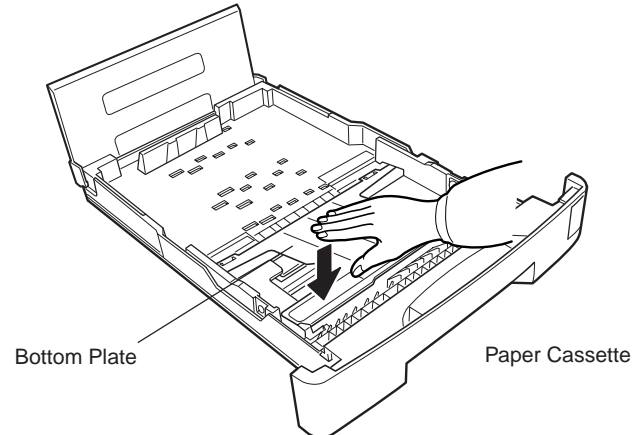


6. Add Paper

Be sure to use paper that has been unwrapped as recently as possible. Paper which has been exposed to the air for a long time will absorb moisture, causing multiple sheets to feed at a time and thus resulting in paper jams. For details on paper specifications which can be used with this printer, refer to **Appendix B**.

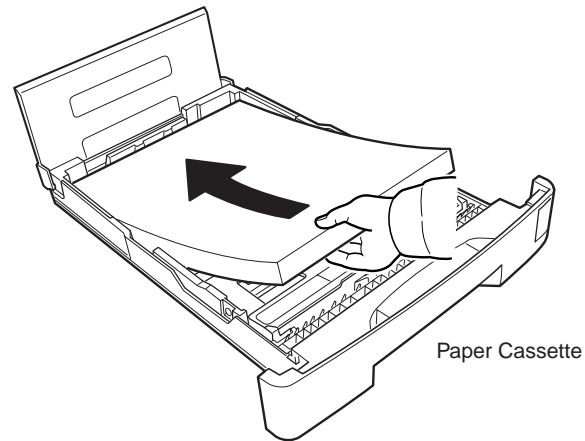
Notes

- Before adding paper, remove the paper cassette all the way from the printer.
 - Be sure to add paper only after all paper inside the paper cassette has run out. Adding paper before paper in the cassette has run out may result in paper jams.
 - Read the paper manufacturer's instructions concerning handling of the paper.
1. Push the bottom plate until it locks.

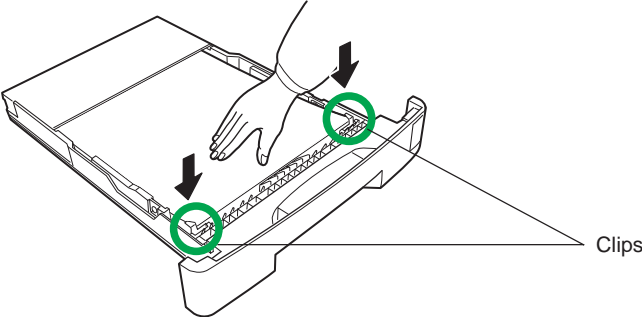


2. Set the paper in the cassette. The paper size must match the cassette size. Tap the edges of the paper to align them neatly.

Don't put in more paper than the limit indicated on the cassette. (The cassette should hold approximately 250 sheets of paper with a 75 g/m² [20 lb./ream] basis weight, 0.1 mm thickness.) The side of the paper that faces downward in the cassette is printed on.

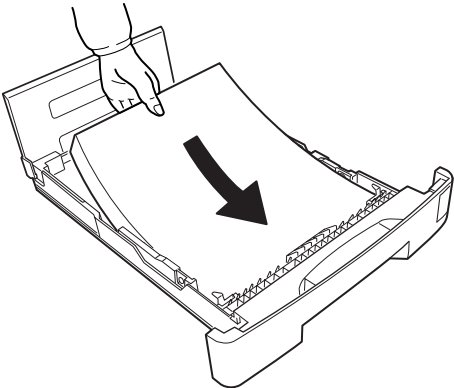


3. Set the clips at the two corners as shown below.

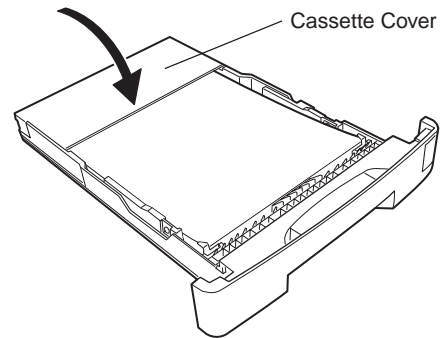


Note

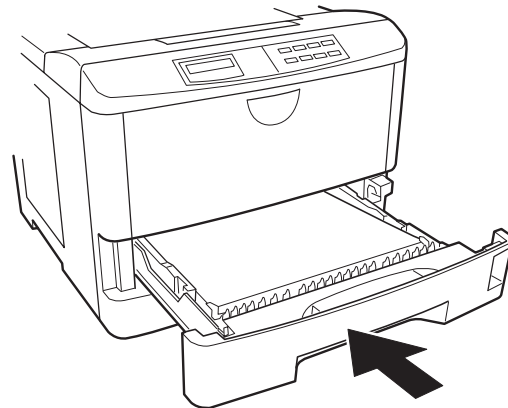
Some types of paper (such as thick paper) may be hard to place in the cassette using this method. If this is the case, the process is facilitated by inserting the paper from the back, as shown in the figure below.



4. Close the paper cassette cover.

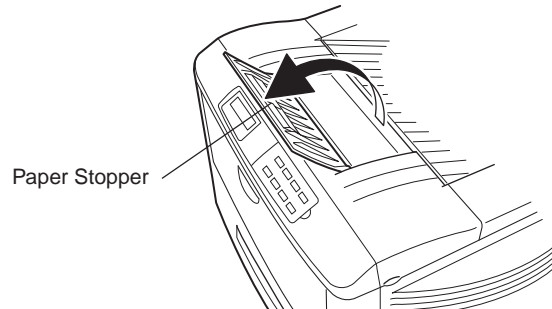


5. Insert the paper cassette into the printer cassette slot. Push it straight as far as it will go.



7. Open the Paper Stopper on the Face-down Output Tray (if required)

Open the paper stopper as shown below.

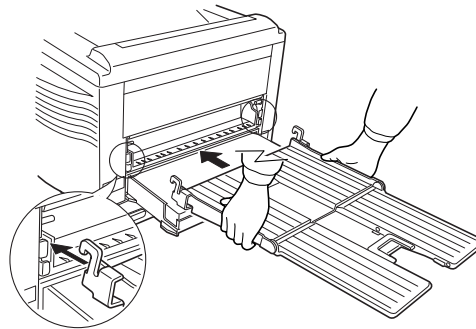


Note

Depending on the paper, printing without opening the paper stopper may result in more evenly aligned output. Decide whether or not to use the paper stopper after checking the output condition of paper.


8. Install the Face-up Output Tray (sold separately)

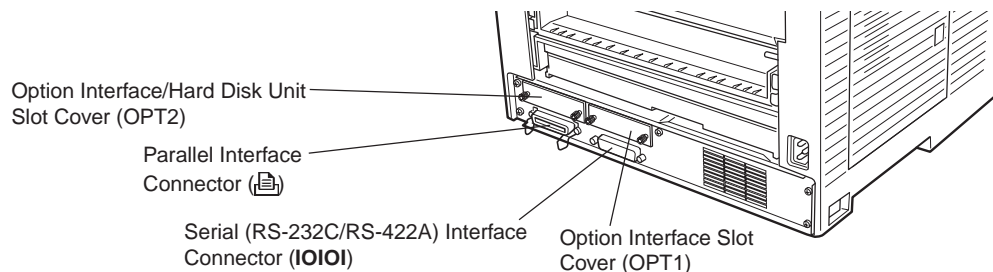
Use the separately sold PT-3 face-up output tray if you want the printed pages stacked face-up (reverse order). Install the face-up output tray as shown in the figure.



Face-up Output Tray (PT-3)

9. Connect the Printer to the Computer

The printer has two computer cable connectors and a slot for installing an option interface. The one marked “” is for a parallel (Centronics standard) interface. The one marked “**IOIOI**” is for a serial (RS-232C/RS-422A) interface. You may use whichever is convenient for your computer, with the option interface, if you have already have one installed. All interface connectors can be used simultaneously with different computers.



Note

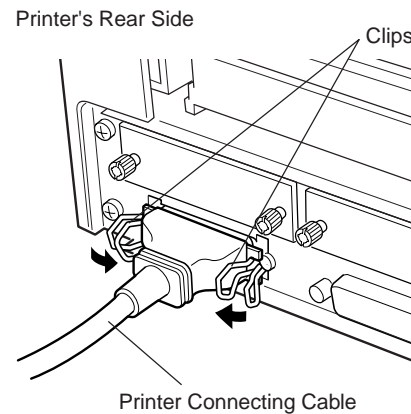
Only connect or disconnect cables to the connectors while the printer and computer power are switched off.

Parallel interface

Plug one end of the cable into the connector marked *Parallel* (🖨️) on the printer. Close the clips on both sides to hold it in place.

Plug the other end into a parallel (Centronics) interface connector on your computer. This connector is usually marked *PRINTER*.

See **Appendix C** for more details about the parallel interface.



Serial interface

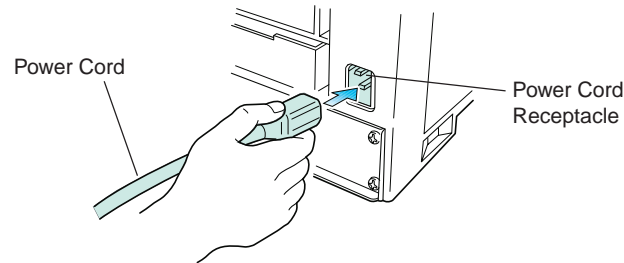
The serial interface of this printer is set to RS-232C mode before leaving the factory, but can also be set to RS-422A mode to suit your operating environment. Follow the instructions in **Appendix C**.

Serial Interface Connection

1. Plug the cable into the connector on the printer labeled "IOIOI".
2. Securely tighten the screws on both sides of the connector.
3. Plug the other end of the cable into the serial interface connector on the computer. For details, refer to your computer's hardware manual.

10. Attach the Power Cord

1. Check that the power switch is off.
2. Plug one end of the power cord into the receptacle at the back of the printer.
3. Plug the other end into the wall outlet.




11. Print a Status Page

Test that the printer works by printing out a status page as follows.

1. Switch on the printer's power. The message display should indicate `Self test`.

Note

When the printer is first switched on after the toner container is installed, there will be a delay of several minutes (approx. 10 minutes) before the printer will be ready to print. During this period, the toner indicator  will flash and the message display will show `Please wait`.

2. Wait until the ON LINE indicator is also lit and the message display indicates `Ready`.
3. Press the **STATUS** key. The printer should print a page listing the positions of margins, memory allocation, and other information.

A sample status printout is shown in **Chapter 2**.

12. Test the Interface with the Computer

Test that the printer and computer are correctly connected. If you have connected the printer and computer with a parallel interface cable, follow the procedure below.

1. Check that the printer's message display indicates *Ready* and that the ON LINE indicator is ON.
2. Boot the computer in DOS mode, or set the computer to DOS (prompt) MODE.
3. At the DOS prompt, type the following.

```
ECHO !R! STAT; EXIT; >PRN
```

If the printer prints a status page, the computer and printer are connected correctly. For details on the status page, refer to **Chapter 2**.

If you do not get this result, check that the cable is securely plugged in at both ends, and repeat the test. If you still do not get the right result, you may have a defective or improperly-wired cable. Try using a different cable.

13. Set the Emulation Mode

The printer emulates the operation of five other printers. It is factory-set to emulate the HP LaserJet 5M at power-up. If you primarily use software that supports HP LaserJet 5M, or that supports the Kyocera printer itself, the factory setting is the one you want. If you primarily use software that supports another printer, it is convenient to change the printer's power-up emulation mode.

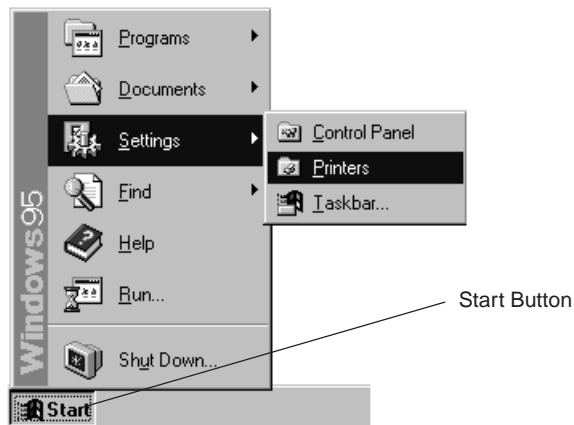
The emulation mode can be changed from the printer control panel. To change the emulation mode, refer to the **Mode Select Menu** diagram on the last page of this manual.

14. Install the Printer Driver

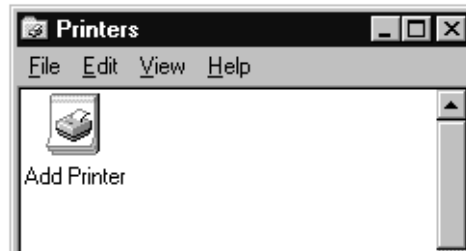
Printer drivers are provided for using the printer with Windows 3.1 or Windows 95. Use the *Kyocera Digital Library* CD-ROM supplied with the printer, or use the one supplied with Windows 3.1 or Windows 95. To install the printer driver, proceed as follows. Reference to the Windows manual is also recommended.

Windows 95

1. Click the *Start* button, point to *Settings*, and then *Printers*.



2. Double click *Add Printer*.



3. *Add Printer Wizard* will be shown. Follow the instructions on your screen.
When you have finished, the icon for the printer will appear in the *Printers* folder.



Windows 3.1

To install the printer driver for Windows 3.1, proceed as follows:

1. Insert the *Kyocera Digital Library* CD-ROM in your CD-ROM drive.
2. Start Windows on your computer.
3. Double click on *Control Panel*.
4. Double click on *Printers*.
5. Click on *Add*.
6. Click on *Install*.
7. Select *Install Unlisted or Updated Printer* under *List of Printers*.
8. Click *Install*.
9. Select the drive into which you inserted the *Kyocera Digital Library* CD-ROM, and follow the instructions that appear on the screen.
10. When the driver is installed, click on *Close* to close *Control Panel*.

1.5. Multi-Purpose Tray Feeding

The multi-purpose tray is incorporated in the front of the printer. It can be used in one of three modes: the first mode, cassette mode or manual mode.

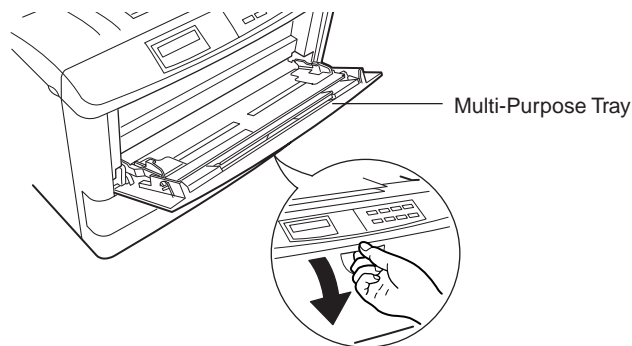
- First mode: (automatic manual feeding)** If there is paper in the multi-purpose tray, paper is fed from the multi-purpose tray first even if another paper source is selected. (Default factory setting)
- Cassette mode:** In this mode, it is possible to continuously feed approximately 100 sheets (0.1 mm thickness).
- Manual mode:** Enables normal paper or special paper to be manually fed a single sheet at a time. See **Appendix B** for the types and sizes of paper which may be used with this printer.

Note

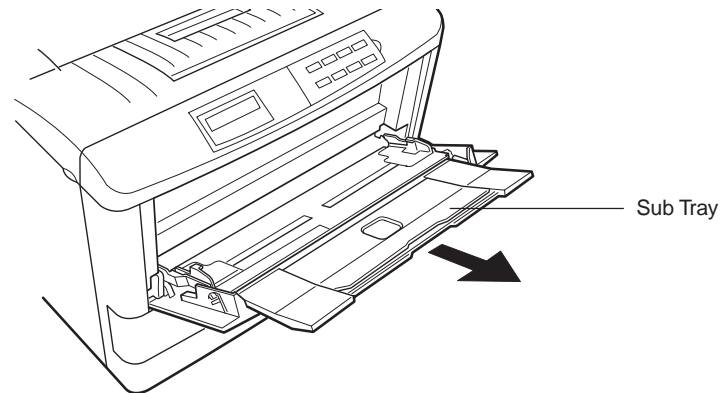
In first mode and manual mode, all printing is performed according to the paper feed timing given by the custom paper size regardless of the multi-purpose tray size setting.

Feeding from the Multi-Purpose Tray and Associated Settings

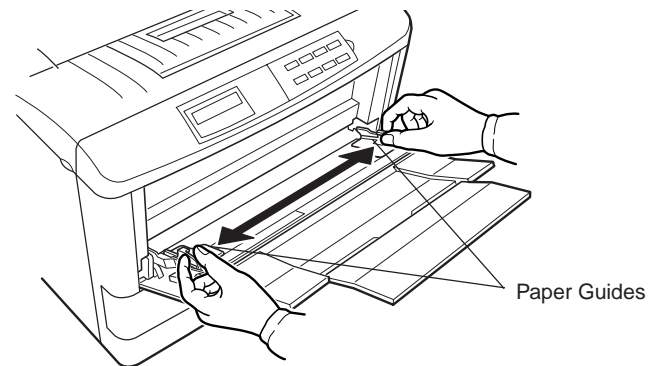
1. Taking hold of the front of the printer as shown in the figure, open the multi-purpose tray by pulling towards you.



2. Withdraw the sub tray as shown in the diagram.

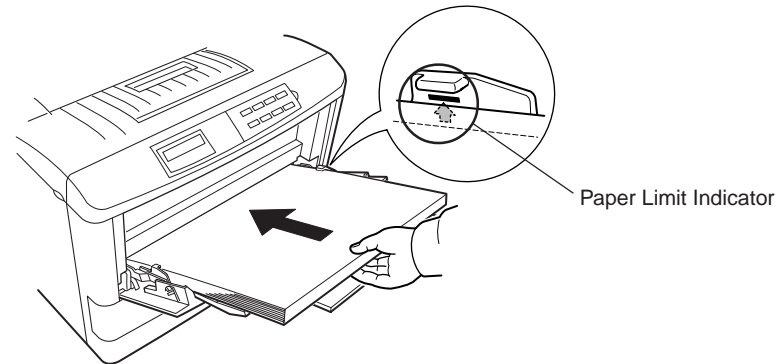


3. Adjust the paper guides to the size of the paper being fed.



4. Check that the printer is Ready.
5. Press the **FEED** key until the message display indicates MP tray and the multi-purpose tray indicator on the printer symbol flashes, and Add paper appears on the message display.

6. Load the paper.



7. Press the **MODE** key and then the **+** (output select) key or **-** (paper feed select) key several times to display `MP tray mode>`.
8. Set the mode. For the procedure for setting each mode, see the settings for each mode given below.
9. Press the **▶** key to display `>MP tray size`, then by pressing the **ENTER** key, the size of the paper that will be fed from the multi-purpose tray will be set for a list of paper sizes which can be set, see page B-3. For a depiction of the menu display hierarchy, see the menu hierarchy given at the end of this manual.

Notes

- When legal size paper is to be fed from the multi-purpose tray, set to the manual mode (see page 1-35), and print out one sheet at a time.
- Paper jams or improper printing may occur if the paper size setting and multi-purpose tray size setting do not match. In addition, it is necessary to select either vertical feed (A4, Letter) or horizontal feed (A4-R, Letter-R) from the control panel when using A4 size or letter size paper.

The following pages explain the use of the multi-purpose tray in the First Mode, Cassette Mode, and Manual Mode.

Setting Each Mode

First Mode (Automatic Manual Feeding)

The printer automatically feeds the paper placed on the multi-purpose tray regardless of the current paper source selection. To use the first mode (automatic manual feeding mode), simply place a sheet of paper on the multi-purpose tray in the same manner as above, even while the printer is presently feeding the paper in the printer's cassette.

1. Press the **MODE** key to display `MP tray mode >`.
2. After pressing the **ENTER** key, `?` is displayed in the lower left, then the mode display is changed by pressing the **+** and **-** keys. Use these keys to display `First`, and then press the **ENTER** key.

```
MP tray mode  >
  First
```

3. Press the **EXIT** key. `Ready` appears on the message display.

Notes

- The printer will not switch to light the multi-purpose tray indicator while the paper is fed manually using the automatic manual feeding mode.
- The automatic manual feed is not available if the printer is installed with the duplexer, and if the duplexer is selected for use.

Cassette mode

1. Press the **MODE** key to display MP tray mode >.
2. After pressing the **ENTER** key, ? is displayed in the lower left, then the mode display is changed by pressing the + and – keys. Use these keys to display *Cassette* and then press the **ENTER** key.

```
MP tray mode  >  
Cassette
```

3. Press the **▶** key to display >MP tray size. Pressing the **ENTER** key will cause a ? to be displayed in the lower left. Change the paper size by pressing the + or – key and then press the **ENTER** key.

```
>MP tray size  
A4
```

4. Press the **EXIT** key. *Ready* appears on the message display.

Manual mode

1. Press the **MODE** key to display `MP tray mode >`.
2. After pressing the **ENTER** key, `?` is displayed in the lower left, then the mode display is changed by pressing the **+** and **-** keys. Use these keys to display `Manual` and then press the **ENTER** key.

```
MP tray mode  >
Manual
```

3. Press the **▶** key to display `>MP tray size`. Pressing the **ENTER** key will cause a `?` to be displayed in the lower left. Change the paper size by pressing the **+** or **-** key and then press the **ENTER** key.

```
>MP tray size
A4
```

4. Press the **EXIT** key. `Ready` appears on the message display.
5. Send printing commands and data from the computer. The printer indicates `Processing` after which the message `Set paper Press CONTINUE` will be displayed.

If you want to abandon the manual feeding procedure, press the **CANCEL** key. The message display indicates `Print Cancel ?`. Press the **ENTER** key. The printer will return to `Ready`.
6. Press the **CONTINUE** key and printing will begin.
7. If printing is to be continued, press the **CONTINUE** key when the message `Set paper Press CONTINUE` is displayed. In this way the printer will print one sheet at a time.

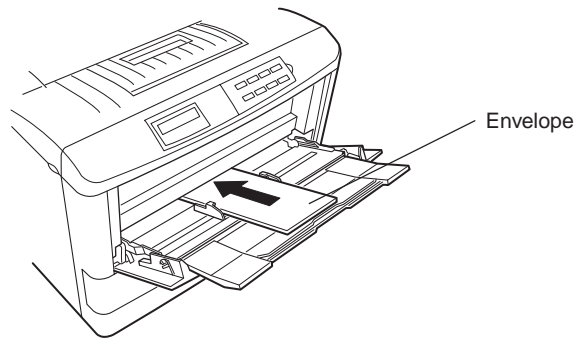
To exit manual feed, press the **FEED** key and select cassette feed, or set the multi-purpose tray to cassette mode.

Feeding Envelopes

Envelopes should be fed face up, right side first, as shown below. From the Mode Select Menu, set the printer to print in landscape page orientation.

Note

To avoid trouble, we recommend that envelopes are delivered face-up. Use the **STACK** key on the printer control panel to select the face-up tray.



Not all envelopes print well. See **Appendix B** for details on suitable types of envelopes. See page 2-5 for the envelope sizes that can be set.

Overhead Projection (OHP) Film

To avoid trouble, OHP film must be fed manually in the manner described above. Requirements regarding OHP film are also given in **Appendix B**.

Note

OHP film must be delivered face-up. Use the **STACK** key on the printer control panel to select the face-up tray.

1.6. Memory Card

A memory card is a microchip card containing, for example, nonresident fonts and/or macros, forms, etc. The printer reads the contents of the card into its internal memory when power is switched on. The presence of this data in the printer memory can be confirmed on the status printout.

Note

The maximum card capacity that can be used is 32 Megabytes. The type of the memory card to be used must be of either flash memory card (+5 V type) or SRAM-type and conform to the PCMCIA 2.1 (JEIDA 4.2) standards. Please use memory cards recommended by Kyocera.

The memory card slot is located at the bottom right of the printer.

