DASHER™
LP2 and TP2 Printers

Operator's Manual

DASHER™ LP2 and TP2 Printers

Operator's Manual

Foreword

This manual is a guide to the features and operation of your DASHER™LP2 Printer or TP2 Terminal. For information about programming, interfacing, and installing your printer, see the DASHER™ LP2 and TP2 Printers User's Manual (DGC No.014-000094).

Notice

Data General Corporation (DGC) has prepared this manual as a rudimentary guide for those who may be required to work with, or operate, only the specific DGC equipment described herein. This manual is not intended to support complex equipment-maintenance procedures and does not provide detailed descriptions of hardware operation and/or programming techniques.

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Contents

DASHER ™ LP2 and TP2 (Printers)

Introduction

Your DASHER™LP2 or TP2 printer is either a receive-only (RO) printer or a keyboard-send-receive (KSR) hard-copy terminal. Though models without a keyboard are considered printers and models with a keyboard are considered terminals, this manual often uses the word *terminal* to apply to both.

All DASHER LP2 and TP2 terminals feature:

- A 7 x 9 dot-matrix character format. Up to 132 characters per line are printed at 180 characters per second.
- The following capabilities:

    - horizontal tabbing

    - vertical tabbing (if the automatic form feed option is installed)

    - plotting

    - underscoring

    - elongated (double width) characters

- Switch-selectable 6 or 8 lines per inch printing.
- Ability to accommodate up to 6-part forms 4 to 15 inches wide.
- A switch-selectable view mode which moves the printhead away from the last character printed when printing stops.

- A self-testing diagnostic program designed to help you trace a malfunction should one occur.
- One of five international fonts: American, British, French, German, and Swedish.
- Down-line loading of user defined character sets.

Your terminal may also have the following options:

- An automatic form feed which moves paper to the top of the next form.
- Compressed printing allowing you to print 132 characters on an 8-inch line rather than the normal 13.2-inch line.
- An alternate character set in any one of the remaining four international fonts.
- A free-standing paper holder for stacking hardcopy output.

The following table lists the various model numbers along with their available options.

DASHER LP2 and TP2 Printers, Models and Options

Printer		Features Included (not common to all models)	Additional Features Available as Options	
Model	Description		Model	Description
6073	Receive Only Printer	Automatic Form Feed Parallel Interface		
(S) 6074	Receive Only Printer	Automatic Form Feed Compressed Print , Parallel Interface		
6075	Receive Only Printer	Automatic Form Feed Serial Interface		
(S) 6076	Receive Only Printer	Automatic Form Feed Compressed Print , Serial Interface		
6077	Keyboard Send/Receive Terminal	Automatic Form Feed 14-Key Numeric Pad Serial Interface		
(S) 6078	Keyboard Send/Receive Terminal	Automatic Form Feed 14-Key Numeric Pad, Compressed Print Serial Interface		
S6073	Receive Only Printer	Parallel Interface	1146	Automatic Form Feed
S6075	Receive Only Printer	Serial Interface	1146	Automatic Form Feed
S6077	Keyboard Send/Receive Terminal	Serial Interface	1146 1147	Automatic Form Feed 14-Key Numeric Pad

DASHER LP2 and TP2 Printers, Models and Options (Cont'd)

| PRINTER		Features Included (not common to all models)	Additional Features Available as Options	
Model	Description		Model	Description
FOR ALL MODELS			1149A	Box of 12 Ribbon Cartridges (for all models)
			1149B	Box of 60 Ribbon Cartridges (for all models)
			1149C	Box of 600 Ribbon Cartridges (for all models)
			1127A	Paper Holder

Model numbers with an (S) prefix are available to Data General Corporation's independent resellers. Consult your salesmen.

Operator Controls and Procedures

Operating your DASHER LP2 or TP2 terminal is easy. To get it ready to use, all you have to do is power it up, make sure it has paper, and switch it online. When the ribbon gets worn, you'll need to change it. This section tells you how to do each of these things.

