OKI®

People to People Technology™

MICROLINE *320/321 Turbo*

9 Pin Printer

User's Guide

Document Title and Part Number

Microline 320/321 Turbo User's Guide

P/N 59270107

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Helpful Hints

Your printer has many features and capabilities that will help you

- save money
- save time
- operate the machine

This section summarizes the features and capabilities directly connected to saving money and time.

Details for these features and capabilities are provided in other sections of this document.

You may want to use some of our Helpful Hints when working with your machine.

Saving Money

Saving Money: Forms Tear-Off

The Forms Tear-Off feature allows a printed page (rear feed, continuous form) to be torn off without wasting paper or adjusting the printer.

Forms Tear-Off automatically moves the paper from the initial printing position (print start position) to the tear-off position, after a time interval (which you select through the menu).

The top of the page (perforation) is even with the tear bar. The tear bar is located under the clear top of the access cover.

Paper remains in the tear-off position until the printer receives more data. Then, the paper moves back down for printing (retracts to the initial print position).

When printing stops, the paper will advance to the tear-off position.

This feature is normally turned off.

Forms Tear-Off and the Top of Form settings interact.

For more information, refer to “Using Your Printer, Forms Tear-Off and Using Your Printer, Top of Form.”

Saving Money: Draft Mode

When printing drafts of documents, use either the High Speed Draft or Super Speed Draft mode. These modes use less ink than the Utility or Near Letter Quality Modes, thus extending the life of your ribbon. The draft modes also print at high speeds, reducing the time required to complete a print job.

For more information, refer to “Using Your Printer, Print Quality.”

Saving Time

Saving Time: Internet Support

Oki Data provides support via the Internet.

Oki Data's main web site, www.okidata.com, is the gateway to Oki Data's products and services.

my.okidata.com is a powerful area of Oki Data's web site designed to help you personalize the information and service you get from Oki Data.

You can find information at your convenience, at any time.

For more information, refer to "Service and Support, Internet Support."

Saving Time: Draft Mode

When printing drafts of documents, use either the High Speed Draft or Super Speed Draft mode. The draft modes print at high speeds, reducing the time required to complete a print job. These modes also use less ink than the Utility or Near Letter Quality Modes, thus extending the life of your ribbon.

For more information, refer to "Using Your Printer, Print Quality."

Saving Time: Paper Park

Your printer's paper park feature allows you to print a single sheet (cut-sheet) page without removing continuous feed paper from the printer.

For more information, refer to "Using Your Printer, Paper Park."

Saving Time: Moving Through the Menu

When the printer is in Menu Mode, you can move forward or backwards through the menu.

To move forward, press GROUP, ITEM, or Set, whichever is appropriate.

To move backward, press and hold SHIFT, then GROUP, ITEM, or Set, whichever is appropriate.

For more information, refer to "Using Your Printer, Menu Mode."

Operation Tips

Operation Tip: Top of Form

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***Always determine the status of the Forms Tear-Off menu setting BEFORE setting the Top of Form. Refer to "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."***

Top of Form sets the print start position for the printer. It is adjustable in increments of 1/144 of an inch. The amount of adjustment is limited to avoid paper jams.

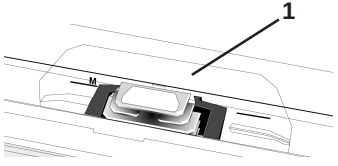
The Top of Form may be left at the factory default (1 inch), changed for a single print job, or set to a new (permanent) default.

The first line prints at the red line of the plastic paper shield (1) on the printhead.

The Top of Form and Forms Tear-Off settings of your printer interact.

How you set the Top of Form depends on the status of the Forms Tear-Off menu setting.

For more information, refer to "Using Your Printer, Top of Form (TOF)."



Operation Tip: Turning the Platen Knob

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

Operation Tip: Control Access to the Printer

You can control access to the printer by changing the setting for the Operator Panel Function (in the Menu).

When the Operator Panel Function is set to Full Operation (the factory default), all keys on the front panel operate.

When the Operator Panel Function is set to Limited Operation, the PRINT QUALITY and CHARACTER PITCH keys don't work. This prevents these settings from being changed from the control panel when several people are using the printer.

For more information, refer to "Using Your Printer, Menu Mode, Menu Settings Table, Setup, Operator Panel Function."

Introduction

Thank you for purchasing this printer.

This rugged 9-pin printer can meet the needs of harsh and demanding environments. The expanded printhead gap, zero-tear capability, and multiple paper feed paths allow the printer to handle a wide variety of media, including 6-part forms. Your printer will provide years of dependable and efficient service.

In addition to the many standard features, options can expand the machine's capabilities.

For information on the options, see "Accessories."

Oki Data on the Internet

The Oki Data Web Sites provide the most current information available on your product.

An on-line version of this document is available for viewing and downloading via Oki Data's Web Sites.

You may reach Oki Data via the Internet at:

- www.okidata.com
- www.my.okidata.com

For more information on the Oki Data Web Sites, refer to "Service and Support, Internet Support."

Printer Features

- Super reliable, durable operation: 10,000 hours Mean Time Between Failures (MTBF)!
- Expandable head gap for handling forms up to 0.031" (0.79 mm) thick through the bottom feed path using the optional push and/or pull tractor.
- Advanced paper handling, with built-in rear push tractor and zero-tear forms capability.
- Blazing print speeds:
  — 300 characters per second (cps) in Utility mode
  — 390 cps in High Speed Draft (HSD) mode
  — 435 cps in Super Speed Draft (SSD) mode
- 100% backward compatible with Microline 320/321 printers.

Parts Identification

The parts identified here are parts of the unit that you will use during normal operation.

For accessories (consumables, options, replacement parts, and documentation), refer to “Accessories.”

Printer Serial Number

The serial number of your machine is on a label on the back of your machine.

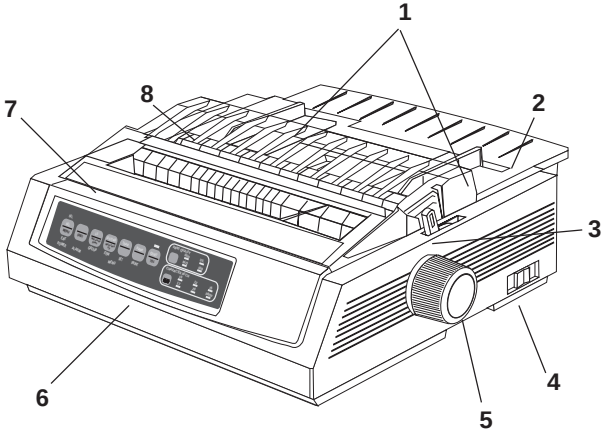
The label says “S/N.”

An example serial number is: 401A0154693.

! ***You will need your printer serial number if your machine requires servicing.***
A written receipt for the product, showing the date of purchase, dealer’s name, and both the model and serial numbers of the product must accompany any request or claim for work to be performed under Limited Warranty.

Parts Identification: Rear Feed (Continuous Forms)

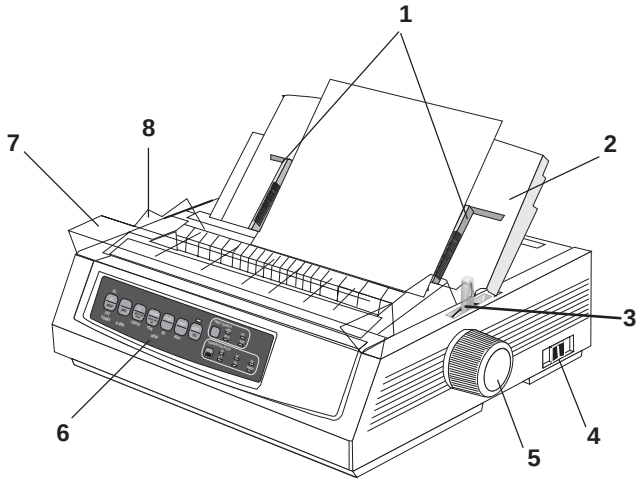
1 Paper Guides
2 Paper Separator
3 Paper Lever
4 On-Off Switch
5 Platen Knob
6 Control Panel
7 Acoustic Cover
8 Access Cover



! ***Move the paper lever to the position marked "REAR." For rear feed, the paper lever is towards the front of the printer.***

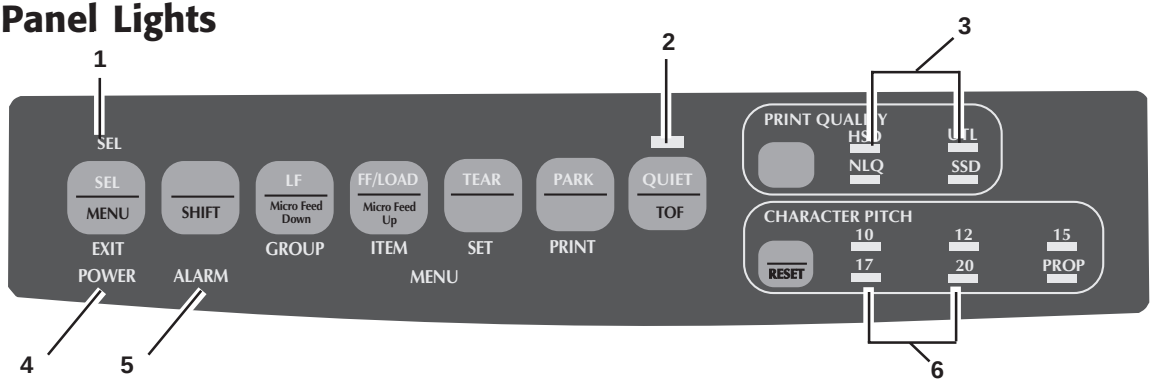
Parts Identification: Top Feed (Single-Sheet)

1 Paper Guides
2 Paper Separator
3 Paper Lever
4 On-Off Switch
5 Platen Knob
6 Control Panel
7 Acoustic Cover (open)
8 Access Cover



! ***Move the paper lever to the position marked "TOP." The paper lever is towards the back of the printer.***

Front Panel Lights



1 SEL: Glows = printer selected, ready to receive data

Flashes = printer in Print Suppress Mode

Not lit = printer deselected (cannot receive data)

2 QUIET: Glows = printer is in Quiet state.

3 HSD / UTL / NLQ / SSD: Indicate print quality selected.

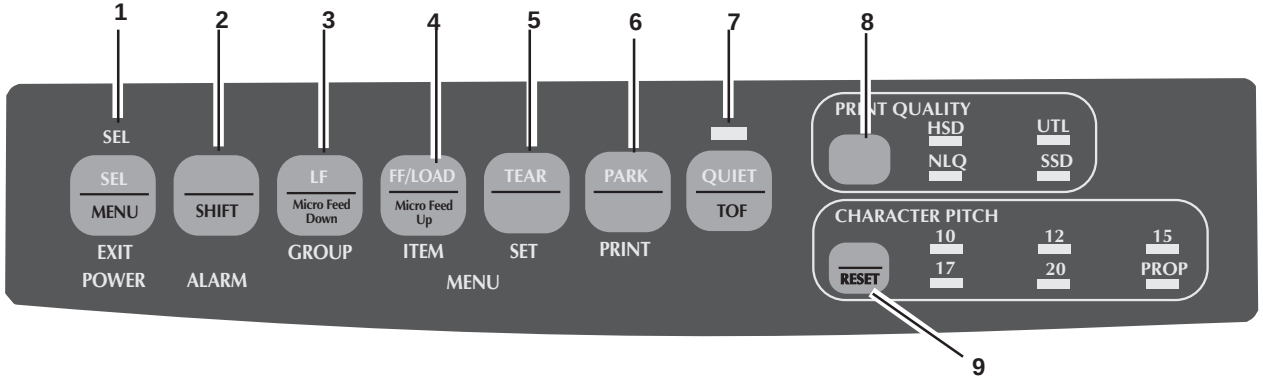
4 POWER: Glows = printer is turned on.

5 ALARM: Glows = error condition exists:

- out of paper (no other lights blinking)
- paper jam if 15 cpi light is also blinking
- paper lever is set to wrong position if 10 cpi light is also blinking.
- Blinks = error condition. Turn printer off, then on; if light still flashes, contact service dealer.

6 10 / 12 / 15 / 17 / 20 / PROP:
Indicate selected character pitch.

Front Panel Keys



1 SEL: Selects/deselects printer (printer on-line / off-line). When held on power up, or with SHIFT key, engages Menu Mode.

2 SHIFT: Press and hold while pressing another key to engage the alternate function for that key (e.g., "Micro Feed Down" for LF key).

3 LF: Moves paper up one line: press and hold for repetitive line feeds. When held on power up, activates Font Test.

4 FF/LOAD: Loads/ejects single sheet of paper; loads continuous-form paper or feeds it to next page.

5 TEAR: Moves continuous-form paper up for tear-off or back down for printing.

6 PARK: Retracts continuous-form paper from the path.

7 QUIET: Turns Quiet Mode on and off. When held on power up, activates Rolling ASCII Test.

8 PRINT QUALITY: Selects print quality and font.

9 CHARACTER PITCH: Selects the character pitch. Used with SHIFT key to reset the printer and clear the buffer.

Installation

Installation Hints

- Read the setup and operating instructions in this document carefully. Be sure to save this document for future reference.
- Read and follow all warning and instruction labels on the printer itself.
- Place your printer on a firm, solid surface. If you put in on something unsteady, it might fall and be damaged. If you place it on a soft surface (such as a rug, sofa, or bed) the vents may be blocked, causing it to overheat.
- The printer must be installed near a power outlet which will remain easily accessible.
- Be certain that your power source matches the rating listed on the back of the printer. If you are not sure, check with your dealer or with your local power company.
- Your printer has a grounded, 3-prong plug as a safety feature, and it will only fit into a grounded outlet. If you can not plug it in, chances are that you have an older, non-grounded outlet. Contact an electrician to have it replaced with a grounded outlet. Do not use an adapter to defeat the grounding.
- To avoid damaging the power cord, do not put anything on it or place it where it will be walked on. If the cord becomes damaged or frayed, replace it immediately.

- If you're using an extension cord or power strip with the printer, make sure that the total of the amperes required by all the equipment on the extension is less than the extension's rating. Generally, the total ratings of all equipment plugged into any one power line should not exceed 15 amperes. Don't exceed this unless you know that the power line your equipment is plugged into has a rating above 15 amperes.
- To protect your printer from overheating, make sure no openings on the printer are blocked. Do not put the printer on or near a heat source, such as a radiator or heat register. If you put the printer in any kind of enclosure, make sure it is well ventilated.

Installation Overview

To install your new printer, follow the instructions from the "Installation, Installation Location" to "Installation, Printer Drivers" sections of this document. You must complete these steps for your printer to operate properly.

If you have purchased an option package for your printer, refer to the documentation you received with that option for installation instructions.

Installation Location

- Place your printer on a firm, solid surface.
- Allow enough space on each side of the machine to easily access the platen knob and the various paper feed paths.
- Make sure a power outlet is available nearby.

Customizing the Installation

Your printer has many settings (defaults) that do not need to be adjusted as part of a standard installation.

However, you may need to adjust settings to fit your standards.

Some settings you may need to adjust as part of your installation are:

- Top of Form (TOF)
- Paper Path
- Printhead Gap

To adjust these settings, refer to the appropriate section in "Using Your Printer."