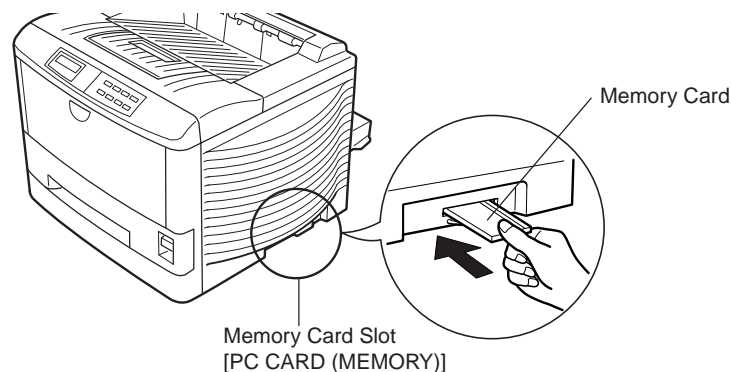
To insert and use a memory card:

1. Switch printer power off.

Note

Do not insert or remove a memory card while power is on. If the memory card is removed while the printer is on, damage could result in the printer's electronics or the memory card.

2. Insert the memory card in the slot. Insert it face up, connector end first. Push it in all the way.



3. Switch printer power on. The printer reads the contents of the memory card during its power-up sequence. The information (nonresident fonts, etc.) on the memory card is now available for use.

If the memory card information is deleted from the printer's memory during the printing process, it can be reread by using the mode selection function explained on the last page in this manual.

To remove the memory card:

1. Switch the power off.
2. Remove the memory card from the slot.

Handling Memory Cards

Memory cards contain sensitive electronic circuits. Treat them with appropriate care.

- Memory cards are sensitive to electrostatic discharge. Please discharge yourself before touching a memory card.
- Never attempt to force a memory card into its slot.
- Never bend a memory card.
- Avoid impact. Do not drop a memory card.
- Do not touch the terminals of the memory card.
- Do not spill water or other liquids on a memory card.
- Keep memory cards away from naked flames and other sources of heat.
- Do not leave memory cards lying in direct sunlight.

For details regarding the use of the memory card, refer to **Section 2.14.** in this manual.

1.7. Memory Expansion Installation

In this section is explained how to expand the printer's memory. Expanded printer memory enables you to print more complex pages, download more fonts, and define more macros.

It begins by explaining how to remove the main circuit board from the printer, and explains how to install a SIMM (single in-line memory module) on the main circuit board.

Note

The expansion memory should be installed only by a Kyocera authorized dealer or Kyocera certified technician. Kyocera shall not be liable for damage due to improper installation of the expansion memory.

The minimum memory requirements for the printer with various options installed are listed in the table below. Please refer to this table when expanding the printer's memory.

Printing condition	Resolution	
	300 dpi	600 dpi
HP LaserJet 5M/KPDL	4 MB	4 MB
HP LaserJet 5M/KPDL, duplex mode* = on	4 MB	6 MB
HP LaserJet 5M/KPDL, resource protection, duplex mode = None,	–	10 MB
HP LaserJet 5M/KPDL, resource protection, duplex mode*= on,	–	14 MB

* An optional duplex unit (DU-25) is required for duplex printing.

Note

When printing on paper larger than A4 size, it may be necessary to extend memory depending on the size of data to be printed.

Removing the Main Circuit Board

The main circuit board of the printer is equipped with two sockets for memory expansion. Expansion memory is available in the form of a SIMM.

Note

The following instructions are intended for the technician only.

Notes on Handling the Main Circuit Board and SIMM

Protect the electronics by taking these precautions:

- Before touching the main circuit board, touch a water pipe or other large metal object to discharge yourself of static electricity. While doing the work, it is recommended that you wear an antistatic wrist strap.
- Touch the main circuit board and SIMM only by the edges.

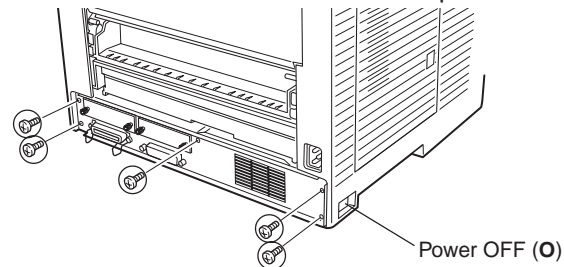
Withdrawing the Main Circuit Board from the Printer

Note

Be sure to remove the memory card first if inserted in the printer's memory card slot.

Withdraw the main circuit board completely from the printer as follows:

1. Turn the printer's power off. Unplug the printer's power cable and disconnect the printer from the host computer.
2. Remove the five screws from the printer's rear cover.

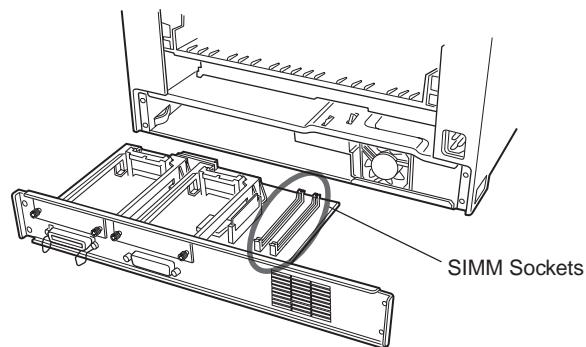


3. Pull the main circuit board all the way out of the printer.

Note

Before pulling the main board out, clean an area on the table, etc., at the back of the printer's rear panel. Foreign objects, accidentally sticking to the back of the main board, can cause serious damage to the printer.

Install the SIMM as described on the next page.



SIMM to be used

See your Kyocera dealer for purchasing information of the SIMMs that are best suited for use with this printer.

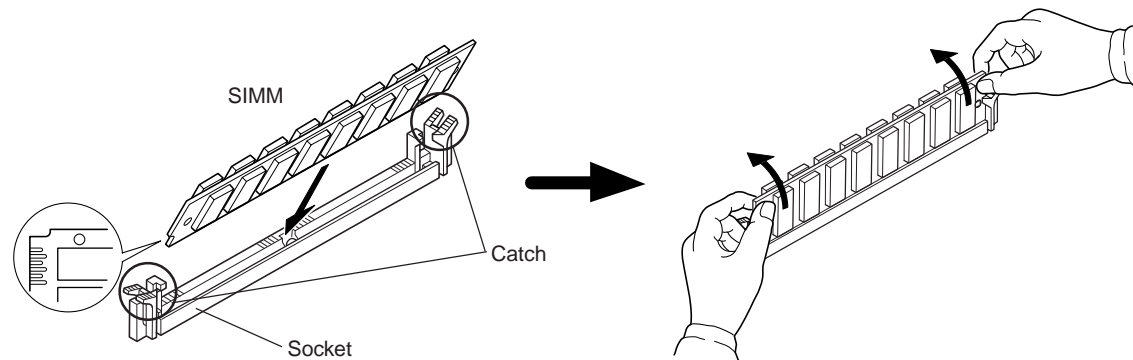
Either 4 MB, 8 MB, 16 MB or 32 MB SIMMs can be used for memory expansion. Together with the memory already present in the printer, this allows memory to be expanded up to a total of 68 MB.

Installing and Removing SIMMs

Installing SIMMs

Insert the SIMM into the socket as shown below.

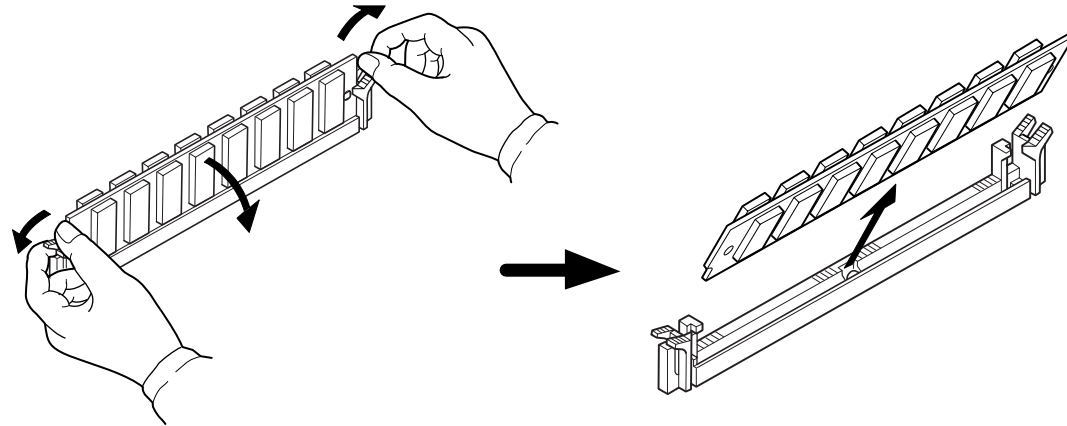
1. Insert the connector end of the SIMM into the socket.
2. Carefully push the board upright until it snaps into place. Make sure that the catches at the ends of the socket fit into the holes at the ends of the SIMM board.



Removing SIMMs

To remove a SIMM, carefully pull the end catches slightly outwards and tilt the SIMM as shown, then pull the SIMM out of the socket.

Reverse the procedure under *Withdrawing the Main Circuit Board* from the Printer to put the main circuit board back into the printer.



Testing the Expansion Memory

After you have finished installing SIMMs in the printer, test the printer to see if the installation has been successful.

To test the expansion memory, proceed as follows:

1. Make sure the power switch is off. Plug the power cord into the printer and turn power on.
2. When the printer is on-line, press the **STATUS** key.
3. If the installation has been successful, the *Total memory* (Memory Allocation) of the status page will show the expanded memory size corresponding to the amount of memory added. (The factory installed memory size is 4 MB.)

Chapter 2

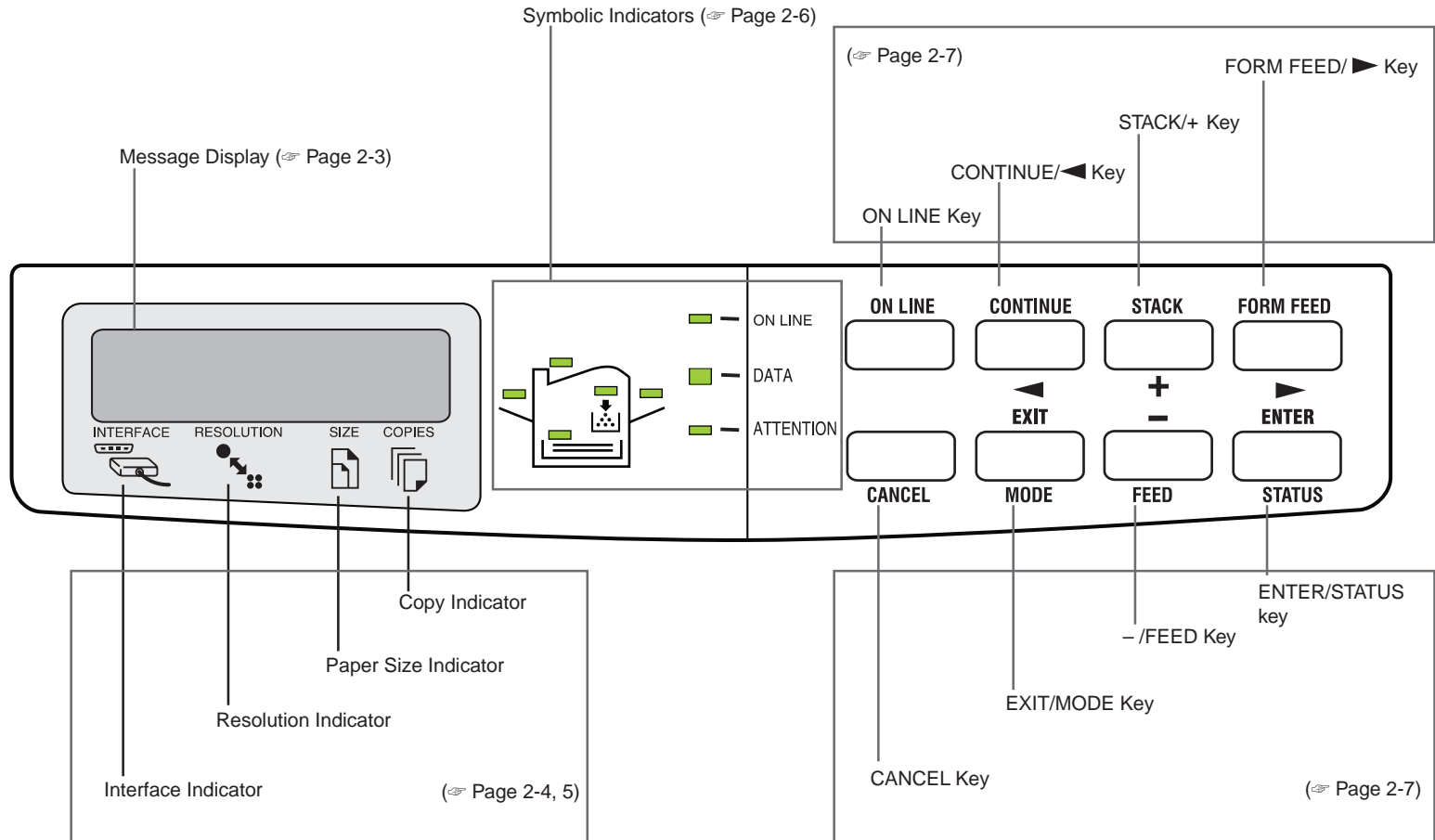
Operating the Laser Printer

This chapter explains the printer's control panel and operating procedures. It covers the fundamental information you will need to use the page printer.

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2.1. Control Panel

The printer control panel comprises a message display, keys, and indicators, as shown below.



Message Display

The message display gives information in the form of short messages. The seven messages listed below are displayed during normal warm-up and printing.

Message	Meaning
Self test	The printer is self-testing after power-up.
Please wait	The printer is warming up and is not ready.
Ready	The printer is ready to print.
Processing	The printer is receiving data, generating graphics, reading an memory card, or printing.
Waiting	The printer is waiting for a command that says the job is over before printing the last page. Pressing the FORM FEED key allows you to obtain the last page immediately.
Sleeping	The printer is in Sleep mode. The printer wakes from Sleep mode whenever a key on the control panel is pressed, the cover is opened or closed, or data is received. The printer then warms up and goes online. (The time that it takes the printer to enter Sleep mode depends on the Sleep Timer setting.)
FormFeed TimeOut	The printer prints the last page after a waiting period.

Other messages appear when the printer needs the operator's attention as explained in **Chapter 5**.



Interface Indicator

The interface indicator shows which of the printer's interfaces is currently active. It uses the following abbreviations:

- PAR Standard bi-directional parallel interface
- SER Serial interface (RS-232C/RS-422A)
- OPT1 Optional interface 1
- OPT2 Optional interface 2

The PAR, SER, OPT1, or OPT2 indicator flashes when the printer is receiving and has received all the data, and then remains on. The printer gives priority to data coming in over the interface corresponding to the blinking indicator.



Resolution Indicator

This shows the current printing resolution. The default is 600 dpi (dots-per-inch) in the HP LaserJet 5M and KPDLE emulation mode and 300 dpi in other emulation modes. The printer's resolution can be selected using the printer's control panel. (See the last page in this manual.)



Paper Size Indicator

The paper size indicator indicates the paper size of the cassette currently installed in the printer or the paper size currently set for the multi-purpose tray.

The following abbreviations are used to indicate the paper sizes.

A3	ISO A3 (29.7cm X 42 cm)	BU	Business (4-1/8 X 9-1/2 inches)*
A4	ISO A4 (21 cm X 29.7 cm)	DL	ISO DL (11 X 22 cm)*
A5	ISO A5 (14.8 cm X 21 cm)	C4	ISO C4 (22.9 X 32.4 cm)*
A6	ISO A6 (10.5 cm X 14.8 cm)*	C5	ISO C5 (16.2 X 22.9 cm)*
B4	JIS B4 (25.7 cm X 36.4 cm)	b5	ISO B5 (17.6 X 25 cm)*
B5	JIS B5 (18.2 cm X 25.7 cm)	EX	Executive (7-1/4 X 10-1/2 inches)*
B6	JIS B6 (12.8 cm X 18.2 cm)*	#6	Commercial 6-3/4 (3-5/8 X 6-1/2 inches)*
LT	Letter (8-1/2 X 11 inches)	#9	Commercial 9 (3-7/8 X 8-7/8 inches)*
LD	Ledger (11 X 17 inches)	CU	CUSTOM (11.7 X 17.7 inches)*
LG	Legal (8-1/2 X 14 inches)	HA	Japanese Postcard (10 X 14.8 cm)*
MO	Monarch (3-7/8 X 7-1/2 inches)*	OH	Return Postcard (20 X 14.8 cm)*

* with only the MP tray feeding

Note

While the printer is **Processing** data to print, the **SIZE** indicator indicates the paper size selected by the application software.

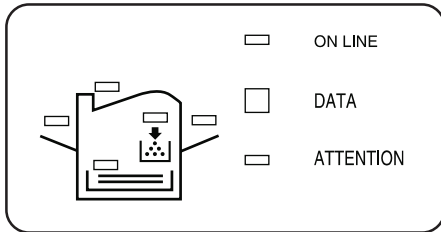


Copy Indicator

Indicates the number of copies set in the current interface (1- 999), and the number is reduced as printing proceeds.



Symbolic Indicators



The symbolic indicators light during normal operation and when the printer needs attention.

Indicator	Name	Description
	Face-down stack indicator	Flashing: Indicates the possibility that paper may be jammed at this point, open and remove any jammed paper. See Section 5.6 . Lit: Indicates when printed pages are delivered to the face-down output tray.
	Face-up stack indicator	Flashing: Indicates the possibility that paper may be jammed at this point, open and remove any jammed paper. See Section 5.6 . Lit: Indicates when printed pages are delivered to the face-up output tray, or to the option stacker if installed.
	Toner indicator	Flashing: • Indicates there is insufficient toner. See Section 4.1 . • Indicates that toner is being replenished. Please wait. Lit: Indicates that the printer is out of toner. Replace with a new toner container. See Section 4.1 .
	Cassette feed indicator	Flashing: Indicates the possibility that paper may be jammed at this point, open and remove any jammed paper. See Section 5.6 . Lit: Indicates when paper is fed from the paper feed cassette.
	Multi-purpose feed indicator	Flashing: Indicates the possibility that paper may be jammed at this point, open and remove any jammed paper. See Section 5.6 . Lit: Indicates when paper is fed from the multi-purpose feed tray.
	On-line indicator	Flashes when a memory error has occurred. (See Table 5.3.) Lights when the printer is on-line. The printer prints received data. Goes off when the printer is off-line. The printer stores but does not print received data.
	Data indicator	Flashing: Indicates data transfer is taking place. Lit: Indicates either that data is being processed, or that data is being written to the memory card.
	Attention indicator	Flashing: Indicates when the printer needs maintenance attention or the printer is warming up (Please wait). Read the message on the message display and consult Chapter 5 . Lit: Indicates when a problem or an error occurs which may be cleared by the user. (For example, the paper feed cassette is empty.) Read the message in the message display and consult Chapter 5 .

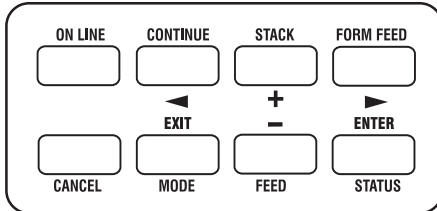


Control Keys

The control panel keys are used to configure the printer.



Note

Settings made with these keys effect only the interface currently in use.



Key	Function
ON LINE 	Switches the printer on-line and off-line.
CONTINUE 	1. Depending on the message being indicated, there are cases where operation will continue after pressing the CONTINUE key. If such a message is displayed, operation will be resumed after pressing this key. (See Table 5.3) 2. Used as the key in the mode selection function.
STACK +	1. Selects whether printed pages are delivered to the face-down or face-up tray. The optional face-up output tray is required to output pages face-up. (See page 1-23.) 2. Lets you access the desired item or enter numeric values. In some of the control procedures, the (CONTINUE) and (FORM FEED) keys are used to enter or exit the sub items.
FORM FEED 	1. Prints and feeds out one page. 2. Used as the key in the mode selection function.
 CANCEL	1. Abandons a printing job, resets numeric values, or cancels a setting procedure. 2. Turns off the buzzer when the buzzer sounds.
EXIT MODE	1. When pressed during mode selection, terminates the setting and returns to the Ready condition. 2. Used to select the emulation, font, character code set; to read an memory card; to select the automatic cassette mode; and others (See the last page in this manual.).

(Continued on next page)

Key	Function
<p style="text-align: center;">—  FEED</p>	<ol style="list-style-type: none">1. Enables access to the desired item or entering of numeric values. In some of the control procedures, the ◀ (CONTINUE) and ▶ (FORM FEED) keys are used to enter or exit the sub items.2. Selects the cassette feed or multi purpose tray feed.
<p style="text-align: center;">ENTER  STATUS</p>	<ol style="list-style-type: none">1. Finalizes numeric values and other selections.2. Prints a page of status information on all interfaces together (The printer must be online.).

Note

Most of the panel functions can also be controlled by PRESCRIBE IIe commands or commands generated by application software. The printer obeys the most recently received printer settings sent from the application software, or from the printer driver, which take priority over control panel settings.

2.2. Operating Procedures

This section explains basic operations of the printer and procedures leading up to and including printing.

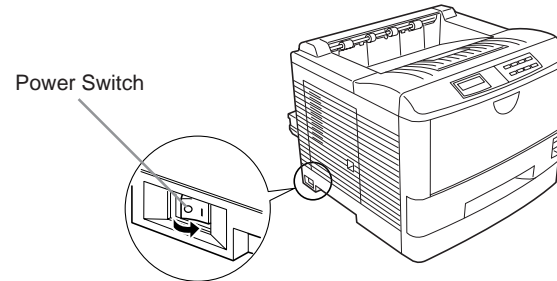
Operating Precautions

- Do not turn off power during printing. This may result in a paper jam or damage to the printer.
- Do not open covers on the printer or covers of optional equipment or move the printer during printing.
- Do not open the paper feed cassette or the paper feed unit during printing.
- Refrain from frequently plugging and unplugging the power plug from the power outlet even when power is turned off.
- Do not plug or unplug the power cord or printer cables while the printer's power is turned on.
- Be sure that the printer's power is off when inserting or removing memory cards. Inserting or removing a memory card while the printer's power is on may result in damage to the memory card and/or the printer.
- Be sure to carefully attach and detach paper feed cassettes and carefully open and close the top cover.
- Be sure to unplug the power cord from the power outlet and take precautions against dust gathering on the printer by draping a cover over it when it is not in use.

Switching Power On

Check that the power cord is securely plugged in at both ends. Check that the printer is connected to the computer (See page 1-24).

1. Push the power switch to the ON (|) position.



2. Wait for the printer to warm up. During warm-up the message display will first indicate `Self test` followed by `Please wait`.
3. At the end of the warm-up period, the ON LINE indicator lights, and the message display indicates `Ready`.

The printer is now ready to print.

Note

If an error is detected while the printer is warming up, the ATTENTION indicator will light. A message concerning the error will be displayed in the message display. (See **Chapter 5**.)

Basic Printing Operations

The flow of basic operations to print is given below. Keys on the control panel are explained after that. For details on using the **MODE** key, be sure to read the section “Mode Select Menu” at the end of this manual in conjunction with this section.

1. Use the **MODE** key to set an emulation for the printer which conforms to the software being used.

This printer is shipped from the factory with emulation set to HP LaserJet 5M.

2. Use the **MODE** key to select the font to use and paper direction.
3. Use the **FEED** key to select paper feeding from the cassette or the multi-purpose tray.
4. Use the **STACK** key to select the destination output tray.
5. Use the **MODE** key to set the number of printed copies.
6. Check that the message `Ready` appears in the message display and that the ON LINE indicator lights, then make preparations to print from the computer.

Press the **FORM FEED** key if, after printing, the message `Waiting` appears in the message display.

Selecting the Output Tray

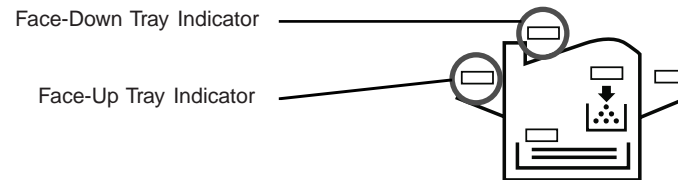
Printed paper can be output on either the face-up output tray or the face-down output tray. Selecting the face-up output tray will cause paper to be stacked with the printed surface facing up. Selecting the face-down output tray will cause paper to be stacked with the printed surface facing down. Normally it is more convenient to use the face-down output tray.

The optional PT-3 face-up tray must be installed in the printer to output pages face-up tray.

When the message `Ready` or `Add paper` appears in the message display, the output tray will be switched every time the **STACK** key is pressed and the selected destination will appear in the message display as follows.

```
Face-up tray  
Face-down tray
```

The output tray currently selected will also flash on the indicator on the front panel.



Feed Selection

Use the **FEED** key to select whether to feed paper from the paper feed cassette or the multi-purpose tray. If optional paper feeder (PF-25) is installed, any of these can also be selected.

