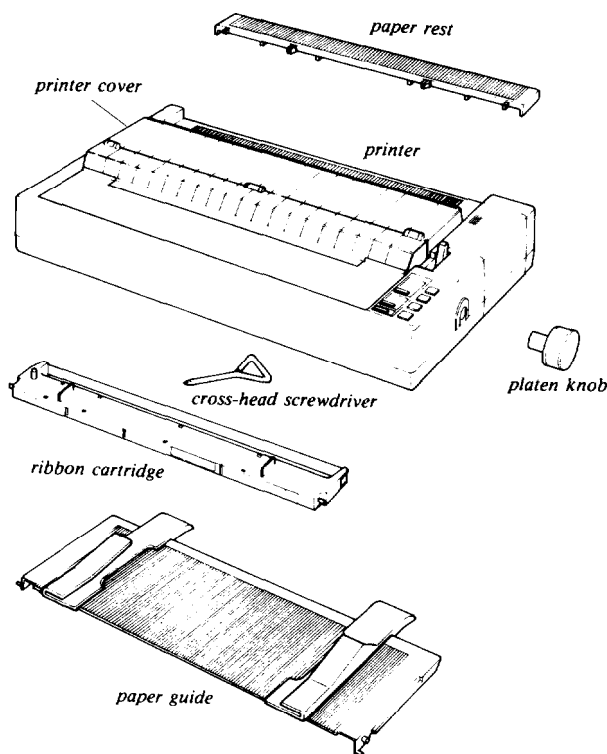


LQ - 850/950/1050 DOT - MATRIX PRINTER



Printer Specifications

Printing

Printing method

24-pin impact dot matrix

Printing speed

Pitch	Quality	Characters/second/line
10	draft	220
10	LQ	73
12	draft	264
12	LQ	88

Printing direction

Bi-directional with logic-seeking. User can select unidirectional printing (left to right).

Line spacing

1/6 inch, or programmable in increments of 1/360th of an inch

Buffer

6 Kbytes or 0 Kbytes (DIP switch selectable)

Fonts

Epson New Draft
 Epson Roman 10 CPI
 Epson Roman 12 CPI
 Epson Roman 15 CPI
 Epson Roman proportional
 Epson Sans Serif 10 CPI
 Epson Sans Serif 12 CPI
 Epson Sans Serif 15 CPI
 Epson Sans Serif proportional

Optional fonts

Courier 10 CPI, 12 CPI, 15 CPI
 Prestige 10 CPI, 12 CPI, 15 CPI
 Script-10 CPI, 12 CPI, 15 CPI
 OCR-A 10 CPI
 OCR-B 10 CPI
 Orator 10 CPI
 Orator-S 10 CPI

Character tables

96 standard ASCII characters
 13 international character sets
 Epson Extended Graphics set

Paper

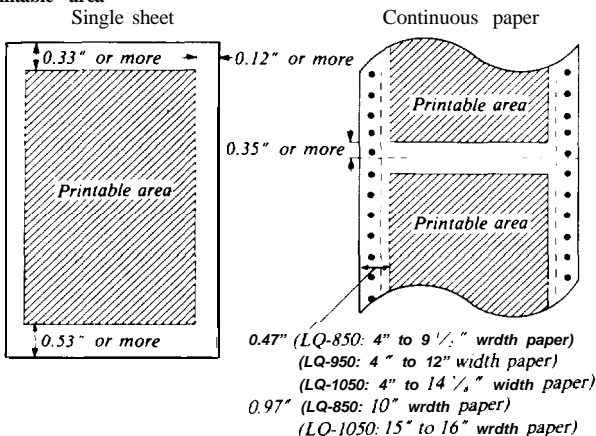
Paper feed methods

Friction
 Built-in push feed tractor with paper tension unit
 Single-bin or dual-bin cut sheet feeder (optional)
 Pull tractor (optional)

Paper width

Type of paper	LQ-850	LQ-950	LQ-1050
Single sheets	7.2 to 10.1 inches	7.2 to 13.0 inches	7.2 to 14.4 inches
Continuous	4.0 to 10.0 inches	4.0 to 12.0 inches	4.0 to 16.0 inches
Envelopes	No. 6, No. 10	No. 6, No. 10	No. 6, No. 10

Printable area



Paper feed speed

Approximately 60 ms/line at 1/6 inch line spacing

Paper thickness

Up to 0.004 inches for single sheets; up to 0.0126 inches for continuous paper

Number of copies

With continuous, multi-part, no-carbon paper only; one original plus up to three copies, maximum thickness: 0.0126 inches

Mechanical

Ribbon

Cartridge ribbon, available in black only Do not use ribbons for 9-pin printers.