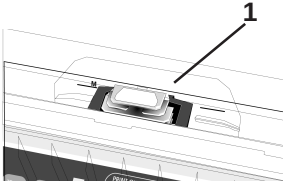
Top of Form (TOF)

If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!

The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page.

Your software may print the first line of print above or below where TOF is set. You may need to adjust the TOF to meet your software's needs. Use the procedures in "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."

The first line prints at the red line of the plastic paper shield (1) on the printhead.



The Top of Form and Forms Tear-Off settings of your printer interact.

How you set the Top of Form depends on the status of the Forms Tear-Off menu setting.

If Forms Tear-Off is activated (set to ON), set the Top of Form using "Using Your Printer, Setting Top of Form, Forms Tear-Off ON (Step A)."

If Forms Tear-Off is NOT activated (set to OFF), set the Top of Form using the "Using Your Printer, Setting Top of Form, Forms Tear-Off OFF (Step B)."

Unpacking the Machine

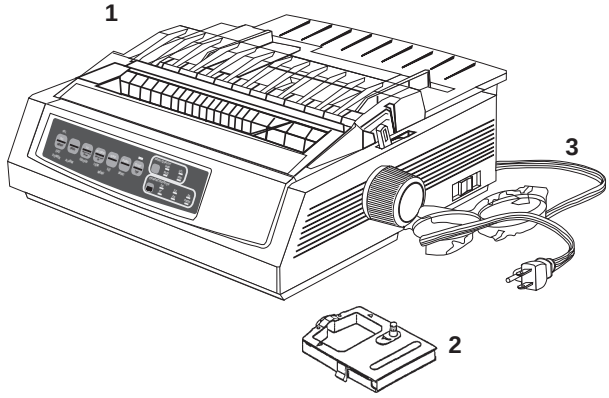
Before you begin, be sure that all the items listed below are included in your package.

! ***If any items are missing, contact your dealer immediately. Keep you packing materials and carton in case you ever need to ship or transport the unit.***

1 Printer

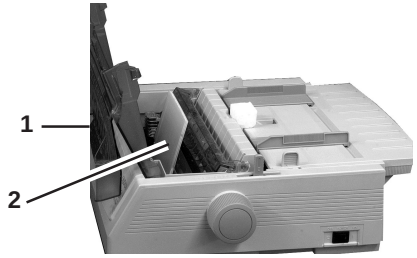
2 Ribbon Cartridge

3 Power Cord

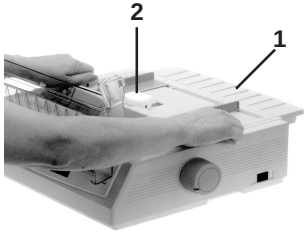


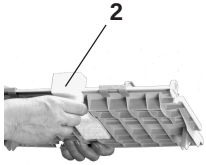
Shipping Restraints

1 Open the access cover (1). Remove the printhead shipping restraint (2) and tape.



2 Grasp the tabs and lift off the paper separator (1). Remove the shipping restraint (2).





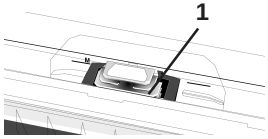
3 Install the paper separator.

! ***Keep your packing materials and carton in case you ever need to ship or transport the unit.***

Ribbon Cartridge

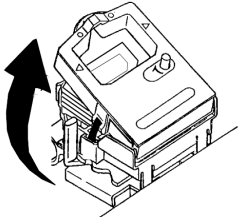
1 ***Make sure the printer is turned OFF.***

2 Center the printhead (1).



3 *If you are replacing the ribbon:* swing the front of the cartridge up off the printhead, then lift the cartridge out and discard it.

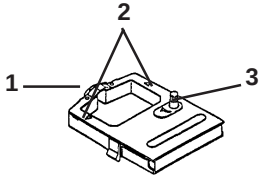
! ***Caution! The printhead may be HOT!***



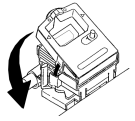
4 Unpack the ribbon cartridge.

! ***Important! DO NOT remove the ribbon shield from the ribbon!***

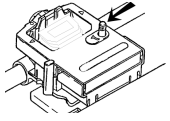
1 Ribbon Shield
2 Grip Points
3 Take-up Knob



5 Install the new ribbon cartridge.



6 Turn the take-up knob in the direction of the arrow to take up any ribbon slack.



Ribbon Cartridge Handling

- Leave unused ribbon cartridges in their packages until needed.
- When replacing a ribbon cartridge, re-use the packaging to dispose of the old ribbon cartridge.
- Be careful when removing the ribbon cartridge. Do not let it touch your clothing or porous materials. The ribbon ink may cause permanent stains.
- Ribbon ink on skin or clothing can usually be removed with soap and water.

Ribbon Cartridge Emergency First Aid

Contact occurs with eyes.

Flush eyes with large quantities of water for 15 minutes, keeping eyelids open with fingers. Seek medical attention.

Contact occurs with skin

Wash thoroughly with soap and water.

For more information

Refer to the Material Safety Data Sheet in “Warranty, Regulatory, and Safety Information.”

Computer Connections

Three interface types are available for your printer.

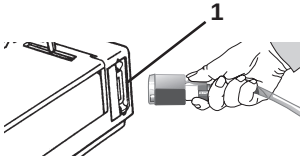
- Parallel
- Serial (25 pin)
- Network (RJ45)

Attach the interface cable to the appropriate port on your computer.

! ***FCC regulations require the use of a shielded cable no longer than 6 ft. (1.8 m).***
An IEE 1284-compatible parallel cable is needed for bi-directional communications.

If you purchased the Serial Interface option, see the instruction sheet provided with it.

1 Plug the interface cable into the parallel port (1) and secure it with the wire loops.

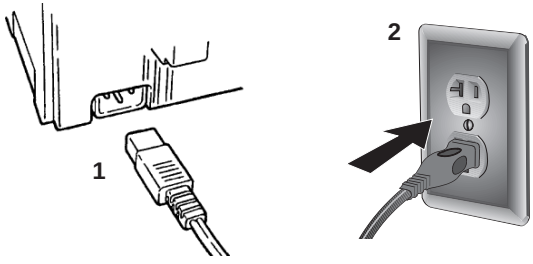


2 Attach the other end of the cable to your computer.

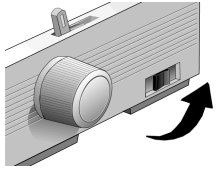
Power Connections

1 ***Make sure both the printer and the computer are OFF.***

2 Plug the power cord into the back of the printer (1), then into a grounded outlet (2).



3 Turn on the printer.



Paper Loading

Rear Feed, Continuous Forms

Use the rear-feed path for printing on single-thickness, continuous-form paper.

Use the single-sheet path (top feed) for graphics or charts.

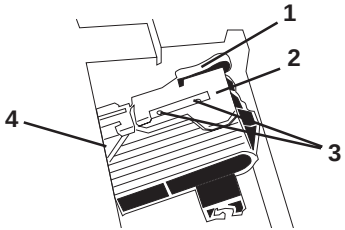
! ***If you have paper in the paper path, be sure to remove it before installing rear-feed paper.***

1 Lock Lever

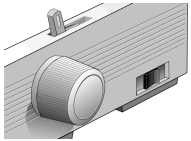
2 Upper Tractor Cover

3 Pins

4 Lower Tractor Cover

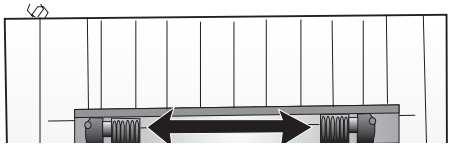


1 Move the paper lever to the position marked “REAR.”



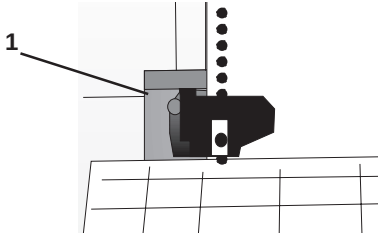
2 Grasp the tabs lift off the paper separator.

3 Pull up on the lock levers and open the tractor covers. Then, move the right tractor to fit the width of the paper.



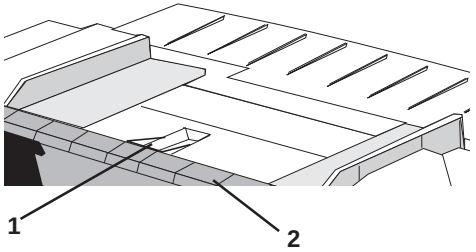
4 Place the first two holes in the paper over the tractor pins on either side. Close the tractor covers.

5 Move the left tractor to align the edge of the paper with the appropriate reference mark (1). Then, push back the lock lever.



6 Adjust the position of the right tractor to center the holes in the paper on the pins. Then, push back the right lock lever.

7 Install the paper separator. Place the wire guide (1) on the pull-up roller assembly (2).



8 Press FF/LOAD. The paper feeds into the printer.

! ***The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page. To change the setting, see "Using Your Printer, Top of Form (TOF)."***

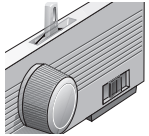
Top Feed (Single Sheets)

Use the single-sheet path for letterhead stationery, memos, and individual envelopes.

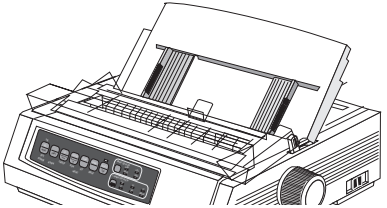
! ***If you have continuous-form paper in the path, press*** PARK ***to remove it before loading single sheets.***

1 Make sure the printer is on and deselected (SEL light off).

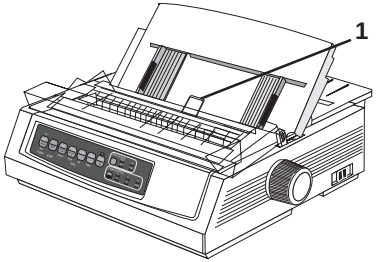
2 Place the paper lever in the position marked "TOP."



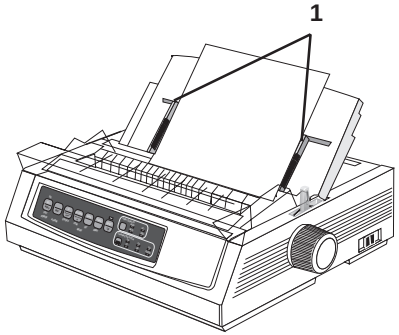
3 Open the carriage cover. Raise the paper separator to the single-sheet position.



4 Make sure the wire feed guide (1) is secured in the sheet guide.



5 Adjust the paper feed guides (1) for the width of the paper. Place a sheet of paper in the separator. The paper will feed into the printer.



Important!
If the paper does not feed in, remove it. Check the paper lever position. Make sure the ALARM light is on: if it is flashing, hold the SHIFT key and press the CHARACTER PITCH (RESET) key. Reload the sheet of paper.

The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page. To change the setting, see "Using Your Printer, Top of Form (TOF)."

Emulations

Available Emulations

Your printer has three emulations:

- Epson® FX (ESC/P)
- IBM® Proprinter III (PPSII) — *factory setting*
- OKI DATA® MICROLINE® Standard

Changing Emulations

1 Make sure paper is loaded.

2 Press SHIFT + SEL. The printer enters the Menu Mode.

3 Press LF. The following line prints:

```
Printer Control  Emulation Mode  IBM PPR
```

4 Press TEAR consecutively until the emulation you wish to select prints in the right-hand column.

5 Press SHIFT + SEL to save your setting and exit the Menu Mode.

Testing the Printer

Running the printer self tests is a good way to check the installation of your printer.

The two self tests are:

- Font Sample Test
- Rolling ASCII Test

! ***Microline 321 Turbo (wide carriage model)***

If you are using 8.5 inch paper to run the test, make sure the paper width selection in the printer menu is set to 8.5 inches. Otherwise, printing on the platen may damage the printer. Refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

Font Sample Test

! ***Microline 321 Turbo (wide carriage model)***

If you are using 8.5 inch paper to run the test, make sure the paper width selection in the printer menu is set to 8.5 inches. Otherwise, printing on the platen may damage the printer. Refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The Font Sample Test prints a sample of the fonts standard to the printer.

The top of the printout has the Printer Model, Emulation, Country Code, Interface, and Firmware Revision Level for your printer.

To run the test:

- Turn the printer off, then press and hold the LF key while turning the printer back on.

To exit the test:

- Press SEL.

Rolling ASCII Test

! ***Microline 321 Turbo (wide carriage model)***

If you are using 8.5 inch paper to run the test, make sure the paper width selection in the printer menu is set to 8.5 inches. Otherwise, printing on the platen may damage the printer. Refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The Rolling ASCII Print Test produces a continuous printout of all 96 ASCII characters in a rolling pattern. The type style set in the printer menu will be utilized.

Use the Rolling ASCII Test to check the following.

- Print Quality
  - Across the entire length of a line
  - Down the entire page
- Line Spacing
- Character Formation

The top of the printout has the Printer Model, Emulation, Country Code, and Firmware Revision Level.

To run the test:

- Turn the printer off, then press and hold the QUIET key while turning the printer back on.

To exit the test:

- Press SEL.

Printer Drivers

Selecting Printer Drivers

Before you can use your printer, you must select the correct printer driver in your software. If you select the wrong driver, you will see strange characters, incorrect fonts, etc.

! ***See your software documentation for information on how to select a printer driver.***

The drivers below are listed by **decreasing** compatibility with your printer. *Use one as close to the top of the list as possible*.

Epson FX
Oki Data ML320/1T Epson
Oki Data ML320/1 Epson
Epson FX286e
Epson FX 850/1050
Epson FX 800/1000
Epson FX

IBM Proprinter III
Oki Data ML320/1T IBM
Oki Data ML320/1 IBM
IBM Proprinter III
IBM Proprinter II
IBM Proprinter
IBM Graphics Printer

Oki Data Microline Standard
Oki Data Microline 320/321T
Oki Data Microline 320/321
Oki Data Microline 520/521
Oki Data Microline 292/293
Oki Data Microline 192/193

Obtaining Drivers

Drivers are available for a variety of operating systems.

You can obtain the drivers by downloading them from the web site at

http://www.okidata.com

Installing Printer Drivers

Installation procedures vary according to the driver you select. Follow the instructions provided with the selected driver.

Using Your Printer

Top of Form (TOF)

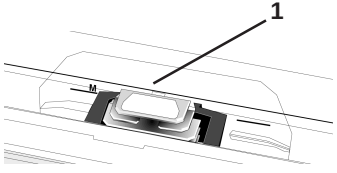
! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page.***

! ***Your software may print the first line of print above or below where TOF is set. You may need to adjust the TOF to meet your software's needs. Use the procedures in "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."***

Top of Form sets the print start position for the printer. It is adjustable in increments of 1/144 of an inch. The amount of adjustment is limited to avoid paper jams.

The first line prints at the red line of the plastic paper shield (1) on the printhead.



Top of Form (TOF) and Forms Tear-Off

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***Your software may print the first line of print above or below where TOF is set. You may need to adjust the TOF to meet your software's needs. Use the procedures in "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."***

The Top of Form and Forms Tear-Off settings of your printer interact.