You control the operation of your printer or terminal using the power switch and switches located on the primary and secondary control panels. If you have a terminal, you may also control its operation via the keyboard and the optional numeric keypad. The location and operation of these controls are described below.
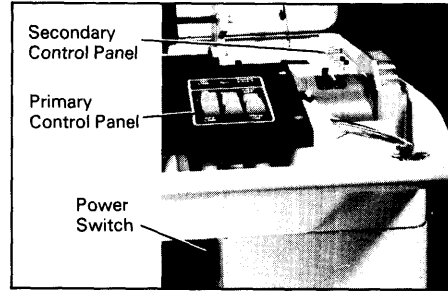
Control Locations, RO Printer
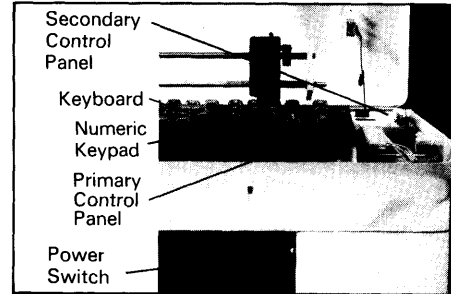
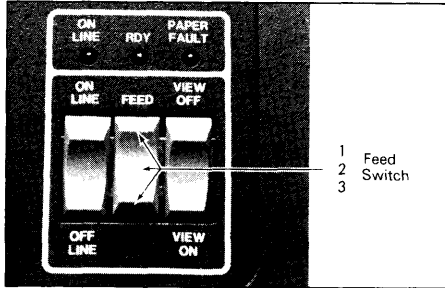**Control Locations, KSR Terminal**

Power Switch

This two-position switch is located on the inner side of the pedestal and operates as follows:

UP/ON - The power is turned on, the fan runs, and the printhead returns to the beginning of the line.

DOWN/OFF - The power and fan are turned off.

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Primary Control Panel, RO Printer

Primary Control Panel, RO Printer

ON LINE (indicator light) - When lit, your printer is on line (under control of the computer). When not lit, your printer is off line.

RDY (ready indicator light) - When lit, your printer is able to accept characters. When not lit, either your printer is not able to accept characters (i.e., its character buffer is full), it is off line, it is not powered up, or there is a fault condition. See **Troubleshooting Guide**, pp. 23-24.

NOTE - *The RDY light will blink on and off during normal operation.*

FAULT (indicator light) - When lit, your printer is either out of paper, the paper feed mechanism is jammed, the ribbon cartridge is jammed, or some other hardware fault exists. See **Troubleshooting Guide**, pp. 23-24.

ON/OFF LINE (two-position switch) - When in the ON LINE position, your printer is under the computer's control. When in the OFF LINE position, your printer is not under the computer's control. However, if a fault condition exists, the printer can be off line (RDY indicator extinguished), even though the ON/OFF LINE switch is in the ON LINE position.

FEED (three-position switch) - Pressing the switch to position 1 advances the paper one line. Position 2 is the normal position. Pressing the switch to position 3 advances the paper to the top of the next form if the automatic form feed option is installed. If the automatic form feed option is not installed, pressing the switch to position 3 advances the paper until you release the switch.

VIEW ON/OFF (two-position switch) - When in the VIEW ON position, the view feature is enabled. When in the VIEW OFF position, the view feature is disabled.

When this feature is enabled and there is a pause in printing, the printhead automatically moves several spaces to the right so you can see the last character printed. If the printhead is near the end of the line when there is a pause in printing, the printhead moves to the left instead of the right.

Primary Control Panel, KSR Terminal
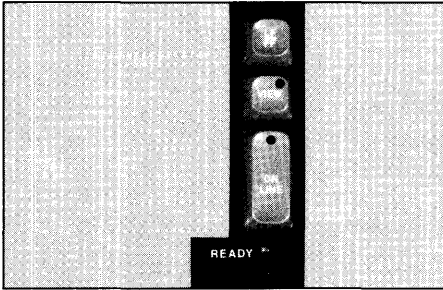
Primary Control Panel, KSR Terminal

VIEW (indicator light) - When lit, your terminal's view feature is enabled. When not lit, the feature is disabled.

ON LINE (indicator light) - When lit, your terminal is on line (under control of the computer). When not lit, your terminal is off line.

READY (indicator light) - When lit, your terminal is able to accept characters. When not lit, either your printer is not able to accept characters (i.e., its character buffer is full), it is off line, it is not powered up, or there is a fault condition. See **Troubleshooting Guide,** pp. 23-24.

NOTE - The RDY light will blink off and on during normal operation.

FAULT (indicator light) - When lit, your terminal is either out of paper, the paper feed mechanism is jammed, the ribbon cartridge is jammed or indicates the existance of other hardware faults. See **Troubleshooting Guide,** pp. 23-24.

LF/FF (momentary contact switch) - Pressing the switch for less than a second advances the paper to the next line (Line Feed). If the automatic form feed option is installed, pressing the switch for more than a second advances the paper to the top of the next form (Form Feed). If the automatic form feed option is not installed, pressing the switch for more than a second advances the paper at about one second intervals until the switch is released.

