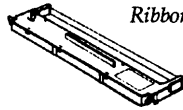


Printer

Power cord



Ribbon cartridge



LQ-1070 and LQ-1070+ Differences

	LQ-1070	LQ-1070+
Acoustic Noise:	55dB(A)	46.5dB(A)
Scalable Fonts:	2 Epson Roman Epson Sans Serif	4 Epson Roman Epson Sans Serif Epson Roman T Epson Sans Serif H
Print Speed	315cps (15cpi draft)	337 cps (15cpi draft)
Printer Mechanism:	M-5EIO	M-5JIO
Main Board	C063	C118
Product code:	CO63001 (LQ-1070)	C118001 (LQ-1070+)
Model Number:	P630A	P630B

Printer Specifications

Printing

Printing method: 24-pin impact dot matrix

Printing speed:

Print Pitch	Condensed	Printable Columns	Character Pitch (cpi)	Printing Speed (cps)	
				Draft	LQ
10	off	136	10	225	75
	on	233	17.1	192	128
12	off	164	12	269	90
	on	272	20	225	154
15	Off	204	15	337	112
	on		Invalid		

cpi: characters per inch cps: characters per second LQ: letter quality

Printing direction: Bidirectional logic-seeking for text and graphics. Unidirectional for graphics (**unidirectional can be selected with DIP switch or software command**).

Line spacing: 1/6 inch, 1/8 inch, or programmable in 1/360-inch increments

Acoustic noise: Less than 46.5 dB(A) normal

Paper feed speed: **65.2** milliseconds per 1 /&inch line; 2.8 inches per second with continuous feed

printable columns:

Character size	Maximum printed characters
10 cpi	136
10 cpi condensed	233
12 cpi	164
12 cpi condensed	272
15 cpi	204

Buffer: 0 or 8 Kbytes (DIP-switch selectable)

Character fonts:

Font	15 cpi	10 cpi	12 cpi	Proportional
Epson Draft Epson Courier	✓	✓	✓	
Epson Roman Epson Sans Serif	✓	✓	✓	✓
Epson Prestige Epson Script		✓	✓	
Epson Orator Epson Orator-S OCR-B		✓		
Epson Script C Epson Roman T Epson Sans Serif H				✓

You can also select other font/pitch combinations using ESC/P 2 commands

Scalable fonts:

Font	min pt	max pt	Increments
Epson Roman	8	32	2 pt
Epson Sans Serif	8	32	2 pt
Epson Roman T	8	32	2 pt
Epson Sans Serif H	8	32	2 pt

Character tables: 1 italic and 7 graphics character tables

Character sets: 14 international character sets and 1 legal character set

Mechanical

Paper-feed methods: Friction
Push-tractor
Pull-tractor
Single-bin cut-sheet feeder (optional)
Double-bin cut-sheet feeder (by combination of both optional cut-sheet feeders)

Ribbon: **Black ribbon cartridge #7754: Life expectancy**
In LQ, at 48 dots/character: 2 million characters
In draft, at 28 dots/character: 3.42 million characters
Film ribbon cartridge #7770 (optional): Life expectancy in LQ, at 48 dots/character: 0.2 million characters

MCFB: For all components (excluding print head): **3 million lines**

MTBF: 6000 power-on hours (25% duty)

Print head life: 200 million strokes per wire (with fabric ribbon)
100 million strokes per wire (with film ribbon)

Dimensions and weight:

Height	160mm (6.3 inches)
Width	609 mm (24.0 inches)
Depth	368 mm (14.5 inches)
weight	9.5 kg (21.0 lb)

Electrical

Rated voltage:	AC 120 V (120 V model)
Input voltage range:	AC 103.5 to 132 V (120 V model)
Rated current:	2.0 A (120 V model)
Power consumption:	(during self-test printing in draft mode, at 10 cpi) Approx. 36 W (120 V model)
Rated frequency range:	50 to 60 Hz
Input frequency range:	49.5 to 60.5 Hz
Insulation resistance:	10 MΩ minimum (at DC 500 V between AC power line and chassis)