How you set the Top of Form depends on the status of the Forms Tear-Off menu setting.

If Forms Tear-Off is activated (set to ON), set the Top of Form using Step A.

Refer to "Using Your Printer, Setting Top of Form, Forms Tear-Off ON (Step A)."

If Forms Tear-Off is NOT activated (set to OFF), set the Top of Form using Step B.

Refer to "Using Your Printer, Setting Top of Form, Forms Tear-Off OFF (Step B)."

Forms Tear-Off Status (ON or OFF)

Before you set the Top of Form, you need to know the status of the Forms Tear-Off menu setting (whether it is ON or OFF).

There are two ways to determine the status of the Forms Tear-Off menu setting.

- print the Menu.
- use the TEAR key

To print the Menu, refer to "Using Your Printer, Menu Mode, Print the Menu Settings."

To use the TEAR key:

1 Load paper.

2 Press TEAR.

3 If the paper moves up, then Forms Tear-off is OFF.

If the paper moves down, then Forms Tear-off is ON.

Setting Top of Form, Forms Tear-Off ON (Step A)

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***Always determine the status of the Forms Tear-Off menu setting BEFORE setting the Top of Form. Refer to "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."***

1 Turn the printer ON.

2 Park the paper.

3 With paper out of the unit, (red alarm light should be on) press SHIFT (1) and QUIET/TOF (5) to reset the current Top of Form.

4 Press FF/LOAD (3) to load the paper.

5 Press SEL/MENU (6) to take the printer off line.

The SEL light goes out.

6 Wait until the paper moves up to the tear position, then press and hold TEAR (4).

The paper moves to the current Top of Form.

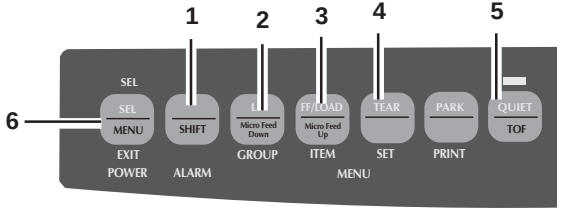
Keep pressing and holding TEAR.

7 Press and hold SHIFT and release TEAR.

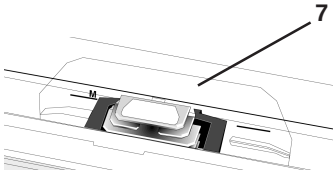
8 As you continue to hold SHIFT, press the LF / Micro Feed Down (2), or FF/LOAD / Micro Feed Up (3), depending on which direction you want to move the paper to align Top of Form.

Press LF / Micro Feed Down to decrease the space (move Top of Form higher). The paper moves down.

Press FF/LOAD / Micro Feed Up to increase the space (move Top of Form lower). The paper moves up.



! ***The first line prints at the red line of the plastic paper shield (7) on the printhead.***



9 Keep holding SHIFT and press QUIET/TOF a few times to set the Top of Form.

10 When the Top of Form is at the correct position, release all keys.

11 Press SEL/MENU to place the printer on-line.

Setting Top of Form, Forms Tear-Off OFF (Step B)

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***Always determine the status of the Forms Tear-Off menu setting BEFORE setting the Top of Form. Refer to "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."***

1 Turn the printer ON.

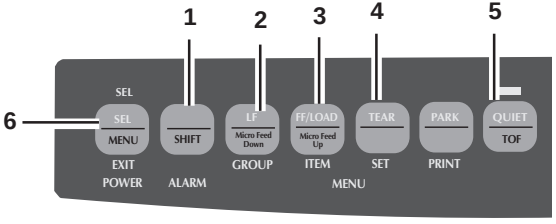
2 Press SEL/MENU (6) to take the printer off line. The SEL light goes out.

3 Press and hold SHIFT (1).

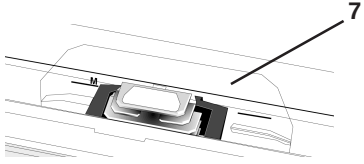
Then, press LF / Micro Feed Down (2) or FF/LOAD / Micro Feed Up (3), depending on which direction you want to move the paper to align the tear-off position.

Press LF / Micro Feed Down to decrease the space (move Top of Form higher). The paper moves down.

Press FF/LOAD / Micro Feed Up to increase the space (move Top of Form lower). The paper moves up.



! ***The first line prints at the red line of the plastic paper shield (7) on the printhead.***



4 Keep holding SHIFT and press QUIET/TOF a few times to set the Top of Form.

5 When Top of Form is at the correct position, release all keys.

6 Press SEL/MENU to place the printer on line.

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***For information on resetting the Top of Form to the factory default, refer to "Using Your Printer, Top of Form, Reset Top of Form to Factory Default."***

Temporary Top of Form Change

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page.***

To change the Top of Form (move it lower) *for one page only*:

1 Press SEL to deselect the printer.

2 Press LF to change the position of the Top of Form.

Reset Top of Form to Factory Default

! ***If you turn the platen knob when the printer is turned on, you will cause the Top of Form to mis-align. Always turn the printer off before turning the platen knob!***

! ***The factory default setting for the Top of Form (where the printing should begin) is one inch down from the top of the page.***

There are two ways to reset the Top of Form to the factory default.

- with the printer ON.
- with the printer OFF.

Printer ON

1 With the printer ON, and paper parked (out of the printer)
Press QUIET / TOF.

Printer OFF

1 With the printer OFF, and no paper installed,
Press and hold PARK + QUIET/TOF while turning on the printer.

Forms Tear-Off

The status of the Forms Tear-Off menu setting affects how you set the Top of Form.

To determine the status of the Forms Tear-Off menu setting, refer to "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."

For information on setting the Top of Form, refer to "Using Your Printer, Top of Form, Setting Top of Form, Forms Tear-Off (ON or OFF)."

The Forms Tear-Off feature allows a printed page (continuous forms, rear or bottom feed, with no pull tractor option installed) to be torn off without wasting paper or adjusting the printer.

Forms Tear Off automatically moves the paper from the initial printing position to the tear-off position, after a time interval (which you select through the menu).

The top of the page (perforation) is even with the tear bar. The tear bar is located under the clear top of the access cover.

Paper remains in the tear-off position until the printer receives more data. Then, the paper moves back down for printing (retracts to the initial print position).

When printing stops, the paper advances to the tear-off position.

The default setting for Forms Tear-Off is OFF.

There are two types of Forms Tear-Off.

- Automatic Forms Tear-Off
- Manual Forms Tear-Off

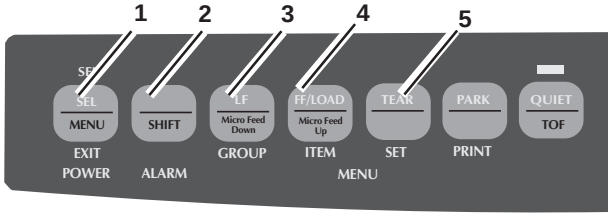
If the software package you are using "pauses" while sending data to the printer, Forms Tear-Off may be activated (if it is enabled through the Menu). The pause must be for two or more seconds. No data is lost. Uneven print registration will occur due to the paper movement. If the problem occurs, use the menu to turn off this feature.

DO NOT use Forms Tear-Off with labels or multi-part forms!

Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.

Changing the Forms Tear-Off Setting

The default setting for Forms Tear-Off is OFF.



To change the Forms Tear-Off setting:

1 Press SEL (1) + SHIFT (2).

2 Press GROUP (3) until one of the following lines appears, depending on which paper feed you are using

REAR FEED	Form Tear-Off	OFF
BOTTOM FEED	Form Tear-Off	OFF

3 Press ITEM (4) until Form Tear-Off appears in the second column.

4 Press SET (5) until the time interval you wish to select appears in the third column.

5 Press SEL (1) + SHIFT (2) to exit Menu Mode and save the setting.

! ***The status of the Forms Tear-Off menu setting affects how you set the Top of Form.***

! ***If the software package you are using "pauses" while sending data to the printer, Forms Tear-Off may be activated (if it is enabled through the Menu). The pause must be for two seconds or more. No data is lost. Uneven print registration will occur due to the paper movement. If the problem occurs, use the menu to turn off Forms Tear-Off.***

! ***DO NOT use Forms Tear-Off with labels or multi-part forms!***

! ***Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.***

Automatic Forms Tear-Off

Forms Tear-Off must be set to ON in the menu for Automatic Forms Tear-Off to occur.

Automatic Forms Tear-Off automatically moves the paper from the initial printing position (print start position) to the tear-off position, after a time interval which you select through the menu.

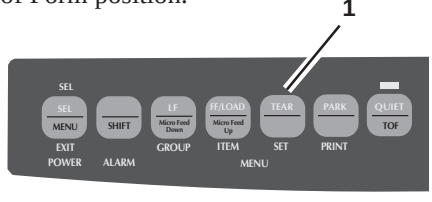
The top of the page (perforation) is even with the tear bar. The tear bar is located under the clear top of the access cover.

Paper remains in the tear-off position until the printer receives more data. Then, the paper moves back down for printing (retracts to the initial print position).

When printing stops, the paper advances to the tear-off position.

TEAR Key and Automatic Forms Tear-Off

If you press TEAR (1) when Forms Tear-Off is turned on (activated in the printer menu), the printer retracts the paper to the Top of Form position.



! The status of the Forms Tear-Off menu setting affects how you set the Top of Form.

To determine the status of the Forms Tear-Off menu setting, refer to "Using Your Printer, Top of Form, Forms Tear-Off Status (ON or OFF)."

For information on setting the Top of Form, refer to "Using Your Printer, Top of Form, Setting Top of Form, Forms Tear-Off (ON or OFF)."

! If the software package you are using "pauses" while sending data to the printer, Forms Tear Off may be activated (if it is enabled through the Menu). The pause must be for two or more seconds. No data is lost. Uneven print registration will occur due to the paper movement. If the problem occurs, use the menu to turn off this feature.

! DO NOT use Forms Tear Off with labels or multi-part forms!

! Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.

Manual Forms Tear-Off

Manual Forms Tear-Off allows you to advance a single page to the tear-off position.

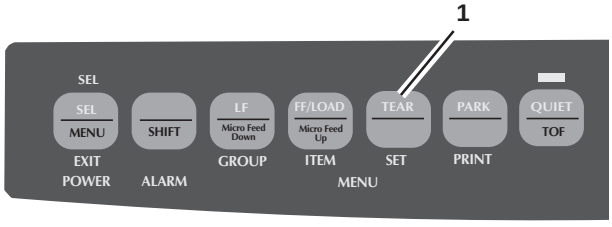
Manual Forms Tear-Off works when Forms Tear-Off is turned off (deactivated in the printer menu).

When Forms Tear-Off is turned on (activated in the printer menu), and you attempt Manual Forms Tear-Off, the printer retracts the paper to the Top of Form position.

! ***DO NOT use Forms Tear-Off with labels or multi-part forms!***

! ***Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.***

1 Press TEAR (1) to advance continuous-form paper up to the tear position.



TEAR Key

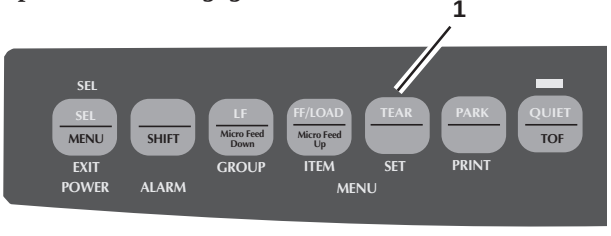
Forms Tear-Off set OFF

If you press TEAR (1) when Forms Tear-Off is turned off (deactivated in the printer menu), the printer advances continuous-form paper up to the tear position.

Manual Forms Tear-Off allows you to advance a single page to the tear-off position.

Manual Forms Tear-Off works when Forms Tear-Off is turned off (deactivated in the printer menu).

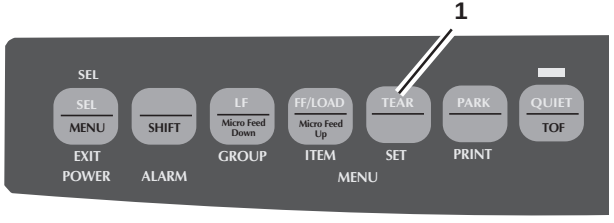
! ***Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.***



Forms Tear-Off set ON

If you press TEAR (1) when Forms Tear-Off is turned on (activated in the printer menu), the printer retracts the paper to the Top of Form position.

! ***Forms Tear-Off CANNOT be used when the optional pull tractor is engaged.***

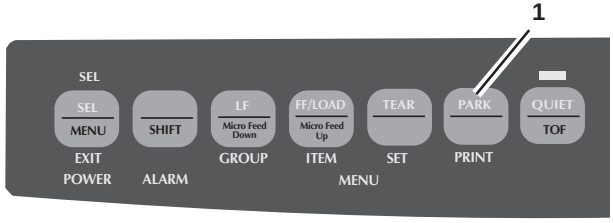


Paper Park

! ***Never park labels!***

Paper park allows you to print a single sheet (cut-sheet) page without removing continuous feed paper from the printer.

Press PARK (1) to retract rear-feed paper from the paper path.



Changing Paper Paths

Continuous-forms to single-sheet feed

1 Tear off any printed pages.

2 Press PARK.

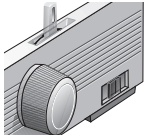
3 Raise the paper separator to the single-sheet feed position.

4 Place the wire feed guide in the paper separator.

5 Move the paper lever to the position marked “TOP.”

The paper lever is towards the back of the printer.

6 Place a sheet of paper in the paper separator.



Single-sheet feed to continuous forms

1 Press FF/LOAD to remove the single-sheet paper.

2 Lower the paper separator into the continuous-forms position. Swing the wire feed guide over onto the pull-up roller.

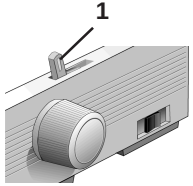
3 Move the paper lever to the appropriate position

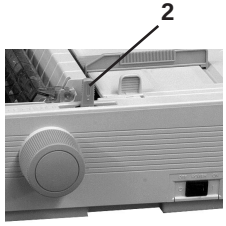
For rear feed (1), the paper lever is towards the front of the printer.

For bottom feed, (2), the paper lever is in the center position.

4 If necessary, load continuous-form paper.

5 Press FF/LOAD.



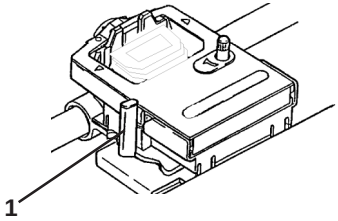


Printhead Gap

The printhead gap is the distance between the printhead and the platen.

! ***Make sure the printer is turned off before you open the access cover.***

To adjust the gap, open the access cover and move the blue lever (1) to the recommended setting from the table.