VIEW (alternate action switch) - When pressed and the light glows, view mode is enabled. When pressed again and the light goes OFF, view mode is disabled.

When this feature is enabled and there is a pause in printing, the printhead automatically moves several spaces to the right so you can see the last character printed. If the printhead is near the end of the line when there is a pause in printing, the printhead moves to the left instead of the right.

ON LINE (alternate action switch) - When pressed and the light glows, your terminal is connected to the computer or communications system. When pressed again and the light goes off, your terminal is disconnected from the system.

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Secondary Control Panel

You control various features of your terminal through switches located on the secondary control panel. The presence of a switch on your control panel indicates that your model is equipped with that particular option. You can control the terminal by these switches while the terminal is off line. When you switch the terminal on line, it retains the last switch settings. Changing the secondary panel's switch settings while the terminal is on line has no effect until the terminal is switched off line (except MST RST). The operation of these switches is described below:

NORM/COMP(normal/compressed switch) -
When in the normal position, selects normal width characters. When in the compressed position, selects compressed width characters.

You can print up to 132 normal width characters/line on 15-inch wide forms or you can print up to 132 compressed characters/line on 9-inch wide forms. You can print elongated characters in both modes. The following table gives the printing density for each combination of modes:

CHARACTER PER INCH		
	Regular	Elongated
Normal	10	5
Compressed	16.5	8.25
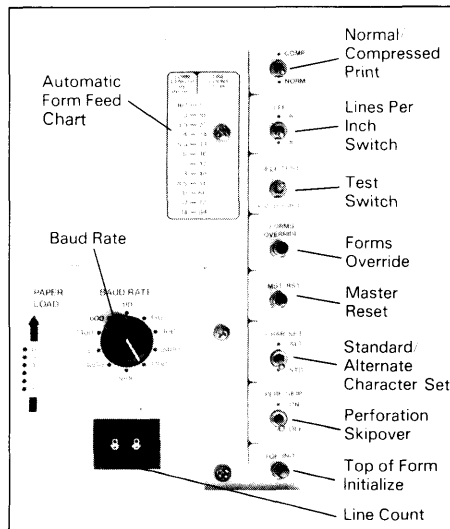
Secondary Control Panel

LPI (lines per inch switch) - In the 6 position, selects 6 lines/inch vertical spacing. In the 8 position, selects 8 lines/inch vertical spacing.

SELF TEST/ESC DISABLE (three-position switch) -

- Middle - Your printer decodes escape sequences normally.
- ESCape/DISABLE - Your printer does not decode escape sequences. Escape codes are ignored and subsequent codes are printed.
- SELF TEST - When off line, initiates the self-test diagnostic program.

Start the self-testing diagnostic as follows:

1 - Switch your terminal off line.

2 - Momentarily press the switch to the SELF TEST position.

3 - Adjust the switches on the secondary control panel to reflect the functions you wish to test (COMP/NORM, LPI, CHAR SET, PERF SKIP, and LINE COUNT).

4- Switch your terminal on line.

Your terminal should sequentially print your entire character set, 132 characters to the line. It should continue printing the character set at 180 cps (characters per second) until you press the MST RST switch.

End the self-testing diagnostic as follows:

Depress MST RST (master reset).

FORMS OVERRIDE (pushbutton switch) - Depressing this switch, after you have run out of paper, allows printing another line of text. This switch is handy if you are in the middle of a job when paper runs out.

MST RST (Master Reset pushbutton switch) - Depressing this switch initializes (sets up) the terminal according to the switch settings of the primary and secondary control panels and clears the character buffer.

CHAR SET (Character Set switch) - When in the STD position, the terminal prints characters defined by the standard character set. When in the ALT position, the terminal prints characters defined by the alternate character set.

PERF SKIP (Perforation Skip-over switch) - When in the ON position, the terminal skips an inch between forms (the perforation). When in the OFF position, the terminal does not skip any space between forms.

BAUD RATE (rotary switch) - Selects the number of information bits which can be transmitted or received serially each second over a communications line. This switch is normally set when the unit is installed and not changed unless you connect your terminal to a different system.

AUTOMATIC FORM FEED - With this option you can return the printhead to the beginning of the line and advance the paper to the top of the next form all in one operation. Your terminal can perform a form feed on forms up to 16.5 inches long.

Before you can use the automatic form feed, you have to set the form feed controls located on the secondary control panel. These controls include the TOF INIT (Top of Form Initialize) switch and the LINE COUNT switches. You set these switches as follows:

1 - Switch the terminal off line.