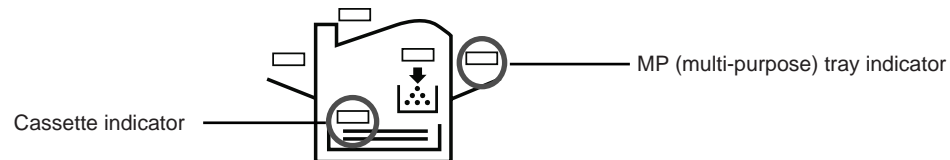
The **FEED** key can be used whenever the message display indicates `Ready` or `Add paper`.

Press the **FEED** key. The selection cycles and is momentarily displayed in the message display as:

Cassette (1)	(Paper feeder's cassette)
Cassette 2	(Displayed when an optional feeder is installed)
Cassette 3	(Displayed when a second optional feeder is installed)
MP tray	(Printer's multi-purpose tray)

The cassette indicator corresponding to the selected cassette on the control panel will flash. Selecting the optional paper feeder (PF-25) cassette will also light the ready indicator on the front of that cassette.

Paper feed selections can also be made using the PRESCRIBE IIe PSRC command.



Switching Online/Offline

After printing starts, it is possible to interrupt printing to check whether the print job is coming out as anticipated.

Pressing the **ON LINE** key during data processing will cause the ON LINE indicator to go out and pressing it during printing will cause the printer to stop after the page currently being printed is finished. During processing means anytime the messages `Processing`, `Waiting` or `FormFeed` `TimeOut` are being displayed in the message display.

The printer continues to receive data even while the printer is offline while the message `Processing` is displayed.

Press the **ON LINE** key to bring the printer online again. The printer will come online and the ON LINE indicator will light.

Read the section below on how to cancel printing.

Canceling Printing

Perform the following procedure when you wish to cancel printing after it has begun.

1. Check if the message `Processing` is displayed in the message display.
2. Press the **ON LINE** key to take the printer offline.
3. Perform the necessary procedure on the computer to halt printing.
4. Press the **CANCEL** key.
5. The message `Print Cancel?` will appear in the message display and the interface to be canceled will be displayed.

The following interfaces may be displayed.

```
Parallel
Serial
Option 1 (only when an optional interface is installed)
Option 2 (only when an optional interface is installed)
```

6. Selecting the interface to cancel using the **+** or **-** key and then press the **ENTER** key. Printing from the interface selected will be stopped.

A few pages may be printed even after the **CANCEL** key is pressed as remaining data received before the **CANCEL** key was pressed is printed.

The message `Print Cancel? Current job` will also be displayed when the **CANCEL** key is pressed for the purpose of stopping the printing of status pages or font lists from the control panel. When the **ENTER** key is pressed, the message `Cancelling data` appears in the message display and printing stops after the printer finishes printing the current page.

Press the **CANCEL** key again if you wish to stop the cancellation of printing.

Press the **ON LINE** key to put the printer back online to continue with other print jobs.

Notes

- Canceling data from the computer using the **CANCEL** key will restore temporary settings to their default values. (The same status resulting from executing the PRESCRIBE IIe RES command.)
- It is impossible to cancel printing of just one side when printing in duplex mode using an optional duplex printing unit (DU-25).


Status Printout


It is possible to print out and check the printer's current status including unit emulation, font, and memory usage.

1. Check that the **ON LINE** indicator lit and that the message *Ready* is displayed in the message display.
2. Press the **STATUS** key. The message display will read *Processing*, and a status page will be printed. After it is finished printing, the message display will return to *Ready*.

An example of a printed status page is shown on the next page. Note that information on an actual status page may differ slightly from this example.

Sample Status Page




FS-6700 Page Printer

STATUS PAGE

[03/A3-22][A2][3-09][01]
Software version: Released

Hardware Information

MP Tray	A3
*Cassette 1	A4
Ecoprint mode	OFF
Buzzer control	ON
Host buffer size	60 KB
Sleep timer	30 Minutes
FF time out	30 Seconds

Memory

Standard memory	4096 KB
Option memory	
Slot 1	Empty
Slot 2	Empty
Total	4096 KB
User available	1754 KB

Page Information

Resolution	600 DPI
Copies	1
Total page	57

Installed Options

Hard-disk drive	NO
Option EP-ROM	NO
Memory card	NO

Emulation

Line printer
 IBM Proprinter
 Diablo 630
 Epson LQ-850
 *HP LaserJet 5M
 KC-CL
 KPDL2

Interfaces

Serial	*Parallel
HP LaserJet 5M	HP LaserJet 5M

<p>Font</p> <p>lbyte code 1</p> <p>Codeset name ISO-6 ASCII</p>	<p>Font</p> <p>lbyte code 1</p> <p>Codeset name ISO-6 ASCII</p>
---	---

<p>Option1</p> <p>Not used</p>	<p>Option2</p> <p>Not used</p>
---------------------------------------	---------------------------------------

KIR Test pattern mode ON

2-17

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1 Software version

This information shows the software version and date of issue of the printer.

2 Hardware information

This information shows the currently selected paper feed source (indicated by an asterisk), paper size, and main settings of the printer.

3 Page information

This information shows the currently selected resolution and number of copies.

4 Memory usage

This information shows the amount of total memory installed in the printer and the amount of currently available memory.

5 Installation Options

This shows the options currently installed in the printer.

6 Emulation

This shows all available emulations and the currently selected emulation (marked with an asterisk). The printer is shipped from the factory set to HP LaserJet 5M emulation.

7 Interface information

This information shows all interfaces installed in the printer and the currently selected interface.

8 Fonts at startup (for each interface)

This shows the font automatically selected when the printer starts up (default font). It is possible to set different fonts for the parallel interface and the serial interface. The figure on page 2-17 shows default settings. The font is set to "1" (Courier bitmap font).

This also shows font information similar to the column below if an optional interface is installed.

9 KIR test pattern

This is used when setting the printer's KIR mode. For details, see page 2-31.

10 User font list

Following the status page, font listings are output which show the fonts which have been downloaded to the printer from the computer.

Type	Number	Font Name	Size (KB)
Bitmap	101		12.00
Bitmap	102		12.75
Bitmap	103		10.75
Bitmap	104		14.50
Bitmap	105		19.00
Bitmap	106		17.75
Bitmap	107		18.00
Bitmap	108		15.00
Bitmap	109		12.25
Scalable	50000	Brush	52.50

10

Form Feed

The message `Waiting` may be displayed in the message display when you get to the end of a print job. This occurs when the software does not issue a final form feed to the printer indicating the end of the print data. In this case, pressing the **FORM FEED** key allows you to finish printing immediately.

1. Check if the message display reads `Waiting`.
2. Press the **FORM FEED** key. The message display will now read `Processing` and the last page will print.

Note

- The `Waiting` display may also appear due to interruptions in printed data while the computer is processing data. Pressing the **FORM FEED** key unnecessarily when the message display reads `Waiting` will result in a form feed.

Mode Selection

The **MODE** key is used when making various mode settings and selections. For details, see the section **Mode Selection Menu** beginning on the next page.

2.3. Mode Selection Menu

This section explains the menu hierarchy used for all menus which can be set and selected using the **MODE** key. The **MODE** key can be used to display all of the menus in the table below. This mode selection menu conforms to the menu hierarchy given at the end of this manual.

Pressing the **MODE** key initially displays menus at the top of the hierarchy.

Use the + and – keys to move between menus in the same level. The + key shows the next menu, while the – key shows the previous one. Change levels by using the ◀ and ▶ keys. The ▶ key moves to lower levels (sub-menus), while the ◀ key moves to higher levels.

Mode Selection Menu List

Menu	Description	Default Setting
Interface >	Selects the interface for which settings are to be made. Settings from the mode select menu are applied to the interface selected here.	Parallel
	Parallel setting has a sub item in which one of four data transmission modes can be selected — Nibble (high), Auto, Normal, or High speed	Nibble (high)
	Serial setting has five sub items, and sets the following RS-232C/RS-422A parameters:	
	Baud rate	9600
	Data bit	8
	Stop bit	1
	Parity	None
	Protocol	DTR (pos.) & XON
Number of copies	Set the number of copies to be printed. This can be set up to 999.	001

(Continued on next page)

Menu	Description	Default Setting
Emulation >	Switches the printer emulation. The ► key allows access to sub item >Code set.	HP LaserJet 5M
Font >	Selects the print font.	Bitmap
Page set	Size reduction settings [See page 2-26]	[CS] → [CS]
Page orientation	The + and – keys toggle between portrait and landscape page orientations.	Portrait
MEMORY CARD >*	The several operations can be performed from sub-menus on memory cards installed in the printer.	
Opt. ROM >*	Reads information from the option ROM installed in the printer's main board.	
HARD DISK >*	The several settings can be made from sub-menus when an optional hard disk unit is installed. (For details, please read the hard disk unit instruction manual.)	
MP tray mode >	The multi-purpose tray mode can be set to First, Cassette or Manual. Pressing the ► key will display > MP tray size, allowing you to set the paper size for the multi-purpose tray.	First A4 or Letter
Paper Type	This can be changed depending on the thickness of the paper to be printed on. Thin: 64 g/m ² or less Normal: 64 to 90 g/m ² Thick: 90 g/m ² or more Extra thick: OHP sheets, postcards, or other special paper. To prevent paper jams, be sure to feed thick paper from the multi-purpose tray and output on the face-up tray. For details on paper which can be used, see Appendix B .	Normal

Menu	Description	Default Setting
Duplex mode*	This is displayed when an optional duplex printing unit (DU-25) is installed. Select the duplex printing mode (long edge or short edge).	None
Auto cassette*	Selects one of the automatic paper cassette switching modes. Only available when the printer is installed with the optional paper feeder (PF-25).	None
Others >	The following sub-menus can be displayed by pressing the ► key and then the + or – key.	
	Message language setting	English
	Automatic form feed timeout setting	30 sec.
	Sleep timer setting [See page 2-28.]	30 min.
	Receive data dumping [See page 2-30.]	
	Print a list of resident fonts	
	Line feed setting [See page 2-20.]	LF only
	Carriage return setting	CR only
	Display total number of printed pages	
	KIR mode setting	On
	Ecoprint Mode setting	Off
	Page protection mode	Auto
	Resolution setting	600
	Resource setting	Off
	Print density setting	03
	Alarm (buzzer) setting	On
	Service (for service personnel)	

*: These items are available only when the printer is installed with the applicable option unit/kit.

For items with the > mark on the message display, the ► (**FORM FEED**) key lets you go down to the sub items which give access to more items to change the relevant settings.

2.4. Configuring Interfaces

The printer is equipped with both a parallel and serial interface. Independent settings can be made for each interface. Optional interfaces can also be installed.

To configure each interface, press the **MODE** key and use the **+** or **-** key to select the interface you wish to make settings for.

Note

This interface selection does not select which interface data will be received from. The printer automatically selects that interface.

Parallel Interface Mode

The parallel interface mode of this printer supports a bi-directional/high-speed mode. Normally, this interface is used under the default setting `Nibble (high)`.

Parallel Interface Mode

Display	Description
<code>Nibble (high)</code>	High speed data communication is used in compliance with the IEEE 1284 standard.
<code>Auto</code>	The printer automatically changes its communication mode.
<code>Normal</code>	The parallel interface is configured according to standard specifications.
<code>High speed</code>	The parallel interface is in high-speed mode.

After setting the interface, be sure to reset the printer or turn the power off at least once. The new setting will be enabled thereafter.

2.5. Emulation Selection

The following emulations can be selected for this printer. The emulation selected is stored even while the printer's power is off.

Line printer
 IBM Proprinter
 Diablo 630
 Epson LQ-850
 HP LaserJet 5M (Default setting)
 KPD L
 KC-GL

KC-GL Emulation

The following settings can be made from the sub-menu when KC-GL emulation is selected.

Display	Description
>KC-GL Pen width	The width of pens (1) through (8) can be set in 1-dot increments from 01 to 99. After selecting the pen on this sub-menu, you can also display and select the width set for that pen on a lower menu.
>KC-GL Page set	Any of the following page sizes can be set: A2, A1, A0, B3, B2, B1, B0, SPSZ (custom size specified using the SPSZ command). The selected page size will be automatically reduced to the actual paper size being used.

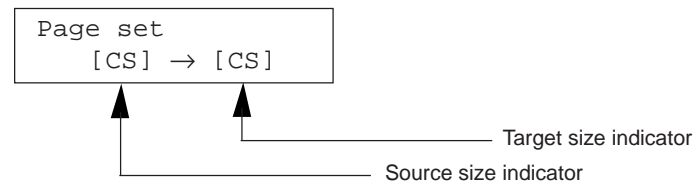
2.6. Reduction (Page Set)

Make settings on the page set menu to print at a reduced size. This menu is used to set the source paper size and the paper size to use after reduction. These settings can be made from within programs or files using the PRESCRIBE SPSZ command.

Notes

- Printed results when making reductions differ from equivalent size printing. Sometimes the line width of characters may not be consistent or lines may appear in figures or image patterns.
- Landscape feeding while making reductions is possible from the multi-purpose tray in first mode.

Bring up the page set menu. The following display will appear.



Source size indicator This is the paper size before reduction. This must be the same as the paper size set for print data from the computer.

Target size indicator This is the paper size after reduction. This must be the same as the paper size set for the feed cassette.

It is possible to set the following paper sizes (envelope) when using the PRESCRIBE SPSZ command. The message display will show the messages given in the following table. For details on the SPSZ command, see **Chapter 6**.

Source Size-Target Size Combinations

Source Size Indicator	Target Size Indicator	Reduction/Enlargement Ratio
CS	CS	100%
	CS 98%	98%
LG Legal size (8.5 X 14 inches)	LG	100%
	LG 98%	98%
LT Letter size (8.5 X 11 inches)	LT	100%
	A4	94%
	LT 98%	98%
LD Ledger size (11 X 17 inches)	LD	100%
	LD 98%	98%
A5 (14.8 X 21 cm)	A5	100%
	A5 98%	98%
B5 (18.2 X 25.7 cm)	B5	100%
	B5 98%	98%
	A5	81%
A4 (21 X 29.7 cm)	A4	100%
	LT	94%
	B5	86%
	A4 98%	98%
	A5	70%
	B4	100%
B4 (25.7 X 36.4 cm)	B5	70%
	A4	81%
	B4 98%	98%
	A3	100%
	A4	70%
A3 (29.7 X 42 cm)	B4	86%
	A3 98%	98%
	A3	100%
	A4	70%

2.7. Sleep Timer Setting

This printer is equipped with a sleep timer function for conserving energy in cases where there has been no operation from the control panel or data has not been received for a predetermined period of time.

The sleep timer can be set anywhere from 0 to 120 minutes in 5-minute increments. Setting the sleep timer to 0 turns it off. The sleep timer is set at the factory to 30 minutes.

Once the set time arrives, the printer will display `Sleeping` and all indicators will go out. This minimizes the amount of energy used.

Pressing a key on the control panel, opening and closing a cover, or sending data to the printer while it is displaying `Sleeping` will cause the printer to display `Please wait` and it will begin warming up. After it warms up, the printer's ON LINE indicator will light and it will enter ready status.

The printer will enter `Sleeping` mode when the set time arrives even during mode selection or while a maintenance message is being displayed.

Note _____

The printer environment last set is still maintained even though all indicators are out while the printer is in `Sleeping` mode.

Selecting Sleep Timer Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** key several times to display `>Sleep timer` and press the **ENTER** key. A cursor “**_**” will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired value.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The Sleep Timer mode setting is now changed.

2.8. Dumping Received Data

It is possible to print data received by the printer as hexadecimal code for the purposes of debugging programs and files.

Selecting Dump Received Data Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** key several times to display `>Print HEX-DUMP` and press the **ENTER** key. `A ?` will be displayed.
5. Press the **ENTER** key again and `>Processing` will be displayed for awhile followed by `Waiting`.
6. Send the data to be dumped to the printer. The printer will display `Processing` while it receives the data.
7. Once all data has been received, the message `Waiting` will appear. Press the **FORM FEED** key to finish printing.

Once the dumped data you require has been output, it is possible to cancel the printing of any further dumped data by taking the printer offline by pressing the **ON LINE** key and then pressing the **CANCEL** key.

2.9. KIR Level

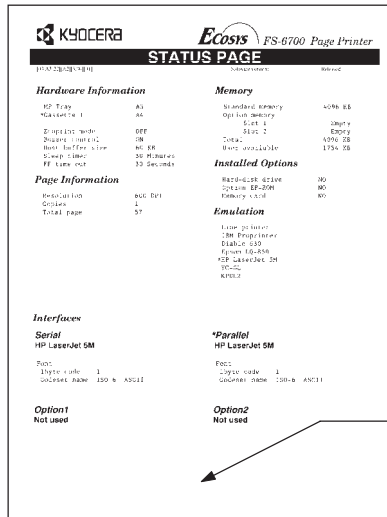
This printer incorporates the KIR (Kyocera Image Refinement) smoothing function. KIR provides high quality printing by providing a software-type improvement to the resolution.

Print a status page to find out the current printing mode.




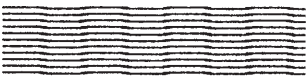
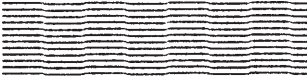
Notes

- Set the print density to 03 when setting the KIR mode. For details on print density, see page 2-37.
- You can look at the check line, the last line on a KIR test page, to make the optimum KIR mode setting. Refer to the table on the next page.



Status page

KIR Checking Lines

KIR Setting	Description
<p>Optimized stripes</p> 	<p>The current KIR setting is optimal.</p>
<p>Dark vertical stripes</p> 	<p>The KIR mode currently set is too strong. Set the KIR mode to Off. Try printing the test pattern again. If you still get dark vertical stripes, adjust the print density control to a lighter setting. (See the Mode Select Menu at the end of this manual.)</p>
<p>White vertical stripes</p> 	<p>The KIR mode currently set is too weak. Set the KIR mode to On. Try printing the test pattern again. If you still get white vertical stripes, adjust the print density control to a darker setting. (See the Mode Select Menu at the end of this manual.)</p>

Selecting KIR Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** or **-** key to display `>KIR mode` and then press the **ENTER** key. A `?` will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired setting.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The KIR mode setting is now changed.

2.10. Ecoprint Mode

The Ecoprint enables you to reduce the amount of toner consumed on the page so as to save your printing costs.



Ecoprint is Off (default)

Ecoprint is On

Note

The Ecoprint setting has no effect on the print speed.

Selecting Ecoprint Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** or **-** key to display `>Ecoprint mode` and then press the **ENTER** key. A **?** will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired setting.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The Ecoprint mode setting is now changed.

2.11. Resource Protection

When you switch from the HP LaserJet 5M emulation to another, all downloaded fonts and macros are lost. Resource protection preserves these PCL resources in memory so that they are intact when you change the emulation back to HP LaserJet 5M.

By using the printer's `>Resource prot.`, you can select from two resource protection modes as follows:

```
>Resource prot.  
Permanent
```

In this mode, the printer stores fonts, macros, symbol sets, etc. in memory that were downloaded as permanent PCL resources. All temporary resources are lost when the emulation mode is changed from HP LaserJet 5M to another or vice versa.

```
>Resource prot.  
Perm / Temp
```

In this mode, the printer stores both permanent and temporary resources when the emulation mode is changed from HP LaserJet 5M to another or vice versa.

Note

The printer requires 10 MB or more of memory in order to set resource protection. (14 MB or more is required when a DU-25 duplexer is installed.)

Selecting Resource Protection Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** or **-** key to display `>Resource prot.` and then press the **ENTER** key. A `?` will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired setting.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The Resource Protection mode setting is now changed.

2.12. Adjusting the Print Density

If necessary, the print density can be adjusted from the MODE SELECT MENU. The required print density can be selected from five different steps (01 [light] - 05 [dark]). The factory setting is 03 , and there is normally no need to alter this setting.

When using the KIR function, please use the “ 03 ” setting. For details on adjusting the KIR mode, see page 2-31.

Selecting Print Density Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select `Others >`.
3. Press the **▶** key.
4. Press the **+** or **-** key to display `>Print density` and then press the **ENTER** key. A `?` will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired setting.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The Print Density mode setting is now changed.


2.13. Setting the Audio Warning (Buzzer)

In addition to the message displayed when the paper supply is exhausted, or when paper jamming occurs, an audio warning is made to sound. This is useful, for example, when the printer is in a location some distance from the user.

The audio alarm is set to `On` when leaving the factory.

If the alarm is turned `Off`, the buzzer will sound according to the type of printer error as given in the following table.

Type of Error and Corresponding Audio Alarm (Buzzer)

Priority	Error Message	Alarm Frequency	Remark
 High	Replace Toner	short beeps	—
	Clean printer		
	Replace waste toner bottle	short beeps	—
	Clean printer	short beeps	—
	Press CONTINUE		
	Paper jam	short beeps	—
	Face-down tray paper full	short beeps	—
	Paper path error	short beeps	*
	Memory overflow	short beeps	—
	Press CONTINUE		
	Print overrun	short beeps	—
	Press CONTINUE		
	KPDL Error	short beeps	—
	Press CONTINUE		
	MEMORYCARD err ##	short beeps	*
	Press CONTINUE		
	Opt. ROM error	short beeps	*
	Press CONTINUE		
	HARDDISK error ##	short beeps	*
	Press CONTINUE		
Set paper	short beeps	—	
Press CONTINUE			
Load paper (Paper Size)	short beeps	—	
Low	Add paper	long beeps	—

*: These error messages are displayed if the relevant option is fitted.

##: The number displayed will vary depending on the error. Please refer to **Chapter 5**.

The alarm will continue to sound while the error condition continues (if the printer is in the sleep mode, the alarm will be silent for that period alone). The alarm will cease to sound, however, when the **CANCEL** key is pressed.

To rectify the various error conditions listed above, please refer to **Chapter 5** of this manual, or to the operating manuals accompanying the various optional equipment.

Notes

- If you wish to cancel the data being processed while the audio alarm is sounding, press the **CANCEL** key twice. Firstly, the audio alarm will be turned off, and then the data processing will be canceled.
- After the audio alarm has been set to *Off*, even if the **PRESCRIBE IIe FRPO INIT** command is executed, the printer will not return to the initial (*On*) alarm setting. To set the audio alarm to *On*, reset using the mode select menu from the control panel.

Selecting Buzzer Mode

1. Pressing the **MODE** key will put the printer in Mode Select mode.
2. Press **+** or **-** to select *Others >*.
3. Press the **▶** key.
4. Press the **+** or **-** key to display *>Buzzer* and then press the **ENTER** key. A **?** will flash and the current setting can be changed.
5. Press the **+** or **-** key and select the desired setting.
6. Press the **ENTER** key.
If you want to change the setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. The Buzzer mode setting is now changed.

2.14. Memory Cards

This printer is equipped with memory card slots. This allows, for example, the use of fonts other than internal fonts by using an optional font card. If a JEIDA Ver. 4.2 memory card is used, it is possible to read, write and delete data and format the memory card.

Note

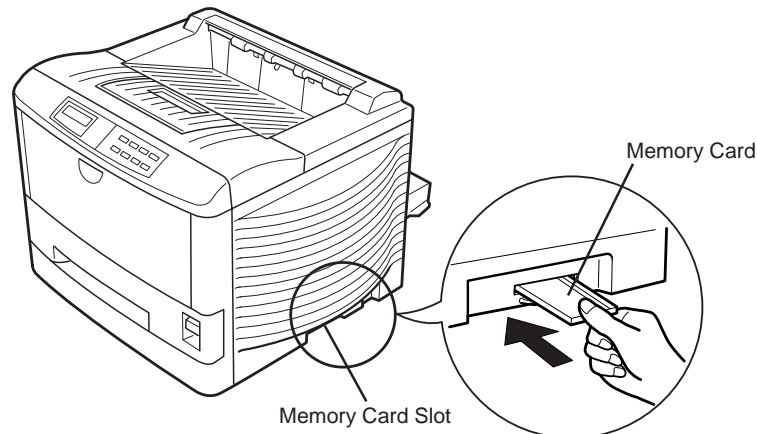
Only 32 MB or less flash or S-RAM type memory cards conforming to JEIDA Ver. 4.2 can be written or formatted by this printer.

It is possible to set the partitions on the memory card which you wish to execute for the printer at power-on by using the PRESCRIBE FRPO I0 command. For details on the FRPO command, see **Appendix C**.

Font cards can be read from the control panel or read automatically upon power-on or printer reset when a font card is inserted in the printer.

Inserting Memory Cards

Carefully insert the memory card as far as it will go with the top side facing up.



Notes

Follow the precautions below when handling memory cards.

- Memory cards are sensitive to static electricity. Before handling a memory card, be sure to eliminate any static electricity which may have built up on your body or clothing by touching a metallic object.
- Use flash memory cards or S-RAM memory cards conforming to JEIDA Ver. 4.2 which are approved by Kyocera.
- Be sure that its power is off when inserting or removing a memory card.
- Do not insert memory cards into the slot with undue force.
- Do not bend memory cards.
- Do not drop memory cards or subject them to shock.
- Do not splash water or other liquids on memory cards.
- Do not place memory cards near fires or heat sources.
- Do not subject memory cards to direct sunlight.
- Store memory cards in their protective case when not using them.