Printer	Standard ribbon	Film ribbon
LQ-850	#7753	#7768
LQ-950	#7767	#7769
LQ-1050	#7754	\$7770

Life expectancy (in Letter Quality characters, at 48 dots/character): 2 million for standard ribbon and 0.2 million for film ribbon

MCBF

For all components excluding print head: 5 million lines.

MTBF

LQ-850: 4000 power on hours (at 25% duty)
 LQ-950: 5000 power on hours (at 25% duty)
 LQ-1050: 6000 power on hours (at 25% duty)

Print head life

200 million strokes per wire

Dimensions and weight

LQ-850	LQ-950	LQ-1050
Height: 5.6 in.	Height: 5.6 in.	Height: 5.6 in.
Width: 17.0 in.	Width: 20.5 in.	Width: 23.8 in.
Depth: 14.2 in.	Depth: 14.2 in.	Depth: 14.2 in.
Weight: 19.8 lbs	Weight: 22.0 lbs	Weight: 26.4 lbs

LQ - 850/950/1050 DOT - MATRIX PRINTER

Electrical

Voltage

- 120 VAC, ± 10% (USA)
- 220 VAC, ± 10% (Europe)
- Non-switchable

Power consumption

120 Watts maximum

Frequency

49.5 to 60.5 Hz

Insulation resistance

10 MΩ between AC power line and chassis

Dielectric strength

120 V model can withstand 1.25 kV rms applied between AC line and chassis for 1 minute, or 1.5 kV rms for 1 second

Environment

Temperature

- Operation: 41° F to 95° F (5° C to 35° C)
- Storage: - 22° F to 150° F (- 30° C to 65° C)

Humidity

- Operation: 10% to 80% without condensation
- Storage: 5% to 85% without condensation

Shock

- Operation: Up to 1 G within 1ms
- Storage: Up to 2 G within 1ms

Vibration

- Operation: Up to 0.25 G at up to 55 Hz
- Storage: Up to 0.5 G at up to 55 Hz

Printing on Special Paper

For printing on special types of paper, see the table below. When the paper thickness lever is set to position 4 or higher, the MULTI-PART light comes on and the printing speed is reduced.

The following table gives you general guidelines for selecting the right paper thickness lever position to match your paper:

Paper Type	Lever Position
Paper (single sheets or continuous)	2
Thin paper	2 or 1
Multi-part paper	
P-sheet	3
3-sheet	4
4-sheet	5
Labels	4
Envelopes	4
Air mail	4 or 5
Plain	6
Bond (20 lb.1)	6
Bond (24 lb.1)	7

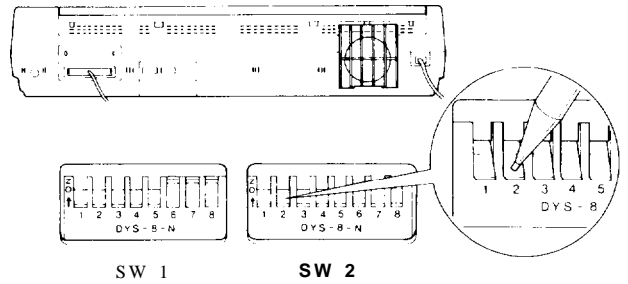
When printing on envelopes, be sure that your application program settings keep the printing entirely within the printable area of the envelopes as shown below.

To make sure that the printing fits within this area, always perform a sample printing test using a normal single sheet of paper before printing on envelopes.

