

Chapter 0

Manual Front Cover

MICROLINE® 520/521 Printer Handbook

59256804
Printed in USA

Division of Oki America, Inc.

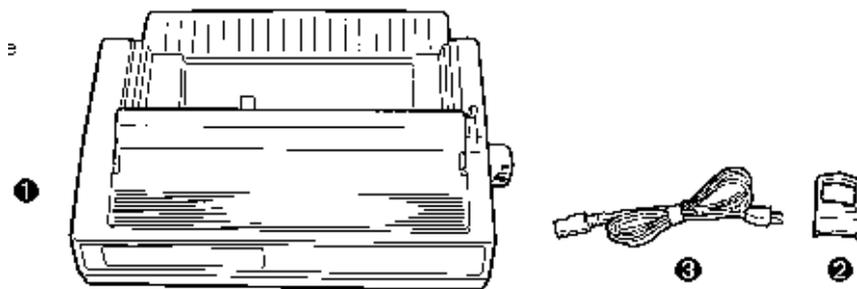
Chapter 1

Unpacking

Unpacking

Choose a sturdy table, desk or printer stand to place your printer on when you remove it from the carton. Be sure to save all packing materials in case you need to ship the printer again. Check the box for these contents:

- 1) Printer
- 2) Ribbon cartridge
- 3) Power cord



Note: Interface cable and paper are sold separately. If any of these items is missing or damaged, see your dealer immediately for a replacement.

Remove The Protective Film

Remove The Protective Film

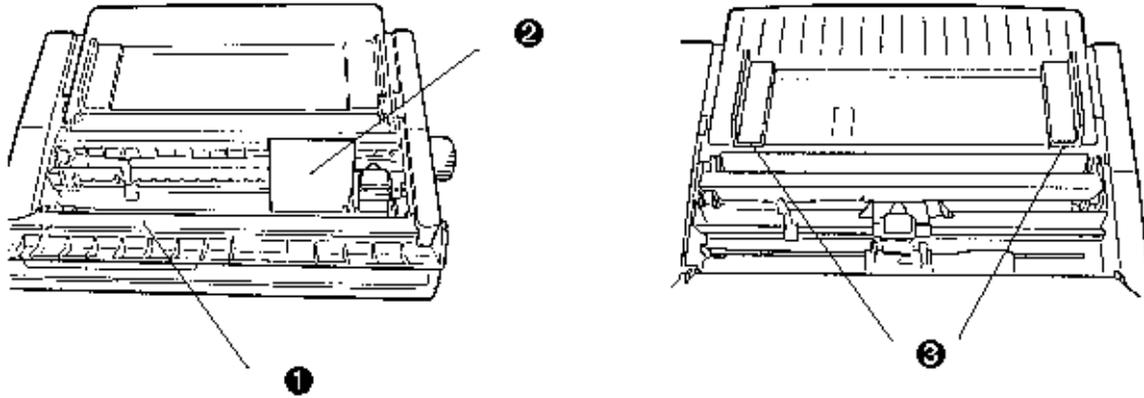
Peel the clear protective film from the carriage cover (1). Lift up on the ridged area at either end of the carriage cover (2), and peel the clear protective film from the access cover (3). Press the carriage cover back into place.



Remove The Shipping Retainers

Remove The Shipping Retainers

Open the access cover (1) by grasping the tabs at either end and lifting. Remove the printhead shipping retainer (2), leaving the cover open. Grasp the front edge of the paper separator (3) and pull it up. Remove the styrofoam shipping retainer, then lower the paper separator and press it into place.

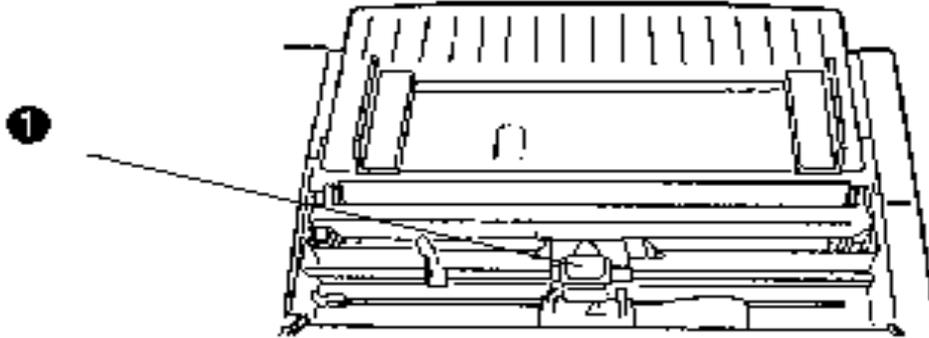


Install (or Replace) The Ribbon Cartridge

Install (or Replace) The Ribbon Cartridge

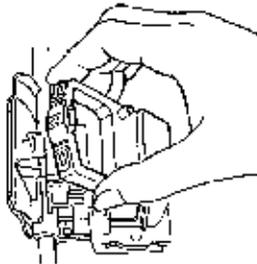
Note: Be sure to use only ribbons specifically for use with MICROLINE 520/521 printers. For best results, use genuine OKIDATA ribbons, **Part No. 52107001**.

With the access cover open, slide the printhead (1) to the center of the platen.



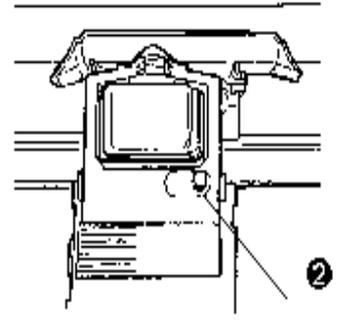
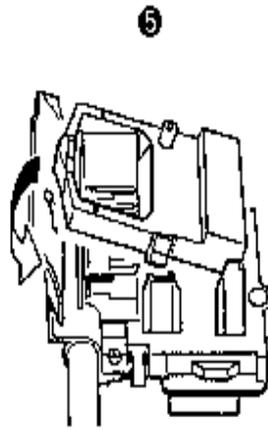
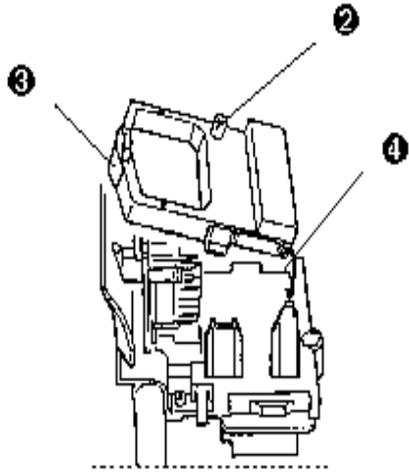
Caution!!! Printhead may be hot!!!

If you're replacing the ribbon, lift up the cartridge at the end nearest the platen, then lift it out, and discard it.



Remove the new ribbon cartridge from its packaging.

Holding the ribbon cartridge with the knob (2) facing up and the ribbon shield (3) facing the platen, fit the grooves on either side at the back end of the cartridge over the pins on the ribbon plate (4). Lower the front of the the cartridge over the printhead (5) until it snaps into place, then turn the knob (2) in the direction of the arrow (clockwise) to take up the ribbon slack.



Connect to Power and Computer

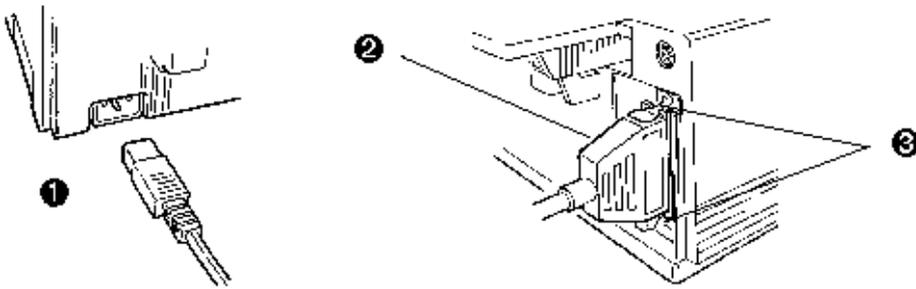
Connect to Power and Computer

You must supply the cable for connecting your printer to your computer. A shielded cable is required in order to ensure compliance of this equipment with FCC regulations.

Make sure both the printer and the computer are OFF. Plug the power cord into the back of the printer (1). Plug the other end into a grounded outlet.

These instructions are for the standard parallel interface. If you have the optional serial interface, see the instructions included with it.

Plug the interface cable into the parallel port on the back of the printer (2), and secure it in place with the wire loops (3).