Dielectric strength (between AC line and chassis):

120 V model:
AC 1.0 kV (rms), 1 minute
or AC 1.2 kV (rms), 1 second

Environmental

Temperature:	Operation: 5° to 35°C (41° to 95°F) Storage: -30° to 60°C (-22° to 140°F)
Humidity:	Operation: 10% to 80% RH without condensation Storage: 5% to 85% RH without condensation

Paper

Single sheets:

Width top	148 to 420 mm (5.8 to 16.5 inches)
front	182 to 364 mm (7.2 to 14.3 inches)
Length	364 mm (14.3 inches) maximum
Thickness	0.065 to 0.14 mm (0.0025 to 0.0055 inches)
weight	52.3 to 90 g/m ² (14 to 24 lb)

Single-sheet multi-part forms:

Width	182 to 364 mm (7.2 to 14.3 inches)
Length	257 mm to 297 mm (10.1 to 11.7 inches)
copies	Four sheets (1 original plus up to 3 copies)
Thickness	0.12 to 0.32 mm (0.0047 to 0.012 inches)
Weight	40 to 58 g/m ² (12 to 15 lb) per sheet
	• Load single-sheet multi-part forms only into the front slot.
	• Use only carbonless multi-part forms.

Continuous paper:

Width	101 to 407 mm (4 to 16 inches) for LQ-1070+
copies	Four sheets (1 original plus up to 3 copies)
Thickness	0.065 to 0.10 mm (0.0025 to 0.0039 inches) for one sheet
	0.065 to 0.32 mm (0.0025 to 0.012 inches) total
Weight	52.3 to 82 g/m ² (14 to 22 lb) for one sheet
	40 to 58 g/m ² (12 to 15 lb) per sheet in multi-part forms
	• Use only carbonless multi-part forms.

Labels (continuous only):

Size	63.5 × 23.8 mm (2½ × 15/16 inches) 101 × 23.8 mm (4 × 15/16 inches) 101 × 27 mm (4 × 17/16 inches)
Thickness	0.07 to 0.09 mm (0.0028 to 0.0031 inches) for backing sheet 0.16 to 0.19 mm (0.0063 to 0.0075 inches) total
	• Use continuous type labels only.
	• Use labels only under normal temperature and humidity conditions.

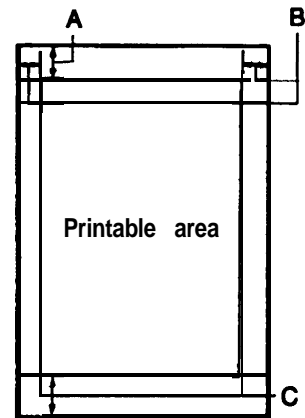
Envelopes:

Size	No. 6-166 × 92 mm (6.5 × 3.6 inches) No. 10-240 × 104 mm (9.5 × 4.1 inches)
Thickness weight	0.16 to 0.52 mm (0.0063 to 0.0197 inches) 45 to 91 g/m ² (12 to 15 lb)
	• Use envelopes only under normal temperature and humidity conditions.
	• Insert envelopes into the top slot only.

Printable area:

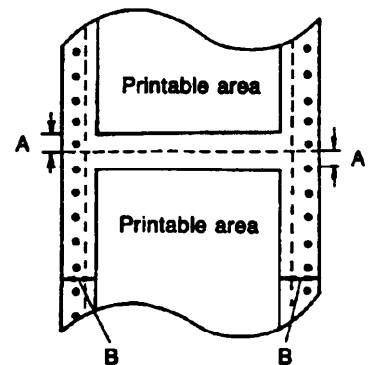
Single sheets

- A The minimum top margin is 8.5 mm (0.33 inches).
- B The minimum left and right margins are 3 mm (0.12 inches). However, the maximum printable width is 345 mm (13.6 inches).
- C The minimum bottom margin is 13.5 mm (0.53 inches).