Operating a Memory Card

The following operations on memory cards inserted into the printer's memory card slots are possible.

- Reading Fonts
- Reading Macros
- Reading Data
- Writing Data
- Deleting Data
- Formatting Memory Cards
- Printing a List of Data Names (Partitions)

Note that only reading fonts and printing a list of partitions are possible when a font card is inserted. The following sections explain each of these operations.

Each operation is described below.

Reading Fonts from a Memory Card

Fonts can be read into the printer's internal memory from optional font cards. The font read can then be selected from the printer's control panel. Font cards are automatically read into the printer when the printer's power is turned on. The operation described here is performed while the message display reads *Ready*.

1. Check that the font card is inserted into the memory card slot. Bring up the menu `>Read fonts` on the message display. This display only appears if a font card is inserted.
2. Press the **ENTER** key. `?` will appear.
Press the **CANCEL** key to stop reading fonts.
3. Pressing the **ENTER** key again will cause `Processing` to appear in the lower part of the message display and font data to be read from the font card.
4. After fonts have been read, the message display will return to `>Read fonts`.
5. Pressing the **EXIT** key will cause the message display to return to `Ready`.

Reading Macros from a Memory Card

Macro data on a memory card can be registered on the printer. Registered macro data can be used just like macro data located in printer memory. If a memory card already containing macro data is inserted in the printer, that macro data will be read into the printer automatically when the printer's power is turned on.

The operation described here is performed when a memory card is inserted while the message display reads *Ready*.

Note

Macro data on a memory card has no effect on printer memory.

1. Check that the memory card containing macro data is inserted. Bring up the menu `>Read macro` on the message display. This display only appears if a memory card containing macro data is inserted.
2. Press the **ENTER** key. `?` will appear.
Press the **CANCEL** key to stop reading macro data.
3. Pressing the **ENTER** key again will cause *Processing* to appear in the lower part of the message display and macro data to be read from the memory card.
4. After macro data has been read, the message display will return to `>Read macro`.
5. Pressing the **EXIT** key will cause the message display to return to *Ready*.

Notes

- If the name of a macro on the memory card is the same as that in printer memory, the macro data on the memory card with the conflicting name will not be registered.
- Registered macro data will be lost if the memory card is pulled out. Re-execute `>Read macro` if this happens.

Reading Data (Partitions) from a Memory Card

Specified data (partitions) on a memory card can be read into printer memory.

1. Bring up the menu `>Read data` on the message display. This display only appears if there is data on the memory card.
2. Press the **ENTER** key. `?` will flash.
3. You can scroll through data names on the memory card one by one by pressing the **+** key. Press the **CANCEL** key to stop reading data.
4. Press the **ENTER** key while the desired data name is being displayed `Processing` will appear in the message display and the selected data will be read into the printer. After data has been read, the message display will return to `Ready`.

Writing Data (Partitions) to a Memory Card

Data sent from the computer can be written on a memory card. Data written on the card can be read into printer memory by key operations from the control panel of the printer.

Assuming the card has enough memory capacity, up to 127 partitions can be written on a single card. Partitions written on the card are automatically assigned names, which can be checked by printing out a partition list.

Check that the memory card can be written (that write-protection is released).

1. Bring up the menu `>Write data` on the message display.
2. Press the **ENTER** key. `?` will appear.
3. Pressing the **ENTER** key again will cause `Processing` to appear in the message display followed by `Waiting`.



Press the **CANCEL** key to cancel writing data.

4. With the printer now set, send data from the computer to the printer.

[Example] Sending the file TEST.TXT to the printer from the computer (DOS mode).

```
COPY TEST.TXT PRN
```

The message display will change to `Processing` when data is received and will change back to `Waiting` when reception is finished.

5. Press the **FORM FEED** key. The printer will automatically print the data just written (example below). This printout can be used to check the name (partition name) under which data was written and confirm that it was written properly.

```

                                MEMORY CARD  WRITE  INFORMATION
-----
Slot number                      : A
Data Type                        : 2/Data
Partition name                   : DataS003    /System define
Write data length                : 00001704
Others                           :
```

Slot number: Slot name for the memory card (only A is supported)

Data type: Data type (only 2 is supported)

Partition name: Name of the partition (data) written

Write data length: Size of the partition data written (in units of bytes)

After printing is finished, the message display will return to *Ready*.

Deleting Data from a Memory Card

It is possible to delete data names on a memory card one at a time. Check that the memory card can be written (that write-protection is released).

1. Bring up the menu `>Delete data` on the message display. This display only appears if the memory card contains data.
2. Press the **ENTER** key. `?` will flash and a data name will appear after it.

The `?` will flash, and a data name will appear.

```
>Delete data
? (data name)
```

3. You can scroll through data names on the memory card one by one by pressing the **+** key. Press the **CANCEL** key to cancel this operation.
4. Press **ENTER** key while the data name you wish to delete is shown. The message display will change to `Processing`.

The message display will return to `Ready`.

Formatting Memory Cards

It is necessary to first format a new memory card before it can be used by the printer. Formatted memory cards can then be written with data.

Notes

- Note that if you format a memory card which already has data written on it, that data will be lost entirely.
- Check that the memory card can be written (that write-protection is released).

1. Bring up the menu `>Format` on the message display.
2. Press the **ENTER** key. `?` will appear.
3. Pressing the **ENTER** key again will cause `Processing` to appear in the message display and the memory card will be formatted.

The printer will print memory card formatting information (example below) after initialization is finished. Use this to check that the memory card has been formatted properly.

```

                                MEMORY CARD  FORMAT  INFORMATION
-----
                                Formating is completed.

                                Slot number      : A
                                Card Size       : 00524288
                                Data Size      : 00000062
                                Remaining Size  : 00524226
```

Slot number: Slot name for the memory card (only A is supported)

Card size: The overall memory capacity of the card (in units of bytes)

Data size: The amount of data available to the system

Remaining Size: The remaining amount of available memory on the memory card

After this information is printed, the message display will return to `Ready`.

Printing a List of Data Names (Partitions)

This operation prints the contents (data names, data size, etc.) of the memory card inserted in the memory card slot.

1. Bring up the menu `>List of Partitions` on the message display.
2. Press the **ENTER** key. `?` will appear.
Press the **CANCEL** key to cancel printing.
3. Pressing the **ENTER** key again will cause printing to start.

MEMORY CARD STATUS PAGE				
-----	-----	-----	-----	-----
--Partition--	--Name--	--Size--	--Type--	--Slot--
1	DataS001	1980	Data	A
2	DataS002	32	Data	A
3	DataS003	1704	Data	A

-- Card Size --	-- Data Size --	-- Remaining Size --		
A: 00524288	A: 00003992	A: 00520296		
Current terminate string: WRED				

After this information is printed, the message display will return to `Ready`.

Note

“Remaining Size” in the partition list indicates the amount of remaining memory on the memory card. Since the system uses about 70 bytes to write a piece of data on the memory card, the actual available memory on the card is a little less than that displayed.

Chapter 3 Fonts

This chapter describes the types of fonts you can use with the printer, including the printer's resident fonts, and symbol sets.

3.1. Resident Fonts	3-2
3.2. List of Fonts	3-3
3.3. Symbol set	3-8

3.1. Resident Fonts

A font is a set of characters of a particular design. The design is referred to as a *typeface*. Several characteristics identify a font. These include the font type (bitmap, scalable, or KPD L), symbol set, spacing, pitch, height, style, stroke weight, and typeface family.

The printer provides three types of resident fonts: **bitmap** fonts, **scalable** (outline) fonts, and **KPD L** fonts. Also, fonts may be downloaded to the printer's memory from a memory card or disk. These fonts are referred to as *downloadable* or *soft fonts*. The printer accepts as many downloadable fonts as its user available memory permits.

Bitmap fonts

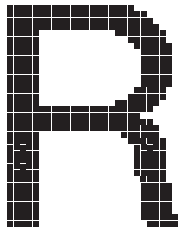


Figure 3.1. Bitmap Font Character

A bitmap font is made of a fixed bit pattern (Figure 3.1.). This pattern is stored in a special format for use in the printer. Bitmap fonts have a fixed height (size) for each character. Therefore, different font sets are required for different font sizes. For example, **Dutch801BM10-Roman** is a 10-point font and **Dutch801BM8-Roman** is an 8-point font.

Scalable fonts

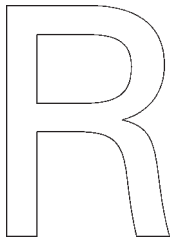


Figure 3.2. Scalable Font Character

Scalable fonts provide the outline of the characters (Figure 3.2.). This outline is scaled according to the scaling information from the computer and filled in for printing. Depending on the capabilities of the software you use, the scalable fonts can be scaled from 0.25 point to 999.75 points in quarter point increments.

3.2. List of Fonts

This section contains a full list of the printer's resident fonts. You can print the same font list from the printer by using the printer's control panel key. To print a list of fonts, refer to *Mode Select Menu, List of Resident fonts*.

Bitmap Fonts

The printer has 80 resident bitmap fonts. Note that all resident bitmap fonts include the letters BM in the typeface name.

Scalable Fonts

The printer has 45 resident scalable fonts. These fonts include the letters SWC or SWM in the typeface name and are equivalent to HP LaserJet 5M fonts.

KPDL Fonts

The printer has 35 KPDL (Kyocera Page Description Language: Kyocera's version of PostScript), KPDL fonts are Adobe PostScript Type 1-compatible, and have the suffix SWA at the end of the font name.

Resident Scalable Fonts (2)

This is a sample of OriginalGaramondSWC-Bold font.

This is a sample of OriginalGaramondSWC-BoldItalic font.

This is a sample of OriginalGaramondSWC-Italic font.

This is a sample of OriginalGaramondSWC-Roman font.

This is a sample of Ribbon131-Roman.SWC font.

This is a sample of Swiss721-BoldObliqueSWM font.

This is a sample of Swiss721-BoldSWM font.

This is a sample of Swiss721-ObliqueSWM font.

This is a sample of Swiss721-SWM font.

This is a sample of Swiss742SWC-Bold font.

This is a sample of Swiss742SWC-BoldCondensed font.

This is a sample of Swiss742SWC-BoldCondensedItalic font.

This is a sample of Swiss742SWC-BoldItalic font.

This is a sample of Swiss742SWC-Italic font.

This is a sample of Swiss742SWC-ItalicCondensed font.

This is a sample of Swiss742SWC-Roman font.

This is a sample of Swiss742SWC-RomanCondensed font.

Τηισ ισ α σαμπλε οφ Συμβολ-Σετ-ΣΩΜ φοντ.

(This is a sample of Symbol-Set-SWM font.)

This is a sample of ZapfHumanist601SWC-Bold font.

This is a sample of ZapfHumanist601SWC-BoldItalic font.

This is a sample of ZapfHumanist601SWC-Demi font.

This is a sample of ZapfHumanist601SWC-Demitalic font.

KPDL Fonts (2)

This is a sample of Swiss721-SWA font.

This is a sample of Swiss721-ObliqueSWA font.

This is a sample of Swiss721-BoldSWA font.

This is a sample of Swiss721-BoldObliqueSWA font.

This is a sample of Swiss721-NarrowSWA font.

This is a sample of Swiss721-NarrowObliqueSWA font.

This is a sample of Swiss721-NarrowBoldSWA font.

This is a sample of Swiss721-NarrowBoldObliqueSWA font.

Τηισ ισ α σαμπλε οφ Συμβολ-Σετ-ΣΩΑ φοντ.

(This is a sample of Symbol-Set-SWA font.)

This is a sample of Zapf-Calligraphic801-SWA font.

This is a sample of Zapf-Calligraphic801-ItalicSWA font.

This is a sample of Zapf-Calligraphic801-BoldSWA font.

This is a sample of Zapf-Calligraphic801-BoldItSWA font.

3.3. Symbol set

A symbol set is the set of alphabetical and numerical characters and symbols the printer prints. Each character is assigned to a particular character code.

The page printer offers not only a large selection of bitmap and scalable fonts but also a large selection of symbol sets (also referred to as character sets). This is because the printers the Kyocera page printer emulates have a number of their own symbol sets for printing in different languages and other purposes. Most of those symbol sets are the same regarding the letters of the alphabet, digits, and basic punctuation marks, but they differ considerably in their special symbols which lie in the upper half of the character code table, consisting of character codes 128 through 254 (hex 80 through FE).

The symbol set selection can also be made from the printer's control panel. See *Mode Select Menu* on the last page in this manual.

Table 3.1. Bitmap Fonts Symbol sets

SSET value	SSET ID	Symbol set
4	0D	ISO-60 Norway
9	0I	ISO-15 Italian
14	0N	ECMA-94 Latin 1
19	0S	ISO-11 Sweden
21	0U	ISO-6 ASCII
37	1E	ISO-4 U.K.
38	1F	ISO-69 France
39	1G	ISO-21 Germany
53	1U	US Legal
83	2S	ISO-17 Spain
277	8U	HP Roman-8
341	10U	IBM PC-8
373	11U	IBM PC-8 (D/N)
405	12U	IBM PC-850

Table 3.2. Scalable Fonts Symbol sets

SSET value	SSET ID	Symbol set
4	0D	ISO-60 Norway
9	0I	ISO-15 Italian
14	0N	ECMA-94 Latin 1
19	0S	ISO-11 Sweden
21	0U	ISO-6 ASCII
37	1E	ISO-4 U.K.
38	1F	ISO-69 France
39	1G	ISO-21 Germany
53	1U	US Legal
78	2N	ISO Latin 2
83	2S	ISO-17 Spain
173	5M	PS math
174	5N	ISO Latin 5
180	5T	Windows Latin 5
202	6J	MS publishing
206	6N	ISO Latin 6
234	7J	Desktop

SSET value	SSET ID	Symbol set
269	8M	Math 8
277	8U	HP Roman-8
293	9E	Windows Latin 2
298	9J	PC-1004
308	9T	PC-Turkish
309	9U	Windows
330	10J	PS text
341	10U	IBM PC-8
373	11U	IBM PC-8 (D/N)
394	12J	Macintosh
405	12U	IBM PC-850
501	15U	Pi font
565	17U	PC-852 Latin 2
620	19L	Winbalt
629	19U	Windows Latin 1
853	26U	PC-775

Chapter 4 Maintenance

This printer is designed to provide years of trouble-free service without the necessity of printer module replacement. However, you must replace the toner container in the printer with a replacement container from a new toner kit. Also, to ensure good print quality, various parts inside the printer must be cleaned at regular intervals.

4.1. Toner Kit Replacement.....	4- 2
4.2. Cleaning	4-11

4.1. Toner Kit Replacement

The toner container in the printer should be replaced as soon as the message display shows `Toner low TK-20 Clean printer` or soon after. If you continue to use the printer, eventually the toner supply will be exhausted at which point the printer will stop printing and the `Replace Toner Clean printer` message will be shown instructing you to install a new toner kit.

If the printer stops and the message `Replace Toner Clean printer` appears in the message display, continue printing after replacing the toner with a new toner kit and cleaning the inside of the printer.

Toner kit replacement interval

The life of the toner container will vary according to the density of print in your documents. If you print documents with an actual toner coverage of approximately 5% (A4 or letter size, landscape feed and with the Ecoprint mode* turned off), the toner container will need replacing approximately once every 10,000** pages (A4 or letter size, 20,000 pages with the TK-20H.)

* Turning the Ecoprint mode ON conserves toner. Refer to **Chapter 2** for details.

** In the case of a new printer in which a toner kit has been installed for the first time, the number of pages that can be printed will be 5,000 or less.

Toner Kit to be Used

The toner kit to be used with this printer is the TK-20/TK-20H. It contains the following:

- Toner container
- Waste toner bottle
- Wiper (lint-free) cloth
- Grid cleaner
- Plastic bag (for disposal of the old toner container and waste toner bottle)
- Instructions

(The kit supplied with the printer contains only the toner container and waste toner bottle.)

Note

We strongly recommend you use only the original Kyocera toner kit. Use of original Kyocera toner assures the intended long term reliability of the printer.

Supplying Toner

Notes

Before proceeding, take note of the following:

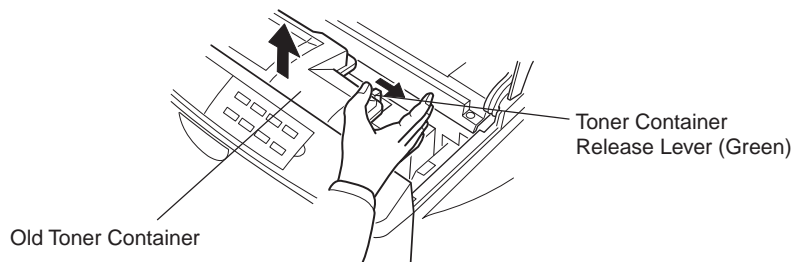
- Also be sure to replace the waste toner bottle when replacing the toner container.
- After toner kit replacement, be sure to clean the inside of the printer. For details, refer to 4.2.
- Do not leave floppy disks etc. lying around while performing this maintenance procedure. This procedure tends to raise a little toner dust which can harm magnetic recording media.
- Do not attempt to reuse the waste toner remaining in the toner container.
- Use only the toner kit exclusively designed for the printer. Use of a toner kit intended for use with other printer models may damage the printer and void the warranty.

To replace the toner container, proceed as follows.

1. Open the printer's top cover all the way.
2. Press the toner container release lever (Green) to release the old toner container from the printer. Remove the old toner container as gently as possible.

Note

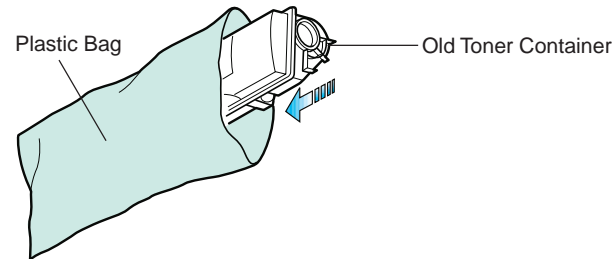
Keep the toner container as level as possible while removing.



- Put the old toner container in the plastic bag supplied with the toner kit. Dispose of the toner container.

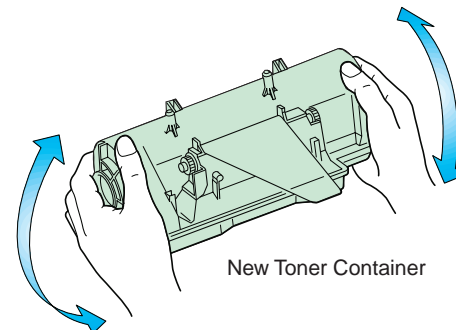
Note

The old toner container may be incinerated without the risk of generating harmful gas.

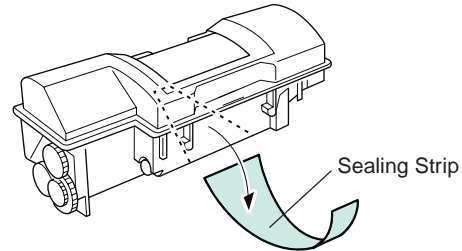


- Take the new toner container from its bag.

With the label side down, thoroughly shake the toner container (in the direction of the arrow) ten times or more to loosen and mix the toner inside.



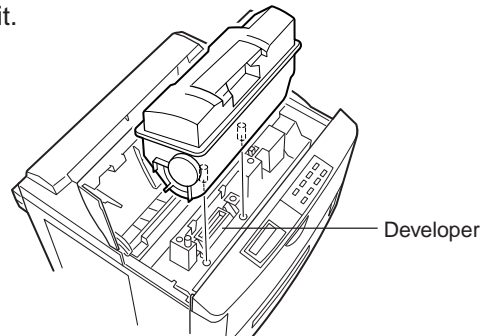
5. The bottom of the toner container is sealed with a plastic strip. Carefully pull the sealing strip off the toner container, making sure not to leak any toner. Dispose of the sealing strip.



6. Install the toner container on the developer as shown in the diagram.

Note

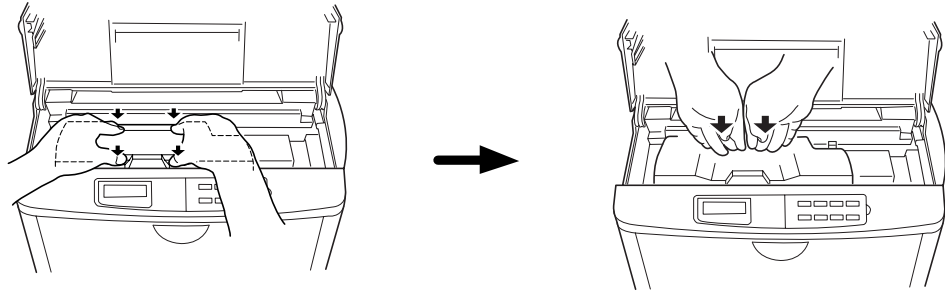
Be sure to peel off the seal on the toner container before installing the toner container on the developer unit.



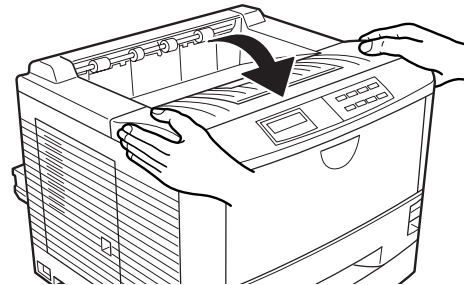
- When the toner container is installed correctly on the developer, push the top of the toner container unit ("**PUSH HERE**") until it locks in.

Note

Make sure that the toner container is properly locked in the printer.



- Close the top cover as shown below.

**Note**

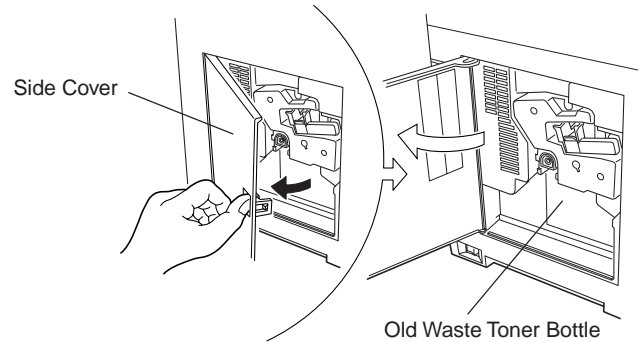
It is necessary to clean the inside of the printer after replacing the toner container. If the toner container is replaced when the message *Replace Toner Clean printer* is displayed, the message *Clean printer Press CONTINUE* will be displayed after replacement. After cleaning the inside of the printer (See **Section 4.2. Cleaning**), the message will disappear when the **CONTINUE** key is pressed, and the printer will be ready for printing.

Replace the Waste Toner Bottle

Note

When replacing the toner container, the used waste toner bottle in the printer should also be replaced with a new one from the new toner kit.

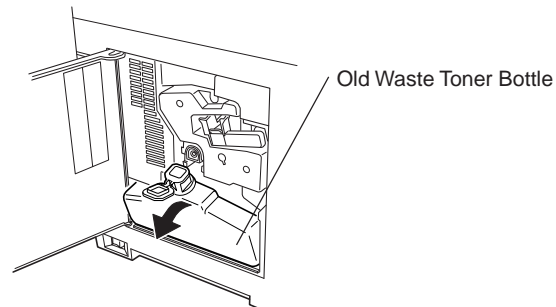
1. Open the printer side cover.



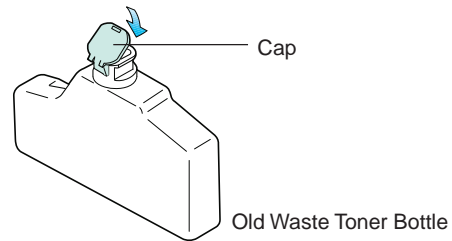
2. Remove the waste toner bottle as shown below.

Note

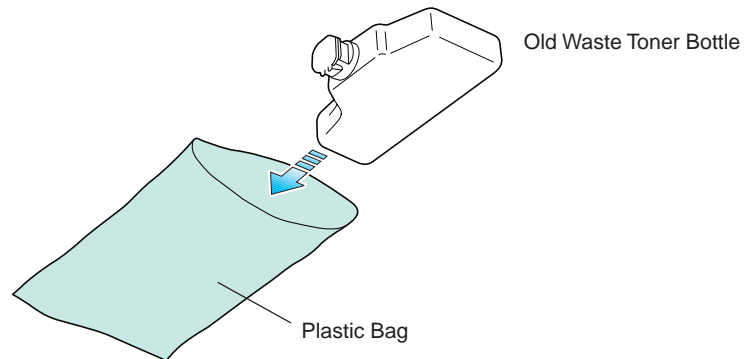
Remove the waste toner bottle as gently as possible so as not to scatter the waste toner inside. Do not let the opening of the waste toner bottle face downward.