Power Up

Power Up

Turn the printer on. The printhead will cross back and forth along the platen, and the pins will gently fire to determine the printhead gap setting. The POWER light will come on. The ALARM light will also come on, but don't be concerned: it's just telling you that there is no paper loaded.

Chapter 2

Loading paper

Your printer has provision for

- Single sheets (top feed)
- Continuous-forms (rear feed)

You can also install options:

- Cut Sheet Feeder, for top feed, holds 100 sheets
- Push and/ or Pull Tractors, for bottom feed of continuous forms, including
 - labels
 - heavy card stock
 - multi-part forms

Note: See the instructions provided with the options for information on installing them and loading paper with the option installed.

Your printers innovative, smart printhead automatically detects and adjusts to the thickness of the paper you're using, so you don't have to fuss with setting the printhead gap when you change the type of paper or print path you're using.

See Appendix A for more details on the types and sizes of print media you can use. 

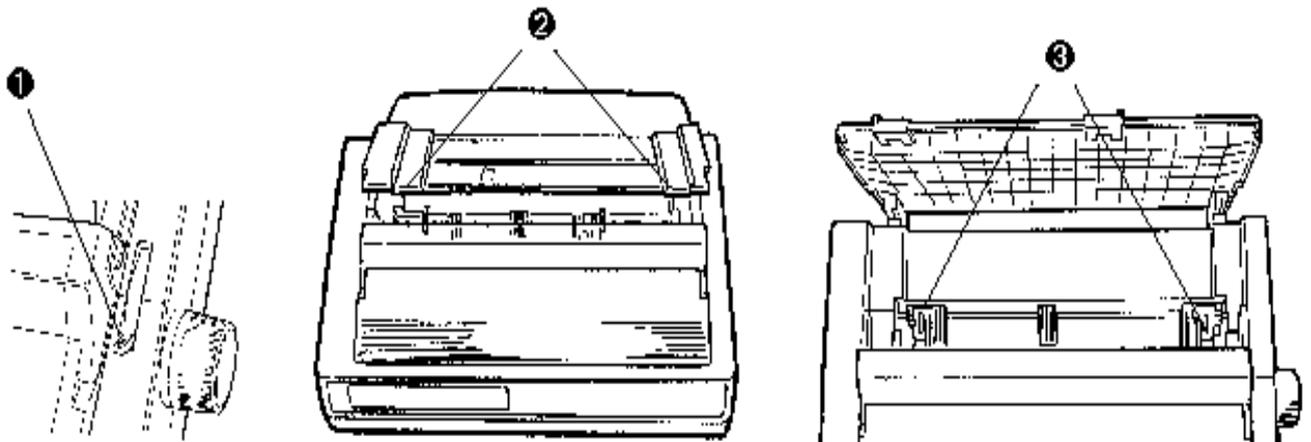
Loading Rear- Feed Paper

Loading Rear- Feed Paper

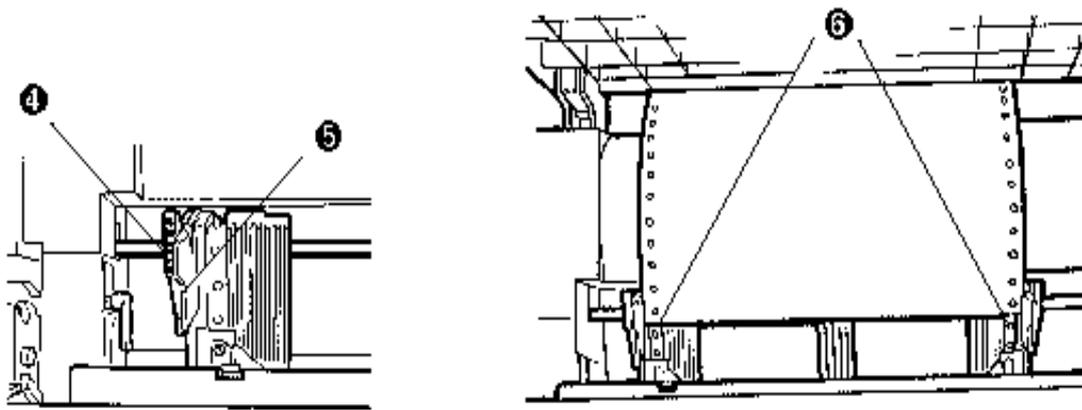
The rear-feed path is recommended for printing reports, etc., on single-thickness, continuous-form paper. For graphics or charts, it's best to use the single-sheet paper path.

Note: If you have any paper in the paper path, be sure to remove it from the path before installing rear-feed paper!

Move the paper lever to the position marked REAR (1). Grasp the front edge of the paper separator (2) and pull it up to access the tractors (3).



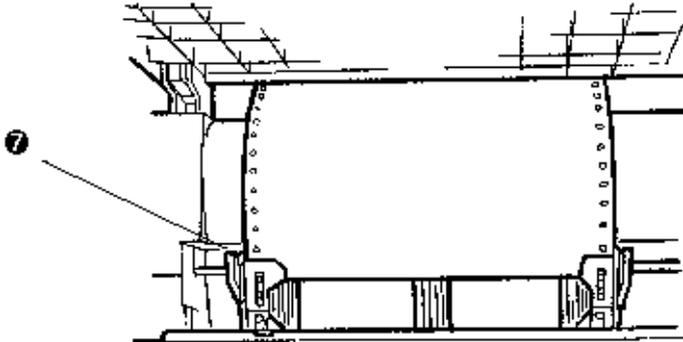
Pull up on the tractor lock levers (4) to release them, then open the tractor covers (5). Position the right- hand tractor for the width of the paper you're loading. Pull the paper through the opening between the printer and the rear cover, and place the first two holes on each side over the tractor pins (6). Please note that an equal number of paper holes must be engaged on either tractor in order to ensure proper paper feed.



Note: The movement of the left tractor is limited to ensure that the paper will always contact the paper sensor when loaded.

Close the tractor covers and adjust the left tractor to position the edge of the paper: reference

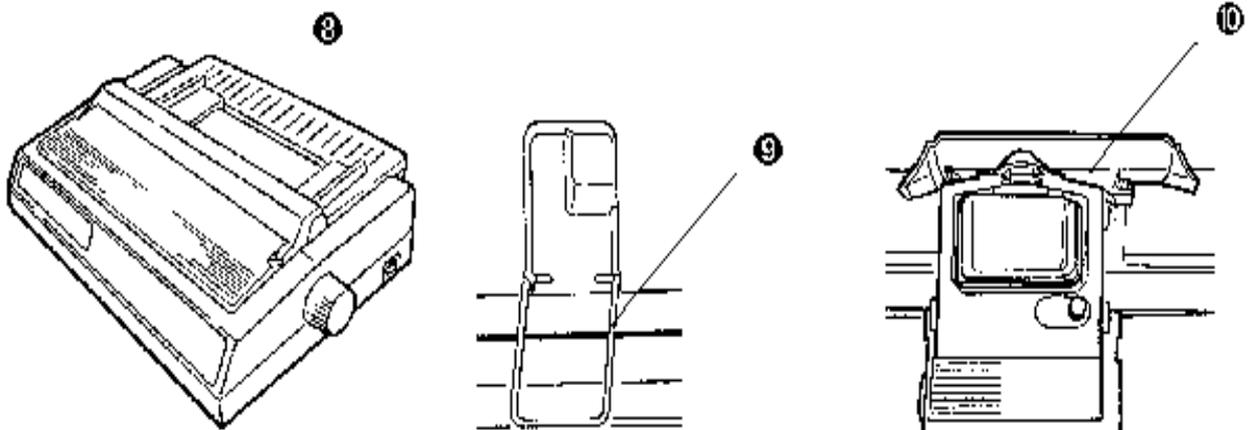
marks (7) on the printer indicate the left edge position for the two most common paper sizes. Lock the left tractor in place by pushing back on the lock lever. Adjust the right tractor so that the paper holes are centered on the pins (careful if paper is stretched too tight or left too loose, it can jam and cause problems), then lock the right tractor in place by pushing back on the lock lever.



Close the paper separator (8) and flip the wire feed guide (9) over onto the pull-up roller assembly.

Note: The wire feed guide keeps paper from curling back into the printer.