Media	Setting
12-20 lb paper	1
20-24 lb bond paper	2
Labels	3 or 4
Envelopes	4 or 5
2-part form (with carbon)	1 or 2
3-part form (with carbon)	2 or 3
4-part form (with carbon)	3 or 4
5-part form (with carbon)	4 or 5
6-part form (with carbon)	5

! ***For dedicated, bottom-feed printing of extra-thick continuous forms (requires optional push and/or pull tractor), the printhead gap range can be expanded to take forms up to 0.031" (0.79 mm) thick. For more information, refer to "Using Your Printer, Printhead Gap, Expanded Printhead Gap."***

Expanded Printhead Gap

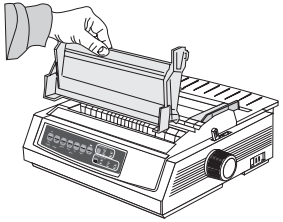
Your printer can be used for dedicated bottom-feed printing on extra-thick multi-part forms. Extra-thick multi-part forms range from 0.017-inch (0.43 mm) to a maximum of 0.03 inch (0.79 mm). To print on extra-thick multi-part forms, you engage the expanded printhead gap feature. This expands the head gap settings for extra-thick forms and heavy card stock. It also increases the impact strength of the pins in the printhead.

! ***CAUTION! Once the expanded printhead gap is engaged, you cannot print on single sheets without changing the gap back. If you try to print on single sheets without adjusting the printhead gap, you can damage the printhead and void your warranty. To disengage the expanded printhead gap, reverse the following steps.***

To engage the expanded printhead gap:

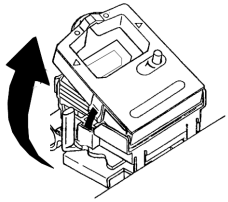
1 Turn the printer off.

2 Remove the access cover and the pull-up roller assembly.

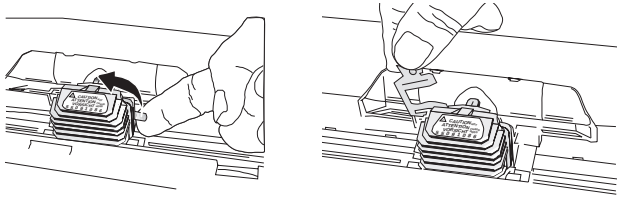


3 Move the printhead to the center of the platen.

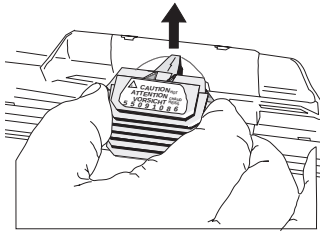
4 Remove the ribbon cartridge.



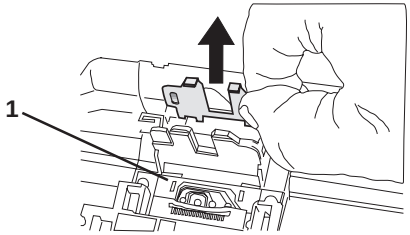
5 Swing up the printhead clamp, then remove it by pushing forward (toward the platen) and to the left.



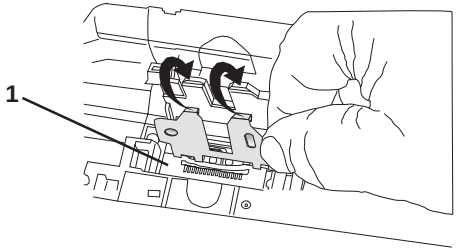
6 Remove the printhead.



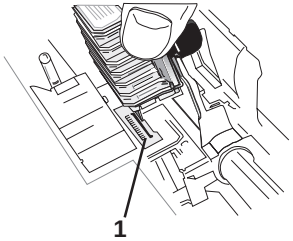
7 Lift the printhead plate off the carriage assembly (1).



8 Turn the printhead plate around and reinsert it on the other side of the carriage assembly (1).

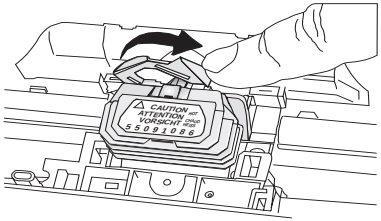


9 Replace the printhead, making sure that the circuit board at the bottom of the printhead firmly engages the slot (1) in the carriage.



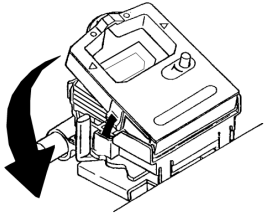
! ***CAUTION! Be sure the printhead is fully inserted before proceeding.***

10 Reinstall the printhead clamp and swing it back over to lock the printhead in place.

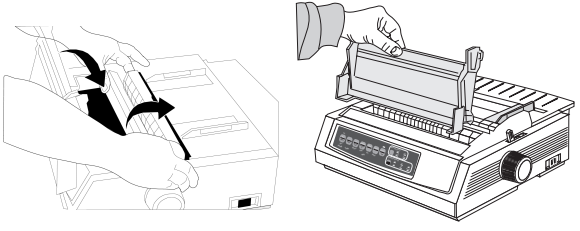


! ***Important! The clamp must be between the black projection on the printhead and the metal plate on the carriage, on both sides.***

11 Reinstall the ribbon cartridge.



12 Replace the pull-up roller assembly and the access cover, then turn the printer on.



13 Change the printer's secondary menu (make sure paper is loaded!) to engage the expanded printhead gap:

a) Press SEL + TEAR while turning the printer back on.
b) Press LF to advance through the menu to the Technical group (last option in menu).
c) Press FF/LOAD to advance through the items to Expanded Gap.
d) Press TEAR to change the setting for Expanded Gap to Valid.
e) Press SHIFT + MENU to exit the menu and save your setting.

Print Quality

! ***Important!***
Front panel settings for print quality and character pitch are overridden by software commands.
The lights will always reflect the printer's state.

Press PRINT QUALITY to select:

NLQ: Near Letter Quality

- Highest quality, slowest speed
- Courier or Gothic fonts
- Recommended for correspondence

UTL: Utility

- Medium quality, medium speed
- Gothic font only
- Recommended for internal documents and high-volume data.

HSD: High Speed Draft

- Lower quality, faster speed
- Gothic font only
- Recommended for drafts.

SSD: Super Speed Draft

- Lowest quality (12 cpi only), fastest speed
- Gothic font only
- Recommended for fastest output of drafts.

Super Speed Draft

To use Super Speed Draft (SSD), enter the Menu Mode and make changes as follows:

1. Press SHIFT + SEL.
2. Press GROUP twice.
3. Press SET until DRAFT prints as the setting for the Print Mode.
4. Press ITEM.
5. Press SET (SSD prints).
6. Press SHIFT + SEL to exit Menu Mode and save your changes.

Printer Reset

When you reset the printer, you reinitialize it.

You will need to reset the printer to clear some error conditions

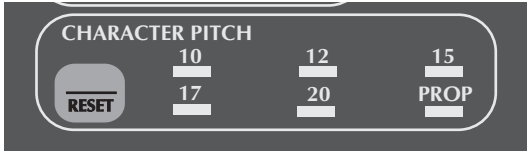
To reset the printer:

1. Press and release the SEL key to take the printer off-line. The SEL light will be out.
2. Then, press and hold the SHIFT key and press the RESET (CHARACTER PITCH) key.
3. The printer is reset.

! ***Important!***
A printer reset is NOT the same as a reset to factory defaults.
A printer reset reinitializes the printer, but does NOT affect any menu settings.
A reset to factory defaults returns ALL menu settings to the factory defaults.

Character Pitch

Press CHARACTER PITCH/RESET to select the width of characters in characters per inch, or Proportional.



10 cpi

- Recommended for standard text
- Not available for SSD

12 cpi

- Recommended for standard text
- Yields more text per page

15 cpi

- Recommended for spreadsheets
- Yields more text per page

17.1 cpi, 20 cpi

- Recommended for spreadsheets
- Smallest print
- Not available for SSD

PROP

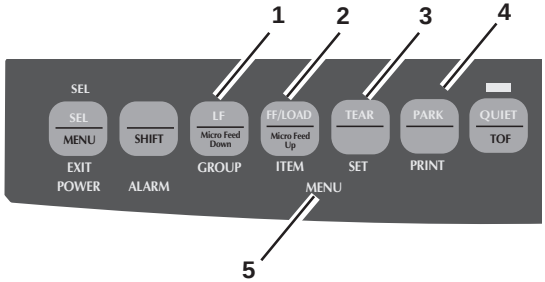
- Recommended for a more polished appearance
- Proportional spacing
- NLQ and Utility only

Menu Mode

! ***ALWAYS print the current Menu Mode settings before you reset or change the Menu settings. Printing the settings is the only way to have a record of the settings.***

To print the Menu Mode Settings, refer to "Using Your Printer, Menu Mode, Printing the Menu Settings."

In Menu Mode, you use the front panel keys to change the defaults for the printer parameters. The changes you make in the Menu Mode are automatically saved when you exit the Menu Mode and are retained, even when you turn the printer off.



1 GROUP: Prints the next Group in the Menu. With the SHIFT key, prints the previous Group.

2 ITEM: Prints next Item in the Group. With the SHIFT key, prints previous Item in the Group.

3 SET: Prints next Setting for an Item. With the SHIFT key, prints previous Setting for an Item.

4 PRINT: Prints a copy of all the Menu settings. With the SHIFT key, prints the current settings for the Group selected.

5 MENU light: Glows when the printer is in the Menu Mode.

Entering and Exiting Menu Mode

To enter or exit the Menu Mode, hold SHIFT while pressing SEL.

Moving Through the Menu

When the printer is in Menu Mode, you can move forward or backwards through the menu.

Moving Forward

To move forward, press GROUP, ITEM, or SET, whichever is appropriate.

For more information, refer to “Using Your Printer, Menu Mode.”

Moving Backward

To move backward, press and hold SHIFT, then GROUP, ITEM, or SET, whichever is appropriate.

For more information, refer to “Using Your Printer, Menu Mode.”

Resetting Menu to Factory Defaults

! ***ALWAYS print the current Menu Mode settings before you reset or change the Menu settings.***
Printing the settings is the only way to have a record of the settings.
To print the Menu Mode Settings, refer to "Using Your Printer, Menu Mode, Printing the Menu Settings."

To reset the Menu to the standard settings (factory defaults):

1 Turn the printer off.

2 Press SEL + LF while turning the printer on.

Printing the Menu Settings

! ***ALWAYS print the current Menu Mode settings before you reset or change the Menu settings.***
Printing the settings is the only way to have a record of the settings.

1 Make sure paper is loaded in the printer.

2 Enter the Menu Mode (SHIFT + SEL).

3 Press PRINT (PARK key).

! ***To print out a listing of the settings for all menu items, regardless of the emulation selected or the accessories installed, enter the Menu Mode, then press SHIFT + PRINT QUALITY.***

Changing the Menu Settings

! ***ALWAYS print the current Menu Mode settings before you reset or change the Menu settings.***
Printing the settings is the only way to have a record of the settings.

To print the Menu Mode Settings, refer to "Using Your Printer, Menu Mode, Printing the Menu Settings."

1 Press SHIFT + SEL to enter the Menu Mode.

2 Use the GROUP, ITEM and SET keys to make your changes:

Press GROUP until the Group you wish to change appears in the first column.

Press ITEM until the Item you wish to change appears in the second column.

Press SET until the setting you want appears in the third column.

3 Press SHIFT + SEL to exit the Menu Mode and save your settings.

! ***Important!***
If you turn off the printer without first exiting the Menu Mode, the changes you have made will be lost.

Menu Settings Table

For a complete explanation of each menu item, refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The table below shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

Group	**Item**	**Settings** (Defaults are set in ***bold italic)***
Printer Control	Emulation Mode	***IBM PPR***, EPSON FX, ML
Font	Print Mode	***Utility***, NLQ Courier, NLQ Gothic, Draft
	Draft Mode	***HSD***, SSD
	Pitch	***10 cpi***, 12 cpi, 15 cpi, 17.1 cpi, 20 cpi
	Proportional Spacing	***No***, Yes
	Style	***Normal***, Italics
	Size	***Single***, Double
Symbol Sets	Character Set	***Standard***, Line Graphics, Block Graphics
	Language Set	***American***, French, German, British, Danish I, Swedish, Italian, Spanish I, Japanese, Norwegian, Danish II, Spanish II, Latin American, French Canadian, Dutch, Publisher
	Zero Character	***Slashed***, Unslashed
	Code Page	***USA***, Canada French, Multilingual, Portugal, Norway, BRASC II, Abicomp

Menu Settings Table (Continued)

For a complete explanation of each menu item, refer to “Using Your Printer, Menu Mode, Explanations of Menu Items.”

The table below shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

Group	**Item**	**Settings** (Defaults are set in ***bold italic)***
Rear Feed	Line Spacing	***6 LPI***, 8 LPI
	Form Tear-Off	***Off***, 500 mS, 1 sec, 2 sec
	Skip Over Perforation	***No***, Yes
	Page Width (wide model only)	***13.6"***, 8"
	Page Length	***11"***, 11-2/3", 12", 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"
Bottom Feed	Line Spacing	***6 LPI***, 8 LPI
	Form Tear-Off	***Off***, 500 mS, 1 sec, 2 sec
	Skip Over Perforation	***No***, Yes
	Page Width (wide model only)	***13.6"***, 8"
	Page Length	***11"***, 11-2/3", 12", 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"

Menu Settings Table (Continued)

For a complete explanation of each menu item, refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The table below shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

Group	**Item**	**Settings** (Defaults are set in ***bold italic)***
Top Feed	Line Spacing	***6 LPI***, 8 LPI
	Bottom Margin	***Valid***, Invalid
	Page Width (wide model only)	***13.6"***, 8"
	Page Length	***11"***, 11-2/3", 12", 14", 17", 3", 3.5", 4", 5.5", 6", 7", 8", 8.5"
	Wait Time	500 mS, 1 sec, 2 sec
	Page Length Control	***By MENU Setting***, By Actual Page Length
Set-Up	Graphics	***Bi-directional***, Uni-directional
	7 or 8 Bit Graphics*	***8***, 7
	Receive Buffer Size	***1 Line***, 16K, 28K, 64K
	Paper Out Override	***No***, Yes
	Print Registration	***0***, set in 0.05 mm increments: press SEL to shift registration to the left; press SHIFT + SEL to shift registration to the right.

* Appears only when the MICROLINE Standard emulation is selected.

Menu Settings Table (Continued)

For a complete explanation of each menu item, refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The table below shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

Group	**Item**	**Settings** (Defaults are set in ***bold italic)***
Set-Up (continued)	7 or 8 Bits Data Word*	***8***, 7
	Operator Panel Function	***Full Operation***, Limited Operation
	Reset Inhibit	***No***, Yes
	Print Suppress Effective	***Yes***, No
	Auto LF	***No***, Yes
	Auto CR+	***No***, Yes
	Print DEL Code*	***No***, Yes
	SI Select Pitch (10 cpi)+	***17.1 cpi***, 15 cpi
	SI Select Pitch (12 cpi)+	***20 cpi***, 12 cpi
	Time Out Print	***Valid***, Invalid
	Auto Select	***No***, Yes
	Centering Position	***DEFAULT***, MODE 1, MODE 2
	ESC SI Pitch	***17.1 cpi***, 20 cpi

* Appears only when the MICROLINE Standard emulation is selected.

+ Appears only when the IBM emulation is selected.

Menu Settings Table (Continued)

For a complete explanation of each menu item, refer to "Using Your Printer, Menu Mode, Explanations of Menu Items."

The table below shows the items which may appear in the menu. Settings which are engaged at the factory (defaults) are set in ***bold italic***. Some groups or entries will only appear when a specific emulation is engaged, as noted.