2 - Advance the paper manually or by pressing the Line Feed switch to the line you want initialized as the top of the form.

3 - Set the line count wheels to the total number of lines between perforations on the form being used. If the Lines per Inch switch is set for 6, you may use the chart on the secondary panel to convert from form length to line count. If it is set for 8 lines per inch, the number of lines equals 8 multiplied by the form length (inches). Thus, the maximum form length is 12 inches for 8 lines/inch and 16.5 inches for 6 lines per inch.

4 - Press and release the TOF INIT pushbutton.

5 - Switch the terminal on line.

You can test this option while off line. On an RO printer, press the three-position switch on the primary control panel to FORM FEED. On a KSR terminal , press the LF/FF switch for more than one second.

Each time you change the length of the form you are using or change the setting of the LPI (Lines Per Inch) switch, you must repeat the above procedure.

Keyboard (KSR Terminals Only)

The DASHER TP2 keyboard provides a layout of keys similar to a standard office typewriter. Unlike a typewriter, it generates ASCII character codes. How your terminal responds to these codes depends on whether your terminal is off line or on line. When your terminal is off line, it operates very much like a typewriter. However, when it is on line, it may function quite differently. On line, your terminal's response to the keyboard depends on the nature of the work your computer system has been set up to handle.

Function Keys

Besides the standard typewriter keys, your keyboard also includes eleven function keys. The functions of these keys are described below. Where the on-line function of a key may vary from system to system, we have left several blank lines so you can write in the specific function of the key in your particular system.

ALPHA LOCK

Upper Case Alpha Lock Key - This key functions as the Shift Lock key does on a typewriter. Pressing it together with any alpha (letter) key generates the upper case character for that alpha key. This upper case function continues until you press the ALPHA LOCK key again. The indicator light on the SHIFT key glows while this function is taking place.

BRK

Break Key - Holding this key down prevents the transmission of any character codes.

Keyboard

DEL

Delete Key - Off line, pressing this key prints the rubout code.

On line: _____

_____

_____

ESC

Escape Key - Off line, this key has no effect on the terminal.

On line: _____

_____

_____

BS

Back Space Key - Off line, this key has no effect on the terminal.

On line: _____

_____

_____

CTRL

Control Key - Off line, holding this key down while you depress another key has no effect on the terminal, with the following exceptions: CTRL-J (Line Feed), CTRL-K (Vertical Tab), and CTRL-L (Form Feed).

On line, holding this key down while you depress another key generates the control character associated with that key.

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NEW LINE

New Line Key - Off line, pressing this key terminates the present line and advances the paper one line.

On line: _____

_____

_____

CR

Carriage Return Key - Off line, pressing this key moves the printhead carriage to the left-hand margin but doesn't advance the paper.

On line: _____

_____

_____

RPT

Repeat Key - Pressing this key by itself has no effect. Pressing it together with any other key causes your terminal to repeat the action of the other key until either key is released.

● SHIFT

Upper Case Key - This key functions as the Shift key does on a typewriter. Pressing it together with another key generates the shifted mode function for that key. The light is lit when the ALPHA LOCK key has locked the keyboard in uppercase mode.

TAB

Tabulation Key - Off line, pressing this key advances the printhead to the next horizontal tab stop (if one is set), after the next printing character key is pressed.