Push the FF/ LOAD button. The paper automatically feeds into the printer and the ALARM light goes out. The printhead moves back and forth, gently firing the pins to sense the paper thickness and set the printhead gap. Check the baseline for the Top of Form (TOF), indicated by the red line on the clear plastic paper shield (10). If its OK, press the SEL button and you're ready to start printing. If it needs adjustment, set the Top of Form following the instructions on page 16 (📄)



Loading Single-Sheet Paper

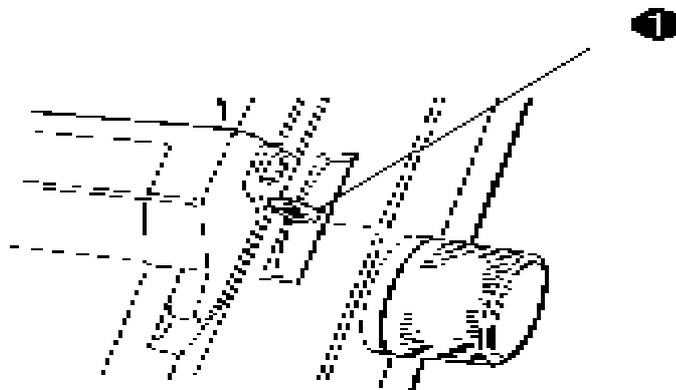
Loading Single-Sheet Paper

The single sheet path is best for letterhead stationery, memos, and envelopes and is recommended for printing graphs and charts because it provides the most accurate control of the paper.

Note: If you have any continuous-form paper in the paper path, you must press the PARK button on the front panel to remove it from the path before loading single sheets.

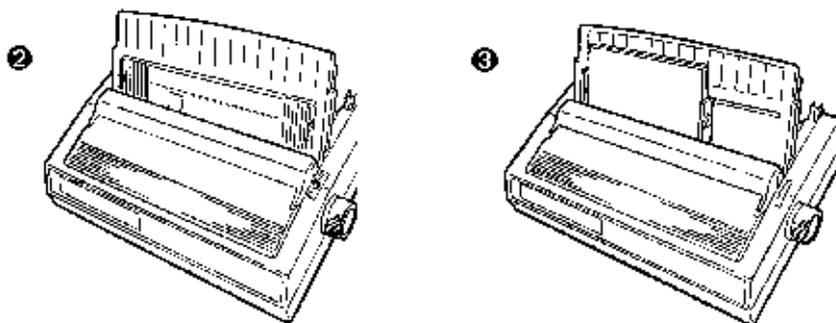
Make sure the printer is turned ON and deselected (SEL light off press SEL button to deselect if necessary).

Note: The ALARM light will remain on until paper is loaded. Move the paper lever to the position marked TOP (1)

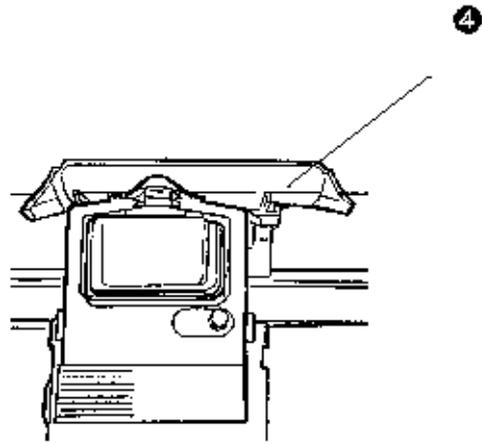


Grasp the back of the paper separator and unsnap it from the housing, then swing it up into the single-sheet feed position (2), making sure that the wire feed guide is nestled in the separator. Adjust the paper feed guides for the width of the paper and drop a sheet of paper into the separator (3). The paper will automatically feed into the printer, and the printhead will move back and forth, gently firing the pins to sense the paper thickness and set the printhead gap.

Note: If the paper doesn't feed in properly, the "15" light on the control panel will begin flashing. **To correct this, press the SHIFT and RESET buttons simultaneously, then reload the sheet.**



Check the baseline for the Top of Form (TOF), indicated by the red line on the clear plastic paper shield (Í). If its OK, press the SEL button and youre ready to start printing. If it needs adjustment, set the Top of Form following the instructions on the next page.



Setting Top of Form

Setting Top of Form

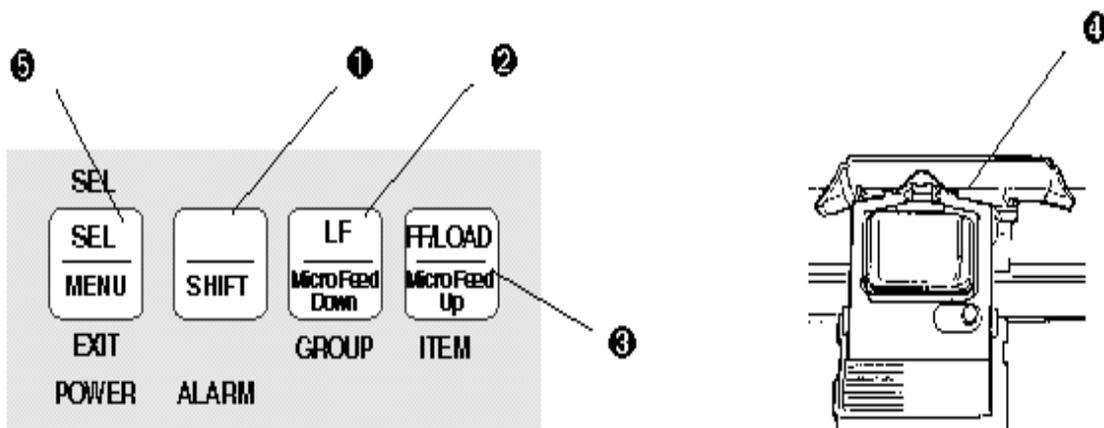
Make sure the printer is deselected (SEL light off if necessary, press SEL button to deselect printer).

Hold down the SHIFT button (1) and press:

FF/ LOAD button (2) to move the paper up in micro increments (TOF lower on page), or
LF button (3) to move the paper down in micro increments (TOF higher on page).

The red line (4) on the clear plastic paper shield shows the baseline of the current printing position to help you place the top of form.

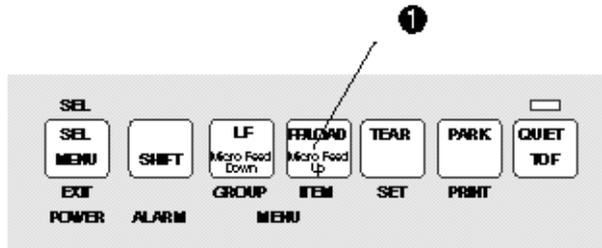
When you're done setting the TOF, press the SEL button (5) to reselect the printer.



Temporarily Changing Top of Form Setting

Temporarily Changing Top of Form Setting

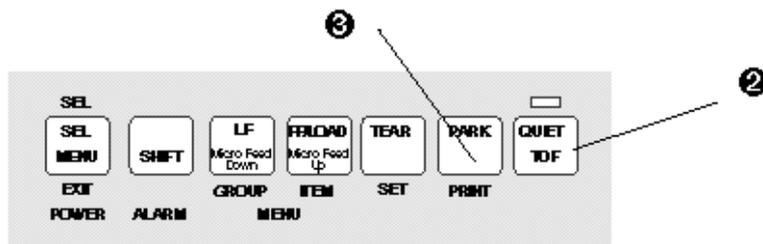
To temporarily change the Top of Form setting for a particular print job, deselect the printer (press SEL button) and press the LF button (1) until you reach the TOF position you want to use. The printer will retain this setting until you turn it off.



Resetting Top of Form to Default

Resetting Top of Form to Default

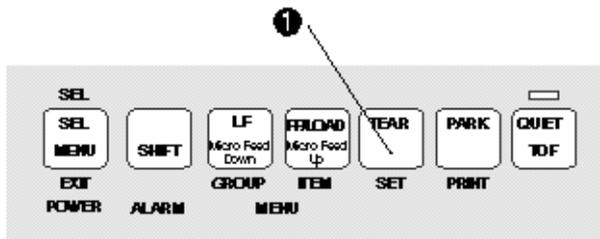
To reset the Top of Form to the factory default, turn off printer, then hold down the QUIET (2) and PARK (3) buttons while turning printer back on.



Tear Feature

Tear Feature

When you're using continuous forms with either the built-in rear-feed tractor or the optional bottom-feed push tractor, you can use this feature to advance the forms up to the tear position so you can easily tear off a printed sheet without wasting paper or readjusting the printer. To do this, press the TEAR button (1) on the front panel.