Setting the DIP Switches

By adjusting the settings of the two groups of DIP switches (SW1 and SW2) in the back of the printer, you can control various features such as character set and page length.

To change the setting of a DIP switch, first turn off the printer. Using a pencil, pen, or other pointed instrument, change the setting as shown below. Then, turn the printer back on.



The tables below describe the functions of the DIP switches

DIP Switch 1

Switch	Description	ON	OFF
1-1	International character set	See the table below.	
1-2			
1-3			
1-4	Character table	Graphics	Italics
1-5	Print direction for graphics	Unidir.	Bidir.
1-6	Not used		
1-7	Cut sheet feeder mode	Valid	Invalid
1-8	6 Kbytes receive buffer	0 bytes	6 Kbytes

DIP Switch 2

Switch	Description	ON	OFF
2-1	Page length	12 inches	11 inches
2-2	Skip over perforation	ON	OFF
2-3	Interface/Parity	See the table below	
2-4			
2-5	Baud rate	See the table below	
2-6			
2-7	Short tear-off mode	ON	OFF
2-8	Auto line feed	ON	OFF

represents the DIP switch settings that have been preset at the factory.

The factory settings for International character sets (DIP switches 1-1 to 1-3), the Character table (DIP switch 1-4), and Page length (DIP switch 2-1) vary depending on the country, and are not shown in the tables above.

Selecting Character Sets

By changing the setting of the DIP switches, you can select one of eight international character sets and one of two character tables. Once you have set the DIP switches for a certain character set, that set is the default character set; it remains valid even after the printer is turned off, reset, or initialized. Software commands however, override DIP switch settings until they are cancelled or the printer is turned off, reset, or initialized.

To change the setting of a DIP switch, first turn off the printer. Set the DIP switch, and then turn the printer back on.

Choosing a character set

Selection of a character set provides you with the characters used in other languages or with legal symbols. To obtain the desired character set, set switches 1-1, 1-2, and 1-3 according to the DIP switch table on page 3-8.

The following table shows the characters in each character set

Character sets

Country	ASCII coda (hex)										
	23	24	40	50	5C	5D	5E	60	70	7C	7E
0 USA	#	\$	@	[\]	^	^	{		}
1 France	#	\$	à	°	ç	§	^	^	é	ù	è
2 Germany	#	\$	ß	À	Ö	Ü	^	^	ä	ö	ü
3 UK	£	\$	@	[\]	^	^	{		}
4 Denmark I	#	\$	@	Æ	Ø	Å	^	^	æ	ø	å
5 Sweden	A	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å
6 Italy	#	\$	@	[\]	^	^	è	à	è
7 Spain I	¢	\$	@	;	Ñ	ç	^	^	ñ	í	í
8 Japan	#	\$	@	[¥]	^	^	{		t
3 Norway	#	¤	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10 Denmark II	#	\$	É	Ø	Å	Ü	é	æ	ø	å	ü
11 Spain II	#	\$	á	í	Ñ	ç	é	í	ñ	ó	ú
12 Latin America	#	\$	á	í	Ñ	ç	é	í	ñ	ó	ú
64 Legal	#	\$	§	^	^	¶	^	^	†	†	™

The sets numbered 8 through 12 and 64 are available only through a software command. See page 9-3 I.

Selecting Typestyles

Draft mode uses fewer dots per character for high-speed printing.

DRAFT

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz
xyz{|}~ÇüéáàâãäåçèéëìíîïËÆØóôõöüÿÙÚÛÜÝÞË£¥¦§¨ª«
¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞË£¥¦§¨ª«
```

We've just seen your excellent ad for **miniature zebras** in a recent back issue of **Trader's Times**. What is the price schedule for quantities over one gross?

The Roman and Sans Serif Letter Quality (LQ) fonts use a larger number of dots for higher print quality at a lower speed.

ROMAN

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz
xyz{|}~ÇüéáàâãäåçèéëìíîïËÆØóôõöüÿÙÚÛÜÝÞË£¥¦§¨ª«
¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞË£¥¦§¨ª«
```

We've just seen your excellent ad for **miniature zebras** in a recent back issue of **Trader's Times**. What is the price schedule for quantities over one gross?