On line: _____

_____

_____
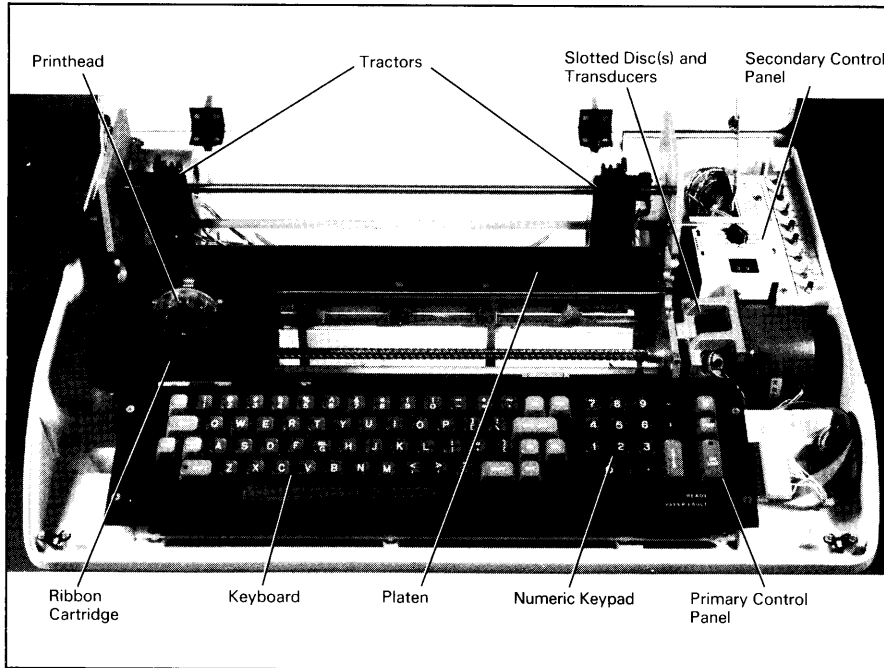
Numeric Keypad (TP2 Option)
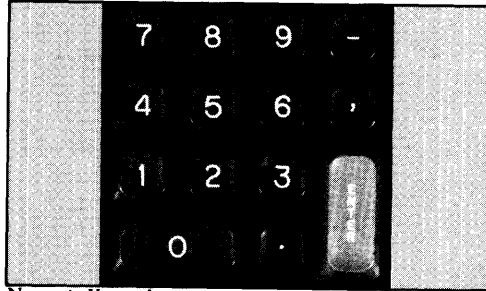
Numeric Keypad

Enter Key - Off line, pressing this key returns the printhead to the left-hand margin without advancing the paper.

On line: _____

_____

_____

The numeric keypad (an option on some DASHER TP2 models) is similar to a calculating machine's keyboard. It generates the numerals 0 - 9, periods, commas, and minus signs. Also included is an ENTER key which functions as indicated below.

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Printhead

Tractors

Slotted Disc(s) and Transducers

Secondary Control Panel

Ribbon Cartridge

Keyboard

Platen

Numeric Keypad

Primary Control Panel

Inside Your Terminal

Loading Paper

Your terminal uses standard pin-feed, fan-fold paper forms. These forms have from one to six parts and may be from 4 to 15 inches wide (for details, see p.19). You can adjust the space between the printhead and the platen for forms of different thicknesses to ensure good print contrast. The movable right and left paper tractors allow you to adjust for different form widths.

Load the paper as follows:

1 - Switch your terminal OFF LINE.

WARNING- If you don't switch the printer off line while loading paper, the printer will continue printing as soon as paper is inserted through the bottom of the terminal.

**2 -** Swing the top cover up until it latches.
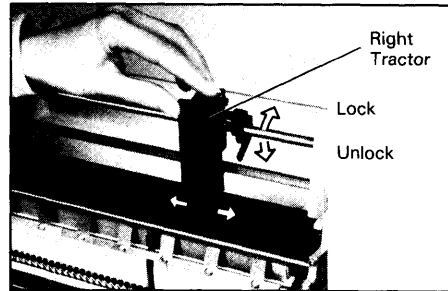
Positioning Right Tractor

3 - If you want to use paper of a different width or change the position of the paper on the platen, you'll need to move one or both of the tractors. To move the tractors, loosen the levers locking them in place, move the right and left tractors to the desired positions, and retighten the locking levers.
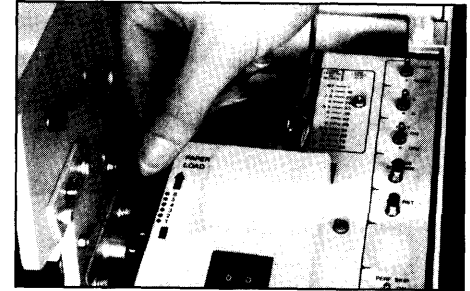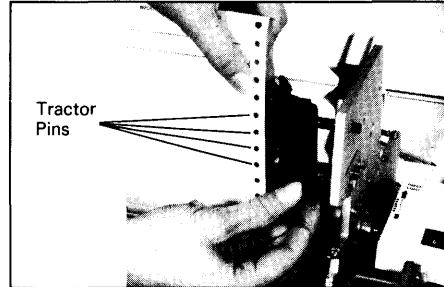

Moving Platen Lever

4 - Place a box of pin-feed paper under the printer.

5 - Move the platen space lever to the widest position to provide space for sliding the paper into place.