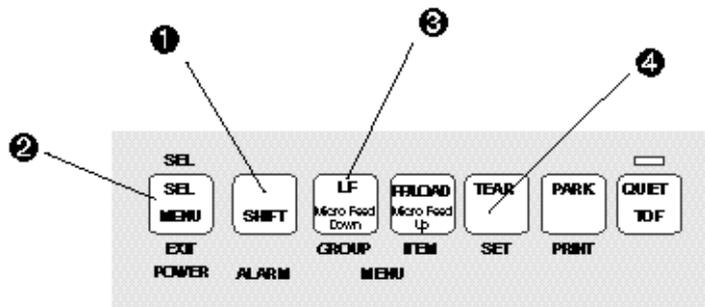
Note: The tear feature can not be used when the optional pull tractor is installed.

Forms Tear- off Feature

Forms Tear-off Feature

Note: Never Engage the Forms Tear-off when printing on labels!

The Forms Tear-off feature can be engaged to automatically move the paper up to the tear position after the selected interval (500 milliseconds, 1 second, or 2 seconds). The page will stay in the tear-off position until the printer receives data. It will then move down to the initial printing position.



This feature is normally turned off. To activate it:

1. Hold the SHIFT button (1) and press the SEL button (2) to enter the Menu mode.
2. Press the GROUP button (3) until the line **Rear Feed Form Tear- Off Off** prints.
3. Press the SET button (4) until the time interval you wish to select prints .
4. Hold the SHIFT button (1) and press the SEL button (2) to exit the Menu mode and save the setting.

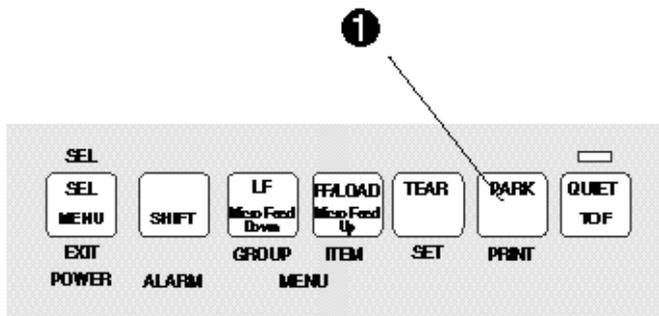
Some programs pause occasionally while sending data. If the pause lasts more than the selected interval, the paper will advance to the tear-off position until more data is received. This extra paper movement can cause uneven print registration in graphics. If you have this problem, use the menu to deactivate Forms Tear-Off.

If you have problems setting the Top of Form high enough on the page when using Forms Tear-Off, see Problem Solving in Chapter 6. (📄)

Paper Park Feature

Paper Park Feature

To switch from continuous form paper to another paper path, tear off the printed pages, then press the PARK button (1). The continuous-form paper immediately retracts from the paper path.



Switching Paper Paths

Switching Paper Paths

To switch to single-sheet feed, tear off any printed pages, then press PARK. Swing the wire guide up into the paper separator, and swing the separator upright. Move the paper lever to TOP. Load single sheet paper. To switch to continuous- form feed, press FF/ LOAD to remove single sheet from paper path if needed. Lower the paper separator and swing the wire guide out. Move the paper lever to REAR or BOT, as appropriate. Press FF/ LOAD.

Note: When you switch paths, the printhead travels and gently fires pins to sense paper thickness and set the gap.

Clearing Paper Jams - Rear Feed Jams

Clearing Paper Jams

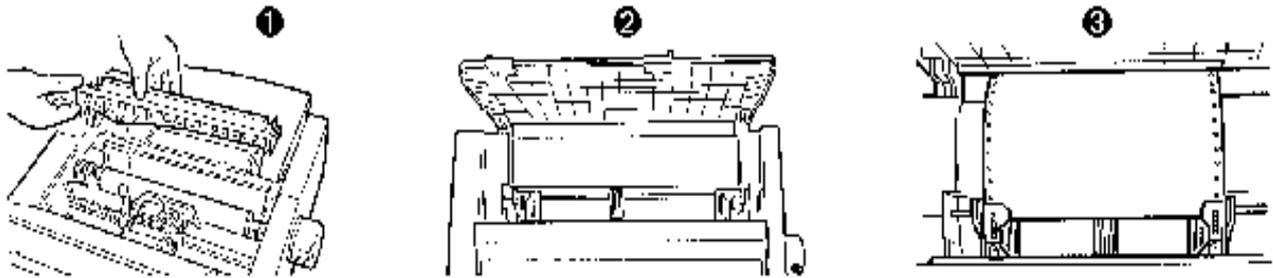
Note: Always turn the printer off before you turn the platen knob!

Clearing Rear Feed Jams

To clear a rear-feed paper jam, turn off printer then turn the platen knob to back the paper out of the printer. Remove any ripped pieces of paper. Reload the paper, turn the printer back on and press the FF/LOAD button.

Correcting for Continuing Rear-Feed Jams

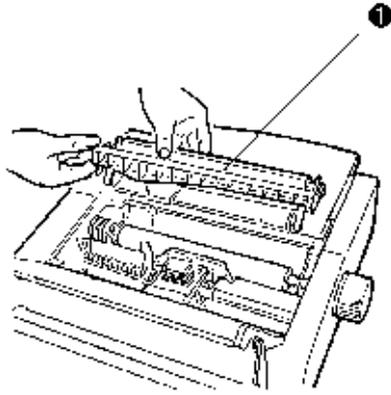
If the paper keeps jamming, you probably have bits of paper stuck in the paper path. Turn off the printer. Use the platen knob to back the paper out. Open the access cover and lift off the pull-up roller assembly (1). Lift the paper separator, open the tractors and remove the paper (2). Fold some continuous-feed paper over three times to make a page four sheets thick and load it on the tractors (3). Use the platen knob to draw the sheet around the platen: this brings any jammed bits of paper out. Back the sheet out, replace the roller assembly, and reload regular paper. Close the access cover, turn the printer on, and press FF/LOAD.



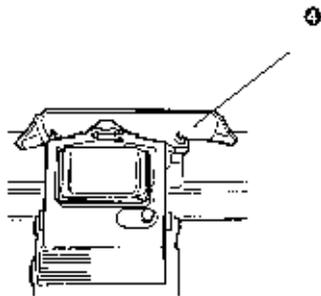
Clearing Single Sheet Feed Jams

Clearing Single Sheet Feed Jams

Turn the printer off, then rotate the platen knob to back the jammed paper out of the carriage. If necessary, open the access cover and lift off the pull-up roller assembly (1) to provide access to remove any ripped pieces from around the carriage.



Check the baseline for the Top of Form (TOF), indicated by the red line on the clear plastic paper shield (4). If its OK, press the SEL button



Chapter 3

Testing Your Printer: Rolling ASCII & Font Sample Tests

After you've installed ribbon and paper, you're ready to run the self tests. Do this any time you want to make sure the printer is functioning properly.

Font Sample Test

Hold down the LF button while turning on the printer to produce a limited sample of the available print styles. When the test is complete (one page), the printer stops and the SEL light goes on.

Note: To stop the test before its done, press the SEL button.

Rolling ASCII Test

Hold down the QUIET button while turning on the printer to produce a continuous sample of the default print style. To stop the test, press the SEL button.

Note: For wide carriage Model 521, be sure you have wide paper loaded!

Chapter 4

Basic Terminology Printer Commands

Basic Terminology Printer Commands

Printer commands are signals sent by your computer to the printer which guide and control the operation. They usually begin with the ESC character and can be sent in decimal, ASCII, or hexadecimal form.

Note: If you're using commercial software with an appropriate printer driver selected (see next page), printer commands will normally be sent to your printer by the software and you won't even need to think about them.

Emulations

Emulations

Your printer has three emulations:

- IBM Proprinter III (factory default)
 - Epson FX
 - OKIDATA Microline Standard
-

Changing Emulations

Changing Emulations

Your printer is set at the factory for the IBM Proprinter III emulation. To change the emulation, enter the Menu mode by holding the SHIFT button while pressing the SEL button. The following line will print:

Printer Control Emulation Mode IBM PPR

Press the SET button until the emulation you wish to select prints. Then exit the Menu and save your setting by once again holding the SHIFT button while pressing the SEL button.

Printer Drivers

Printer Drivers

Commercial software packages use printer drivers to control the appearance of printed documents. A printer driver is a set of printer commands which cause the printer to perform various functions at the request of the software. When you use your printer with a software package, you must use the software to select a printer driver which is compatible with your printer (see next page) .

Selecting a Printer Driver

Selecting a Printer Driver

The drivers in the table below are listed by decreasing compatibility with your printer: use one as close to the top of the list as possible. If your software does not have a printer driver from near the top of the list, call them to see if they have added any drivers to those supplied when you purchased your software.

Note: Check your software documentation for instructions on how to install a printer driver.