3. Cap the waste toner bottle after removing from the printer.



4. To avoid toner spilling, place the capped waste toner bottle in the plastic bag supplied before forwarding to proper disposal.

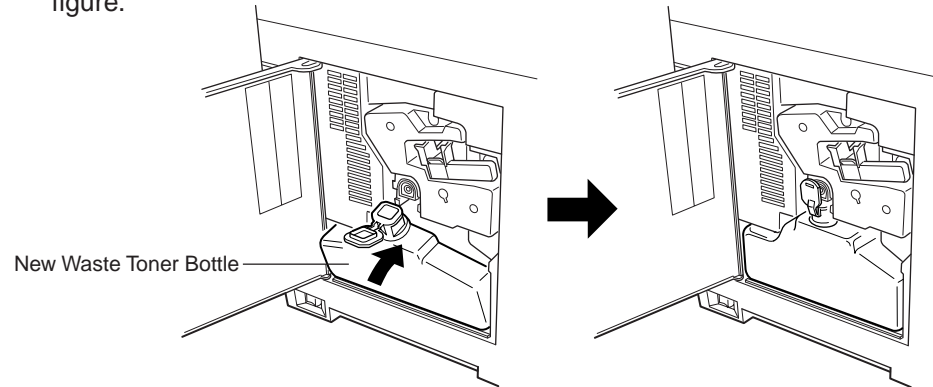


5. Locate the new waste toner bottle in the toner kit, and install in the printer as shown below.

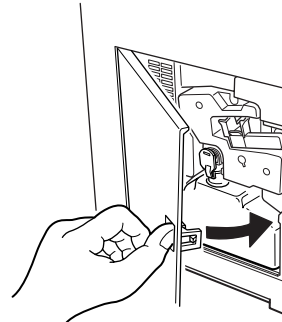
Note

Do not cap the new waste toner bottle.

Insert the new waste toner bottle with the bottle tilted slightly towards you as shown in the figure.



6. After ensuring that the bottle is correctly installed, close the side cover.



Note

After toner kit replacement, it is necessary to clean the inside of the printer. For details on the cleaning procedure, please read **Section 4.2. Cleaning** beginning on the next page.

4.2. Cleaning

In addition to the maintenance procedures described on the following pages, the charger wire in the drum unit and paper feed unit should be cleaned from time to time, or whenever print quality problems occur.

To avoid print quality problems, the following printer parts must be cleaned with every toner container replacement.

Note

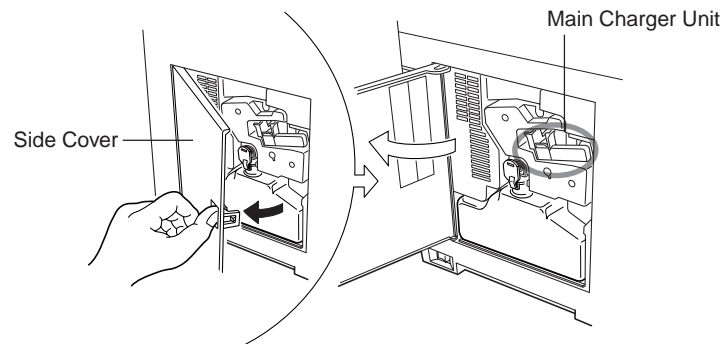
If the toner container has been replaced when the message `Replace Toner Clean printer` was displayed, the message `Clean printer Press CONTINUE` will be displayed after replacement. After cleaning the inside of the printer following the procedure shown below, press the **CONTINUE** key; the message will disappear and the printer will be ready for printing.

Main Charger Unit

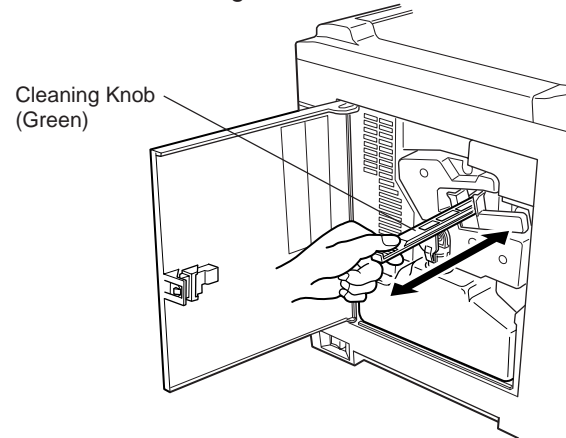
The main charger unit grid should be cleaned when the toner container is changed.

Cleaning the Charger Wire

1. Open the printer side cover.



2. Pull the cleaning knob (Green) slowly in and out a few times. This pulls a cleaning pad inside the drum unit along the wire.



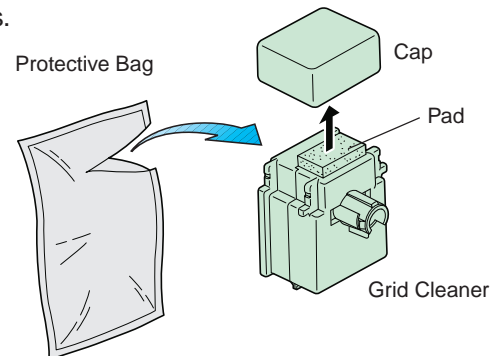
Cleaning the Grid

Clean the grid at the time of toner kit replacement.

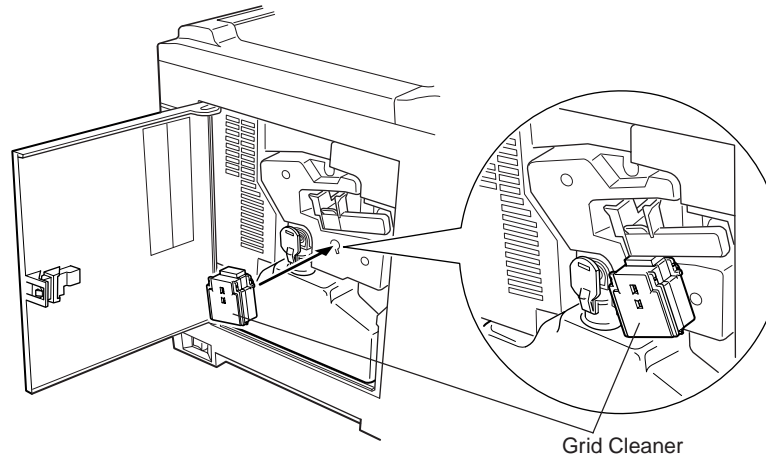
1. Take the grid cleaner from protective bag in the new toner kit, and remove the cap.

Note

The grid cleaner pad is impregnated with water. Perform the following cleaning procedure before the pad dries.

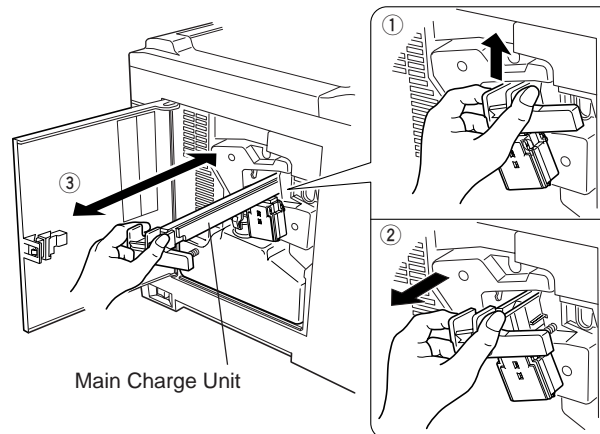


2. Attach the grid cleaner to the printer with the pad uppermost, as shown in the diagram.

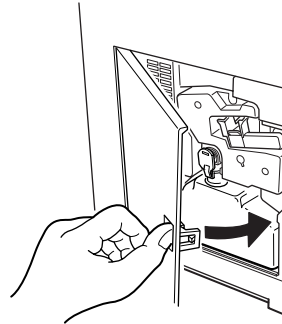


3. After attaching the grid cleaner, repeat the action of slowly pulling out and then pushing back in the main charge unit at least 5 times. It is easier to pull out the main charger for the first time if it is raised slightly, as shown in the figure.

The grid part underneath the main charger is cleaned by this procedure.



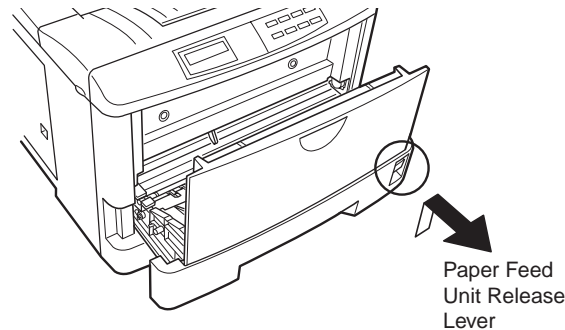
4. When the grid is clean, remove the grid cleaner from the printer and dispose of it. The grid cleaner is not re-usable.
5. After cleaning the charger wire and grid, push the cleaning knob all the way in and close the side cover.



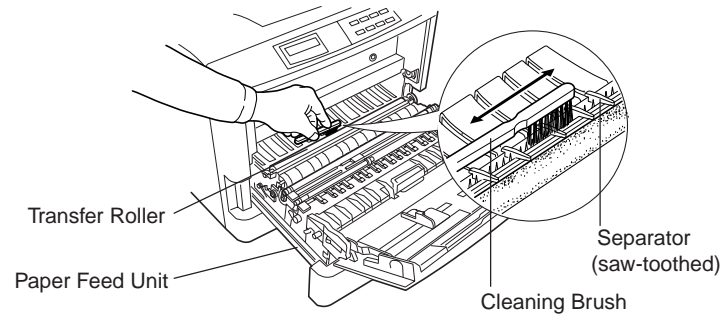
Paper Feed Unit

To avoid print quality problems due to paper dust and debris, clean the paper feed unit in the following manner.

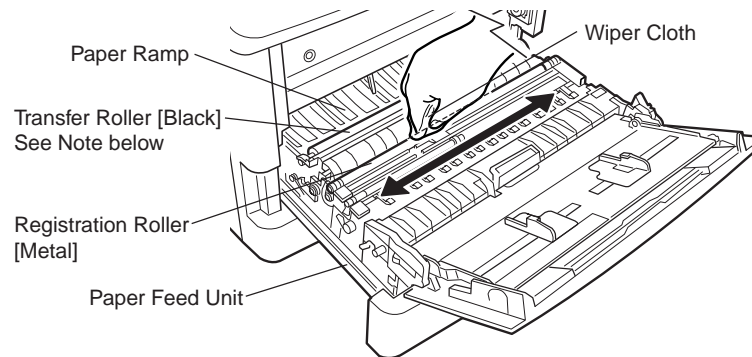
1. Pull the paper feed unit release lever up and draw the paper feed unit all the way out until it stops.



- Use the supplied cleaning brush to clean the entire length of the saw-toothed separator located behind the transfer roller two or three times. Store the cleaning brush somewhere safe as it will be required again in the future.



- Wipe the paper dust on the registration roller and the paper ramp using the wiper cloth included in the toner kit.



Note

Do not touch the transfer roller (the black roller) when wiping the paper ramp.

- After cleaning, securely close the paper feed unit.

Chapter 5 Troubleshooting

This chapter explains how to handle printer problems which may or may not occur. The procedures are easy to follow. If a problem persists after you have completed the appropriate troubleshooting procedures, call for the assistance of a service person.

5.1. General Guide	5- 2
5.2. Power Problems	5- 3
5.3. Interface Problems	5- 4
5.4. Print Quality Problems	5- 5
5.5. Indicators and Messages	5-10
5.6. Correcting a Paper Jam	5-19

5.1. General Guide

If the printer does not print

If nothing is displayed on the message display on the front control panel, then you probably have a power problem. See **Section 5.2**.

If the printing is abnormal

With the printer on-line and ready, press the **STATUS** key to print a status page. You can also optimize print quality using the KIR test pattern printed at the bottom of the status page. To adjust the print status, see **Chapter 2**.

- If the result is normal, you may have an interface problem. See **Section 5.3**.
- If the result is not normal, you have a print quality problem. See **Section 5.4**.

If a maintenance message is displayed on the message display:

- See **Section 5.5**. (For a paper jam, see **Section 5.6**.)

If the printer does not print the entire page or indicates *Memory overflow* on its message display, try adding optional memory. To add optional memory, see **Chapter 1**.

5.2. Power Problems

Note

The printer power rating must be within the voltage range in your country. If in doubt, consult your dealer.

If nothing happens when you switch the printer's power on, you have a power problem. The symptoms are a dark control panel, no printing, and no fan sound. Proceed as follows.

Check the power switch.

The on position is marked "I".

The off position is marked "O".

Check the power cord.

If the cord is loose at either end, switch power off, plug the power cord in securely, then switch power on again.

Call for the assistance of a service person.

If the above checks do not solve the problem, call for the assistance of a service person.

5.3. Interface Problems

If the printer prints a status page correctly but does not print data from the computer correctly (or at all), there may be an interface problem.

Check the interface (network) cable.

Make sure the cable is plugged in securely at both ends.

Check your file and software.

Try printing a different file, or using a different print command.

Try using a different cable.

Compare the pin assignments listed in **Appendix C** with the specifications of your cable.

Call for the assistance of a service person.

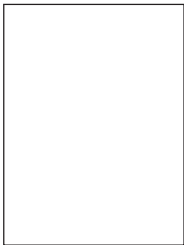
If the above checks do not solve the problem, call for the assistance of a service person.

5.4. Print Quality Problems

Print quality problems range from uneven tone to completely blank output. The troubleshooting procedure for each type of problem is given below.

If the checks explained in this section do not solve the problem, call for the assistance of a service person.

Completely blank printout

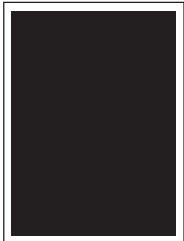


Check the developer unit.

Open the printer top cover and check that the developer unit is inserted correctly and check that the developer's connector is connected properly.

Call for the assistance of a service person.

All-black printout

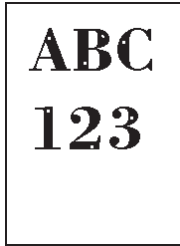


Check the Main Charger Unit

Open the printer side cover and check that the main charger unit is correctly installed.

Call for the assistance of a service person.

Dropouts, horizontal streaks, stray dots

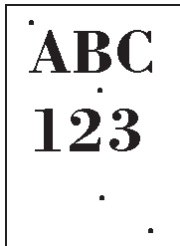


Clean the charger wire.

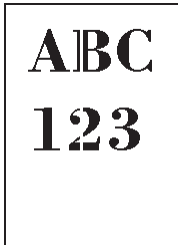
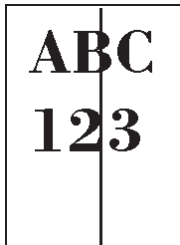
Open the printer side cover. Pull the green main charger wire cleaning knob slowly in and out a few times. See **Section 4.2**.

Note the spacing of the defects.


If the defects occur at regular intervals, the problem may be due to a scratch or foreign matter on the drum, fuser roller, or transfer roller inside the printer. Call for the assistance of a service person.



Black or white vertical streaks



Check the control panel.

If the Toner low TK-20 Clean printer message is displayed and the  indicator is flashing, install a new toner kit. See **Section 4.1**.

Clean the charger wire.

Open the printer side cover. Pull the green main charger wire cleaning knob slowly in and out a few times. See **Section 4.2**.

Call for the assistance of a service person.

If the above checks do not solve the problem, call for the assistance of a service person.

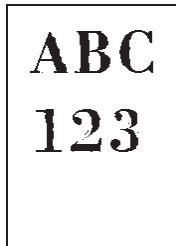
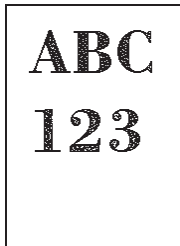
The image is smeared




Clean the charger wire

Open the printer's side cover. Pull the green main charger wire cleaning knob slowly in and out a few times. See **Section 4.2**.

Faint or blurred printing



Check the control panel.

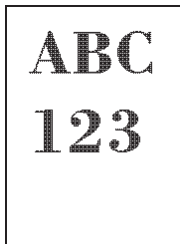
If the **Toner low TK-20 Clean printer** message is displayed and the  indicator is flashing, install a new toner kit. See **Section 4.2**.

Set the print density from the control panel to a higher level than the current setting. See **Section 2.12**.

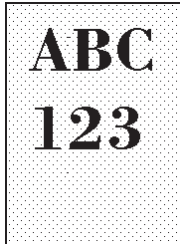
Try changing the paper thickness setting on the Mode Select Menu. See **Section 2.3**.

Check the Ecoprint setting.


See **Section 2.10**.



Grey background



Check the control panel.

If the Toner low TK-20 Clean printer message is displayed and the  indicator is flashing, install a new toner kit. See **Section 4.2**.

Check the print density.

Display the print density menu from the control panel and select a lighter density setting. See **Section 2.12**.

Clean the main charger wire.

Open the printer's side cover. Pull the green main charger wire cleaning knob slowly in and out a few times. See **Section 4.2**.

Check the main charger unit installation.

Open the printer's side cover. Remove the main charger unit half way out, then reinstall it properly. See **Section 4.2**.

Call for the assistance of a service person.

If the above checks do not solve the problem, call for the assistance of a service person.

Dirt on the top edge or back of the paper



Check the paper chute and the ramp.

Draw out the paper feed unit and check for toner on the paper ramp. Clean the paper ramp (see **Section 4.2.**) using the wiper supplied, or a soft, dry, lint-free cloth.

Check the transfer roller.

If the transfer roller is dirty with toner, try printing several pages. Call for the assistance of a service person.

Characters out of position



Check the file or program.

See if the problem is caused by incorrect PRESCRIBE IIe commands. If the problem occurs with only one file or program, the most likely cause is a command error.

Call for the assistance of a service person.


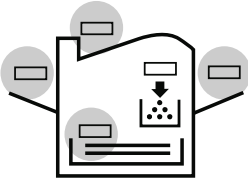

If the above checks do not solve the problem, call for the assistance of a service person.

5.5. Indicators and Messages

The tables on the following pages indicate how to respond to problems indicated by the control panel symbolic indicators and messages.

Indicators

Table 5.1 Symbolic Indicators

Indicator	Condition	Corrective Action
	Flashing	<ul style="list-style-type: none"> The printer has run low on toner. The toner should be replaced as soon as possible. See Section 4.2. The toner is being replenished. Please wait.
	Lit	Install a new toner kit. See Section 4.1. (Toner Empty)
	Fast Flashing	There is a paper jam. There is a possibility that paper may be jammed at the point indicated by flashing, open and remove any jammed paper. See Section 5.4.
	Slow Flashing	The paper has run out in the paper cassette or multi-purpose tray. Please insert paper. See Section 1.4.
	Lit	This indicates either the current paper feeder or the paper output point.
	Flashing	The printer is warming up (Please wait) or has insufficient memory available. (Warning Low memory will be displayed in the latter case.)
	Lit	Note the maintenance message on the message display and consult Table 5.2.

Maintenance Messages

Table 5.2 Maintenance Messages

Message	Corrective Action
Top cover Open	Open the top cover, then close tightly.
Side cover Open	Open the side cover, then close tightly.
Paper feed unit Open	Open the paper feed unit, then close tightly.
Face-down tray paper full	The face-down tray has become full. Remove all pages from the face-down tray. The face-down tray can hold up to 350 pages.
Add paper	Add paper to the paper cassette or multi-purpose tray.
Cassette not loaded	The cassette is not closed securely, close it tightly.
Cassette size error	The size set for the paper cassette is incorrect. Be sure to correctly set the paper guides and paper stopper inside the cassette to match the paper size being used. See Section 1.4 .
Set paper Press CONTINUE	Add a sheet of paper to the multi-purpose tray (manual mode), and press the CONTINUE key.
Load paper (paper size)	The paper size does not match. The size of the paper in the cassette is different to the size specified by the application software or by PRESCRIBE IIe. Either put paper of the specified size into the cassette. See Section 1.4 . If the CONTINUE key is pressed, printing will be resumed. However, if more than one sheet is to be printed, the same message will again be displayed from the second sheet onward. You can abandon printing by pressing the CANCEL key.

Message	Corrective Action
Paper jam	Open the top cover or the paper feed unit and correct the paper jam (or paper mis-feeding in the cassette). See Section 5.6 .
Warning Low memory	The printer's internal memory is running low due to the number of fonts and macros downloaded. Print a status page to see how much user memory is left, and try deleting unnecessary fonts and macros. See the PRESCRIBE IIe DELF and DELM commands explanation in the <i>Programming Manual</i> (CD-ROM).
Toner low TK-20 Clean printer	Replace the toner container using a new toner kit. See Section 4.2 .
Replace Toner Clean printer	Replace the toner container using a new toner kit. The printer does not operate when this message is displayed. See Section 4.2 .
Clean printer Press CONTINUE	Please clean the inside of the printer. See Section 4.2 . This message will be displayed when replacing the toner container after the message <code>Replace Toner Clean printer</code> has been displayed. After cleaning the inside of the printer, press the CONTINUE key and the printer will be ready for printing.
Replace Waste- toner bottle	Replace the old waste toner bottle with the new one which is included in the TK-20/TK-20H toner kit. The message will also be shown if the waste toner bottle has become full. The waste toner bottle should be replaced when the message display eventually shows <code>Toner low TK-20 Clean printer</code> . See Section 4.1 .
Missing Waste- toner bottle	Install the waste toner bottle. See Section 4.1 . The printer does not operate when this message is displayed.
HARDDISK error20	Install the harddisk unit into the OPT2 slot. This message is displayed when the optional harddisk unit is accidentally installed into the OPT1 slot. Be sure to install the harddisk unit in the OPT2 slot. Be sure to turn off the printer's power before removing the incorrectly installed harddisk.

Message	Corrective Action
Call service personEn:0123456	Mechanical error (n=0, 1, 2, ...)-Call a service person. The printer does not operate when a message beginning with E is displayed. The total number of pages printed is also indicated.
Call service personFn:0123456	Controller error (n=0, 1, 2, ...)-Call a service person. The printer does not operate when a message beginning with F is displayed. The total number of pages printed is also indicated.

Error Messages


Table 5.3 Error Messages

Message	Corrective Action
Memory overflow Press CONTINUE	The total amount of data received by the printer exceeds the printer's internal memory. Try adding more memory (expansion RAM). Press the CONTINUE key to resume printing. You can abandon printing by the CANCEL key.
Print overrun Press CONTINUE	The data transferred to the printer was too complex to print on a page. Press the CONTINUE key to resume printing. (The page may break in some pages.) You can abandon printing by the CANCEL key. Note: After this message has been displayed, Page protect mode will be On. To maintain optimum use of memory during printing, display >Page protect from the control panel, and re-select Auto. See the last page in this manual.
KPDL Error Press CONTINUE	Current print processing cannot continue. To print out a error report, display >Print KPDL errs from the mode select menu, and select On. Press the CONTINUE key to resume printing. You can abandon printing by the CANCEL key.
MEMORY CARD err Insert again	The memory card is accidentally removed from the printer's memory card slot during reading. If you continue reading the memory card, insert the same memory card into the slot again. The printer again reads it from the beginning of the data. Note: We recommend that you follow the reading procedure from the beginning to ensure correct reading of the memory card.

Message	Corrective Action
Insert the same MEMORY CARD	You have inserted the wrong memory card when the Insert again message was displayed. Remove the wrong memory card from the printer's memory card slot and insert the correct memory card. The printer again reads it from the beginning of the data.
Format error MEMORY CARD	This message appears when the printer is in the ready state and the memory card is not formatted, and therefore cannot be read or written. Follow the procedure on Section 2.14. to format the card.
Warning battery MEMORY CARD	This message appears when the printer is in the ready state and the battery in the memory card is low. You can still enter the memory card mode, but the battery should be changed as soon as possible.
Battery error MEMORY CARD	This message appears when the printer is in the ready state and the battery in the memory card is dead, or there is no battery at all. It is not possible to use the memory card mode until you insert a good battery in the card.
MEMORYCARD err## Press CONTINUE	This message appears when an error occurs during access to the memory card using the PRESCRIBE IIe RWER (ICCD) command or from the printer's control panel. Look at the error code given in place of ## and refer to the corresponding description given below. Please note that error codes of 09 and above only result when memory card operations are done from the control panel. (Continued on next page)

Message	Corrective Action
	<p>01:Data or memory card capacity is too large.</p> <ul style="list-style-type: none"> • This error code appears if an attempt is made to write more than 32 MB of data to a memory card or if the capacity of the memory card installed in the printer is more than 32 MB. Decrease the data being written to the memory card to less than 32 MB. Note that only memory cards of 32 MB and less can be used by this printer. • This error code appears when a data name not existing on the memory card is specified. Check the data names on the memory card. <p>02: No memory card is installed in printer. Or, the memory card installed has a specification not supported by this printer. Be sure to install a memory card supported by this printer. See Section 2.14.</p> <p>03: The memory card is not a JEIDA card. Only JEIDA Ver. 4.2 memory cards can be used by this printer.</p> <p>04: The card is an S-RAM or flash card which cannot be used by this printer.</p> <p>05: There is no battery in the memory card. Replace the battery in the memory card with a new one.</p> <p>06: The memory card is write-protected. Cancel the write-protection of the memory card.</p> <p>07: The memory card requires formatting. Format the memory card from the control panel. (Continued on next page)</p>

Message	Corrective Action
	<p>09: The capacity of the memory card is insufficient. This error code appears when an attempt is made to write more data on the memory card than available memory. To halt the writing of data, first stop data transmissions from the computer, and then the printer's CONTINUE key. Press the FORM FEED key if the message <i>Waiting</i> will appear in the message display. The message display will return to reading <i>Ready</i>.</p> <p>11: The memory card is full of data items. The number of data items which can be written on the memory card is limited to 127. Pressing the CONTINUE key will restore the message <i>Ready</i> in the message display.</p> <p>13: This is a logical error. Try substituting another flash memory card.</p> <p>17: The flash memory card cannot be written due to insufficient printer memory. Either delete unnecessary macros and/or fonts stored in the printer, or expand the printer's available memory.</p> <p>18: This is a write error. Try substituting another flash memory card. (Error codes 13 through 18 apply only to flash memory cards.)</p>
>Read fonts Failed	The amount of memory available for the fonts header parts of font is too small to load more fonts. Try deleting unnecessary fonts and macros.
I/F occupied	This message is displayed when you attempt to use the printer's control panel to change the environmental settings on the interface from which data are presently being received.