Group	**Item**	**Settings** (Defaults are set in ***bold italic)***
Parallel I/F	I-Prime	***Buffer Print***, Invalid, Buffer Clear
	Pin 18	***+5V***, Open
	Auto Feed XT**	***Invalid***, Valid

** Applies only when the Epson emulation is selected.

Explanations of Menu Items

Refer to “Using Your Printer, Menu Mode, Menu Settings Table” for an overview of the menu structure.

7 or 8 Bits Data Word (ML). If your computer system uses seven bits to make up each unit of data, change this setting to 7.

7 or 8 Bit Graphics (ML). Choose the graphics your system uses: 7 or 8 dots in each column printed.

Auto CR (IBM). If you want the printer to automatically add a carriage return when a Line Feed is received at the end of a line, change the setting to Yes.

Auto LF. If your printout is consistently double spaced, select No; if it overprints, select Yes.

Auto Feed XT (Epson). If your system uses pin 14 of the parallel interface to control automatic line feed, change the setting to Valid.

Auto Select. If you always use the same Top of Form position, change the setting to Yes.

Bottom Margin. Change to Invalid if you want the printer to ignore the bottom margin setting. Caution!! This can cause loss of data and damage the printhead.

Centering Position. Used to limit printhead travel when printing narrow columns.
Select Mode 1 for the narrow carriage printer.
Select Mode 1 or Mode 2 for the wide carriage printer.

Character Set. Choose Standard (IBM Set I), Line Graphics (IBM Set II) or Block Graphics.

Code Page. Choose the Code Page character set you wish to use: USA (IBM 437), Canada French (IBM 863), Multilingual (IBM 850), Portugal (IBM 860), Norway (IBM 865), BRASC II, or Abicomp.

Draft Mode. Change to SSD if you wish to use the Super Speed Draft mode of printing. Note: Print Mode must be set to DRAFT for this setting to be effective.

Emulation Mode. Choose the printer emulation.

ESC SI Pitch. Sets the character pitch used when the ESC SI command is received.

Explanations of Menu Items (Continued)

Refer to “Using Your Printer, Menu Mode, Menu Settings Table” for an overview of the menu structure.

Form Tear-Off. Choose 500 mS, 1 sec, or 2 sec to turn the Form Tear-Off feature on and to set the time interval for the printer to wait before advancing the paper.

Graphics. Change to bi-directional graphics for faster printing. Optimize the registration using the Print Registration setting in the Menu.

I-Prime. Determines what the printer will do when it receives the I-Prime signal from the software.

Buffer Print prints out the buffer contents before resetting.

Buffer Clear dumps the buffer contents immediately.

Invalid causes the printer to ignore the I-Prime command.

Language Set. Replaces certain standard symbols with special characters used in foreign languages.

Line Spacing. Change to 8 lines per inch to get more lines on a page.

Operator Panel Function. Change to Limited Operation to deactivate the PRINT QUALITY and CHARACTER PITCH buttons. This prevents these from being changed from the control panel when several people are using the printer.

Page Length. Selects the length of the paper you are using.

Page Width (Wide Carriage only). Change to 8" to print on letter-size paper.

Paper Out Override. Senses when less than 1" (25 mm) of paper remains and stops printing. Change to Yes to override the sensor. Caution!! This can cause loss of data and damage the printhead!

Pin 18. Sets the signal on pin 18 to +5 volts or to open.

Pitch. Choose the character width, in character per inch (cpi).

Print DEL Code (ML). Change to Yes if you wish to print the DEL code (decimal 127) as a solid box.

Print Mode. Choose the quality and speed of printing.

Print Registration. Change the setting as required to obtain the best registration for bi-directional printing.

Explanations of Menu Items (Continued)

Refer to “Using Your Printer, Menu Mode, Menu Settings Table” for an overview of the menu structure.

Print Suppress Effective. If your system uses the DC1 and DC3 codes for something other than the print suppress mode, change the setting to No.

Proportional Spacing. Change the setting to Yes to engage proportional spacing of characters.

Receive Buffer Size. Selects the amount of memory devoted to holding received data. Choosing 1 Line will tie up your computer while printing, but if you abort the print job, the printer will stop much sooner.

Reset Inhibit. Select Yes to prevent your software from resetting your printer's settings.

SI Select Pitch, 10 cpi (IBM). Sets the pitch to be engaged when the printer control panel is set for 10 cpi and the SI command is received.

SI Select Pitch, 12 cpi (IBM). Sets the pitch to be engaged when the printer control panel is set for 12 cpi and the SI command is received.

Size. Change to Double for double width and height printing.

Skip Over Perforation. Change to Yes if you want the printer to go to the next page when it comes within 1" (25 mm) of the bottom of the page. Keep it set to No if your software has its own page formatting controls.

Style. Change to italics if you want the printed characters to be slanted.

Time Out Print. If your software spends a long time processing between portions of data it feeds to the printer, change the setting to Invalid to keep your printer from dumping the received data while it is waiting for more.

Wait Time. Sets the amount of time the printer will wait for more data before moving to the form tear-off position.

Zero Character. If you do not want the printer to use a slash to distinguish the number zero from the capital letter O, change the setting to Unslashed.

Maintenance

Replacing the Ribbon Cartridge

If you need instructions for replacing the ribbon cartridge, you can refer to the

- packaging of the new cartridge
- web site
- “Installation, Ribbon Cartridge.”

For the best results, use genuine OKI ribbons.

For information on obtaining consumables, refer to “Accessories.”

For information on the web site, refer to “Service and Support, Internet Support.”

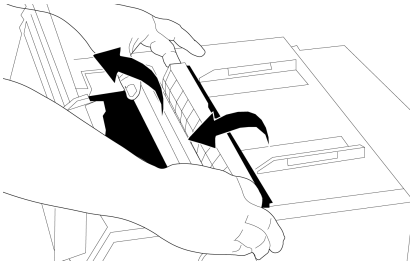
Printer Cleaning

You should clean the printer every six months (or after about 300 hours of operation).

! ***Never use solvents or strong detergents on the cabinet: they could cause damage.***

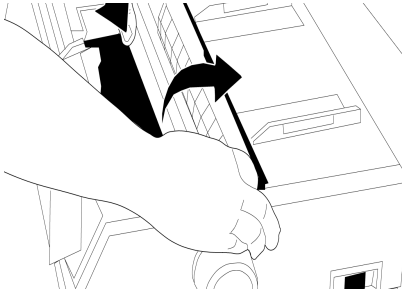
1 Turn off the printer. Then, use the platen knob to back the paper out of the printer.

2 Open the access cover. Remove the pull-up roller assembly.



3 Use a clean, dry cloth to dust around the carriage shaft and platen. Remove any loose bits of paper.

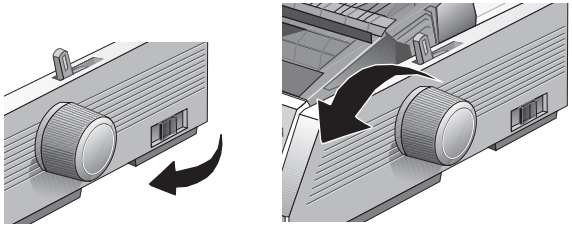
4 Install the pull-up roller assembly. Close the access cover.



Paper Jams

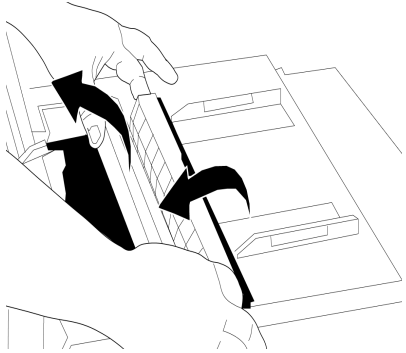
Rear-Feed Paper Jams

1 Turn off the printer. Then, use the platen knob to back the paper out of the printer.



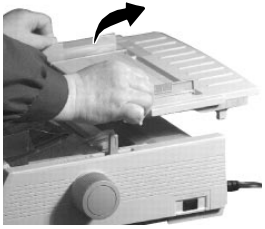
! ***Make sure the printer is turned off before you open the access cover.***

2 Open the access cover. Remove the pull-up roller assembly.

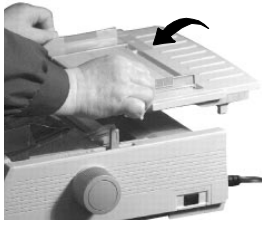


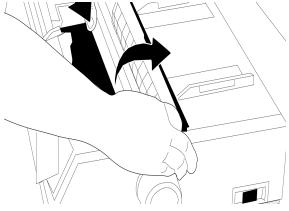
3 Remove any torn pieces of paper.

4 Grasp the tabs and lift off the paper separator. Load paper.

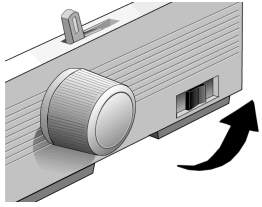


5 Install the paper separator. Install the pull-up roller assembly. Close the access cover.





6 Turn on the printer.



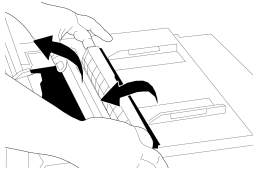
7 Press FF/LOAD.

Rear-Feed, Repeating Paper Jams

If the paper keeps jamming, you probably have bits of paper stuck in the paper path.

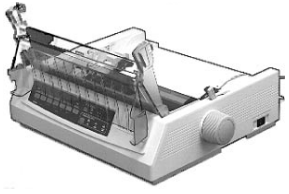
1 Turn off the printer. Then, use the platen knob to back the paper out of the printer.

2 Open the access cover. Remove the pull up roller assembly. Remove any torn pieces of paper.

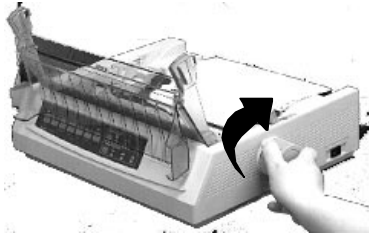


3 Grasp the tabs and lift off the paper separator.

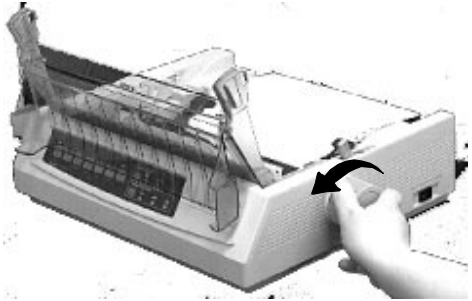
4 Fold some continuous-form paper over three times to make a page four sheets thick. Then, load it on the tractors and close the covers.



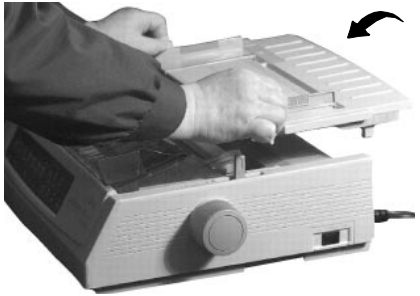
5 Use the platen knob to draw the quadruple-thick page around the platen. This clears any jammed bits of paper.



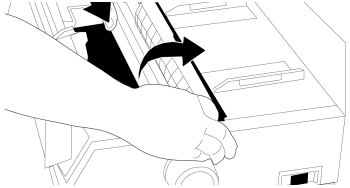
6 Remove any paper pieces. Then, use the platen knob to back the paper out.



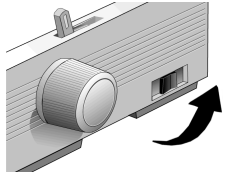
7 Load regular paper. Install the paper separator.



8 Install the pull-up roller assembly. Close the access cover.



9 Turn on the printer.

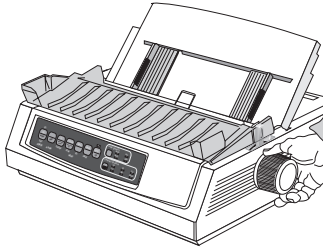


10 Press FF/LOAD.

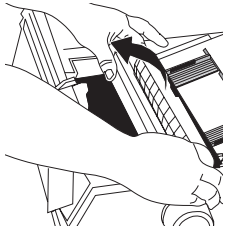
Single-Sheet Paper Jams

1 Turn off the printer**.**

2 Then, use the platen knob to back the paper out.

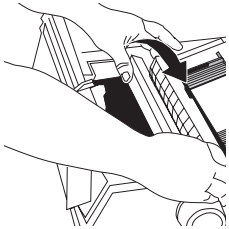


3 Open the access cover. Remove the pull-up roller assembly.

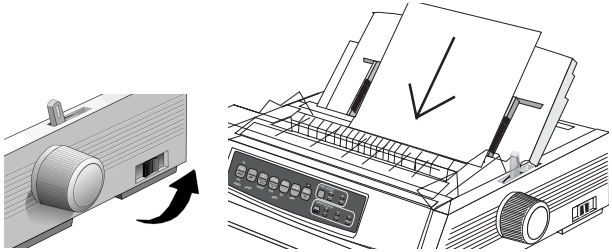


4 Remove any torn pieces from around the carriage.

5 Install the pull-up roller assembly. Close the access cover.



6 Turn on the printer. Load paper.



Troubleshooting

General Information

Here are some general things to check before proceeding with detailed troubleshooting.

- Is the printer plugged in and turned on?
- Are the connections (power and interface) secure?
- Is the product being operated under the proper ambient conditions?
- Does the paper being used meet the specifications for this product?
- Is the paper properly installed?
- Has the ribbon been replaced as recommended?
- Is the ribbon properly installed?
- Is an OKI ribbon being used?
- Is the printhead gap correctly set?
- Are the correct printer drivers being used for the printer?

! ***Settings in your software application will override any settings in your printer driver.***
Your printer driver settings will override any settings from the printer menu or printer front panel.

Internet Support

Oki Data provides support via the Internet.

Oki Data's main web site, www.okidata.com, is the gateway to Oki Data's products and services.

my.okidata.com is a powerful area of Oki Data's web site designed to help you personalize the information and service you get from Oki Data.

For more information, refer to "Service and Support, Internet Support."

List of Problems

Problem 1:
My word processor files do not print the way I have the menu and front panel set.

Problem 2:
Nothing happens when I turn on the printer.

Problem 3:
The printer does not print when the computer sends data.

Problem 4:
I'm getting strange symbols, incorrect fonts, etc., when I try to print a document.

Problem 5:
Ink smears on the paper when I print on narrow forms.

Problem 6:
I've installed a new ribbon and the printing is smeared and streaked.

Problem 7:
The ALARM light is flashing.

Problem 8:
The ALARM light is on and the Character Pitch 10 light is flashing.

Problem 9:
The ALARM light is on and the Character Pitch 15 light is flashing.

Problem 10:
The printer needs paper, but the ALARM light is not on and I cannot load the paper.

Problem 11:
The Print Quality and Character Pitch keys on the front panel don't work.

Problem 12:
Continuous-form paper sticks to the paper separator.

Problem 1:

My word processor files do not print the way I have the menu and front panel set.

Solution:

Always remember that:

1. Settings in your software application will override any settings in your printer driver.
2. Your printer driver settings will override any settings from the printer menu or printer front panel.

Solution:

Before sending a file to the printer, many word processors send either an "initialization string" or an I-Prime signal to the printer.