Printer Drivers

IBM Proprinter III Emulation

Okidata ML 520/ 1 IBM
IBM Proprinter III
IBM Proprinter II
IBM Proprinter
IBM Graphics Printer

Epson FX Emulation

Okidata ML 520/ 1 Epson
Epson FX850/ 1050
Epson FX86/ 286
Epson FX Epson EX800/ 1000

OKIDATA Microline Standard Emulation

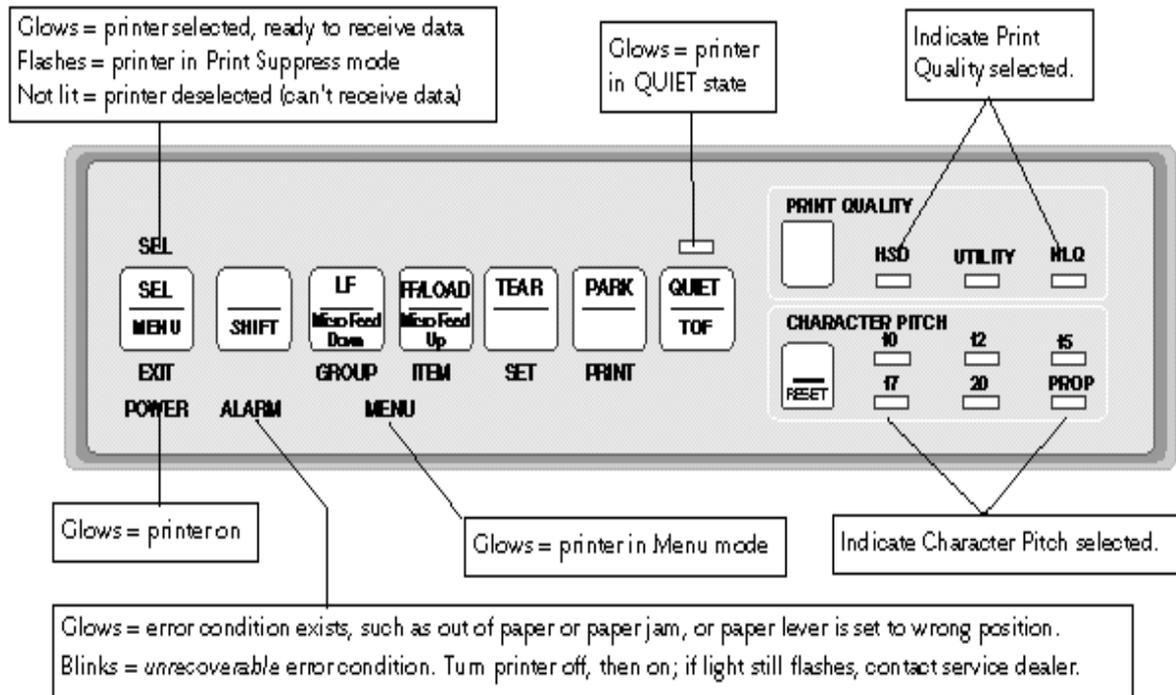
Okidata Microline 520/ 521
Okidata Microline 320/ 321
Okidata Microline 292/ 293
Okidata Microline 192/ 193
Okidata Microline 182/ 183
Okidata Microline 92/ 93
Okidata Microline 82A/ 83A

Note: OKIDATA drivers are available for Microsoft®Windows™ 3.1, Microsoft Word 5.0/5.5/6.0, and for WordPerfect®5.1/5.2/6.0: call the OKILINK® BBS at (609) 234-5344 and download them, or mail your request for a driver diskette(# MS-8838 for 3½ or # MS-8839 for 5¼) to OKIDATA, P.O. Box 4603, Trenton, NJ 08650-9852.

Chapter 5

Control Panel Indicator Lights

Control Panel Indicator Lights



Control Panel Buttons: Print Mode

Control Panel Buttons: Print Mode

Control Panel Buttons: Print Mode

Press to select (SEL glows)/ deselect printer.
 Press to reset paper alarm (ALARM glows).
 Press to end printer tests.
 Press with SHIFT to enter Menu mode.

Press to move paper up a line.
 Hold for repetitive line feeds.
 Hold on power up to start Font Test.

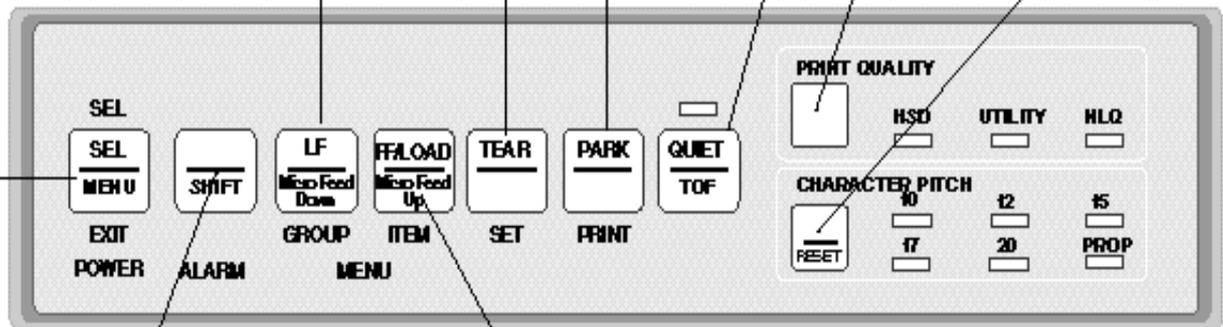
Moves continuous-form paper up for tear-off or back down for printing.

Retracts continuous-form paper from path.

Press to turn Quiet mode On (light glows) and Off.
 Printer deselected and no paper loaded: press with SHIFT button to reset TOF to default.
 Hold on power up to start Rolling ASCII Test.

Press to set print quality indicated by lights (HSD, UTILITY, NLQ).

Press to set character pitch, indicated by lights (10, 12, 15, 17, 20, PROP).

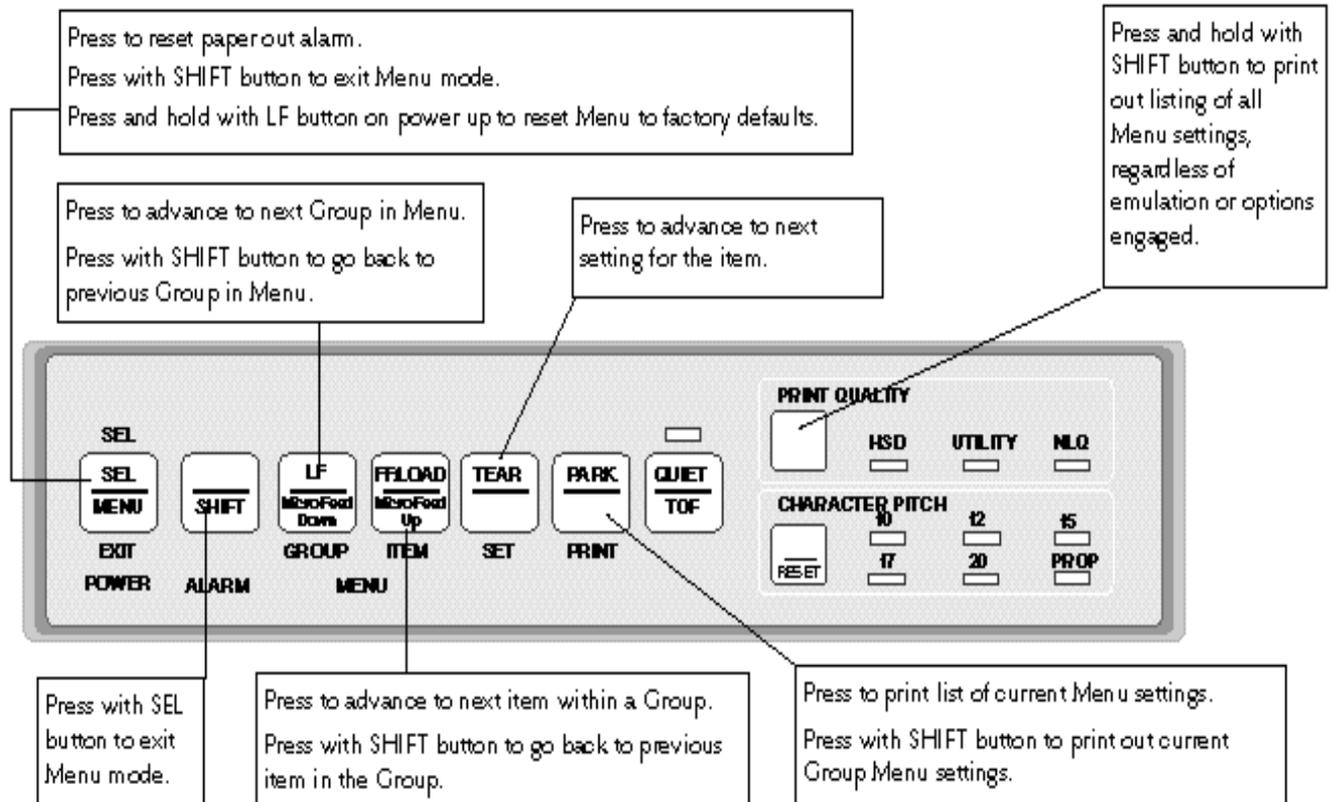


Used with other buttons to set TOF.
 Press with SEL to enter Menu mode.