Message	Corrective Action
Processing PAR FIT A4	FIT (image FITting) flashes to indicate that a loss of raster data occurred when the data was compressed to be fitted within the currently available memory. Flashing FIT extinguishes automatically when the job times out; the printer receives the next data from the host computer; or if you press any key on the printer's control panel. Try adding more memory in the printer to prevent this error.
Processing PAR 600 A4  Processing PAR 300 A4	Change of the resolution indicator from 600 to 300 (flashing) means that the job in 600-dpi resolution was not able to run within the currently available memory. The resolution reverts to 600 dpi automatically when the job times out; the printer receives the next data from the host computer; or if you press any key on the printer's control panel. Try adding more memory in the printer to prevent this error.

5.6. Correcting a Paper Jam

The `Paper jam` message is displayed on the message display when paper becomes stuck in the paper transport system, the paper feed timing is incorrect, or paper fails to feed at all. The jam can be corrected by removing the paper.

The printer goes off-line when the `Paper jam` message is displayed.

Compare the symbol on the front panel that is flashing to Figure 5.1 and take the appropriate action listed below:

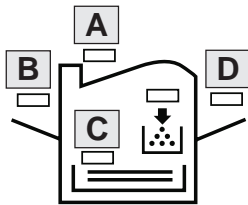


Figure 5.1. Printer Symbol

A	Check the face-down output tray.	If paper is partially fed out into the tray, pull the paper out the rest of the way by hand, then open and close the printer's top cover or the paper feed unit.
	Check the inside of the rear cover.	Open the printer's rear cover. Draw out the paper feed unit. Pull out the paper as shown in Figure 5.2. Close the printer's rear cover.
B	Check the face-up output tray.	Refer to A, above.
C	Check the paper feed cassette.	If paper is stacked in the paper cassette, not reaching the registration rollers, remove the paper cassette and draw out the paper feed unit. Remove the jammed paper. See Figure 5.3. Close the paper feed unit and install the paper cassette in the printer.
	Check the registration roller.	If the paper is caught by the registration rollers, draw out the paper feed unit half way and remove the jammed paper. See Figure 5.4. Return the paper feed unit to the printer.
D	Check the multi-purpose tray.	If the paper is stacked in the multi-purpose tray, remove the paper by pulling it out. Open and close the printer's top cover or the paper feed unit.

When the jammed paper has been removed, open and close the printer's top cover or the paper feed unit. Then the printer automatically warms up, goes on-line, and continues printing. Depending on the point at which the jam occurred, the printer may or may not print the jammed page.

If paper jams occur frequently, try using a different type of paper, replace with paper from another ream, turn the stack of paper over, or turn the paper the other way around. Read the information in **Appendix B**. Also, look for tiny pieces of paper that may have been torn off and overlooked when the jammed paper was removed.

If you cannot solve the problem by changing the paper, there may be a problem with the printer. Call a service person.

Note

- When pulling the paper, pull it gently so as not to tear it. Torn pieces of paper are difficult to remove and may be easily overlooked, deterring the jam recovery.
- The fuser unit inside the printer is hot. Do not touch it with your hands as it may result in burn injury. Remove jammed paper carefully.

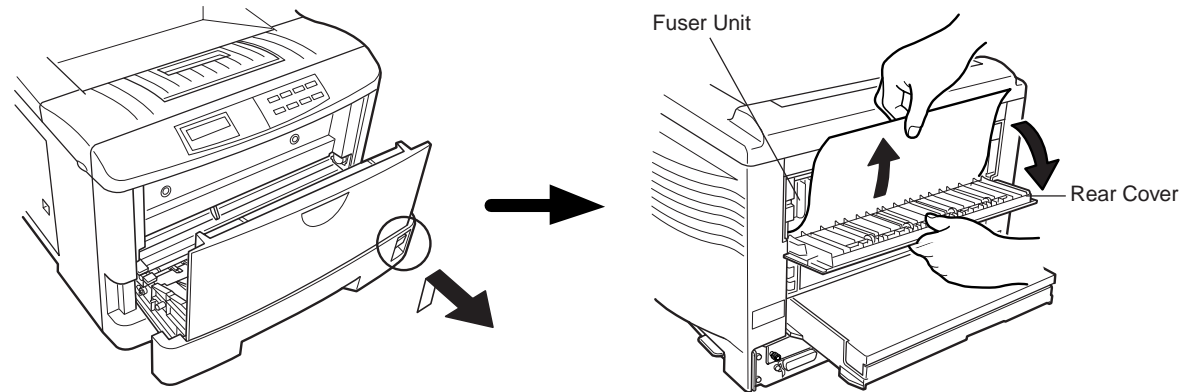


Figure 5.2. Rear Cover

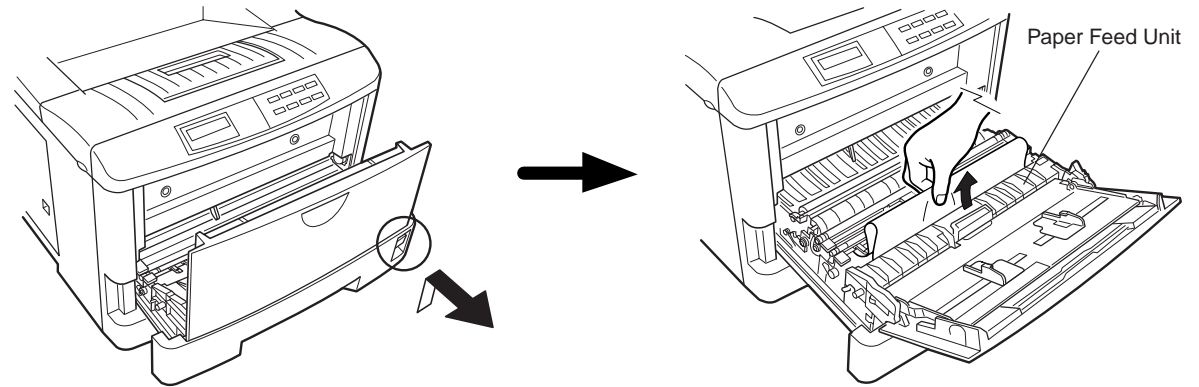


Figure 5.3. Paper Cassette

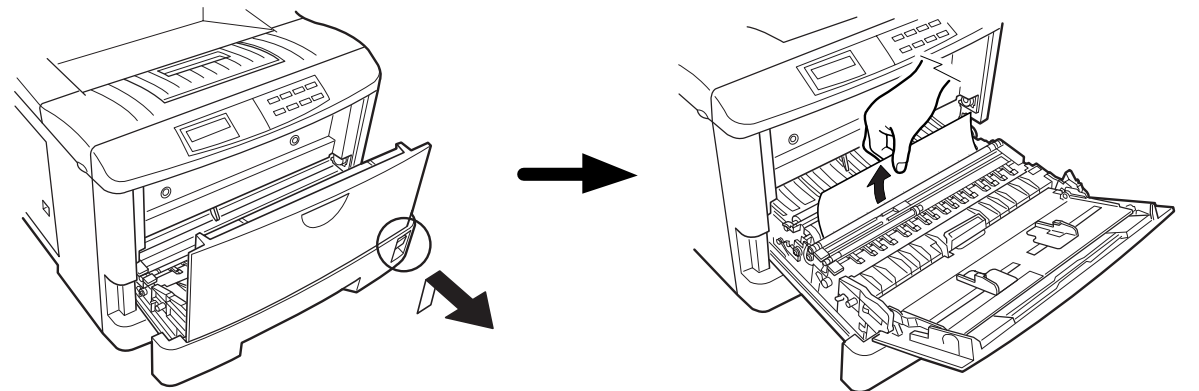


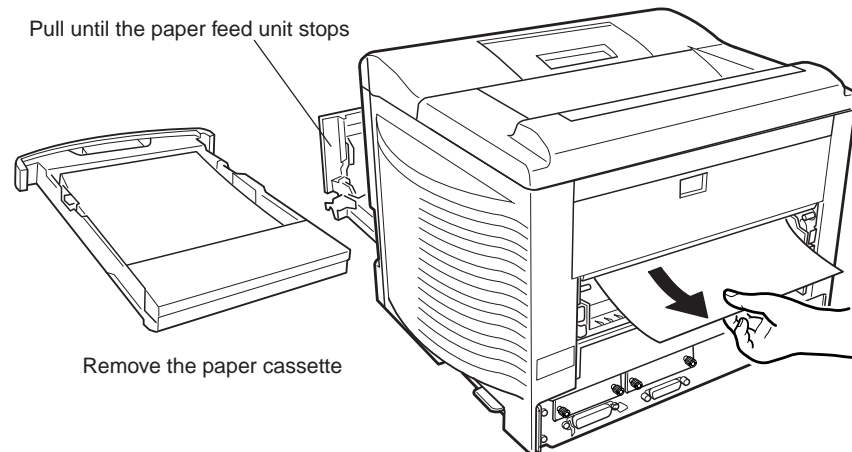
Figure 5.4. Registration Roller

If you cannot find a paper jam by pulling out the paper feed unit and paper cassette as shown in Figures 5.2 through 5.4 on the previous pages, try checking inside the rear of the printer as shown below.

Note

Take care when removing paper as the printer interior may be hot and there are protrusions inside which may possibly result in burning or other injury.

Remove the paper cassette and pull out the paper feed unit until it stops. If you can see the paper jam in the printer, remove it as shown in the figure.



Chapter 6

Symbol Set Tables

The following tables show all the characters included in the most common symbol sets available with the five emulations.

6.1. HP LaserJet 5M Symbol Sets 6-2

6.1. HP LaserJet 5M Symbol Sets

LaserJet 5M HP Roman-8 (8U)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0	@	P	‘	p				-	â	Å	Á	Ɔ
1	1	17	33	1	A	Q	a	q			À	Ý	ê	î	Ã	Ɔ
2	2	18	34	"	2	B	R	b	r		Â	ý	ô	Ø	ã	·
3	3	19	35	#	3	C	S	c	s		È	°	û	Æ	Ɔ	μ
4	4	20	36	\$	4	D	T	d	t		Ê	Ç	á	å	ø	¶
5	5	21	37	%	5	E	U	e	u		Ë	ç	é	í	Í	¾
6	6	22	38	&	6	F	V	f	v		Ï	Ñ	ó	ø	Ì	-
7	7	23	39	'	7	G	W	g	w		Ï	ñ	ú	æ	Ó	¼
8	8	24	40	(	8	H	X	h	x		´	ì	à	Ä	Ò	½
9	9	25	41	)	9	I	Y	i	y		¸	è	è	ì	Ó	a
A	10	26	42	*	:	J	Z	j	z		^	¸	ò	Ö	õ	°
B	11	27	43	+	;	K	[	k	{		ˆ	£	ù	Ü	Š	«
C	12	28	44	,	<	L	\	l	|		ˆ	¥	ä	É	š	■
D	13	29	45	-	=	M	]	m	}		ˆ	Û	§	ë	ï	»
E	14	30	46	.	>	N	^	n	~		ˆ	Û	f	ö	ß	±
F	15	31	47	/	?	O	-	o	☐		ˆ	£	ç	ü	Ô	ÿ

LaserJet 5M ECMA-94 Latin 1 (0N)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	0	@	P	`	p				°	À	Đ	à	đ
1	1	17	33	1	A	Q	a	q			ı	±	Á	Ñ	á	ñ
2	2	18	34	"	2	B	R	b	r		ç	²	Â	Ò	â	ò
3	3	19	35	#	3	C	S	c	s		£	³	Ã	Ó	ã	ó
4	4	20	36	\$	4	D	T	d	t		¤	´	Ä	Ô	ä	ô
5	5	21	37	%	5	E	U	e	u		¥	µ	Å	Õ	å	õ
6	6	22	38	&	6	F	V	f	v		|	¶	Æ	Ö	æ	ö
7	7	23	39	'	7	G	W	g	w		§	·	Ç	×	ç	÷
8	8	24	40	(	8	H	X	h	x		¨	ˆ	È	Ø	è	ø
9	9	25	41	)	9	I	Y	i	y		©	ˆ	É	Ù	é	ù
A	10	26	42	*	:	J	Z	j	z		ˆ	ˆ	Ê	Ú	ê	ú
B	11	27	43	+	;	K	[	k	{		«	»	Ë	Û	ë	û
C	12	28	44	,	<	L	\	l	|		ˆ	¼	Ì	Ü	ì	ü
D	13	29	45	-	=	M	]	m	}		ˆ	½	Í	Ý	í	ý
E	14	30	46	.	>	N	^	n	~		ˆ	¾	Î	Ë	î	ë
F	15	31	47	/	?	O	-	o	☐		ˆ	ˆ	Ï	ß	ï	ÿ

LaserJet 5M US Legal (1U)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
			0	@	P	°	p				À	Â	Ã	Ä	Å	Þ
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
			!	1	A	Q	a	q			À	Ý	ê	î	Ã	þ
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
			"	2	B	R	b	r			Â	ý	ô	ø	ã	·
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
			#	3	C	S	c	s			È	°	û	Æ	Ð	μ
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
			\$	4	D	T	d	t			Ê	Ç	á	å	ø	¶
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
			%	5	E	U	e	u			Ë	ç	é	í	Í	¾
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
			&	6	F	V	f	v			Î	Ñ	ó	ø	Ì	—
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
			'	7	G	W	g	w			Ï	ñ	ú	æ	Ó	¼
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
			(	8	H	X	h	x			ı	à	Ä	Ö	½	
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
			)	9	I	Y	i	y			`	ı	è	ì	Õ	ª
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
			*	:	J	Z	j	z			^	ı	ò	Ö	³	º
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
			+	;	K	[	k	§			ˆ	ù	Û	Š	«	
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
			,	=	L	@	l	¶			˜	ı	ä	É	š	■
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
			-	=	M	]	m	†			Û	§	ë	ï	Ú	»
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
			.	¢	N	©	n	™			Û	f	ö	ß	ÿ	±
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
			/	?	O	—	o	☐			£	e	ü	Ô	ÿ	

LaserJet 5M IBM PC-8 (10U)

To have the printer print the characters of decimal numbers of 7 through 15, and 27, set the printer to the HP PCL transparent mode (ESC&p#X).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
			▶	0	@	P	`	p	Ç	É	á	☐	⊥	⊥	α	≡
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
			☺	◀	!	1	A	Q	a	q	ü	æ	í	☐	⊥	⊥
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
			⊕	↕	"	2	B	R	b	r	é	Æ	ó	☐	⊥	⊥
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
			♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	⊥
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
			♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	⊥
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
			♣	§	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	⊥
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
			♠	—	&	6	F	V	f	v	â	û	ª	⊥	⊥	⊥
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
			●	↕	'	7	G	W	g	w	ç	ù	º	⊥	⊥	⊥
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
			☐	↑	(	8	H	X	h	x	ê	ÿ	ı	⊥	⊥	⊥
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
			○	↓	)	9	I	Y	i	y	ë	Ö	⊥	⊥	⊥	⊥
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
			☐	→	*	:	J	Z	j	z	è	Û	⊥	⊥	⊥	⊥
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
			♂	←	+	;	K	[	k	{	ı	ç	½	⊥	⊥	⊥
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
			♀	⊥	,	<	L	\	l	|	î	£	¼	⊥	⊥	⊥
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
			♂	↔	-	=	M	]	m	}	ı	¥	ı	⊥	⊥	⊥
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
			♂	▲	>	N	^	n	˜	Ä	Pt	«	⊥	⊥	⊥	⊥
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
			☼	▼	/	?	O	—	o	☐	Ä	f	»	⊥	⊥	⊥

LaserJet 5M IBM PC-8 (D/N) (11U)

To have the printer print the characters of decimal numbers of 7 through 15, and 27, set the printer to the HP PCL transparent mode (ESC&p#X).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	▶		0	@	P	`	p	Ç	É	á	⋮	⊥	⊥	α	≡
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⊥	β	±
2	☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
3	♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	⊥	π	≤
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	⊥	Σ	∫
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	⊥	σ	∫
6	♠	—	&	6	F	V	f	v	â	û	ô	⊥	⊥	⊥	μ	÷
7	●	↕	'	7	G	W	g	w	ç	ù	Ö	⊥	⊥	⊥	τ	≈
8	■	↑	(	8	H	X	h	x	ê	ÿ	¿	⊥	⊥	⊥	Φ	°
9	○	↓	)	9	I	Y	i	y	ë	Ö	ã	⊥	⊥	⊥	⊥	·
A	☉	→	*	:	J	Z	j	z	è	Û	Á	⊥	⊥	⊥	Ω	·
B	♂	←	+	;	K	[	k	{	ï	ø	ℓ	⊥	⊥	⊥	δ	√
C	♀	⊥	,	<	L	\	l	|	î	£	ñ	⊥	⊥	⊥	∞	n
D	♪	↔	-	=	M	]	m	}	ì	Ø	ı	⊥	⊥	⊥	φ	²
E	♫	▲	.	>	N	^	n	˘	Ä	L	³	⊥	⊥	⊥	€	■
F	☀	▼	/	?	O	_	o	◊	Å	ı	¤	⊥	⊥	⊥	∩	

LaserJet 5M IBM PC-850 (12U)

To have the printer print the characters of decimal numbers of 7 through 15, and 27, set the printer to the HP PCL transparent mode (ESC&p#X).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	▶		0	@	P	`	p	Ç	É	á	⋮	⊥	ø	Ó	-
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	Ð	β	±
2	☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	Ê	Ô	=
3	♥	!!	#	3	C	S	c	s	â	ô	ú	|	⊥	Ë	Ö	¾
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	⊥	⊥	È	õ	¶
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	⊥	⊥	ı	Õ	§
6	♠	—	&	6	F	V	f	v	â	û	ô	⊥	⊥	Â	Î	μ
7	●	↕	'	7	G	W	g	w	ç	ù	°	⊥	⊥	À	Ï	þ
8	■	↑	(	8	H	X	h	x	ê	ÿ	¿	⊥	⊥	©	Ï	þ
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	⊥	⊥	⊥	Ú	¨
A	☉	→	*	:	J	Z	j	z	è	Û	—	⊥	⊥	⊥	Û	·
B	♂	←	+	;	K	[	k	{	ï	ø	½	⊥	⊥	⊥	Û	1
C	♀	⊥	,	<	L	\	l	|	î	£	¼	⊥	⊥	⊥	ÿ	³
D	♪	↔	-	=	M	]	m	}	ì	Ø	ı	⊥	⊥	⊥	ı	Ý
E	♫	▲	.	>	N	^	n	˘	Ä	×	«	⊥	⊥	⊥	ı	—
F	☀	▼	/	?	O	_	o	◊	Å	f	»	⊥	⊥	⊥	ı	—

LaserJet 5M Dutch801-RomanSWM (6N)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	16	32	48	@	P	`	p			°	Ã	Đ	ã	ð		
1	1	17	33	49	1	A	Q	a	q		À	à	Á	Ñ	á	ñ	
2	2	18	34	50	2	B	R	b	r		Ê	ê	Ë	Ï	ë	ï	
3	3	19	35	51	#	C	S	c	s		Ĝ	ĝ	Ā	Ō	ā	ō	
4	4	20	36	52	\$	4	D	T	d	t		Ī	ī	Ä	Ö	ä	ö
5	5	21	37	53	%	5	E	U	e	u		Ĭ	ĭ	Å	Õ	å	õ
6	6	22	38	54	&	6	F	V	f	v		Ŧ	ŧ	Æ	Ō	æ	ö
7	7	23	39	55	'	7	G	W	g	w		Š	š	Į	Ū	į	ū
8	8	24	40	56	(	8	H	X	h	x		Ł	ł	Č	Ø	č	ø
9	9	25	41	57	)	9	I	Y	i	y		Đ	đ	É	Ū	é	ų
A	10	26	42	58	*	:	J	Z	j	z		Š	š	Ę	Ū	ę	ú
B	11	27	43	59	+	;	K	[	k	{		Ŧ	ŧ	Ë	Ū	ë	û
C	12	28	44	60	,	<	L	\	l	|		Ž	ž	È	Û	è	ü
D	13	29	45	61	-	=	M	]	m	}		-	—	Í	Ý	í	ý
E	14	30	46	62	>	N	^	n	~	~		Ū	ū	İ	İ	ı	ı
F	15	31	47	63	/	?	O	_	o	☐		Ŋ	ŋ	İ	İ	ı	ı

LaserJet 5M PS Math (5M)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

LaserJet 5M PS Text (10J)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1		!	1	A	Q	a	q		i	-	'			Æ	æ	
2		"	2	B	R	b	r		ç	†	'					
3		#	3	C	S	c	s		£	‡	^			a		
4		\$	4	D	T	d	t		/	·	~					
5		%	5	E	U	e	u		¥	-				l		
6		&	6	F	V	f	v		¶	~						
7		'	7	G	W	g	w		§	•	'					
8		(	8	H	X	h	x		⌘	,	..			Ł	ł	
9		)	9	I	Y	i	y		'	»				Ø	ø	
A		*	:	J	Z	j	z		“	”	°			Œ	œ	
B		+	;	K	[	k	{		«	»	„			°	ß	
C		,	<	L	\	l	|		<	...						
D		-	=	M	]	m	}		>	%	”					
E		.	>	N	^	n	~		fi		˘					
F		/	?	O	_	o			fl	˙	˘					

LaserJet 5M Math8 (8M)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1		√	1	A	P	α	ρ		↑	∇	⊙	→	⊖	⊥	⊥	⊥
2		"	2	B	Σ	β	σ		→	∃	⊗	⊖	⊥	⊥	⊥	⊥
3		°	3	Γ	T	γ	τ		↓	∇	⊖	⊥	⊥	⊥	⊥	⊥
4		∞	4	Δ	Υ	δ	ν		←	⊥	⊗	∃	⊥	⊥	⊥	⊥
5		÷	5	E	Φ	ε	φ		↑	U	∧	∫	∫	∫	∫	∫
6		∞	6	Z	X	ξ	χ		⇒	∩	∇	∫	∫	∫	∫	∫
7		'	7	H	Ψ	η	ψ		↓	∈	∇	∫	∫	∫	∫	∫
8		(	8	Θ	Ω	θ	ω		←	∃	∩	⊗	∫	∫	∫	∫
9		)	9	I	∇	ι	∂		↕	∉	∩	∫	∫	∫	∫	∫
A		×	e	K	∂	κ	φ		↔	∩	∫	∫	∫	∫	∫	∫
B		+	ε	Λ	ζ	λ	ω		↕	∩	∫	∫	∫	∫	∫	∫
C		,	<	M	≤	μ	=		↔	∉	∩	∫	∫	∫	∫	∫
D		-	=	N	≠	ν	≡		↔	∉	∩	∫	∫	∫	∫	∫
E		.	>	Ξ	≥	ξ	≠		↔	∉	∩	∫	∫	∫	∫	∫
F		/	≈	O	—	o	⊞		↔	∉	∩	∫	∫	∫	∫	∫

LaserJet 5M Pi Font (15U)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

LaserJet 5M MS publishing (6J)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