SANS SERIF

```
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
LMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz
xyz{|}~ÇüéáàâãäåçèéëìíîïËÆØóôõöüÿÙÚÛÜÝÞË£¥¦§¨ª«
¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊËÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞË£¥¦§¨ª«
```

We've just seen your excellent ad for **miniature zebras** in a recent back issue of **Trader's Times**. What is the price schedule for quantities over one gross?

Software

Now that you have set up and tested the LQ, you should make sure that it works with the application programs you want to use. Most application programs let you specify the type of printer you are using so that the program can take full advantage of the printer's features. Many of these programs provide an installation or setup section that presents a list of printers from which to choose.

Choosing from a menu

Because the family of Epson printers shares a great many commands, you can use an application program even if it does not list the LQ-850, LQ-950, or LQ-1050 on its printer selection menu. Choose from the following list:

- LQ-850/950/1050
- LQ-2500
- LQ-800/1000
- LQ-1500

If none of these printers is listed, select the first one available on the following list.

- EX
- FX
- LX
- RX
- MX
- Epson printer
- Standard printer
- Draft printer

To use all the features of the LQ-850, LQ-950, and LQ-1050, however, it is best to use a program with the LQ-850, LQ-950, or LQ-1050 on its menu. If your program does not list these printers, contact the manufacturer to see if an update is available.

Graphics

Option	Pins	m	Horiz. density dots/in.
Single-density	8	0	60
Double-density	8	1	120
High-speed double-density*	8	2	120
Quadruple-density*	8	3	240
CRT I	8	4	80
CRT II	8	6	90
Single-density	24	32	60
Double-density	24	33	120
CRT III	24	38	90
Triple-density	24	39	180
Hex-density*	24	40	360

*Adjacent dots cannot be printed in this mode.

Column reservation numbers

The graphics command requires more than one number to specify how many columns to reserve because one line can use thousands of columns, but the LQ does not use numbers larger than 255 (decimal). Therefore, the graphics mode command uses two numbers for reserving columns.

To figure *n1* and *n2*, divide the total number of columns by 256. The result is *n2*; the remainder is *n1*. Since the command is set up for two numbers, you must supply two even if you need only one. When you need fewer than 256 columns, just make *n1* the number of columns you are reserving and make *n2* a zero.

The Cut Sheet Feeder

The following is a typical example of a software setup required for proper operation of your cut sheet feeder. Not all software is set up the same, so you may find that a bit of experimentation is required before you find the best equivalent settings to use.

To maintain 54 printed lines per page:

	Continuous form settings		Cut sheet feeder settings
Change Page Length from	66	to	61
Change Top Margin from	6	to	4
Change Bottom Margin from	6	to	3

Many word processors and other software give you two ways to change these settings:

- You can change the settings in each individual file you print or;
- You can change the program's default settings so that every time you use the program, these new settings are in effect.

If your program has additional features, such as headers and footers, you have to compensate accordingly.

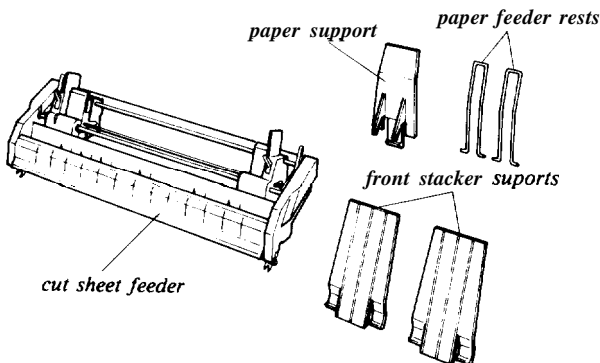
Control panel operation

All of the functions from the control panel are available in cut sheet feeder mode. Micro adjustment of the loading position is available immediately after loading a sheet using the LOAD/EJECT button and pushing the ON LINE button. Micro adjustment sets a new sheet loading position for as long as the power remains on. If the power is turned off, the loading position is returned to the factory setting. Changing the loading position with micro adjustment affects the number of lines per page. You may need to change your software margin settings again for this new page length.