Press to load/eject single sheet, or to move continuous-form to print position.
 Printer deselected: press with SHIFT to move TOF down.

Control Panel Buttons: Menu Mode

Control Panel Buttons: Menu Mode



Print Mode

Print Mode

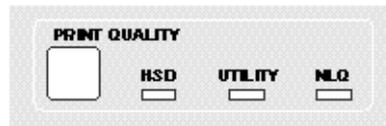
The seven buttons to the left on your control panel are multi-function buttons. In the print mode, they are used to manipulate the paper (see the illustration on the first page of this chapter). The PRINT QUALITY and CHARACTER PITCH buttons on the right side of the control panel are used to select the quality and size of the printing.

Note: The print quality and character pitch set by means of the front panel can be overridden by commands sent by the commercial software package from which you're printing a document. If you run into this problem, see Problem Solving in Chapter 6 for information on how to correct it.()

Selecting Print Quality

Selecting Print Quality

Press the PRINT QUALITY button successively until the light underneath the print quality you wish to engage is lit:



Note: Your printer also prints bar codes accessible through printer commands. For more information on programming barcodes, mail your request for # MS- 8837 OKIDATA MICROLINE Reference Manual to OKIDATA, P.O. Box 4603, Trenton, NJ 08650-9852.

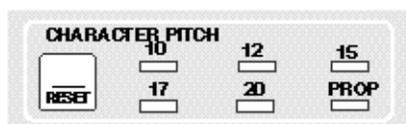
Print Quality	Typeface	Print Speed	Print Quality	Used for
HSD (High Speed Draft)	Gothic	Fastest	Lowest	Data reports on continuous-form paper.
UTILITY (default)	Gothic	Fast	Medium	Rough drafts, internal memos.
NLQ (Near Letter Quality)	Courier or Gothic	Slowest	Highest	Correspondence, documents requiring a polished appearance.

Selecting Character Pitch

Selecting Character Pitch

Note: If the SI command is received from your software, the character pitch selected on the control panel will be overridden by the SI command.

Character pitch determines the width of the individual characters and is measured in characters per inch (cpi).



Press the CHARACTER PITCH button successively to page through the possible selections.

Epson and IBM emulations 10 cpi, 12 cpi, 15 cpi, 17 cpi, 20 cpi, or Proportional. The lights indicate which pitch is selected.

OKIDATA Microline Standard emulation 10, 12, 15, 17, or 20 cpi, either non-proportional or proportional: proportional is selected when both the light under the desired cpi and the light under PROP are lit.

To reset the character pitch to the factory default (10 cpi), make sure the printer is deselected (SEL light out), then hold the SHIFT button while pressing CHARACTER PITCH button.

Available Fonts

Available Fonts

Typeface	Spacing
NLQ Courier	10 cpi*, 12 cpi, 15 cpi, 17 cpi, 20 cpi, Proportional
NLQ Letter Gothic	10 cpi*, 12 cpi, 15 cpi, 17 cpi, 20 cpi, Proportional
Utility (Gothic)	10 cpi*, 12 cpi, 15 cpi, 17 cpi, 20 cpi, Proportional
High Speed Draft (Gothic)	10 cpi*, 12 cpi, 15 cpi, 17 cpi, 20 cpi
Bar Code	Code 39, UPC A, UPC E, EAN 8, EAN 13, Interleaved 2 of 5, Code 128, Postnet

Menu Mode

Menu Mode

When your printer is in the Menu Mode, you can use the front panel controls to change the defaults for the printer parameters, including emulation, page length, line spacing, typeface, pitch, etc. The changes you make in the Menu Mode will automatically be saved in your printer's memory when you exit the Menu Mode and will be retained even if you turn the printer off.

Note: If you are in the Menu Mode and turn the printer off without first exiting, any changes you have made in the menu will be lost.

The Menu Mode: Entering, Exiting and Reseting

Entering The Menu Mode

To place your printer in the Menu Mode hold the SHIFT button while pressing the SEL button. The MENU light will come on and, if the printer was selected, the SEL light will go out.

Exiting The Menu Mode To exit the Menu Mode, hold the SHIFT button and press the SEL button. The MENU light will go out and the SEL light will come on.

Resetting The Menu To reset the Menu to the factory defaults, turn the printer off, then hold the SEL and LF buttons while turning it back on.

Sample Default Menu Printout

Sample Default Menu Printout

Note: To print out a list of your current Menu settings, enter the Menu Mode, then press the PRINT button.

Printer Control	Emulation Mode	IBM PFR
Font	Print Mode	Utility
Font	Fitch	10 cpi
Font	Proportional Spacing	No
Font	Style	Normal
Font	Size	single
Symbol Sets	Character Set	Set I
Symbol Sets	Language Set	American
Symbol Sets	Zero Character	Slashed
Symbol Sets	Code Page	USA
Rear Feed	Line Spacing	6 LPI
Rear Feed	Form Tear-Off	Off
Rear Feed	Skip Over Perforation	No
Rear Feed	Page Length	11"
Rear Feed	Gap Control	Auto Gap
Bottom Feed	Line Spacing	6 LPI
Bottom Feed	Form Tear-Off	Off
Bottom Feed	Skip Over Perforation	No
Bottom Feed	Page Length	11"
Bottom Feed	Gap Control	Auto Gap
Top Feed	Line Spacing	6 LPI
Top Feed	Bottom Margin	Valid
Top Feed	Page Length	11"
Top Feed	Gap Control	Auto Gap
Top Feed	Wait Time	1 sec
Set-Up	Graphics	Uni-directional
Set-Up	Receive Buffer Size	64K
Set-Up	Paper Out Override	No
Set-Up	Print Registration	0
	(FWD)	
	(REV)	
Set-Up	Operator Panel Function	Full Operation
Set-Up	Reset Inhibit	No
Set-Up	Print Suppress Effective	Yes
Set-Up	Auto LF	No
Set-Up	Time Out Print	Valid
Set-Up	Auto Select	No
Set-Up	Printhead Gap Adjust	0
Parallel I/F	I-Prime	Buffer Print
Parallel I/F	Fin 18	+5v

Summary of Menu Settings

Summary of Menu Settings

The table below details all possible entries in the printer Menu. The defaults are the **First Item in the Settings**.

Group	Item	Settings
Printer Control	Emulation Mode	IBM PPR, Epson FX, ML
Font	Print Mode	Utility, NLQ Courier, NLQ Gothic, HSD
Font	Pitch	10 cpi, 12 cpi, 15 cpi, 17.1 cpi, 20 cpi
Font	Proportional spacing	No, Yes
Font	Style	Normal, Italics
Font	Size	Single, Double
Symbol Sets	Character Set	Set I, Set II
Symbol Sets	Language Set	American, French, German, British, Danish I, Swedish, Italian, Spanish I, Japanese, Norwegian, Danish II, Spanish II, Latin American, French Canadian, Dutch, Publisher
Symbol Sets	Zero Character	Slashed, Unslashed
Symbol Sets	Code Page	USA, Canada French, Multilingual, Portugal, Norway
Rear Feed	Line Spacing	6 LPI, 8 LPI
Rear Feed	Form Tear- Off	Off, 500ms, 1 sec, 2 sec
Rear Feed	Skip Over Perforation	No, Yes
Rear Feed	Page Width*	13.6, 8
Rear Feed	Page Length	11, 11- 2/ 3, 12, 14, 17, 3, 3.5, 4, 5.5, 6, 7, 8, 8.5
Rear Feed	Gap Control	Auto Gap, Semi Auto Gap, 1, 2, 3, 4, 5, 6, 7, 8, 9
Bottom Feed	Line Spacing	6 LPI, 8 LPI
Bottom Feed	Form Tear- Off	Off, 500ms, 1 sec, 2 sec
Bottom Feed	Skip Over Perforation	No, Yes
Bottom Feed	Page Width*	13.6, 8
Bottom Feed	Page Length	11, 11- 2/ 3, 12, 14, 17, 3, 3.5, 4, 5.5, 6, 7, 8, 8.5