The initialization string contains codes that override the panel and menu settings. To change your printer to ignore the reset code, enter the Menu Mode, go to the Set-Up group and change the setting for Reset Inhibit to Yes. Refer to "Using Your Printer, Menu Mode."

The I-Prime signal will automatically override any front panel settings you have made. To eliminate this problem, enter the Menu Mode, go to the Parallel Interface group and change the setting for I Prime to Invalid. Refer to "Using Your Printer, Menu Mode."

Problem 2:

Nothing happens when I turn on the printer.

Solution:

Check the power cord connection to the outlet. If you are using a power strip, make sure it is turned on, and that a fuse hasn't blown or that a circuit breaker hasn't tripped.

Problem 3:

The printer does not print when the computer sends data.

Solutions:

1. Is the SEL light on? If not, press the SEL key.
2. Check that the interface cable is securely connected to both the printer and the computer.
3. If you have the optional serial interface board installed, check to be sure that it is firmly seated in the printer.

Problem 4:

I'm getting strange symbols, incorrect fonts, etc., when I try to print a document.

Solutions:

1. Check to be sure that the printer driver you have selected in your software matches the printer emulation.

   Press SHIFT and SEL keys, then press GROUP key.

   This will print a line showing the emulation you have selected.
2. If you have embedded any printer commands in your software, check to be sure that you entered them correctly.

Problem 5:

Ink smears on the paper when I print on narrow forms.

Solution:

This may be caused by excessive printhead travel from the centering position. Enter the Menu and set the Centering Position to MODE 1. Refer to “Using Your Printer, Menu Mode.”

For the wide-carriage printer, if MODE 1 doesn't work, try setting the Centering Position to MODE 2.

Problem 6:

I've installed a new ribbon and the printing is smeared and streaked.

Solution:

The ribbon shield is either loose or missing. Remove the ribbon cartridge and check the ribbon shield.

If it is loose, secure it.

If it is missing, find it and install it.

Problem 7:

The ALARM light is flashing.

Solution:

Try turning the printer off and then back on again. If the light still blinks, call for service.

Problem 8:

The ALARM light is on and the Character Pitch 10 light is flashing.

Solution:

This indicates that the paper lever is set at the wrong position for the paper you are trying to use. Move it to the proper setting.

Problem 9:

The ALARM light is on and the Character Pitch 15 light is flashing.

Solution:

This indicates a paper jam. Press the SEL key and correct the paper jam situation. Refer to “Maintenance, Paper Jams.”

Problem 10:

The printer needs paper, but the ALARM light is not on and I cannot load the paper.

Solution:

Press and release the SEL key.

Then, press and hold the SHIFT key and press the RESET (CHARACTER PITCH) key.

The printer is reset.

Problem 11:

The Print Quality and Character Pitch keys on the front panel don't work.

Solution:

The Operator Panel Function in the printer menu can be used to disable these buttons (Limited Function). If the printer is part of a customized system or if it is used by a number of people, the system manager may have used this option to make sure the printer is always set properly.

Check with your system manager before changing any menu settings.

Refer to “Using Your Printer, Menu Mode.”

Problem 12:

Continuous-form paper sticks to the paper separator.

Solution:

In cold dry weather, static charges can build up and make the paper cling to the paper separator. Try moving the paper guides together so that the paper rests on the guides rather than on the separator.

Specifications

! ***Specifications subject to change without notice.***

Print Method

Impact dot matrix

Printhead

9 pins, 0.34 mm diameter, thermal protection

Print Speed

Mode	*Characters per second*
Super Speed Draft (SSD)	435 cps
High Speed Draft (HSD)	390 cps
Utility (UTL)	300 cps
Near Letter Quality (NLQ)	75 cps

Characters per Line (cpl)

Setting	*ML320 Turbo*	*ML321 Turbo*
10 cpi	80 cpl	136 cpl
12 cpi	96 cpl	163 cpl
15 cpi	120 cpl	204 cpl
17.1 cpi	137 cpl	233 cpl
20 cpi	160 cpl	272 cpl

Emulations

Epson FX (ESC/P)

IBM Proprinter III(PPSII)

Oki Data Microline Standard co-resident

Interface

Standard: Centronics parallel, IEEE-284 compliant

Optional: RS-232C serial

Graphics Resolution

Emulation	*Maximum Resolution*
Epson/IBM	240 (H) x 216 (V) dpi
OKIDATA	288 (H) x 144 (V) dpi

Resident Fonts

Print Quality	*Available Fonts*
Near Letter Quality	Courier, Gothic
Utility	Gothic
High Speed Draft	Gothic
Super Speed Draft	Gothic

Resident Scalable Fonts*

Courier and Gothic, in sizes from 22 to 216 points

*Selectable through software only.

Bar Codes

Code 39, UPC A, UPC E, EAN 8, EAN 13,
Interleaved 2 of 5, Code 128, Postnet

Receive Buffer Size

1 Line, 16 K, 28K, 64K

Reliability

Mean Time Between Failures (MTBF)

10,000 hours at 25% duty cycle and 35% page density

Mean Time to Repair (MTTR)

15 minutes

Printhead Life

200 million characters average in 10 cpi draft mode at 25% duty and 35% page density

Ribbon Life

3 million characters, on average, 10 cpi utility

Paper Specifications

Microline 320 Turbo

Paper Type: Cut Sheet
Feed: Top
Weight: 14-24 lb. (52.5-90 g/m^2)
Width Range: 7.2" to 8.5" (182.8 to 215.9 mm)

Paper Type: Single-part, continuous forms
Feed: Rear, Bottom
Weight: 12-24 lb. (45-90 g/m^2)
Width Range: 3" to 10" (76.2 to 254 mm)

Paper Type: Carbonless continuous forms
Feed: Rear, Bottom
Weight: 9-11 lb. (33.75-41.25 g/m^2)
Width Range: 3-10" (76.2 to 254 mm)

Paper Type: Interleaf continuous forms
Feed: Rear, Bottom
Weight: Not applicable
Width Range: 3-10" (76.2 to 254 mm)

Paper Type: Labels
Feed: Bottom
Weight: Not applicable
Width Range: 3-10" (76.2 to 254 mm)

Paper Type: Envelopes, single feed
Feed: Top
Weight: 24 lb. max. (90 g/m^2)
Width Range: 6.5" to 9.5" (165.1 to 241.3 mm)

Paper Type: Envelopes, continuous feed, non-overlap
Feed: Bottom
Weight: 24 lb. max. (90 g/m^2)
Width Range: 6.5" to 9.5" (165.1 to 241.3 mm)

Paper Type: Card stock
Feed: Bottom
Weight: 120 lb. max. (450 g/m^2)
Width Range: Not applicable

Paper Type: Transparencies
Feed: Top
Weight: Not applicable
Width Range: Not applicable

Standard Transparencies are
8.5" x 11" (215.9 - 279.4 mm)

Paper Specifications

Microline 321 Turbo

Paper Type: Cut Sheet
Feed: Top
Weight: 14-24 lb. (52.5-90 g/m^2)
Width Range: 7.2" to 14.3" (182.8 to 363.2 mm)

Paper Type: Single-part, continuous forms
Feed: Rear, Bottom
Weight: 12-24 lb. (45-90 g/m^2)
Width Range: 3" to 16" (76.2 to 406.4 mm)

Paper Type: Carbonless continuous forms
Feed: Rear, Bottom
Weight: 9-11 lb. (33.75-41.25 g/m^2)
Width Range: 3" to 16" (76.2 to 406.4 mm)

Paper Type: Interleaf continuous forms
Feed: Rear, Bottom
Weight: Not applicable
Width Range: 3" to 16" (76.2 to 406.4 mm)

Paper Type: Labels
Feed: Bottom
Weight: Not applicable
Width Range: 3" to 16" (76.2 to 406.4 mm)

Paper Type: Envelopes, single feed
Feed: Top
Weight: 24 lb. max. (90 g/m^2)
Width Range: 6.5" to 9.5" (165.1 to 241.3 mm)

Paper Type: Envelopes, continuous feed, non-overlap
Feed: Bottom
Weight: 24 lb. max. (90 g/m^2)
Width Range: 6.5" to 9.5" (165.1 to 241.3 mm)

Paper Type: Card stock
Feed: Bottom
Weight: 120 lb. max. (450 g/m^2)
Width Range: Not applicable

Paper Type: Transparencies
Feed: Top
Weight: Not applicable
Width Range: Not applicable

Standard Transparencies are
8.5" x 11" (215.9 - 279.4 mm)

Paper Thickness

Rear Feed

0.014" (0.36 mm) maximum

Bottom Feed*

0.017" (0.43 mm) maximum
expandable to 0.031" (0.79 mm) maximum

* Requires optional push or pull tractor.

Printer Dimensions

Width x Depth x Height

ML320 Turbo

15.7 x 13.6 x 4.6 inches
389 x 355 x 116 mm

ML321 Turbo

21.7 x 13.6 x 4.6 inches
550 x 355 x 116 mm

Printer Weight

ML320 Turbo: 17.2 lbs. (7.8 kg)

ML321 Turbo: 22.2 lbs. (10.1 kg)

Environmental Requirements

Temperature

Operating	41 to 104°F (5 to 40°C)
Storage	14 to 122°F (-10 to 50°C)

Humidity

Operating	20 to 80% RH
Storage	5 to 95% RH

Electrical Requirements

120 volts ac (+5.5%, -15%), 60 Hz (±2%)

Also available: 230 or 240 volts ac, 50 or 60 Hz (±2%)

! ***Specifications subject to change without notice.***

Service and Support

General Information

Oki Data offers service and support to you through a variety of methods.

Please chose the service and support method that is best for you.

Oki Data's service and support methods are:

- the documentation provided with your machine
- the store location where you purchased your machine
- Internet Support
- Telephone Support

Details of each support method are provided in this section

Oki Data's service and support methods are different in these two areas:

- United States and Canada
- Latin America

Details for each area are provided in this section.

Service Centers are trained by Oki Data and are authorized to service OKI products. For more information about Service Centers, refer to "Service and Support, Service Centers."

Documentation

The documentation provided with your machine provides an excellent reference for the day-to-day operation of your machine.

The documentation included with your machine is:

- User's Guide, on line, provided on the CD
- Microline Reference Manual, on line, provided on the CD
- Quick Start
- Warranty, Regulatory, and Safety Information

If you cannot locate your documentation, go to www.okidata.com or www.my.okidata.com. Follow the prompts for your product, and you will find the on-line versions of all of these documents.

Purchase Location

The store location where you purchased your machine provides an excellent, local means of support for you and your machine.

Your purchase location will also provide any warranty service required by your machine

! ***You will need your printer serial number if your machine requires servicing.***
A written receipt for the product, showing the date of purchase, dealer's name, and both the model and serial numbers of the product must accompany any request or claim for work to be performed under Limited Warranty.

Internet Support

www.okidata.com

Your Gateway to OKI Products and Services

www.okidata.com is Oki Data's web site. It provides general information about all of the OKI products and services available to you.

You can use our web site to

- get Web-based support for all OKI products: 24 hours a day, 7 days a week—no waiting!
- download the printer drivers you need.
- read about other customers and how they use OKI products to improve their productivity and enhance their documentation.
- use the Dealer Locator to find a dealer location close to you.
- find out about Oki Data's special promotional offers and breaking news.
- and more . . .

my.okidata.com

Your Personal Solutions Center

my.okidata.com is a powerful area of Oki Data's web site designed to help you personalize the information and service you get from Oki Data.

When you register for my.okidata.com, you

- personalize the web-based support for the OKI products you own: 24 hours a day, 7 days a week—no waiting!
- automatically register your product.
- access on-line versions of your product documentation (manuals) and support information.
- control your contact, profile, and preference information.
- receive automatic notification of new printer drivers, key updates, and support information.
- track your e-mail support history.
- and more . . .

Telephone Support

Oki Data Customer Information System

Information System Automated Attendant

1-800-654-3282 (1-800-OKI-DATA)

Toll Free in the U.S. and Canada

For quick answers to commonly-asked questions, the Oki Data Information System Automated Attendant is available 24 hours a day, 7 days a week. The system can provide immediate assistance with:

- Basic operating procedures
- Sales and service referrals
- Parts and consumable referrals
- Product information

Customer Support Professionals

1-800-654-3282 (1-800-OKI-DATA)

Toll Free in the U.S. and Canada

Customer Support Professionals are available 24 hours a day, 7 days a week. Please be sure that you are calling from a telephone close to your machine so you can describe your problem accurately.

Our Customer Support Professionals are trained on all current OKI products. They can answer your questions regarding:

- Locations of sales and service dealers
- Installation of your machine
- Usage/normal maintenance of your machine
- Error message interpretation/solutions
- Parts and supplies identification
- Consumer relations

Service Centers

Authorized Service Providers

Oki Data has over 2,000 local Authorized Service Providers in North and South America.

For the most comprehensive, up-to-date listing of Oki Data authorized Service Centers:

- Consult our web site at **www.okidata.com**
- In the U.S. and Canada, call 1-800-654-3282 (1-800-OKI-DATA)
- In Latin America, contact the Latin America Service Coordinator at Oki Data's Corporate Headquarters at 856-222-7496 (Spanish only)

United States

Oki Data Americas, Inc.
2020 Bishops Gate Blvd.
Mt. Laurel, NJ 08054
Phone: 1-800-654-3282
Fax: 1-856-222-5247

Canada

Oki Data Americas, Inc.
2735 Matheson Blvd. East, Unit 1
Mississauga, Ontario
Canada L4W 4M8
Phone: 1-800-654-3282
Fax: 1-905-238-4421

Mexico

Oki Data de Mexico, S.A. de C.V.
Mariano Escobedo No. 748-8 Piso
Col. Anzures, e.p. 11590
Mexico, DF
Phone: (525) 263-8780
Fax: (525) 250-3501

Brazil

Oki Data do Brasil, Ltda.
Rua Alexandre Dumas, 2220 - 8 andar
Chácara Sto Antonio
São Paulo, Brazil 04717-004
Phone: 55-11-3444-3500
Fax: 55-11-3444-3501

Service and Support: United States and Canada

Oki Data is firmly committed to the satisfaction of our customers. If you have problem that your customer documentation cannot solve, contact the listed sources for service or support.

Sales and Service Dealers: United States and Canada

Consult the store location where you purchased your machine, or contact Oki Data for the location of the nearest Authorized Oki Data Service Dealer.

- Prices and minimum charges may vary.
- Proof of purchase is required for warranty work. Be sure to retain your purchase documents.

Service and Support: Latin America

Oki Data is committed to offer the best customer support possible to our customers. In the instance of having a difficult problem with your OKI product, please contact any of the OKI- CAS (Centro Autorizado de Servicio) shown on our Web site, **www.okidata.com**.

Sales and Service Centers: Latin America

If you need to service your OKI product, please contact the store where you bought your fax machine or contact any of the OKI-CAS listed on our Web site for information.

- Prices and charges may vary.
- A copy of the proof of purchase is required for the warranty process.

Contacting Oki Data: Latin America

Information regarding our products and authorized service centers is available in our Web site:

http://www.okidata.com

Customer Support Professionals: Latin America

Our CAS's are trained and certified to provide the best service and support possible to our customers. Make sure that you are close to your machine when you call one of our OKI authorized service centers (OKI-CAS) so that you can describe your problem more accurately.