LaserJet 5M Windows (9U)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	`	p				°	À	Ð	à	ø	
1		!	1	A	Q	a	q		‘	ı	±	Á	Ñ	á	ñ	
2		"	2	B	R	b	r		’	ç	²	Â	Ò	â	ò	
3		#	3	C	S	c	s		£	³	Ã	Ó	ã	ó		
4		\$	4	D	T	d	t		¤	´	Ä	Ö	ä	ö		
5		%	5	E	U	e	u		¥	µ	Å	Õ	å	õ		
6		&	6	F	V	f	v		¦	¶	Æ	Ö	æ	ö		
7		'	7	G	W	g	w		§	·	Ç	×	ç	÷		
8		(	8	H	X	h	x		¨	˘	È	Ø	è	ø		
9		)	9	I	Y	i	y		©	¹	É	Ù	é	ù		
A		*	:	J	Z	j	z		ª	º	Ê	Ú	ê	ú		
B		+	;	K	[	k	{		«	»	Ë	Û	ë	û		
C		,	<	L	\	l	|		¬	¼	Ï	Ü	ï	ü		
D		-	=	M	]	m	}		-	½	Í	Ý	í	ý		
E		.	>	N	^	n	~		®	¾	Î	Þ	î	þ		
F		/	?	O	_	o	☐		-	¿	Ï	ß	ï	ÿ		

LaserJet 5M Desktop (7J)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	‘	p				“	—	<	a	´	
1		!	1	A	Q	a	q		¶	”	±	>	°	`		
2		"	2	B	R	b	r		§	µ	×	«	æ	^		
3		#	3	C	S	c	s		†	%	÷	»	Æ	”		
4		\$	4	D	T	d	t		‡	•	°	,	ø	˘		
5		%	5	E	U	e	u		©	•	’	”	Ð	˘		
6		&	6	F	V	f	v		®	°	”	·	ij	˘		
7		'	7	G	W	g	w		™	°	¼	ı	IJ	˘		
8		(	8	H	X	h	x		%	■	½	¿	ı	°		
9		)	9	I	Y	i	y		¢	■	¾	Pt	Ł	˘		
A		*	:	J	Z	j	z		-	□	1	ℓ	œ	-		
B		+	;	K	[	k	{		-	□	2	£	£	˘		
C		,	<	L	\	l	|		...	’	³	¥	ø	˘		
D		-	=	M	]	m	}			fi	¬	/	¤	Ø	˘	
E		.	>	N	^	n	~			fi	ı		f	þ	ı	
F		/	?	O	_	o	☐			=		ß	ß			

LaserJet 5M ISO Latin 2 (2N)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p			À	Á	Â	Ã	Ä	Å
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1			!	1	A	Q	a	q			À	Á	Â	Ã	Ä	Å
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2			"	2	B	R	b	r			À	Á	Â	Ã	Ä	Å
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3			#	3	C	S	c	s			À	Á	Â	Ã	Ä	Å
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4			\$	4	D	T	d	t			À	Á	Â	Ã	Ä	Å
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5			%	5	E	U	e	u			À	Á	Â	Ã	Ä	Å
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6			&	6	F	V	f	v			À	Á	Â	Ã	Ä	Å
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7			'	7	G	W	g	w			À	Á	Â	Ã	Ä	Å
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8			(	8	H	X	h	x			À	Á	Â	Ã	Ä	Å
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9			)	9	I	Y	i	y			À	Á	Â	Ã	Ä	Å
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A			*	:	J	Z	j	z			À	Á	Â	Ã	Ä	Å
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B			+	;	K	[	k	{			À	Á	Â	Ã	Ä	Å
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C			,	<	L	\	l	|			À	Á	Â	Ã	Ä	Å
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D			-	=	M	]	m	}			À	Á	Â	Ã	Ä	Å
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E			.	>	N	^	n	~			À	Á	Â	Ã	Ä	Å
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F			/	?	O	_	o	☐			À	Á	Â	Ã	Ä	Å
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

LaserJet 5M ISO Latin 5 (5N)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0				0	@	P	`	p			À	Á	Â	Ã	Ä	Å
	0	15	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1			!	1	A	Q	a	q			À	Á	Â	Ã	Ä	Å
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2			"	2	B	R	b	r			À	Á	Â	Ã	Ä	Å
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3			#	3	C	S	c	s			À	Á	Â	Ã	Ä	Å
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4			\$	4	D	T	d	t			À	Á	Â	Ã	Ä	Å
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
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	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
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	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
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	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
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	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
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	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
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LaserJet 5M Dutch801-RomanSWM (19L)

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LaserJet 5M Dutch801-RomanSWM (26U)

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LaserJet 5M Dutch801-RomanSWM (9J)

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LaserJet 5M Windows Latin 1 (19U)

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LaserJet 5M Windows Latin 2 (9E)

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LaserJet 5M Windows Latin 5 (5T)

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LaserJet 5M PC-852 Latin 2 (17U)

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LaserJet 5M PC-Turkish (9T)

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	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
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	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4		\$	4	D	T	d	t	Ñ	î	§	¥	f	‘	‰	Ü	
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5		%	5	E	U	e	u	Ö	ï	•	μ	≈	’	Â	ı	
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6		&	6	F	V	f	v	Û	ñ	¶	∂	Δ	÷	Ê	ˆ	
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7		'	7	G	W	g	w	á	ó	β	Σ	«	◊	Á	˜	
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8		(8	H	X	h	x	à	ò	®	∏	»	ÿ	Ë	-	
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
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	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
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	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
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	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
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	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E		.	>	N	^	n	~	é	û	Æ	æ	Œ	fi	Ó	¸	
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F		/	?	O	_	o		è	ü	Ø	ø	œ	fl	Ô	˘	
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

LaserJet 5M International Characters

	35	36	64	91	92	93	94	96	123	124	125	126
0U ISO-6 US ASCII	#	\$	@	[	\	\]	^	‘	{	|	}	~
1E ISO-4 UK	£	\$	@	[	\	\]	^	`	{	|	}	-
1F ISO-69 French	£	\$	à	°	ç	§	^	μ	é	ù	è	¨
1G ISO-21 German	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
0I ISO-15 Italian	£	\$	§	°	ç	é	^	ù	à	ò	è	ì
0S ISO-11 Swedish names	#	α	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
2S ISO-17 Spanish	£	\$	§	ı	Ñ	ı	^	`	°	ñ	ç	~
0D ISO-60 Norwegian v1	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	-

Appendix A Printer Specifications

A.1. Printer SpecificationsA-2

A.1. Printer Specifications

Item	Description
Printing method	Electrophotography, laser scan.
Printing speed (when printing multiple copies of the same page)	20 pages/minute (A4 or letter-size paper, landscape feed) 12.5 pages/minute (B4-size paper) 11 pages/minute (A3-size paper)
Resolution	2400 dpi equiv. X 600 dpi (600 dpi + KIR2)
First print (A4 landscape feed at 23°C)	Approx. 10 seconds Approx. 75 seconds with SLEEP MODE ON
Warm-up time	65 seconds or less (at 23°C, 120 V or 220 V)
Controller	PowerPC 603e (100 MHz)
Main memory	Standard 4 MB, expandable up to 68 MB, SIMM slot X 2
Supported operating systems	Windows 3.1, Windows 95, Windows NT
Supported protocols	IPX/SPX, TCP/IP, DLC
Interfaces	High-speed bidirectional parallel interface X 1 Serial interface (RS-232C/RS-422A) X 1 Optional interface slot X 1 Optional hard disk/interface slot X 1
Memory card slot	One, PC CARD (PCMCIA 2.1/JEIDA 4.2 [type I , memory card])
Self test	Displays errors occurring during self-test mode
Scanning system	Laser diode, polygon mirror.
Maximum duty cycle	50,000 pages/month (Dry A4 PPC regular paper)
Drum	Amorphous silicon drum
Developer	Mono-component dry developer
Main charger	Positive scorotron charger
Transferring	Negative charger roller
Separation	Curvature separation
Drum cleaning	Counter blade
Drum discharging	Illumination by eraser LED array

Item	Description
Fuser	Heat roller
Toner saving	Ecoprint mode
Paper	Plain paper. See Appendix B .
Paper feed trays	Cassette: A3 to A5 universal cassette. Holds approximately 250 sheets of weight 75 g/m ² , thickness 0.1 mm. Multi-purpose tray: 90 mm X 148 mm to 297 mm X 432 mm. Holds approximately 100 sheets of weight 75 g/m ² , thickness 0.1 mm.
Capacity of output trays	Face-down tray - approximately 350 sheets of weight 75 g/m ² , thickness 0.1 mm. Face-up tray (option: PT-3) - approximately 250 sheets of weight 75 g/m ² , thickness 0.1 mm.
Ambient conditions	Temperature: 10°C to 32.5°C (50°F to 90.5°F) Humidity: 20% to 80% RH Optimum conditions: 23°C (71°F), 60% RH. Altitude: Max. 2000m (6500 feet) Illumination: Max. 1500 lux
Power requirements	120 V, 60 Hz, max. 8 A (U.S.A./Canada) 220-240 V, 50/60 Hz, max. 4 A (European countries) Max. allowable voltage fluctuation: ±10% Max. allowable frequency fluctuation: ±2%.
Power consumption	Max. 945 W During sleeping 33 W
Noise (excl. peak values)	Max. 51 dB (A) when printing Max. 38 dB (A) when idling Immeasurably low when sleeping (Measured at 1 m from the outside of the printer, main unit only)
Dimensions	483 mm (19.0") wide X 350 mm (13.8") high X 411 mm (16.2") deep (550 mm with paper cassette mounted)
Weight	21 kg (46 lb.), main unit only

Appendix B Paper Selection

B.1. General Guidelines B- 2
B.2. Selecting the Right PaperB- 4
B.3. Special Paper B-10

B.1. General Guidelines

Although the page printer is designed for printing on standard dry PPC photocopier copy paper (standard paper), it can print on various types of paper that conforms to the specifications given in this chapter.

Select paper carefully as use of paper inappropriate for the printer may result in paper jams or wrinkling of output paper. Low-quality paper may reduce printing quality, not only wasting paper but possibly leading to damage to the printer. It is possible to achieve efficient printing with few problems and minimize the risk of printer damage or wear by following the precautions listed below.

Usable Paper

Be sure to use copy paper (standard paper) used in standard dry PPC photocopiers.

Note

Some recycled paper does not meet the necessary specifications of Table B.1. for use in this printer due to conditions such as stored water and pulp content. Before purchasing recycled paper, test a sample on the printer and check that printing quality is satisfactory. Be sure to select a brand of recycled paper which offers good printing quality and does not contain excessive levels of paper dust.

There are differences in grade between each paper manufacturer, and these differences can affect printer operations. Satisfactory printing results cannot be obtained through the use of poor-quality paper. Even inexpensive paper may turn out to be uneconomical from a result standpoint if its quality is inappropriate for the printer.

Paper Specifications

The following table summarizes the basic paper specifications. Details are given on the following pages.

Table B.1. Paper Specifications

Weight	60 to 90 g/m ² (16 to 24 lbs./ream)
Thickness	0.086 to 0.110 mm (3.4 to 4.3 mils)
Dimensional accuracy	±0.7 mm (±0.0276 inches)
Squareness of corners	90° ±0.2°
Moisture content	4% to 6%
Pulp content	80% or more

Note

When using paper thinner than 64 g/m² or thicker than 90 g/m² with this printer, be sure to make the proper setting (given below) for that paper on the `Paper type` menu found on the Mode Select Menu.

`Thin`: Paper 64 g/m² or less

`Normal`: 64 to 90 g/m²

`Thick`: 90 g/m² or more

`Extra thick`: OHP sheets, postcards, or other special paper.

Note that depending on the properties of the paper the appropriate mode may differ from that given above. Use the setting that gives the best print quality.

Kyocera bears absolutely no responsibility for accidents resulting from the use of inappropriate paper which does not meet the specifications listed above. For paper, contact the licensed dealer of Kyocera from which you purchased the printer.

B.2. Selecting the Right Paper

The following sections explain the basic things to look for when selecting paper. Keep these things in mind when selecting paper.

Condition of the Paper

Avoid using paper that is folded at the corners, curled, dirty, stained, has fuzzy fibers, rough surface or is easily torn.

Use of paper in these conditions can lead to illegible printing, misfeeding, and paper jams, and can shorten the life of the printer. Select paper which has as smooth and even a surface as possible. Note that use of paper with a surface coating or other surface treatment may damage the drum or fuser unit.

Composition

Do not use paper that has been coated or surface-treated and contains plastic or carbon. The heat of fusing can cause such paper to give off harmful fumes, and may damage the drum.

Bond paper should contain at least 80% pulp. Not more than 20% of the total paper content should consist of cotton or other fibers.

Paper Size

Cassettes and the multi-purpose tray can handle the paper sizes listed in the following table. The printer automatically detects the paper size loaded in a cassette.

Table B.2. Paper Sizes for Paper Feeding

Paper	Size
ISO A3	297 X 420 mm
ISO A4	210 X 297 mm
ISO A5	148 X 210 mm
ISO A6*	105 X 148 mm
JIS B4	257 X 364 mm
JIS B5	182 X 257 mm
JIS B6*	128 X 182 mm
Letter	8.5 X 11 inches
Ledger	11 X 17 inches
Legal	8.5 X 14 inches
Monarch*	3-7/8 X 7-1/2 inches
Business*	4-1/8 X 9-1/2 inches
International DL*	110 X 220 mm
International C5*	162 X 229 mm
International B5*	176 X 250 mm
Executive*	7-1/4 X 10-1/2 inches
Commercial 6-3/4*	3-5/8 X 6-1/2 inches
Commercial 9*	3-7/8 X 8-7/8 inches
Japanese Postcard*	100 X 148 mm
Return Postcard*	200 X 148 mm
Custom*	11.7 X 17.7 inches

*: with only the MP tray feeding

When using the multi-purpose tray it is possible to print paper sizes ranging from a minimum of 90 X 148 mm to a maximum of 297 X 432 mm. (Printing position adjustment is required.)

Smoothness

Although it is important to use paper with a smooth and even surface, do not use paper which has been coated. Paper that is too smooth, can cause multiple feeding and paper jams.

Basis Weight

Basis weight is the weight of one square meter sheet of paper. Paper that is too light or too heavy can cause misfeeding, jams, and premature wear of the printer. Uneven paper weight can cause multiple feeds, print defects, poor toner fusing, blurring, and other print quality problems. The proper weight is 60 to 90 g/m² for regular paper and 90 to 200 g/m² for thick paper.

Thickness

The paper used with the printer should be neither extremely thick nor extremely thin. If you are having problems with multiple feeds and paper jams, the paper may be too thin. The paper may also be too thick if you are having problems with paper jams. The proper thickness is 0.086 to 0.110 mm (3.4 to 4.3 mils).

Moisture Content

Moisture content is defined as the percent ratio of moisture to the dry mass of the paper. Moisture can affect feedability, electrostatic properties, and toner fusing characteristics.

The moisture content of the paper varies with the relative humidity in the room. When the relative humidity is high and the paper absorbs moisture, the paper edges expand, becoming wavy in appearance. When the relative humidity is low and the paper loses moisture, the edges shrink and tighten, and print contrast may suffer.

Wavy or tight edges can cause misfeeding and alignment anomalies. The moisture content of the paper should be 4% to 6%.

To ensure the proper moisture content it is important to store the paper in a controlled environment. Some tips on moisture control are:

- **Store paper in a dry, well-ventilated location.**
- **Keep the paper flat and in its wrapping as long as possible. Rewrap paper that is not in use.**
- **Store paper in its original carton. Place a pallet etc. under the carton to separate it from the floor.**
- **Avoid leaving paper where it is exposed to heat, sunlight, or damp.**

Stiffness

Paper that is too limp or too stiff may fold or bend inside the printer, resulting in a paper jam.

Curl

Most paper has a natural tendency to curl in one direction or the other if it is stored unwrapped. Paper will curl slightly upward when it passes through the fuser unit. Load the paper with its natural curl downward so that it will come out flat.

Electrostatic properties

During the printing process the paper is electrostatically charged to attract the toner. The paper must be able to release this charge so that printed sheets do not cling together in the output tray.

Quality control

Uneven sheet size, corners that are not square, ragged edges, welded (uncut) sheets, and crushed edges and corners can cause the printer to malfunction in various ways. Pay particular attention to these considerations if you are choosing paper yourself.

Packaging

Select paper that is wrapped by the ream and then placed in a box. The best wrapping is one whose inner surface is coated to protect against humidity.

Specially treated paper

We recommend that you avoid using paper listed below which has been specially treated, even if it meets basic specifications. If you wish to use such paper, test a sample on the printer and check that printing quality is satisfactory before purchasing.

- Paper with a glossy finish
- Paper with sections cut out
- Paper which is embossed
- Paper with feed holes in it
- Paper with punch holes in it

B.3.Special Paper

This section explains printing on special paper.

The page printer can use the following types of special paper.

- (1) Colored paper
- (2) Preprinted paper
- (3) Overhead projector transparencies
- (4) Postcards
- (5) Envelopes
- (6) Labels

When using the above types of paper, be sure to use products that are specified for use with photocopiers and/or page printers. Feed paper other than colored paper or pre-printed paper from the MP (multi-purpose) tray.

Since the composition and quality of special paper vary considerably, special paper is more likely than white bond paper to give trouble during printing. Special paper may be used with this printer if it meets the following conditions. Note that these types of paper differ greatly in their construction and quality, resulting in an increased chance of problems occurring during printing. No liability will be assumed if moisture etc. given off in printing on special paper causes harm to the machine or operator.

Note

Before purchasing any type of special paper, test a sample on the printer and check that printing quality is satisfactory.

Specifications for each type of special paper are given below.

Colored Paper

Colored paper should meet the same specifications as listed for white bond paper in page B-3. In addition, the pigments used in the paper must be able to withstand the temperature during printing.

Preprinted Paper

The paper base of preprinted paper should meet basic specifications. The preprinted ink must be able to withstand the temperature during printing and must not be susceptible to the effects of silicon oil. Do not use paper with any kind of surface treatment, such as the type of paper commonly used for calendars.

Overhead Projection (OHP) Film

OHP film must be able to withstand the heat of fusing during the printing process. Specifications are as follows.

Note

Note that use of OHP film which does not meet these conditions may result in damage to the printer.

Table B.3. OHP Film Specifications

Item	Specification
Tolerance of heat	Must be able to withstand a temperature of at least 190°C.
Thickness	0.100 to 0.110 mm (3.9 to 4.3 mils)
Material	Polyester
Squareness of corners	90° ±0.2°

Notes

When using OHP film, set the `Paper type` setting on the Mode Select Menu to `Extra thick` and feed the OHP film one at a time from the multi-purpose tray. Do not use film made from anything other than polyester.

Postcards

Use postcards weighing 90 to 128 g/m². Avoid using postcards whose printing surface has been coated. Any postcards of size 100 mm by 148 mm or larger may be used.

Envelopes

Envelopes made from paper weighing 60 to 79 g/m² may be printed using this printer.

Envelopes are not of even thickness due to their folded construction. It therefore may not be possible to print evenly on an envelope surface in some cases. Envelopes which are particularly thick may wrinkle as they come out of the printer. Test a sample envelope on the printer and check that printing quality is satisfactory before purchasing.

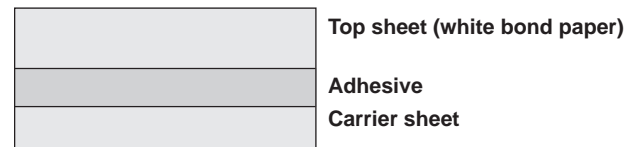
Envelopes with exposed adhesive cannot be used regardless of their type. Envelopes which use peel-off strips to cover adhesive also cannot be used as this little strip coming off inside the printer can result in major damage.

Envelopes which have been specially treated also cannot be used. For example, envelopes with string attached for sealing, envelopes with open windows, and envelopes with film covered windows cannot be used with this printer.

Labels

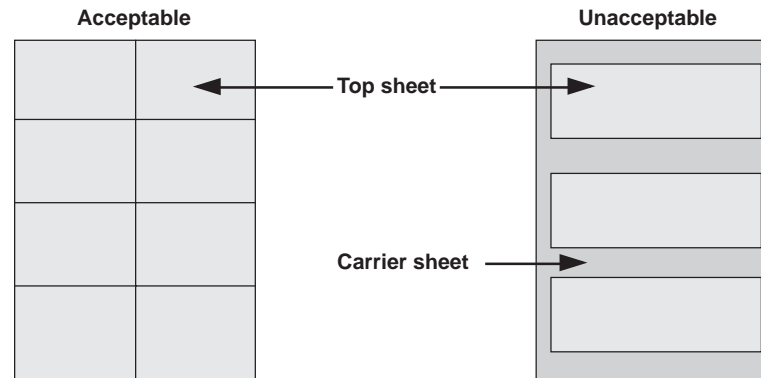
The basic rule for printing on adhesive labels is that the adhesive must never come into contact with any part of the printer. Adhesive paper sticking to the drum or rollers will damage the printer. Label paper must be manually fed.

Label paper has a structure comprising three layers, as shown below. The top sheet is printed on. The adhesive layer consists of pressure-sensitive adhesives. The carrier sheet (also called the linear or backing sheet) holds the labels until use. Due to the complexity of its composition, adhesive-backed label paper is particularly likely to give trouble in printing.



Adhesive-back label

Adhesive label paper must be entirely covered by its top sheet, with no spaces between the individual labels. Labels with spaces in between are apt to peel off, causing serious jam problems. Some label paper is manufactured with an extra margin of top sheet around the edge. Do not remove the extra top sheet from the carrier sheet until after printing is finished.



Label arrangement

Table B.4 lists the specifications for adhesive label paper.

Table B.4 Adhesive Label Specifications

Item	Specification
Weight of top sheet	44 to 74 g/m ² (12 to 20 lbs/ream)
Composite weight	104 to 151 g/m ² (28 to 40 lbs/ream)
Thickness of top sheet	0.086 to 0.107 mm (3.9 to 4.2 mils)
Composite thickness	0.115 to 0.145 mm (4.5 to 5.7 mils)
Moisture content	4% to 6% (composite)

Note

Printing quality and possible trouble when printing labels are entirely the responsibility of the user.

Appendix C Host Computer Interface

This appendix describes the signals used in the laser printer's parallel, RS-232C/RS-422A interfaces. It also lists pin assignments, signal functions, timings, connector specifications, and voltage levels. The RS-232C/RS-422A protocols are also covered. Finally, it explains the use of the printer in a multi-computer environment.

C.1. Parallel interface	C- 2
C.2. Serial (RS-232C/RS-422A) Interface	C- 7
C.3. RS-232C/RS-422A Protocol	C-14
C.4. RS-232C Cable Connection	C-17

C.1.Parallel Interface

Parallel interface communication modes

The printer features the fast data transmission on the parallel interface. The parallel interface mode can be activated from the printer's control panel (see **Chapter 2**) as follows:

Note

Use a parallel printer cable that complies with the IEEE1284 standards.

Nibble (high) [default]

High speed data communication is used in compliance with the IEEE 1284 standard. Ordinarily, you should leave this setting unchanged.

Auto

The printer automatically changes its communication mode to the one the host computer is currently using.

Normal

The printer uses the communication method described by to the normal definitions of the Centronics interface.

High-speed

This mode enables faster data transmission between the printer and the host computer.

Interface Signals

The pins of the parallel interface connector carry the signals listed in Table C.1. Asterisks in the table indicate signals that are active low. The table also indicates whether each signal is incoming or outgoing with respect to the printer.

Table C.1. Parallel Connector Pin Assignments

Pin	In/out	Description
1	In	Strobe* [nStrobe]
2	In	Data 0 [Data 1]
3	In	Data 1 [Data 2]
4	In	Data 2 [Data 3]
5	In	Data 3 [Data 4]
6	In	Data 4 [Data 5]
7	In	Data 5 [Data 6]
8	In	Data 6 [Data 7]
9	In	Data 7 [Data 8]
10	Out	Acknowledge* [nAck]
11	Out	Busy [Busy]
12	Out	Paper Empty [PError]
13	Out	On-Line (Select) [Select]
14	In	Auto-feed [nAutoFd]
15	—	Not connected
16	—	0V DC
17	—	Chassis GND
18	—	+5 V DC

(Continued on next page)

Pin	In/out	Description
19	—	Ground return
20	—	Ground return
21	—	Ground return
22	—	Ground return
23	—	Ground return
24	—	Ground return
25	—	Ground return
26	—	Ground return
27	—	Ground return
28	—	Ground return
29	—	Ground return
30	—	Ground return
31	In	Ignored [nInIt]
32	Out	Error*, returns error status if FRPO O2=2 [nFault]
33	—	Not connected
34	—	Not connected
35	Out	Power Ready
36	In	Select In [NSelectIn]

[]: Signal names in the Auto mode (IEEE 1284). In the Auto mode, these signals are bi-directional.

Detailed descriptions of the signals follow.

Strobe* [nStrobe] (Pin 1)

A negative-going Strobe* pulse causes the printer to read and latch the data on the Data 0 [1] to Data 7 [8] signal lines.

Data 0 [1] to Data 7 [8] (Pins 2 to 9)

These eight signals form the data byte sent from the host computer to the printer. Data 7 [8] is the most significant bit.

Acknowledge* [nAck] (Pin 10)

This negative-going pulse acknowledges the previous character received by the printer. Acknowledge* pulses are sent only when Busy is low.