Paper Path

Positioning Paper On Tractor Pins
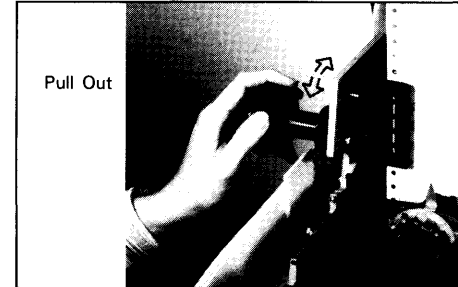

Positioning Paper Using Paper Feed Vernier Knob
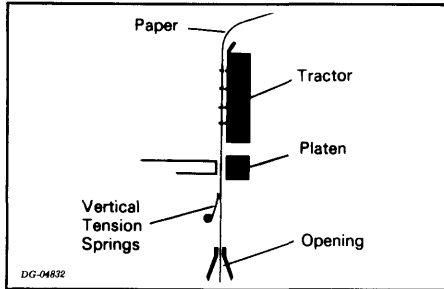
6 - Swing open the tractor gates and feed the paper through the opening in the bottom of the terminal, under the vertical tension springs, and onto the tractor pins (see illustration, **Paper Path**).

It may be necessary to reposition the right tractor (see Step 3) to line the tractor pins up with the paper feed holes. Make sure that corresponding holes on either side of the paper are aligned so the top of the paper is horizontal. Misalignment may cause the paper to jam and/or tear in the tractors.

There should be a slight horizontal tension on the paper; however, too great a tension may cause the paper to jam. To increase the horizontal tension, move the right tractor slightly to the right; to decrease the tension, move it slightly to the left.

7 - Close the tractor doors.

8 - Move the platen space lever to the appropriate position for the form thickness used. While the numbering of the positions corresponds approximately to the number of forms used, form thickness varies from supplier to supplier. For best results, adjust the platen lever until you get desired print contrast.

9 - Adjust the paper to the desired vertical position using the FEED switch. Make fine adjustments manually by pulling out and rotating the paper feed vernier knob.

10 - If your terminal is equipped with the automatic form feed option, check the line count switches on the secondary control panel to make sure they are set to the correct line count for the length of the form you are using and initialize the top of form. (See **Automatic Form Feed** p. 9.)

11 - Close the top cover while feeding the paper through the large slot on the cover.

12 - Switch the terminal ON LINE.

Changing the Ribbon Cartridge

Your DASHER LP2 or TP2 printer uses a continuous cartridge ribbon. The ends of this ribbon are connected together so that both the upper and lower halves are used.

A new cartridge should be installed when printing becomes light, indicating that the ink has been used up. You should use Data General model 1149 ribbon cartridges. (See p. 3)
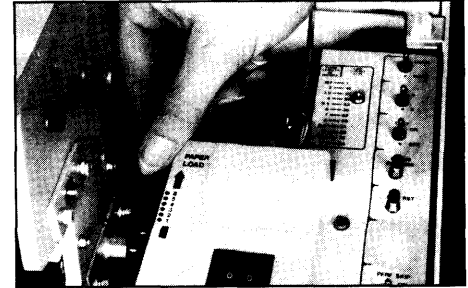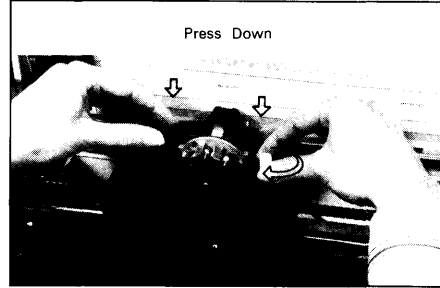

Moving Platen away from Printhead

Change the cartridge as follows:

1 - Switch the terminal OFF LINE.

2 - Swing the top cover up until it latches open.

3 - Noting the position of the platen lever, move it away from the printhead by moving the platen space lever (located next to the Secondary Control Panel) to the widest position.
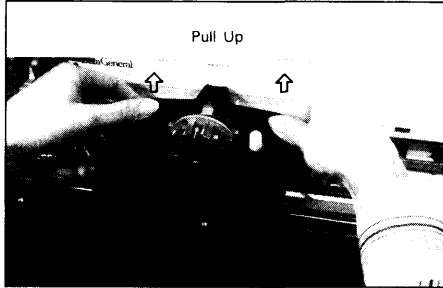
Pull Up

Removing Cartridge

Press Down

Installing Ribbon Cartridge

4 - Grasp the sides of the cartridge with both hands and gently pull upwards, removing it from the carriage assembly.

5 - Turn the knob on the new cartridge clockwise until the ribbon is taut.

CAUTION - The knob on the ribbon cartridge should never be turned counter-clockwise as it may jam the ribbon.

6 - Place the cartridge (knob side up) on the carriage assembly. Slowly turn the knob clockwise as you gently push the cartridge into place (this engages the ribbon advance mechanism with the ribbon drive spindle located on the top of the carriage assembly).