Our customer support professionals are trained on all current OKI products. They can answer your questions regarding:

- Location of nearest CAS (Service Center).
- Installation of your machine.
- Usage/normal maintenance of your machine.
- Error message interpretation/solutions
- Parts and supplies identification.
- Consumer relations.

Accessories

Purchasing Accessories

Before you purchase, know your machine model number (see the front of the unit) and have the correct part number and description of the item. Item descriptions and part numbers are provided in this section.

- Consult the dealer where your purchased your machine.
- Locate an Authorized Oki Data Reseller by visiting one of these web sites
  - http://my.okidata.com
    Allows you to register your product and personalize your own support needs
  - http://www.okidata.com
    Provides general information
- In the United States, purchase directly from Oki Data
  Via the Internet
  - http://my.okidata.com
  - http://www.okidata.com

  Via telephone
  Order toll-free by phone at 1-800-654-3282 (1-800-OKI-DATA) using VISA, MasterCard, or American Express.
- In Canada, call 888-309-4570.

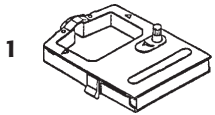
Accessories: Part Numbers

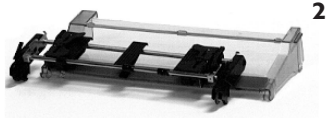
Consumables: Part Numbers

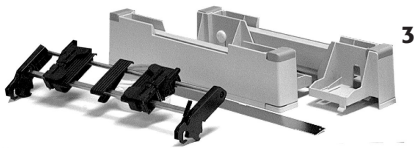
Consumable	Part Number
Ribbon Cartridge (1)	52102001

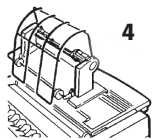
Options: Part Numbers

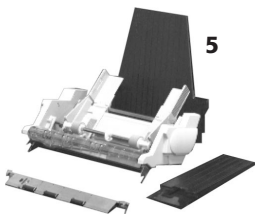
Option	Part Number
Model ML320T	
Pull Tractor, Top-Mount (2)	70030501
Push Tractor, Bottom-Mount (3)	70030701
Roll Paper Stand (4)	70023301
Model ML321T	
Pull Tractor, Top-Mount (2)	70030601
Push Tractor, Bottom-Mount (3)	70030801
Both Models	
Cut Sheet Feeder (5)	70030101
(Cut Sheet Feeder sold only with printer; not available separately)	
Serial Interface (Not Shown)	70012801
OkiLAN 6010e 10 Base-T Ethernet External Print Server (Not Shown)	70034401
OkiLAN 6020e 10/100 Base-TX Ethernet External Print Server (Not Shown)	70036001





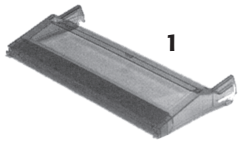


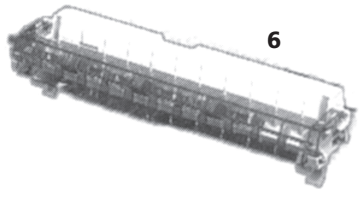




Replacement Parts: Part Numbers

Replacement Part	Order No.
Access Cover, ML320T (1)	53076701
Access Cover, ML321T (1)	53076801
Acoustic Cover, ML320T (2)	53076901
Acoustic Cover, ML321T (2)	53077001
Platen Knob (3)	51902220
Power Cord (4)	56631801
Printhead (5)	50114601
Pull-Up Roller Assembly, ML320T (6)	50411001
Pull-Up Roller Assembly, ML321T (6)	50411101





Documentation: Part Numbers

Document	Part Number
Quick Start	refer to my.okidata.com
User's Guide	refer to my.okidata.com
Reference Manual	refer to my.okidata.com
Warranty, Regulatory, and Safety Information	refer to my.okidata.com

! ***If you cannot locate your hardcopy documentation or the CD provided with your machine, go to www.okidata.com or www.my.okidata.com. Follow the prompts for your product, and you will find the on-line versions of all of these documents.***

Printer Control Codes

This section lists the most commonly used printer control codes.

The Microline Reference Manual provides complete lists of all the commands, along with information on their use.

You may view this document by:

- accessing the document on the CD provided with your machine
- using the Oki Data web sites
  http://www.okidata.com
  or
  my.okidata.com

! ***The Microline Reference Manual is ONLY available in American English.***

Epson FX Commands

Epson Command	ASCII	Decimal
Backspace	BS	8
Carriage Return, Execute	CR	13
Character Pitch		
Select 10 cpi	ESC P	27 80
Select 12 cpi	ESC M	27 77
Select 15 cpi	ESC g	27 103
Select Condensed Print	ESC SI, or SI	27 15, or 15
Cancel Condensed Print	DC2	18
Delete	DEL	127
Double Height On	ESC w 1	27 119 49
Double Height Off	ESC w 0	27 119 48
Double Width On	ESC W 1	27 87 49
Double Width Off	ESC W 0	27 87 48
Emphasized Print On	ESC E	27 69
Emphasized Print Off	ESC F	27 70
Enhanced Print On	ESC G	27 71
Enhanced Print Off	ESC H	27 72
Epson Set 1, Select	ESC t 0	27 116 48
Epson Set 2, Select	ESC t 1	27 116 49
Italic Printing On	ESC 4	27 52
Italic Printing Off	ESC 5	27 53
Form Feed	FF	12

Epson Command	ASCII	Decimal
Form Length		
n Inches (n = 1 to 22)	ESC C NUL n	27 67 0 n
n Lines (n = 1 to 255)	ESC C n	27 67 n
Horizontal Tab	HT	9
Justification		
Left	ESC a 0	27 97 48
Center	ESC a 1	27 97 49
Right	ESC a 2	27 97 50
Full	ESC a 3	27 97 51
Line Feed, Execute		
Select 10 cpi	ESC P	27 80
Select 12 cpi	ESC M	27 77
w/ Carriage Return	LF	10
n/216" (n = 0 to 255)	ESC J n	27 74 n
n/144" (n = 0 to 127)	ESC % 5 n	27 37 53 n
Reverse, n/216" (n = 0 to 255)	ESC j n	27 106 n
Line Spacing, Set		
n/144" (n = 0 to 127)	ESC % 9 n	27 37 57 n
n/216" (n = 0 to 255)	ESC 3 n	27 51 n
n/72" (n = 0-85 or 128-213)	ESC A n	27 65 n
1/6"	ESC 2	27 50
1/8"	ESC 0	27 48
7/72"	ESC 1	27 49

Epson FX Commands (Continued)

Epson Command	ASCII	Decimal
Paper Out Sensor Off	ESC 8	27 56
Paper Out Sensor On	ESC 9	27 57
Print Quality/Font		
Select HSD/SSD, depending on Menu setting for Draft Mode	ESC (0	27 40 48
Select NLQ	ESC x 1	27 120 49
Select Courier (NLQ only)	ESC k 0	27 107 48
Select Gothic (NLQ only)	ESC k 1	27 107 49
Select UTL	ESC x 0	27 120 48
Print Speed		
Half-Speed On	ESC s 1	27 115 49
Half-Speed Off	ESC s 0	27 115 48
Print Suppress Mode On	DC3	19
Print Suppress Mode Off	DC1	17
Proportional Spacing On	ESC p 1	27 112 49
Proportional Spacing Off	ESC p 0	27 112 48
Reset Printer		
Clear Buffer & Initialize	ESC @	27 64
Clear Print Buffer	CAN	24
Skip Over Perforation, Cancel	ESC O	27 79
Software I-Prime	ESC } NUL	27 125 0

Epson Command	ASCII	Decimal
Subscript On	ESC S 1	27 83 49
Superscript On	ESC S 0	27 83 48
Subscript/Superscript Off	ESC T	27 84
Underline On	ESC - 1	27 45 49
Underline Off	ESC - 0	27 45 48
Uni-Directional Printing		
One Line Only	ESC <	27 60
On	ESC U 1	27 85 49
Off	ESC U 0	27 85 48
Vertical Tab, Execute	VT	11

IBM Proprinter III Commands

IBM Command	ASCII	Decimal
Backspace	BS	8
Carriage Return	CR	13
Character Pitch		
Select 10 cpi	DC2	18
Select 12 cpi	ESC :	27 58
Select 15 cpi	ESC g	27 103
Select Condensed Print	ESC SI, or SI	27 15, or 15
Character Sets		
IBM Set I	ESC 7	27 55
IBM Set II	ESC 6	27 54
Publisher	ESC ! Z	27 33 90
Slashed Zero	ESC ! @	27 33 64
Unslashed Zero	ESC ! A	27 33 65
Double Width On	ESC W 1	27 87 49
Double Width Off	ESC W 0	27 87 48
Emphasized Printing On	ESC E	27 69
Emphasized Printing Off	ESC F	27 70
Enhanced Printing On	ESC G	27 71
Enhanced Printing Off	ESC H	27 72
Form Feed	FF	12

IBM Command	ASCII	Decimal
Form Length, n inches (n = 1 to 22)	ESC C NUL n	27 67 0 n
Form Length, n lines (n = 1 to 255)	ESC C n	27 67 n
Horizontal Tab, Execute	HT	9
Italics On	ESC % G	27 37 71
Italics Off	ESC % H	27 37 72
Line Feed, Execute		
w/ Carriage Return	LF	10
n/144" (n = 1 to 127)	ESC % 5 n	27 37 53 n
n/216" (n = 0 to 255)	ESC J n	27 74 n
Reverse	ESC]	27 93
Auto Line Feed On	ESC 5 1	27 53 49
Auto Line Feed Off	ESC 5 0	27 53 48

IBM Proprinter III Commands (Continued)

IBM Command	ASCII	Decimal
Line Spacing		
Set Spacing to 1/8"	ESC 0	27 48
Set Spacing to 7/72"	ESC 1	27 49
Set Spacing to n/72" (n = 0 to 255)	ESC A n	27 65 n
Store Spacing Set by ESC A n	ESC 2	27 50
Set Spacing to n/144" (n = 1 to 127)	ESC A n	27 65 n
Set Spacing to n/216" (n = 0 to 255)	ESC A n	27 65 n
Overscore On	ESC _ 1	27 95 49
Overscore Off	ESC _ 0	27 95 48
Paper Out Sensor Off	ESC 8	27 56
Paper Out Sensor On	ESC 9	27 57
Print Quality, Select HSD	ESC # 0	27 35 48
Print Suppress On, ML320T	ESC Q ETX	27 81 3
Print Suppress On, ML321T	ESC Q SYN	27 81 22
Print Suppress Off	DC1	17
Proportional Spacing On	ESC P 1	27 80 49
Proportional Spacing Off	ESC P 0	27 80 48
Reset: Clear Print Buffer	CAN	24
Software I-Prime	ESC } NUL	27 125 0

IBM Command	ASCII	Decimal
Stop Printing	ESC j	27 106
Subscript On	ESC S 1	27 83 49
Superscript On	ESC S 0	27 83 48
Subscript/Superscript Off	ESC T	27 84
Top of Form, Set at Current Position	ESC 4	27 52
Underline Printing On	ESC - 1	27 45 49
Underline Printing Off	ESC - 0	27 45 48
Uni-Directional Print On	ESC U 1	27 85 49
Uni-Directional Print Off	ESC U 0	27 85 48
Vertical Tab, Execute	VT	11

Oki Data MICROLINE Standard Commands

Oki Data Command	ASCII	Decimal
Backspace	BS	8
Carriage Return	CR	13
Character Pitch		
Select 10 cpi	RS	30
Select 12 cpi	FS	28
Select 15 cpi	ESC g	27 103
Select 17.1 cpi	GS	29
Select 20 cpi	ESC # 3	27 35 51
Character Sets		
Standard	ESC ! 0	27 33 48
Block Graphic	ESC ! 1	27 33 49
Line Graphics	ESC ! 2	27 33 50
Publisher	ESC ! Z	27 33 90
Slashed Zero	ESC ! @	27 33 64
Unslashed Zero	ESC ! A	27 33 65
Double Height On	ESC US 1	27 31 49
Double Height Off	ESC US 0	27 31 48
Double Width Printing	US	31
Emphasized Printing On	ESC T	27 84
Emphasized Printing Off	ESC I	27 73

Oki Data Command	ASCII	Decimal
Enhanced Printing On	ESC H	27 72
Enhanced Printing Off	ESC I	27 73
Form Feed	FF	12
Horizontal Tab, Execute	HT	9
Italic On	ESC ! /	27 33 47
Italic Off	ESC ! *	27 33 42
Line Feed Commands		
w/ Carriage Return	LF	10
w/o Carriage Return	ESC DC2	27 18
n/144" (n = 0 to 127)	ESC % 5 n	27 37 53 n
Reverse	ESC LF	27 10
Line Spacing		
Set Spacing to 1/6"	ESC 6	27 54
Set Spacing to 1/8"	ESC 8	27 56
Set Spacing, in n/144" (n = 0 to 127)	ESC % 9 n	27 37 57 n
Skip Over Perforation, in 1/3" increments (n = 1 to 9)	ESC G nn	27 71 nn
Skip Over Perforation Default	ESC % S 0	27 37 83 48

Oki Data MICROLINE Standard Commands (Continued)

Oki Data Command	ASCII	Decimal
Paper Out Sensor Off	ESC E 1	27 69 49
Paper Out Sensor On	ESC E 0	27 69 48
Print Quality		
Select HSD/SSD	ESC # 0	27 35 48
Select NLQ Courier	ESC 1	27 49
Select NLQ Gothic	ESC 3	27 51
Select Utility	ESC 0	27 48
Print Speed, Set to Full	ESC >	27 62
Print Speed, Set to Half	ESC <	27 60
Print Suppress On	DC3	19
Print Suppress Off	DC1	17
Proportional Printing		
On	ESC Y	27 89
Off	ESC Z	27 90
Reset: Clear Print Buffer	CAN	24
Shift-In	SI	15
Shift-Out	SO	14
Software I-Prime	ESC } NUL	27 125 0
Subscript Printing On	ESC L	27 76
Subscript Printing Off	ESC M	27 77
Superscript Printing On	ESC J	27 74
Superscript Printing Off	ESC K	27 75

Oki Data Command	ASCII	Decimal
Underline Printing On	ESC C	27 67
Underline Printing Off	ESC D	27 68
Uni-Directional Print On	ESC -	27 45
Uni-Directional Print Off	ESC =	27 61
Vertical Tab, Execute	VT	11

Warranty, Regulatory, and Safety Information

Limited Warranty: United States and Canada

Oki Data Americas, Inc. (Oki Data) warrants this printer to be free from defect in material and workmanship and will remedy any such defect according to the terms of this *Limited Warranty*. This *Limited Warranty* does not extend to consumable items, including but not limited to ribbons, fuses, etc.

Oki Data will repair (or at its option, replace) at no charge, any defective component(s) of the printer for one (1) year from the date of purchase. This *Limited Warranty* extends to the original purchaser only.

To make request or claim for service under this *Limited Warranty* the original purchaser must return the Oki Data product, shipping prepaid, in the original shipping container or equivalent, to Oki Data or an authorized Oki Data service center and assume the risk of loss or damage in transit. A written receipt for the product, showing the date of purchase, dealer's name, and both the model and serial numbers of the Oki Data printer must accompany any request or claim for work to be performed under this *Limited Warranty*.