Bottom Feed	Gap Control	Auto Gap, Semi Auto Gap, 1, 2, 3, 4, 5, 6, 7, 8, 9
Top Feed	Line Spacing	6 LPI, 8 LPI
Top Feed	Bottom Margin	Valid, Invalid
Top Feed	Page Width*	13.6, 8
Top Feed	Page Length	11, 11- 2/ 3, 12, 14, 17, 3, 3.5, 4, 5.5, 6, 7, 8, 8.5
Top Feed	Gap Control	Auto Gap, Semi Auto Gap, 1, 2, 3, 4, 5, 6, 7, 8, 9
Top Feed	Wait Time	1 sec, 500 ms, 2 sec
Set- Up	Graphics	Uni-directional, Bi-directional
Set- Up	7 or 8 Bit Graphics•	8, 7
Set- Up	Receive Buffer Size	64K, 1 Line, 32K
Set- Up	Paper Out Override	No, Yes
Set- Up	Print Registration	0, 0.05 mm Left, 0.10 mm Left, 0.15 mm Left, 0.20 mm Left, 0.25 mm Left, 0.25 mm Right, 0.20 mm Right, 0.15 mm Right, 0.10 mm Right, 0.05 mm Right
Set- Up	Operator Panel Function	Full Operation, Limited Operation
Set- Up	Reset Inhibit	No, Yes
Set- Up	Print Suppress Effective	Yes, No
Set- Up	Auto LF	No, Yes
Set- Up	Auto CR•	No, Yes
Set- Up	Print DEL Code•	No, Yes
Set- Up	SI Select Pitch (10 cpi)•	17.1 CPI, 15 CPI
Set- Up	SI Select Pitch (12 cpi)•	20 CPI, 12 CPI
Set- Up	Time Out Print	Valid, Invalid
Set- Up	Auto Select	No, Yes
Set- Up	Printhead Gap Adjust	0, -1, +1
Parallel I/ F	I- Prime	Buffer Print, Buffer Clear, Invalid
Parallel I/ F	Pin 18	+5V, Open
Parallel I/ F	Auto Feed XT©	Invalid, Valid

Applicable only when optional Bottom- Feed Push Tractor is installed. * Model 521 only
© Appears only when Epson LQ emulation is selected. Appears only when IBM Proprinter emulation is selected. Appears only when IBM Proprinter emulation is selected.

Explanation of Menu Items

Explanation of Menu Items

These explanations are in alphabetical sequence. Line Spacing, Form Tear-Off, Skip Over Perforation, Page Length, and Gap Control appear several times in the menu.

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

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

Auto LF. If your printout is consistently double spaced, select No (factory default); if it overprints, choose 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. With the factory default (No) engaged, the printer will remain deselected after you load in paper so that you can set the Top of Form. If you always use the same Top of Form setting, change this setting to Yes.

Bottom Margin. Change the setting to Invalid if you want printer to ignore the bottom margin setting. Caution!! This can cause loss of data and damage the printhead.**Character Set.** Choose IBM Set I (factory default) or IBM Set II.

Code Page. Choose USA (factory default), Canada French, Multilingual, Portugal, or Norway.

Emulation Mode. Choose IBM PPR (default) for IBM Proprinter III, Epson FX, or ML for OKIDATA Microline Standard.

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

Gap Control. Determines how the printhead gap is set. Auto Gap automatically determines paper thickness on first page: for single sheets, it also rechecks each page while printing. Semi Auto Gap is similar; but it does not recheck single sheets while printing. You can also choose a fixed headgap setting of 1 (narrowest) to 9 (widest).

Graphics. Change to bi-directional graphics for faster printing: optimize by the Print Registration setting in the Menu.

I- Prime. Sets what the printer does when it receives the I- Prime signal from software. Buffer Print (factory default): prints out buffer contents before resetting. Buffer Clear: dumps buffer contents immediately. Invalid: ignores I-Prime signal.

Language Set. Replaces certain symbols with special characters used in the respective foreign language.

Line Spacing. Change from 6 to 8 lpi (lines per inch) to get more lines per page.

Operator Panel Function. Change to Limited Operation to deactivate PRINT QUALITY and CHARACTER PITCH buttons when several people are using the printer and you don't want these settings changed from the control panel.

Note: This feature also prevents normal access to the Menu. To access the Menu, turn the printer off,

then hold down the SEL key while turning the printer on.

Page Length. Selects the length of the paper you're using.

Page Width (Model 521 only). Choose 8 for letter- size paper.

Paper Out Override. Senses when less than one inch of paper remains and stops printing. Choose Yes to override the detector. Caution!! This can cause loss of data and damage the printhead.

Pin 18. Sets the signal on pin 18 to +5V (factory default) or Open..

Pitch. Choose character width measured in characters per inch (cpi).

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

Print Mode. Choose NLQ Courier or NLQ Gothic font for letter quality printing, utility (factory default) for faster draft printing, or HSD for fastest printing (lowest quality).

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

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.

Printhead Gap Adjust. Fine tunes the automatic setting of the printhead gap. If your printer is consistently printing too light, change the setting to -1; if its too dark, change the setting to +1.

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

Receive Buffer Size. 64K (factory default), 1 Line, or 32K. Selects amount of memory devoted to holding received data. 1 Line will tie up your computer while printing, but if you abort the print job, the printer will stop printing much sooner.

Reset Inhibit. Selecting Yes prevents your software from resetting your printers settings.

SI Select Pitch, 10 CPI (IBM only). Sets the pitch (17.1 the factory default or 15 characters per inch) 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 only). Sets the pitch (20 the factory default or 12 characters per inch) 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 of the bottom. 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 inadvertently dumping the received data while it's waiting for more.

Wait Time. Sets the amount of time 500 ms, 1 sec (factory default), or 2 sec the printer will wait for more data before moving to the form tear- off position.

Zero Character. If you dont wish the printer to use a slash to distinguish the number 0 from the capital letter O, change the setting to Unslashed.

Chapter 6

Problem Solving

Problem Solving

Problem: Nothing happens when I turn on the printer.

Solution: The printer may not be plugged in. Check the power cord connection to the outlet and to your printer. If you're using a power strip, make sure it's turned on. Check to be sure that the fuse hasn't blown or that the circuit breaker hasn't tripped.

Problem: The printer doesn't print when the computer sends data.

Solutions: (1) The printer may be deselected. If the SEL light is out, press the SEL button to select the printer. (2) The printer cable may not be securely connected. Check the cable to be sure that it is properly connected to both the PC and the printer. (3) If you have installed the serial I/F board, it may not be firmly seated. Check to be sure that the board is firmly seated in the printer.

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

Solution: The printer driver you have engaged does not agree with the emulation selected for your printer. To check the emulation selected, make sure paper is loaded, then press the SEL and SHIFT buttons simultaneously to enter the MENU on your printer. Next, press the GROUP button: this will print the emulation selected. If the emulation is not the one you want to use, press the SET button to change it to the one you want before exiting the MENU (to exit, press SEL and SHIFT buttons). If the emulation is correct, check your software documentation on how to select a printer driver, then check to be sure that you have selected one of the drivers listed for that emulation in Chapter 4 (). The closer the driver is to the top of the list, the more compatible it will be with your printer. If your software doesn't have any of the indicated drivers available, check with the software manufacturer to see if they have added any additional drivers since you purchased your software. If you have embedded any printer commands in your software, check to be sure that you entered them correctly.

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

Solution: The plastic ribbon shield is either loose or missing. Move **(caution printhead may be HOT!)** the printhead to the center of the platen and lift off the ribbon cartridge. If the ribbon shield is loose, secure it in place properly. If it's missing, locate it and reinstall it.

Problem: I see printing on the right side of the page which is lighter or darker than the rest of the print.

Solution: Although the printer automatically sets the head gap, it may sometimes need minor adjustment. To do this:

1. Hold SHIFT button and press SEL button to enter Menu mode.
2. Press GROUP button until Setup group prints.
3. Press ITEM button until Printhead Gap appears.
4. Press SEL button to change setting. The default setting is 0. If the printing is sometimes lighter, change the setting to -1; if it's sometimes darker, change it to +1.
5. Hold SHIFT button and press SEL button to save setting and exit Menu mode.