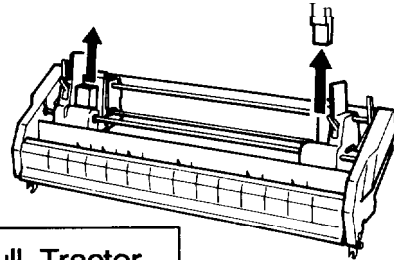
The optional cut sheet feeders give you easier and more efficient handling of single sheet paper. Up to 150 sheets of standard bond paper can be fed automatically into the printer without reloading. These units can also automatically feed envelopes.

Printer	Single bin	Dual bin
LQ-850	#7339	#7346
LQ-950	#7345	#7347
LQ-1050	#7340	#7348

The illustrations in this chapter show the single bin feeder for the LQ-1050, but the others work in the same way. For the dual bin feeders, see the manual that comes with them for assembly instructions. You can select the second bin with a software command (ESC EM) or the control panel.



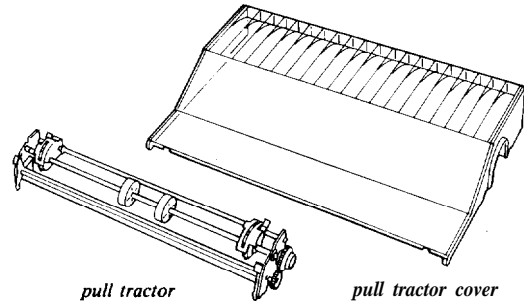
After checking to see that you have all of the parts shown in the figure above, remove the foam packaging from between the paper rests and rollers. Keep the packing materials in the original box in case you need to store or transport the cut sheet feeder.



The Pull Tractor

The optional pull tractor (A731 I for the LQ-850, #7313 for the LQ-950, or #7312 for the LQ-1050) provides optimum continuous paper handling. The pull tractor is especially useful with continuous multi-part forms and labels. For best results, use the pull tractor along with the built-in push tractor, as described in this section.

After making sure that you have both parts of the pull tractor option as shown below, remove the packing material and save it in case you need to ship the unit later.



The short tear-off function cannot be used with the pull tractor. Before you start printing with the pull tractor, make sure that DIP switch 2-7 is set to off. (See the section on setting DIP switches in Chapter 3.)

The Multi - Font Module

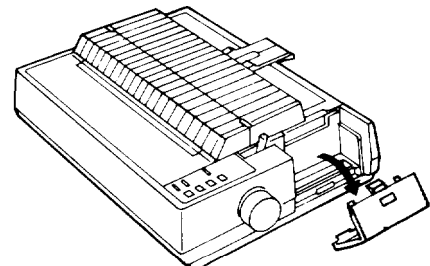
The optional Multi-Font Module (#7631) gives you seven additional fonts for your LQ printer. Once you install it in either slot A or slot B, the following fonts are available: Courier, Prestige, Script, OCR-A, OCR-B, Orator, and Orator-S.

The Multi-Font Module is installed in one of the slots (A or B) in the printer. See the manual that comes with the module for full information on using the font module.

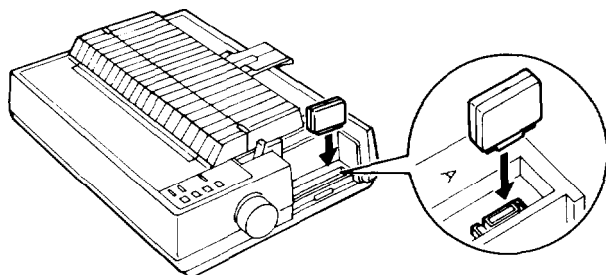
Using the Multi-Font Module

To install a font module, follow these steps:

1. Make sure the printer is turned off.
2. Open the font compartment cover. Inside the compartment are two connectors labeled A and B.



- Insert the font module securely into SLOT A or B so that the arrow symbols on the font module and the slot are facing each other. If you install only one font module, be sure to insert it into SLOT A.