7 - Replace the platen lever to the correct detent position for the desired print contrast.

8 - Close the top cover.

9 - Switch the printer ON LINE.

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Operating Notes

The paper or forms you use should conform to the following specifications:

Pin-feed, fan-fold, 1 to 6 part paper.

Width:	10.2cm to 38.1cm (4" to 15")
Hole spacing:	1.27cm (0.5") centers (nom.)
Max. form thickness:	0.625mm (0.025")
Form weight:	5.45kg (12 lbs.) paper 3.63kg (8 lbs.) carbon
Form crimps:	Tab type only (metal fasteners or glue spots may damage printing mechanism).

Make sure that the paper feeds over the top and back of your terminal.

When removing paper forms from the terminal, hold the paper on both sides of the perforation while you separate the forms; otherwise the pin-feed holes could tear and cause the paper to jam.

Keep the top cover closed during normal operation.

Don't let foreign objects such as paper clips or thumbtacks fall into your printer. If something does fall into it, switch if OFF LINE, turn the power OFF, unplug the power cord from the line supply outlet, and remove the object.

Don't use the cover area as a tray for coffee cups, ash trays, food, etc.

Materials needed:

Lint-free tissues
Isopropyl alcohol (91% or stronger solution)
Vacuum cleaner with non-conducting nozzle

NOTE- Do not lubricate any parts. The printing mechanism requires no lubrication, and lubricants tend to accumulate dust and dirt which will seriously degrade performance.

Clean the printhead guide rails, the platen, and the tractor mechanism each MONTH as follows:

1 - Switch your terminal OFF LINE, turn the power OFF, and unplug the power cord from the line supply outlet.

2 - Lift up the top cover until it latches.

3 - Remove the paper from your terminal, leaving the platen lever in the widest position.
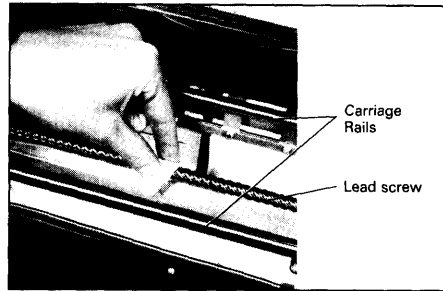
Cleaning Lead Screw and Carriage Rails

**4 -** Remove the ribbon cartridge as described on pp. 17-18.

5 - Using a lint-free tissue, wipe the lead screw and carriage rails. However, DO NOT use any kind of solvent on the carriage rails. You may use isopropyl alcohol on other parts.
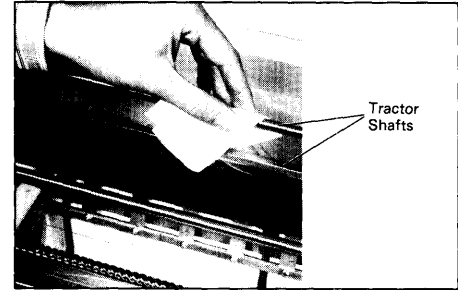
Cleaning Tractor Shafts

CAUTION - Do not attempt to move the printhead/carriage assembly by pushing either the printhead or the carriage assembly. You may move it manually by rotating the lead screw.

6 - Wipe the tractor support shaft and drive shaft with a tissue. Clean any paper dust from the tractor assemblies.
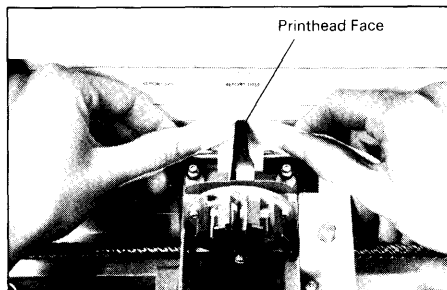
Printhead Face

Wiping Platen/Printhead

7 - If the printhead face is dirty, wipe it with a folded lint-free tissue. Repeat with clean tissues until the face is clean. Also wipe the platen with clean tissue.

8 - Clean all debris and paper dust from the carriage cavity using a vacuum cleaner with a non-conducting nozzle.

CAUTION - Take special care not to touch the slotted disc(s) and transducers while vacuuming (see the photograph, Inside Your Terminal, p. 14).

9 - Replace the ribbon cartridge as described on pp. 17-18.

10 - Replace the paper as described on pp. 15-17.

11 - Close the top cover while feeding the paper through the large slot in the cover.

12 - Clean the outside of the terminal with a cloth dampened with a mild soap solution.