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

Solution: This indicates a paper loading error. To stop the flashing light, press the SEL button. Before trying to load paper again, check to be sure that the paper lever is in the correct position (BOT, TOP, REAR) for the path you're using. If the paper lever is in the correct position and you're using rear feed, lift up the paper separator and check to be sure that the paper is properly on the tractors and has not jammed up. If the paper lever is in the correct position and you're using the optional bottom-feed push tractor, check the bottom tractor unit to be sure that the paper is properly on the tractors and has not jammed up before entering the printer. Once the paper is correctly loaded, press and release the SEL button, then hold the SHIFT button and press the RESET (Character Pitch) button.

Problem: The first line is printing too far down on the page and I can't get it any higher using the SHIFT and LF/MicroFeed Down buttons.

Solution: The setting for the Top of Form (TOF) will be restricted if you have the Forms Tear- Off feature engaged when you set the TOF. To correct for this, you must reset the TOF with the Forms Tear- Off disengaged, as follows:

1. Hold SHIFT button and press SEL button to enter Menu mode.
2. Use GROUP and ITEM buttons to reach Rear Feed Form Tear- Off entry and/ or Bottom Feed Form Tear- Off entry, depending on paper path(s) you're using.
3. Use SET button to change Form Tear- Off setting to Off.
4. Hold SHIFT button and press SEL button to exit Menu mode.
5. Press SEL button to deselect printer.
6. Hold SHIFT button while pressing LF/ Micro Shift Down button to set TOF at desired position.
7. Hold SHIFT button and press SEL button to enter Menu mode.
8. Use GROUP and ITEM buttons to reach Rear Feed Form Tear- Off entry and/ or Bottom Feed Form Tear- Off.
9. Use SET button to change Form Tear- Off to desired setting (500ms, 1 sec or 2 sec).
10. Hold SHIFT button and press SEL button to exit Menu mode.

Problem: I need to load paper, but the Alarm light is not on and I cant load paper.

Solution: If the Alarm light is off, the printer thinks it has paper loaded. To correct this problem, press and release the SEL button, then hold the SHIFT button and press the RESET (Character Pitch) button. The Alarm light will come on and you'll be able to load paper.

Problem: My word processor files don't print the way I have the MENU and front panel set.

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 reset the printer to a default set of features: otherwise the printer might accidentally print using features set for a previous job. These codes override panel or MENU settings. To set your printer to ignore the reset code, enter the printer MENU (hold SHIFT button while pressing SEL/ MENU button) and change the Reset Inhibit item (in the Set- Up group) to Yes. Please note that while this will stop the reset code from resetting your printer, other codes in the initialization string may still override the printer MENU and/ or front panel settings. The I- Prime signal is sent over the parallel interface (pin 31) and will automatically override any settings you have made using the front panel buttons. To eliminate this problem, enter the program MENU (hold SHIFT button while pressing SEL/ MENU button) and change the I- Prime item (in the Parallel I/ F group) to Invalid.

Problem: The Print Quality and Character Pitch buttons on the front panel won't work.

Solution: The Operator Panel Function item on the printer MENU can be used to disable these buttons. 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.

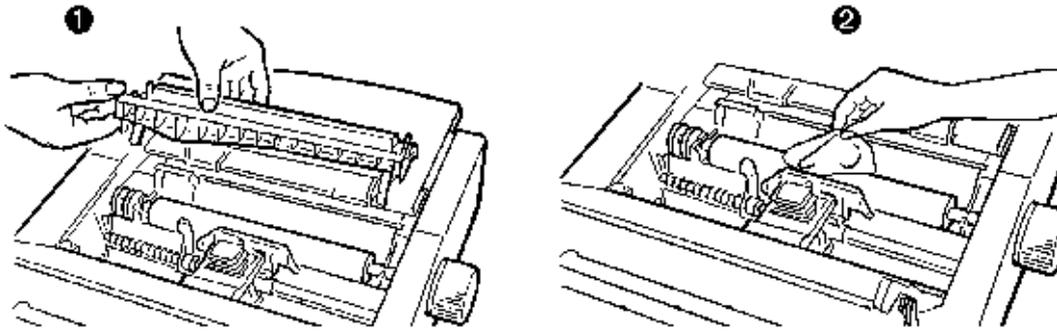
Problem: Static electricity causes the paper to stick.

Solution: In cold, dry weather, static charges can build that make the paper cling to the paper separator. Try moving the single sheet paper guides on the separator together so that the paper rests on the guides rather than on the separator itself. Problem Solving & Maintenanc

Maintenance Cleaning the Housing

Maintenance Cleaning the Housing

You should clean the printer every six months (or after about 300 hours of operation). Turn the printer OFF and remove the paper from the path. Open the access cover and remove the pull-up roller assembly (1). Use a clean, dry cloth to dust the area around the carriage shaft and platen (2). Be sure to remove any loose particles of paper. Reinstall the pull-up roller assembly and close the access cover.



Note: Never use solvents or strong detergents on the cabinet they could damage the housing.

Appendix A

Specifications

Printhead 9 pins, 0.34 mm diameter, automatically adjusting to paper thickness, with thermal protection

Print Speed	Mode	Characters per second at 10 Cpi
	High Speed Draft (HSD)	427 cps
	Utility	320 cps
	Near Letter Quality (NLQ)	80 cps

Characters per Line (CPL)	Setting	ML520	ML521
	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, IBM Proprinter, and OKIDATA Microline Standard co-resident

Interface Standard: Centronics parallel
Optional: RS- 232C serial

Graphics Resolution	Emulation	Resolution
	Epson/ IBM Single Density:	144 ´ 240 dpi
		Double Density: 120 ´ 144 dpi
		Quadruple Density: 72 ´ 120 dpi
	OKIDATA Microline Standard	Single Density: 144 ´ 288 dpi
		Double Density: 144 ´ 144 dpi
		Quadruple Density: 72 ´ 72 dpi

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

Bar Codes Code 39, UPC A, UPC E, EAN 8, EAN 13, Interleaved 2 of 5, Code 128 (A, B, and C), Postnet

Receive Buffer Size 64K

Reliability	Parameter	Reliability
density	Mean Time Between Failures (MTBF)	6000 hours at 25% duty cycle and 35% page
	Mean Time to Repair (MTTR)	15 minutes
mode at 25%	Printhead life	200 million characters average in 10 cpi utility
	Ribbon Life	duty and 35% page density (on average, 10 cpi utility) 4 million characters

Paper Width Minimum: 3 Maximum: Model 520, 10 Model 521, 16

Paper Weight 12 to 24 lb.

Paper Thickness Rear feed: 0.014 (0.36 mm) Bottom feed: 0.017 (0.44 mm)

Paper Specifications

<i>Paper Type</i>	<i>Feed</i>	<i>Weight</i>	<i>Width Range</i>
Cut sheets	Top only	14 to 24 lb.	ML520: 7.2" to 8.5" ML521: 7.2" to 14.3"
Single-part continuous forms	Rear, Bottom	12 to 24 lb.	ML520: 3" to 10" ML521: 3" to 16"
Carbonless, multipart continuous form (orig. + 5 copies)	Rear, Bottom	9 to 11 lb.	ML520: 3" to 10" ML521: 3" to 16"
Interleaf, multipart continuous forms (orig. + 5 copies)	Rear, Bottom	10 to 12-lb. paper, 9-lb. carbon	ML520: 3" to 10" ML521: 3" to 16"
Labels	Bottom only	N.A.	ML520: 3" to 10" ML521: 3" to 16"
Envelopes, single feed	Top only	24 lb. max	6.5" to 9.5"
Envelopes, continuous feed, non-overlap type	Bottom only	24 lb. max	6.5" to 9.5"
Card stock	Bottom only	120 lb. max.	N.A.
Transparencies	Top only	—	8.5" × 11"

Dimensions (W ´ D ´ H)

Model 520: 17 ´ 15 ´ 6½ inches (431 ´ 380 ´ 166 mm) Model 521: 23 ´ 15 ´ 6½ inches (585 ´ 380 ´ 166 mm)

Weight Model 520: 17 lb. 10 oz. (8 kg)
Model 521: 23 b. 2 oz. (10.5 kg)

Environmental Requirements	Parameter	Range
	Operating Temperature	41 to 104° F (5 to 40° C)
	Storage Temperature	14 to 122° F (- 10 to +50° C)
	Operating Humidity	20 to 80% RH
	Storage Humidity	5 to 95% RH

Electrical requirements 120 volts ac (+ 5.5%, -15%), 60 Hz (± 2%) Also available for 230 (+ 6%, - 10%) volts ac or 240 (+ 10%) volts ac, 50/ 60 Hz (±2%)

Specifications subject to change without notice.