Commands in Numerical Order

The following list shows control codes and ESC sequences (with their decimal and hexadecimal values), and the page number where the complete command can be found.

ASCII	Dec.	Hex.	Description	Page
BEL	7	07	B e e p e r	9-12
BS	8	08	Backspace	9-19
HT	9	09	Tab Horizontally	9-21
LF	10	0A	L i n e F e e d	9-15
VT	11	0B	T a b V e r t i c a l l y	9-17
FF	12	0C	F o r m F e e d	9-13
CR	13	0D	C a r r i a g e R e t u r n	9-13
so	14	0E	Select Double-wide Mode (one line)	9-25
SI	15	0F	Select Condensed Mode	9-24
DC1	17	11	Select Printer	9-a
DC2	18	12	Cancel Condensed Mode	9-25
DC3	19	13	D e s e l e c t P r i n t e r	9-9
DC4	20	14	Cancel Double-wide Mode (one line)	9-26
CAN	24	18	C a n c e l L i n e	9-13
DEL	127	7F	Delete Character	9-9
ESC SO	14	0E	Select Double-wide Mode (one line)	9-25
ESC SI	15	0F	Select Condensed Mode	9-25
ESC EM	25	19	Turn Cut Sheet Feeder Mode On/Off	9-11
ESC SP	32	20	Set Intercharacter Space	9-31
ESC !	33	21	Master Select	9-23
ESC #	35	23	Cancel MSB Control	9-12
ESC \$	36	24	Set Absolute Print Position	9-20
ESC %	37	25	Select User-defined Set	9-34
ESC &	38	26	Define User-defined Characters	9-33
ESC I-	40	28	Select /Cancel Score	9-29
ESC *	42	2A	Select Graphics Mode	9-36
ESC +	43	2B	Select n/360-inch Line Spacing	9-16
ESC -	45	2D	Turn Underlining On/Off	9-28
ESC I	47	2F	Select Vertical Tab Channel	9-18
ESC 0	48	30	Select 1/8-inch Line Spacing	9-15
ESC 2	50	32	Select 1/6-inch Line Spacing	B-16
ESC 3	51	33	Select n/180-inch Line Spacing	9-16
ESC 4	52	34	Select Italic Mode	9-30
ESC 5	53	35	Cancel Italic Mode	9-30
ESC 6	54	36	Enable Printable Characters	9-32
ESC 7	55	37	Enable Upper Control Codes	9-32
ESC :	58	3A	Copy ROM into RAM	9-34
ESC <	60	3c	Select Unidirectional Mode (one line)	9-10
ESC =	61	3D	Set MSB to 0	9-11
ESC >	62	3E	Set MSB to 1	9-12
ESC ?	63	3F	Reassign Graphics Mode	9-37
ESC @	64	40	Initialize Printer	9-a
ESC A	65	41	Select n/60-inch Line Spacing	b-16
ESC B	66	42	Set Vertical Tabs	9-17
ESC C	67	43	Select Page Length in Lines	9-14
ESC C 0	67	43	Select Page Length in Inches	9-14
ESC D	68	44	Set Horizontal Tabs	9-21
ESC E	69	45	Select Emphasized Mode	9-26
ESC F	70	46	Cancel Emphasized Mode	9-27
ESC G	71	47	Select Double-strike Mode	9-27
ESC H	72	48	Cancel Double-strike Mode	9-27
ESC J	74	4A	Perform n/180-inch Line Feed	9-17
ESC K	75	4B	Select Single-density Graphics Mode	9-35
ESC L	76	4c	Select Double-density Graphics Mode	9-35