Busy [Busy] (Pin 11)

This signal is high when the printer is busy and low when it is able to accept more data. Every high-to-low transition is followed by an Acknowledge* pulse.

Paper Empty [PError] (Pin 12)

This signal goes high when the printer runs out of paper.

On-Line [Select] (Pin 13)

This signal is high when the printer is on-line and low when the printer is off-line. It goes low when the upper unit is raised, or when the **ON LINE** key is pressed to set the printer off-line.

Note

The Paper Empty and On-Line signals are not used unless enabled by the FRPO command (O2 parameter).

Auto-Feed [nAutoFd] (Pin 14)

This signal is used in the Epson version of the Centronics interface to receive a carriage return. In high-speed mode, it is used as an interrupt.

+5V DC (Pin 18)

This line is connected to the printer's +5V DC line (+5V \pm 0.5V, 250 mA [Serial and Parallel total] maximum, fused).

Prime [nInit] (Pin 31)

This signal is used in the standard Centronics interface to enable the computer to reset the printer. It is ignored by the printer.

Error* [nFault] (Pin 32)

When the high-speed parallel line control is on (FRPO O2=2), this line returns error status.

Auxiliary output 1 (Pin 33)

This signal line is not used.

Power Ready (Pin 35)

This signal is high when the printer's power is on.

Select In [NSelectIn] (Pin 36)

This signal is used in some versions of the Centronics interface to enable the computer to force the printer on-line. In high-speed mode, it is used as an interrupt.

C.2. Serial (RS-232C/RS-422A) Interface

RS-232C interface

Interface Signals

The pins of the printer's RS-232C interface connector carry the signals listed in Table C.2. The table also indicates whether each signal is incoming or outgoing with respect to the printer.

Table C.2. RS-232C Signal Pin Assignments

Pin	In/out	Signal	Description
1	—	FG	Frame ground
2	Out	TXD	Transmit Data
3	In	RXD	Receive Data
4	Out	RTS	Request To Send
5	In	CTS	Clear To Send
6	In	DSR	Data Set Ready
7	—	SG	Signal Ground
11	—	+5V DC	Reserved
20	Out	DTR	Data Terminal Ready

Brief descriptions of the signals follow.

FG - Frame Ground - (Pin 1)

This pin is connected directly to the printer frame.

TXD - Transmit Data - (Pin 2)

This output carries asynchronous data sent by the printer to the computer. It is used mainly in handshaking protocols.

RXD - Receive Data - (Pin 3)

This input carries serial asynchronous data sent by the computer to the printer.

RTS - Request To Send - (Pin 4)

This output is always held high (above 3 volts).

CTS - Clear To Send - (Pin 5)

DSR - Data Set Ready - (Pin 6)

Unused.

SG - Signal Ground - (Pin 7)

All signals can transmit between the printer and the host computer to send each signals with a signal ground.

+5V DC - (Pin 11)

This line is connected to the printer's +5V DC line (+5V \pm 0.5V, 250 mA [Parallel and Serial total] maximum, fused).

DTR - Data Terminal Ready - (Pin 20)

This output is used as a buffer nearly-full handshake line. It is held high (above 3 volts) when the buffer can accept more data.

RS-232C Interface Voltage Levels

The voltage levels of the interface signals conform to EIA RS-232C specifications. SPACE is from 3 volts to 15 volts. MARK is from -3 volts to -15 volts. Voltages between -3 volts and 3 volts are undefined.

RS-422A interface

The serial interface of this printer was set to RS-232C mode before leaving the factory. However, by changing the jumper connector on the main circuit board, the interface can be changed to RS-422A mode.

In RS-232C mode, the printer can be connected to a personal computer (or similar device) equipped with an RS-232C serial interface. (The serial interface is set to RS-232C before leaving the factory.)

In RS-422A mode, the printer can be connected to a personal computer (or similar device) equipped with an RS-422A serial interface.

Note

The changing of the main circuit board jumper connector should be carried out only by a Kyocera authorized dealer or Kyocera certified technician. Kyocera shall not be liable for damage due to improper changing of this main circuit board jumper connector.

Removing the Main Circuit Board

Note

The following instructions are intended for the technician only.

Note on Handling the Main Circuit Board

Protect the electronics by taking these precautions:

- Before touching the main circuit board, touch a water pipe or other large metal object to discharge yourself of static electricity. While doing the work, it is recommended that you wear an antistatic wrist strap.
- Touch the main circuit board only by the edge.

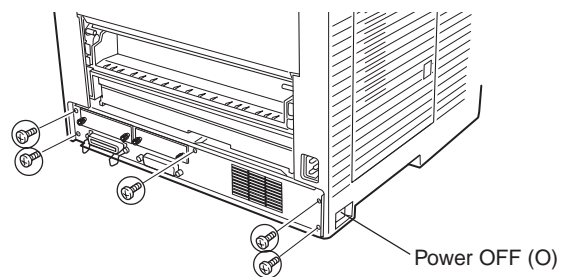
Withdrawing the Main Circuit Board from the Printer

Note

Be sure to remove the memory card first if inserted in the printer's memory card slot.

Withdraw the main circuit board completely from the printer as follows:

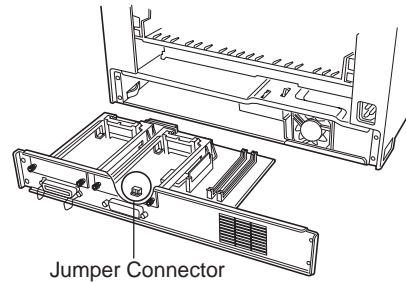
1. Turn the printer's power off. Unplug the printer's power cable and disconnect the printer from the host computer.
2. Remove the five screws from the printer's rear cover.



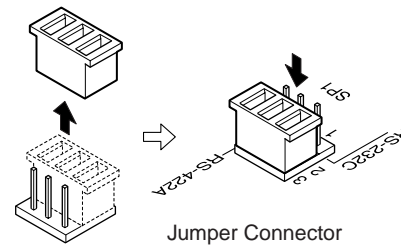
3. Pull the main circuit board all the way out of the printer.

Note

Before pulling the main board out, clean an area on the table, etc., at the back of the printer's rear panel. Foreign objects, accidentally sticking to the back of the main board, can cause serious damage to the printer.

**Changing the Jumper Connector**

1. Carefully remove the jumper connector from the main circuit board, and reconnect to the pin position shown in the diagram.



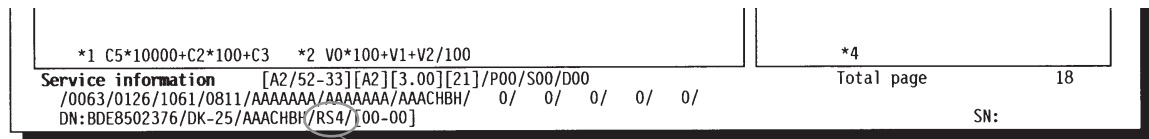
2. After completion of the above, return the main circuit board to the printer by reversing the procedure followed when removing it.

Verifying the Setting

The procedure described below should be followed to verify that the RS-422A mode had been correctly set. Print the service status page to verify that the RS-422A mode has been correctly set.

1. Make sure the power switch is off. Plug the power cord into the printer and turn power on.
2. If the printer is on-line, select >>Print Status page in the Mode Select menu (refer to Mode Select Menu at the end of this document), and print the service status page.
3. Verify whether the setting is correct by checking the status printed at the bottom of the page. The following sample indicates that “RS-422A” is set “RS4”. If “RS-232C” is set, “RS2” appears.

[Printer Status Page]



Indicates the current serial interface mode.

Interface Signals

The pins in the printer's RS-422A interface connector carry the signals listed in Table C.3.

Table C.3. RS-422A Signal Pin Assignments

Pin	In/out	Signal	Description
1	—	FG	Frame ground
3	In	RDA	Receive data Inverted
7	—	SG	Signal ground
9	Out	SDA	Send data Inverted
10	Out	SDB	Send data
11	—	—	+5V DC
18	In	RDB	Receive data

Overview of Signals (RS-422A)

FG - Frame Ground - (Pin 1)

This pin is connected directly to the printer frame.

RDA - Receive Data Inverted - (Pin 3)

RDB - Receive Data - (Pin 18)

These pins carry asynchronous data sent from the computer to the printer. (differential input)

SG - Signal Ground - (Pin 7)

All signals can transmit between the printer and the host computer to send each signals with a signal ground.

SDA - Send Data Inverted - (Pin 9)

SDB - Send Data - (Pin 10)

These pins carry asynchronous data sent from the printer to the computer. (differential output)

+5V DC (Pin 11)

This line is connected to the printer's +5V DC line (+5V \pm 0.5V, 250 mA [Parallel and Serial total] maximum, fused).

RS-422A interface voltage levels

The interface signal voltage levels conform with the EIA RS-422A standard. The differential voltage varies from 200 mV to 6 V.

SERIAL Connector

The connector marked "IOIOI" (RS-232C/RS-422A) on the rear panel is a DB-25S connector. Use a DB-25P connector (or equivalent) for the connector on the cable.

C.3.RS-232C/RS-422A Protocol

A protocol is a set of rules the computer follows in sending data to the printer. The RS-232C/RS-422A parameters are stored in battery backed-up memory. They are indicated on the status printout. They can be changed by the FRPO (firmware reprogram) command described in the *Programming Manual*. The parameters and their identification codes are given below.

H1: Baud rate

Parameter value	Baud rate
24	2400
48	4800
96	9600
19	19200
38	38400
57	57600
11	115200

The factory setting is 9600 baud.

H2: Data bits

7 or 8, factory-set to 8.

H3: Stop bits

1 or 2, factory-set to 1.

H4: Parity

Parameter value	Meaning
0	None
1	Odd
2	Even
3	Ignore

The factory setting is “None” (0 on the status printout).

H5: Protocol logic

Parameter value	Meaning
0	Combination of 1 and 3 below
1	DTR/DSR, positive logic
2	DTR/DSR, negative logic
3	XON/XOFF
4	ETX/ACK
5	XON/XOFF recognized only as protocol

The factory setting is 0.

Note

Since DTR/DSR protocol is not used with the RS-422A standard, select a parameter value other than 0, 1, or 2 for the H5 setting when using the RS-422A interface.

H6: Buffer nearly-full threshold

This is a percentage from 0 to 99. The factory setting is 90.

H7: Buffer nearly-empty threshold

This is a percentage from 0 to 99. The factory setting is 70.

The factory settings of the buffer nearly-full and nearly-empty thresholds (H6 and H7) are subject to change without notification.

The gap between the nearly-full and nearly-empty thresholds allows the computer to send a fairly large amount of data in a continuous stream.

H8: Received-data buffer size

This is the size of the input buffer, specified in units of 10 K bytes. The factory-set value is 6 meaning 60 K bytes.

PRESCRIBE IIe FRPO D0 command

The PRESCRIBE IIe FRPO D0 command is provided to allow manipulating XON/XOFF when an error has occurred on the serial interface. The following table summarizes the error status corresponding to different D0 values.

		Serial interface error	
		error not handled	error handled
Timing of XON transfer to host while Ready or Waiting	XON sent every 3-5 seconds	D0 = 0 (default)	D0 = 1
	XON not sent	D0 = 10	D0 = 11

C.4.RS-232C Cable Connection

Preparing an RS-232C Cable

After obtaining an RS-232C cable, check that it is wired correctly, referring to the pin assignment table in **Appendix C**. If you have an IBM communication adapter cable type 1502067, you will have to resolder the wiring at the printer end of the cable. The procedure is as follows.

1. Unscrew the plastic cover from the printer end of the cable.
2. Next to each of the wires inside the cable is a bare shield wire. Solder all these shield wires together into a single bundle.
3. Using a section of flat wire about 3 mm wide and 15 mm long, connect the bundle of shield wires to the metal facing of the connector. Check that the solder connections are secure.
4. Desolder wires 2 and 3, then resolder them in crossed configuration. Solder wire 2 to pin 3 and wire 3 to pin 2. Cover the solder joints with thermofit tube.
5. Cut wires 4, 5, 6, and 20.
6. Solder wires 5 and 6 together and connect them to pin 20. Cover the solder joints with thermofit tube. Leave wire 4 unconnected.
7. Tape all remaining loose ends, or seal them with thermofit tube.
8. Screw the plastic cover back on.

Connecting the Printer to the Computer

1. Check that the power of both the printer and computer is switched off.
2. Discharge yourself by touching a metal object such as a doorknob.
3. Remove the plastic cap from the printer's RS-232C interface connector.
4. Plug the printer end of the RS-232C interface cable into the printer's RS-232C connector and screw it in place.
5. Plug the other end of the cable into the computer's RS-232C interface connector.
6. Switch on the printer's power.
7. The printer's RS-232C parameters are factory-set to the following values:

Baud rate=9600 bps, Data bits (character length)=8 bits, Stop bits=1, Parity=None

The two RS-232C protocols are XON/XOFF and DTR. The printer performs both of them simultaneously, using positive logic for DTR.

If you are uncertain as to the printer's current parameter settings, you can reset them to the values listed above by following the manner described in the last page in this manual.

8. Set the computer to the same parameters as the printer. On many computers this can be done by setting DIP switches before power is turned on. Another method is as follows:

In DOS, enter the following commands:

```
C>MODE COM1:96,N,8,1,P
C>MODE LPT1:=COM1
```

To test the interface, then enter:

```
CTRL P
C>DIR
CTRL P
```

The software settings made by the procedures above are temporary. On most computers, permanent settings must be made with DIP switches.

If you want to use a different baud rate or change any of the other RS-232C parameters, you can use the printer's FRPO (firmware reprogram) command. See the *Programming Manual* for details.

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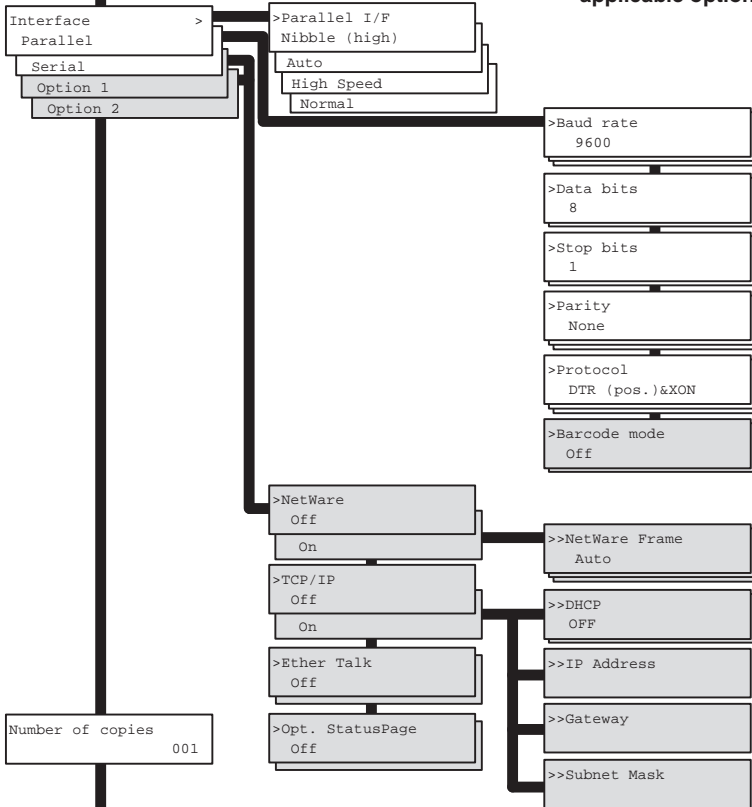
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Mode Select Menu

Ready
PAR 600 A4 001

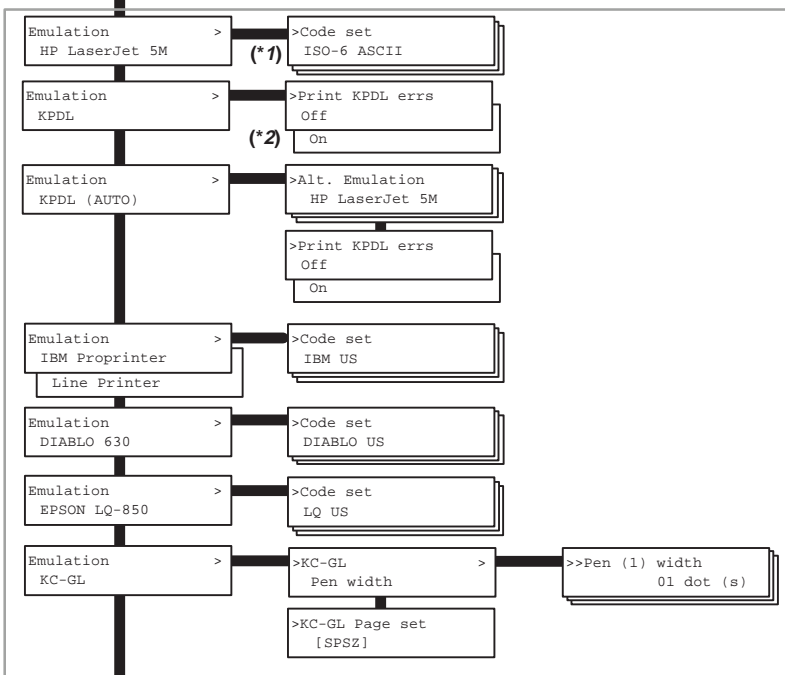
These items will not show unless the printer is installed with the applicable option unit/kit.



Basic Operations During Mode Selection

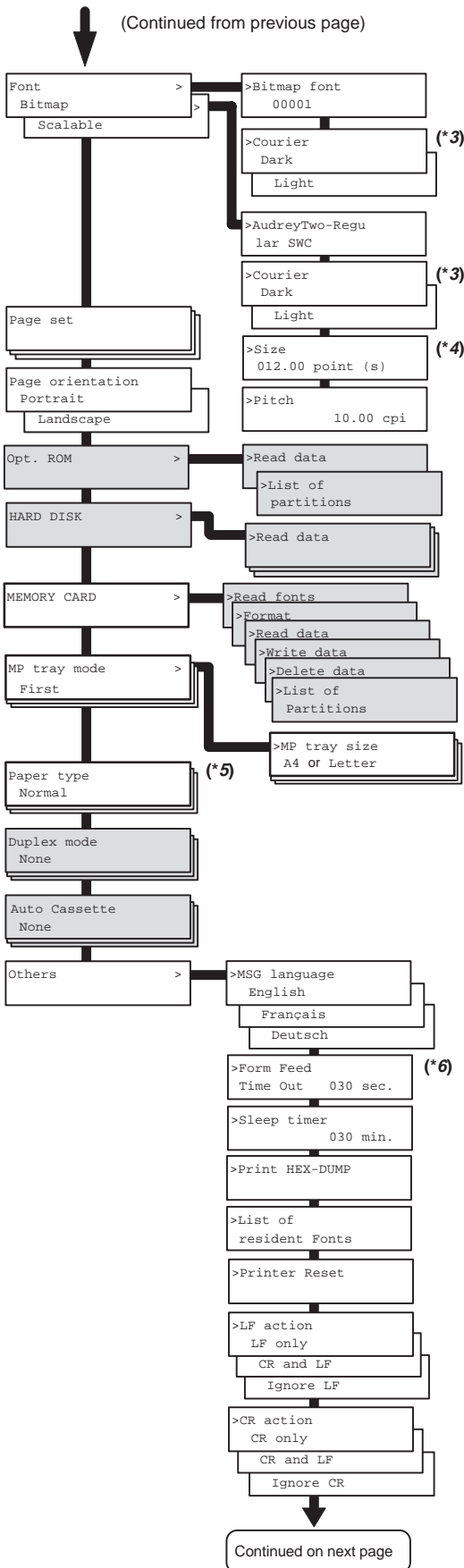
This diagram gives quick reference to all menu options and their sequence of selection. Use this description in combination with **Chapter 2 Mode Selection Menu**.

1. Press the **MODE** key to enter Mode Selection mode.
2. Press the + or – key repeatedly until the message display indicates the desired item.
3. Press the **▶** key to move to a submenu. Press the **◀** key to return.
4. Press the **ENTER** key once the desired menu appears ? will flash, and the current setting can be changed.
5. Press the + and – key to select the desired setting.
6. Press the **ENTER** key. If you want to re-enter a setting, press the **CANCEL** key before pressing the **ENTER** key.
7. Press the **EXIT** key. This will enable currently selected settings.



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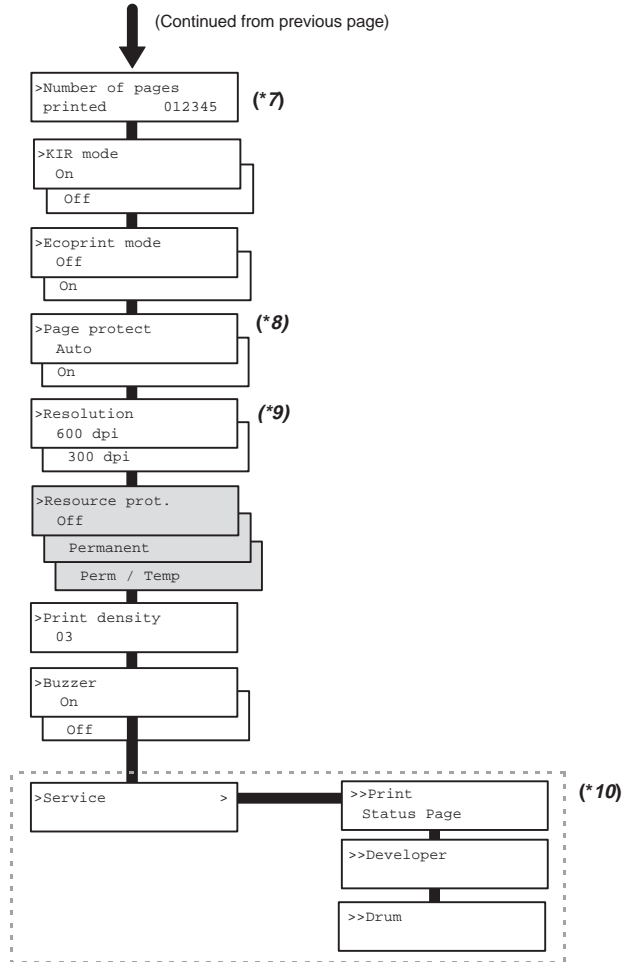
*1: Depending on the emulation selected, the following set-code sets are available.

HP LaserJet 5M	IBM Proprinter X24E or Line Printer	DIABLO 630	EPSON LQ-850
Bitmap and Scalable Fonts			
ISO-6 ASCII ISO-11 Sweden ISO-15 Italian ISO-17 Spain ISO-21 Germany ISO-60 Norway ISO-69 France HP Roman-8 ECMA-94 Latin 1	IBM US IBM D/N IBM PC-850 IBM PC-860 IBM PC-863 IBM PC-865 US Legal	DIABLO US DIABLO France DIABLO Germany DIABLO U.K. DIABLO Denmark DIABLO Sweden DIABLO Italy DIABLO Spain DIABLO Japan US Legal	LO US LO France LO Germany LO U.K. LO Denmark LO Sweden LO Italy LO Spain LO Norway LO Denmark 2 LO Spain 2 Latin America IBM US IBM D/N IBM PC-850 IBM PC-860 IBM PC-863 IBM PC-865
Scalable Fonts Only			
PS math PS text Math8 Pi font MS publishing Windows Winbalt Desktop ISO Latin 2 ISO Latin 5 Windows Latin 1 Windows Latin 2 Windows Latin 5 PC-775 PC-852 Latin 2 PC-1004 PC-Turkish Macintosh			

- *2: The printer can be set to print error data during KPDL emulation. If this is set to **On**, error data will be printed if trouble occurs during printing. This is set to **Off** before leaving the factory.
- *3: You can select either of two Courier fonts, Dark (bold) or Light (thin), as the default font. The original selection is Dark. The selection made applies to both bit map fonts and scalable fonts; the two cannot be set independently.
- *4: The **>Size** menu is not available for the *Courier* and *Letter-Gothic* fonts. The **>Pitch** menu is displayed instead for these fixed width fonts.
- *5: When using thin or thick paper, OHP sheet, postcard, or other special paper, try changing the printer setting on the **Paper type** menu. (See **Appendix B**.)
- *6: After the printer accepts all data and there is no more data from the computer, the printer will wait a set amount of time without printing the final page. Once this preset amount of time has elapsed, the printer will automatically issue a form feed. This timeout setting can be set in 5-second increments up to 495 seconds.
- *7: This is the total number of pages printed by the printer up to the present time.
- *8: Although **Auto** is the default setting and this menu does not usually appear, page protection mode will be forcibly set to **on** if a **Print overrun Press CONTINUE** error occurs due to insufficient printer memory. Be sure to return this setting to **Auto** in order to maintain high printer memory efficiency.
- *9: This sets the print resolution.
- *10: These menus are for service personnel. They should not be operated by the user.

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