This *Limited Warranty* shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident, or as a result of service or modification by any other than an authorized Oki Data service center.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE ON THE FACE HEREOF AND DESCRIBED ABOVE. NO WARRANTIES WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXTEND BEYOND THE RESPECTIVE WARRANTY PERIOD DESCRIBED ABOVE OF ONE (1) YEAR. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

OKI DATA SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSS ARISING FROM THE USE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

Additional information on obtaining service under this *Limited Warranty* is available by contacting the Oki Data dealer from whom the product was purchased, by contacting Oki Data directly at 1-800-654-3282 (1-800-OKI-DATA) [U.S. and Canada, English only] or at 1-856-222-7496 (Spanish only), or by contacting one of the listed service locations.

This *Limited Warranty* applies to this Oki Data printer. However, the procedure for obtaining service may vary outside the continental United States. Contact your Oki Data dealer for such warranty service information.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Limited Warranty: Latin America

Oki Data warrants this printer (hereinafter Product) to be free in defect in material and workmanship and will remedy any such defect according to the terms of this *Limited Warranty*. This *Limited Warranty* does not extend to consumable items, including but not limited to ribbon cartridges, fuses, etc.

Oki Data will repair (or at its option replace) at no charge, any defective component(s) of the Product for one (1) year from the date of purchase except for the consumable items, including but not limited to ribbons, fuses, etc. This *Limited Warranty* extends to the original purchaser only.

To make a request or claim for service under this *Limited Warranty* the original purchaser must return the Oki Data Product to Oki Data or an authorized Oki Data service center within the country purchased. The purchaser returning the Product for repair must pay for all transportation charges to the repair center. A written receipt for the Product, showing the date of purchase, dealer's name, and both the model and serial numbers of the Oki Data Product must accompany any request or claim for work to be performed under this *Limited Warranty*.

This shall not apply if the Product has been damaged due to abuse, misuse, misapplication, accident, or as a result of service or modification by any other than an authorized Oki Data service center.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE ON THE FACE HEREOF AND DESCRIBED ABOVE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXTEND BEYOND THE RESPECTIVE WARRANTY PERIODS NOTED ABOVE.

Service and Support: United States and Canada

Oki Data is firmly committed to the satisfaction of our customers. If you have a problem that your customer documentation cannot solve, contact the listed sources for service or support.

Sales and Service Dealers: United States and Canada

Consult the store location where you purchased your machine, or contact Oki Data for the location of the nearest Authorized Oki Data Service Dealer.

- Prices and minimum charges may vary.
- Proof of purchase is required for warranty work. Be sure to retain your purchase documents.

Telephone Support: United States and Canada

Oki Data Customer Information System

Information System Automated Attendant

1-800-654-3282 (1-800-OKI-DATA)

Toll Free in the U.S. and Canada

For quick answers to commonly-asked questions, the Oki Data Information System Automated Attendant is available 24 hours a day, 7 days a week. The system can provide immediate assistance with:

- Basic operating procedures
- Sales and service referrals
- Parts and consumable referrals
- Product information

Customer Support Professionals

1-800-654-3282 (1-800-OKI-DATA)

Toll Free in the U.S. and Canada

Customer Support Professionals are available 24 hours a day, 7 days a week. Please be sure that you are calling from a telephone close to your machine so you can describe your problem accurately.

Our Customer Support Professionals are trained on all current OKI products. They can answer your questions regarding:

- Locations of sales and service dealers
- Installation of your machine
- Usage/normal maintenance of your machine
- Error message interpretation/solutions
- Parts and supplies identification
- Consumer relations

Service and Support: Latin America

Oki Data is committed to offer the best customer support possible to our customers. In the instance of having a difficult problem with your OKI product, please contact any of the OKI- CAS (Centro Autorizado de Servicio) shown on our Web site, **www.okidata.com.**

Sales and Service Centers: Latin America

If you need to service your OKI product, please contact the store where you bought your product or contact any of the OKI-CAS listed on our Web site for information.

- Prices and charges may vary.
- A copy of the proof of purchase is required for the warranty process.

Contacting Oki Data: Latin America

Information regarding our products and authorized service centers is available in our Web site:

http://www.okidata.com

Customer Support Professionals: Latin America

Our CAS's are trained and certified to provide the best service and support possible to our customers. Make sure that you are close to your machine when you call one of our OKI authorized service centers (OKI-CAS) so that you can describe your problem more accurately.

Our customer support professionals are trained on all current OKI products. They can answer your questions regarding:

- Location of nearest CAS (Service Center).
- Installation of your machine.
- Usage/normal maintenance of your machine.
- Error message interpretation/solutions
- Parts and supplies identification.
- Consumer relations.

Oki Data on the Internet

www.okidata.com

Your Gateway to OKI Products and Services

www.okidata.com is Oki Data's web site. It provides general information about all of the OKI products and services available to you.

You can use our web site to

- get Web-based support for all OKI products: 24 hours a day, 7 days a week—no waiting!
- download the printer drivers you need.
- read about other customers and how they use OKI products to improve their productivity and enhance their documentation.
- use the Dealer Locator to find a dealer location close to you.
- find out about Oki Data's special promotional offers and breaking news.
- and more . . .

my.okidata.com

Your Personal Solutions Center

my.okidata.com is a powerful area of Oki Data's web site designed to help you personalize the information and service you get from Oki Data.

When you register for my.okidata.com, you

- personalize the web-based support for the OKI products you own: 24 hours a day, 7 days a week—no waiting!
- automatically register your product.
- access on-line versions of your product documentation (manuals) and support information.
- control your contact, profile, and preference information.
- receive automatic notification of new printer drivers, key updates, and support information.
- track your e-mail support history.
- and more . . .

Oki Data Service Centers

Oki Data Authorized Service Providers

Oki Data has over 2,000 local Authorized Service Providers in North and South America.

For the most comprehensive, up-to-date listing of Oki Data authorized Service Centers:

- Consult our web site at **www.okidata.com**
- In the U.S. and Canada, call 1-800-654-3282 (1-800-OKI-DATA)
- In Latin America, contact the Latin America Service Coordinator at Oki Data's Corporate Headquarters at +856-222-7496 (Spanish only)

United States

Oki Data Americas, Inc.
2020 Bishops Gate Blvd.
Mt. Laurel, NJ 08054
Phone: 1-800-654-3282
Fax: 1-856-222-5247

Canada

Oki Data Americas, Inc.
2735 Matheson Blvd. East, Unit 1
Mississauga, Ontario
Canada L4W 4M8
Phone: 1-800-654-3282
Fax: 1-905-238-4421

Mexico

Oki Data de Mexico, S.A. de C.V.
Mariano Escobedo No. 748-8 Piso
Col. Anzures, e.p. 11590
Mexico, DF
Phone: (525) 263-8780
Fax: (525) 250-3501

Brazil

Oki Data do Brasil, Ltda.
Rua Alexandre Dumas, 2220 - 8 andar
Chácara Sto Antonio
São Paulo, Brazil 04717-004
Phone: 55-11-3444-3500
Fax: 55-11-3444-3501

Material Safety Data Sheet (MSDS)

For Black Ribbon, P/N 52102001
MSDS #58064801

Current as of March 1, 2001

For more information, contact Oki Data at:

2000 Bishops Gate Boulevard
Mount Laurel, NJ 08054-4620

Emergency Information: MSDS

United States and Canada

1-800-654-3282 (1-800-OKI-DATA)

English only

Latin America

+856-235-2600

Emergency First Aid Procedures

Contact occurs with eyes.

Flush eyes with large quantities of water for 15 minutes, keeping eyelids open with fingers. Seek medical attention.

Contact occurs with skin

Wash thoroughly with soap and water.

Hazardous Ingredients

Carbon Black

CAS# 1333-86-4
OSHA PEL 3.5 mg/m^3
ACGIH TLV 3.5 mg/m^3

Coloring Material

CAS# N/A
OSHA TWA N/A
ACGIH TLV N/A

Oil

CAS# N/A
OSHA TWA N/A
ACGIH TLV N/A

Additives

CAS# N/A
OSHA TWA N/A
ACGIH TLV N/A

Nylon 6-6 Fabric

CAS# N/A
OSHA TWA N/A
ACGIH TLV N/A

PSM Fiber

CAS# N/A
OSHA TWA N/A
ACGIH TLV N/A

Physical Data

Melting Point: N/A

Boiling Point: N/A

Vapor Pressure: N/A

Vapor Density (Air = 1): N/A

Evaporation Rate (Butyl Acetate = 1): N/A

Specific Gravity (H_2O=1): No data available

Solubility in Water: No data available

Appearance and Odor: Nylon 6-6 fabric impregnated with liquid black ink

Fire and Explosion Hazard Data

Flash Point (Method Used): N/A

Flammable Limits, LEL/UEL: N/A

Extinguishing Media: Water, CO_2, Dry Chemical or Foam

Special Fire and Explosion Procedures: N/A

Unusual Fire and Explosion Hazards: None

Health Hazard Data

Routes of Entry: Ingestion, Eyes, Skin

Health Hazards:

1 Carbon black

(Group 2B "Possible Carcinogen"; IARC)

Overexposure to carbon black is associated with causing irritation, conjunctivitis, and corneal hypoplasia of the eyes; minor irritation and eczema of the skin; and irritation and bronchitis. Long-term inhalation exposure may be associated with causing lung cancer.

Reactivity Data

Stability: Stable

Polymerization: Will not occur.

Hazardous Decomposition or Byproducts: None

Conditions to Avoid: N/A

Incompatibility (Materials to Avoid): None

Spill Cleanup and Disposal

Spill Cleanup

If the ribbon is inadvertently pulled out, it should be rewound on the reel using the take-up knob.

Waste Disposal

Follow appropriate federal, state and local regulations.

Safe Handling and Use

Respiratory Protection: N/A

Protective Gloves and/or Eye Protection: Not normally required. Protective gloves desirable in some cases.

Ventilation: N/A

Other Protective Equipment and/or Hygienic Practices: N/A

Special Precautions

Precautions for Handling or Storage: Store in a dark, cold place. Do not pull ribbon out of cartridge.

Other Precautions: N/A

To the best of the manufacturer's knowledge, the information contained herein is accurate. However, neither the manufacturer, nor any of its affiliates, make any representations or warranties (expressed or implied), nor assumes any liability (including liability for any direct, incidental, consequential, or other damages) with respect to the accuracy or completeness of the information contained herein. Such information may be (without limitation) invalid if the specified material is used in combination with another, in a particular process, or under unusual conditions. Determination of suitability of any material for any given purpose is the sole responsibility of the user who assumes all risk and responsibility therefor. All materials may present unknown hazards and should be used with appropriate caution. The manufacturer cannot and does not guarantee that the hazards described herein are the only ones that exist.

Safety Information

Your OKI printer has been carefully designed to give you years of safe, reliable performance. As with all electrical equipment, there are a few basic precautions you should take to avoid hurting yourself or damaging the printer:

- Carefully read all setup and operating instructions. Be sure to save all documents for future reference.
- Read and follow all warning and instruction labels on the printer itself.
- Place your printer on a firm, solid surface. If you put in on something unsteady, it might fall and be damaged.
- Avoid overheating the printer. Do not place it on a soft surface, such as a rug, sofa, or bed. The vents may be blocked, causing the printer to overheat.
- The printer must be installed near a power outlet which will remain easily accessible.
- Be certain that your power source matches the rating listed on the back of the printer. If you aren't sure, check with your dealer or with your local power company.
- Your printer has a grounded, 3-prong plug as a safety feature. It will only fit into a grounded outlet. If you can not plug it in, chances are that you have an older, non-grounded outlet. Contact an electrician to have it replaced with a grounded outlet. Do not use an adapter to defeat the grounding.
- To avoid damaging the power cord, do not put anything on it or place it where it will be walked on. If the cord becomes damaged or frayed, replace it immediately.
- If you're using an extension cord or power strip with the printer, make sure that the total of the amperes required by all the equipment on the extension is less than the extension's rating. Generally, the total ratings of all equipment plugged into any one power line should not exceed 15 amperes. Don't exceed this unless you know that the power line your equipment is plugged into has a rating above 15 amperes.
- Unplug the printer before you clean it. Use only a damp cloth. Do not use liquid or aerosol cleaners.
- To protect your printer from overheating, make sure no openings on the printer are blocked. Do not put the printer on or near a heat source, such as a radiator or heat register. If you put the printer in any kind of enclosure, make sure it is well ventilated.
- The printhead can get quite hot when it has been printing for a length of time. Do not touch the printhead until it has had a chance to cool off.
- Do not use your printer near water. Do not spill liquid of any kind into it.

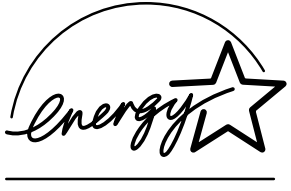
- Do not poke anything into the ventilation slots on the sides of the printer. You could get a shock or cause a fire.
- Aside from the routine maintenance described in this document, don't try to service the printer yourself. Opening the cover may expose you to shocks or other hazards. Don't make any adjustments other than those outlined in the document. You might cause damage requiring extensive repair work.
- If anything happens that indicates that your printer is not working properly or has been damaged, unplug it immediately. Then, follow the procedures in "Service and Support" for having your printer serviced.
  These are some of the things to look for:
  — The power cord or plug is frayed or damaged.
  — Liquid has been spilled into the housing, or the printer has been exposed to water.
  — The printer has been dropped or its cabinet has been damaged.
  — The printer doesn't function normally when you're following the operating instructions.

Regulatory Information

Year 2000 Compliance

The Microline 320/321 Turbo is Year 2000 Compliant. It contains information technology that accurately processes date and time data between the years 1999 and 2000, and carries no issue for the September 9, 1999 (9999) programming concern. This product, when used in combination with products purchased from other manufacturers, whose products properly exchange data and time information, will accurately process the date and time.

ENERGY STAR®



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

Federal Communications Commission (FCC)

FCC Radio Frequency Interference Statement for 120-Volt Models

WARNING: 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 the receiver.
- Plug the unit into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

! ***It is the responsibility of the user to obtain the required shielded cable in order to ensure compliance of this equipment with FCC regulations.***

Changes or modifications not expressly approved by Oki Data may void your authority to operate this device.

FCC Radio Frequency Interference Statement for 230/240-Volt Models

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

! ***It is the responsibility of the user to obtain the required shielded cable in order to ensure compliance of this equipment with FCC regulations.***

Changes or modifications not expressly approved by Oki Data may void your authority to operate this device.

Industry Canada (IC)

IC Radio Interference Statement for 120-Volt Models

This Oki Data apparatus complies with the Class B limits for radio interference as specified in the Industry Canada Radio Interference Regulations.

IC Radio Interference Statement for 230/240-Volt Models

This Oki Data apparatus complies with the Class A limits for radio interference as specified in the Industry Canada Radio Interference Regulations.

European Union Council of the European Communities

Statement of Electromagnetic Conformance for 230/240-Volt Models

This product complies with the requirements of the Council Directive 89/336/EEC on the approximation of the laws of the member states relating to electromagnetic compatibility.

Statement of Safety Conformance for 230/240-Volt Models

This product is in conformity with Directive 73/23/EEC on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

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