Commands in Numerical Order

ASCII	Dec.	Hex.	Description	Page
ESC M	77	4D	Select 12 Pitch 9 - 2	3
ESC N	78	4E	Set Skip Over Perforation	9-14
ESC 0	79	4F	Cancel Skip Over Perforation	9-15
ESC P	80	50	Select 10 Pitch	9-23
ESC Q	81	51	Set Right Margin 9 - 1	9
ESC R	82	52	Select a Character Set 9 - 3	3
ESC SO	83	53	Select Superscript Mode	9-27
ESC SI	83	53	Select Subscript Mode	9-28
ESC T	84	54	Cancel Superscript/Subscript	9-28
ESC U	85	55	Turn Unidirectional Mode On/Off	9-10
ESC W	87	57	Turn Double-wide Mode On/Off	9-26
ESC Y	89	59	Select High-speed Dble-density Graphics	9-35
ESC 2	90	5A	Select Quadruple-density Graphics 9 - 3	6
ESC \	92	5C	Set Relative Position	9-20
ESC a	97	61	Select Justification 9 - 3	1
ESC b	98	62	Set Vertical Tabs in Channels	9-18
ESC g	103	67	Select 15 Pitch 9 - 2	4
ESC k	107	6B	Select Typestyle Family	9-22
ESC l	108	6C	Set Left Margin	9-18
ESC p	112	70	Turn Proportional Mode On/Off	9-24
ESC q	113	71	Select Character Style	9-30
ESC t	116	74	Select Character Table	9-32
ESC w	119	77	Select Double High 9 - 2	5
ESC x	120	78	Select Letter Quality or Draft	9-22

Interface Boards

Compatible interfaces

The following is a list of Epson interfaces that are compatible with your LQ printer.

interface number	name
#8143	Optional serial interface
#8148	Intelligent serial interface
#8165	Intelligent IEEE-488 interface

All Epson Interfaces have the EPSON name printed on them. If the board has an Identification code printed on it, it will be a four digit number beginning with 8, and should correspond to one of the numbers listed in the table above.

Installation/Support Tips

Short Tear Off

To activate the short tear-off feature on the printer, first turn DIP switch 2-7 to the on position. To control it through the software, send a form feed command at the end of each page. After sending a form feed, do not send it any more data for a 3-second interval. To activate the tear -off feature manually, take the printer off line and press the FF button. When it is put back on line, the print position will go right back to the top of the page, ready for the next print job.

Single - Sheet Loading

When loading single sheets, make sure that the paper lever is set to single sheets, not tractor paper. The paper can be loaded manually or via the auto load button. Before attempting to load in the paper, wait for the platen to lock in place after changing the paper lever.

Setting up the Page Length

The page length has to be adjusted for using single sheets and for using tractor paper. When your software you asks you to set up the number of lines/page, single sheets require a shorter page length than does tractor paper. Set the page length to 61 lines for single sheets (also when using the cut -sheet feeder) and 66 lines for tractor paper.

Software

The type of printer installed on your system must be identified for each software package. This is usually done through a setup menu. If the LQ-850/950/1050 is not listed in the software package, any Epson 24-pin driver will be compatible. (Preferably, choose the LQ-800/1000.)

DIP Switch Settings

The default settings will usually work for most applications, but they should be checked before using the printer. This will avoid unexpected results.

Information Reference List

Engineering Change Notices

LQ - 850 - 007/ LQ-1050-007	8/12/88	Version M82982 to Version M80483 LQ-850 PROM upgrade: to increase graphics accuracy in 24-pin bidirectional mode.
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LQ - 850 - 006/ LQ-1050-006	7/28/88	Version M8307A to Version M82982 PROM upgrade: to correct and improve paper handling and and print quality.
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LQ - 850 - 003	2/2/88	Version M81777 to Version M82778 PROM upgrade: to correct and improve print quality.
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LQ - 850 - 002	2/2/88	Version M81179 to Version M8217A PROM upgrade: CSF eject/15-cpi print in unidirectional mode.
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7340-001	6/29/88	Improved paper-holding spring
LQ-850-004	1/14/88	Base plate and lower case modification
LQ - 850 - 005	2/1/88	Change of printer cover B

Product Support Bulletins

P - 0020	5/6/88	Paper thickness lever
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Related Documentation

M-TM-LQ8/9/10 Y45499114000		LQ -850/950/1050 Technical Manual LQ -850/950/1050 User's Manual
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Technical Information Bulletins

LQ - 850 - 001 LQ-1050-001	5/6/88	MONMA carriage width selection
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