CAUTION - Do not use a cleaning solution containing alcohol or cleaning fluid, as it may damage the finish. Don't let any cleaning solution enter the operator's control panel or carriage cavity.

13 - Plug the power cord into the line supply outlet, turn the power ON, and switch your terminal ON LINE.

Troubleshooting Guide

The following table describes procedures for correcting minor problems with your terminal. If these procedures do not correct the problem, call your local field service office.

CAUTION - Before attempting to adjust or examine anything on your terminal, switch it OFF LINE and turn the power OFF.

Problem	Possible Cause	Remedy
Terminal does not power up. (All indicator lights are off.)	Power switch is OFF.	Switch power ON.
	Power cord is not plugged into line supply outlet.	Plug it in.
	Power cord is not plugged into terminal.	Plug it in.
	No current is coming from the line supply outlet.	Check it with a device you know is working, a lamp, for example. Call an electrician.
	Circuit breaker is tripped.	See Fault Detectors, Chapter V, User's Manual.
Terminal does not operate. (It's powered up but RDY and FAULT lights are off.)	Various causes.	Press MST RST on the secondary control panel.
Terminal does not operate but FAULT light is lit.	No paper.	Switch the printer off line and load more paper*. Switch the printer on line. Printing begins where it left off, i.e., no text is lost.
	Paper is jamming.	Clear paper path, reload paper* and press MST RST.
	Ribbon cartridge is jammed.	Replace ribbon cartridge and press MST RST.

*See **Loading Paper**, pp. 15-17.

Troubleshooting Guide (Cont'd)

Problem	Possible Cause	Remedy
No printing	Printhead is too far from platen. The terminal is not on line. Broken ribbon.	Adjust platen space lever. Switch the ON/OFF LINE switch to the ON LINE position. Replace ribbon cartridge.
Light print	Ribbon is worn. Printhead is too far from platen.	Replace ribbon cartridge. (See Changing the Ribbon.) Adjust platen space lever. *
Dark smudgy print	Printhead is too close to platen. Ribbon malfunction.	Adjust platen space lever. * Change ribbon cartridge.
Paper is tearing, bunching, or not advancing.	Paper is improperly loaded or is snagged on the box. Printhead is too close to platen, causing too much pressure on paper. Corresponding holes on each side of the paper are not aligned on the tractors. (Top of paper is not horizontal.) Horizontal pressure on paper is too great.	Reload it, checking paper path. * Adjust platen space lever.* Realign paper on tractors.* Move right tractor slightly to the left.*
Paper is not automatically advancing to top of next form.	The line count switches are set to the wrong line count for the length of the form.	Reset switches, press and release the TOF INIT pushbutton, and advance the paper to the top of the next form. (See Automatic Form Feed Option.)

*See **Loading Paper,** pp. 15-17.

Glossary

ASCII - American Standard Code for Information Interchange, one of the standard codes used to translate ALPHANUMERIC and control characters into BINARY numbers (the language of all computers). The ASCII code assigns a unique binary number to each letter, digit, punctuation mark, or other symbol used.

Alphanumeric - Refers to a character set containing alphabetic and numeric symbols as well as other symbols such as punctuation marks.

Binary - Referring to the system of numerical notation which has a RADIX of 2.

Binary Digit - One of the two symbols (0 or 1) in the BINARY numbering system. Since computers process all information by means of electronic signals (on/off, high/low), binary digits lend themselves ideally to representing this information. A binary digit is often referred to as a BIT.

Bit - See BINARY DIGIT.

Character - A digit, letter, or other symbol, usually requiring 6 to 8 BITS of storage.

Character Buffer - A temporary storage area for characters to be printed.

Character Code - A combination of BITS which represents a particular CHARACTER in a character set.

Data - A general expression for all the numbers, symbols, letters, and facts which can be processed or produced by a computer.

Device - A unit which provides the computer system with outside communication, service, or storage, e.g., card punch, disc drive, paper tape reader, video display, line printer, etc.

Dot Matrix - Refers to a method of forming characters using a block of dots. When individual dots within the block are printed or displayed in a certain pattern, a character is formed. For example, the letter R is formed within a 7x9 dot matrix as follows:

Off Line - The operating mode of a DEVICE when it is not part of a computer system.

On Line - The operating mode of a DEVICE when it is part of a computer system.

Radix - The base of a numbering system - that is, the number of different digits which can occur in each position in the numbering system.

Terminal - A DEVICE through which DATA enters or leaves a computer system, e.g., a video display, a hard-copy printer, etc.

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