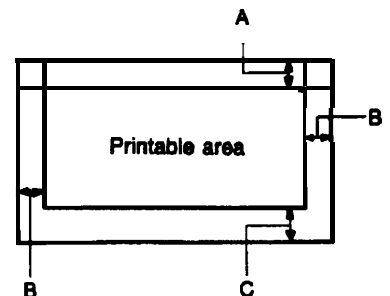
Continuous paper

- A The minimum top and bottom margins (above and below the perforation) are 9 mm (0.35 inches).
- B The minimum left and right margins are 13 mm (0.51 inches). However, the maximum printable width is 345 mm (13.6 inches).



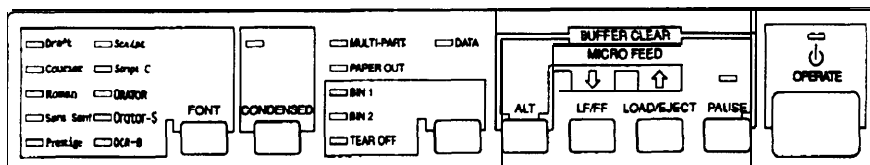
Envelopes

- A The minimum top margin is 8.5 mm (0.33 inches).
- B The minimum left and right margins are 3 mm (0.12 inches).
- C The minimum bottom margin is 13.5 mm (0.53 inches).



The Control Panel

The indicator lights give you the current status of the printer. The buttons let you control many of the printer settings.



Lights

OPERATE (green)

On when operate switch is on and power is supplied.

PAUSE (yellow)

On when the printer is not ready to print data. Stays off unless you press the **PAUSE** button to prevent printing.

DATA (yellow)

On when data is present in the printer's buffer.

MULTI-PART (green)

On when you move the paper-thickness lever to position 2 or higher. The printing speed is reduced when this light is on.

PAPER OUT (red)

On when the printer runs out of paper.

BIN 1 (green)

On when bin 1 of the optional cut-sheet feeder is selected for paper feeding.

BIN 2 (green)

On when bin 2 of the optional cut-sheet feeder is selected for paper feeding.

TEAR OFF (yellow)

On when you press the **TEAR OFF** button to feed the paper to the tear-off position

Fonts (green)

On when a specific font is selected.

Buttons

PAUSE

Press this button to temporarily stop printing. Press this button again to resume printing.

LOAD/EJECT

Press this button to load single-sheet or continuous paper to the loading position (however, the printer normally loads paper automatically). If single-sheet paper is already in the loading position, use this button to eject the sheet. If continuous paper is in the loading or tear-off position, press this button to feed it backward to the standby position.

LF/FF (Line feed/Form feed)

Tap this button briefly to feed the paper forward one line. Hold this button down to eject a single sheet of paper or advance continuous paper to the top of the next page. You can also use this button to load a single sheet of paper from the cut-sheet feeder or to feed continuous paper from the standby position to the loading position.

ALT

While holding down this button, pressing certain other buttons results in the following:

BUFFER CLEAR

(PAUSE) clears the printer's buffer and initializes the printer settings

MICRO FEED

↑ (LOAD/EJECT) feeds paper forward in 1/180-inch increments

↓ (LF/FF) feed paper backward in 1/180-inch increments

Bin Select/TEAR OFF

This button **selects** the paper bin when both optional cut-sheet feeders are installed and you are printing on single sheets. When printing on continuous paper, press this button once to feed paper from the loading position to the tear-off position. Press this button again to feed the paper backward to the loading position.

CONDENSED

Press this button to print condensed characters. Press again to return to normal character printing.

FONT

Press this button to select from among the built-in fonts.

Note: The panel's font name typestyles are meant as guides only; actual printed **results** may differ slightly.

Other control-panel features

The control panel also gives you access to two special functions:

self test: Hold down the **ALT** button while turning on the printer to perform the self test. The self test lets you check that your printer is operating properly and gives you a printout of the current DIP-switch settings.

Data dump: Hold down both the **LF/FF** button and **LOAD/EJECT** button while turning on the printer to enter data dump mode. Data dump mode allows advanced users to find the cause of communication problems between the printer and the computer.

Setting the DIP Switches

DIP-switch tables

The section below shows the settings and functions of each DIP switch. You can see the current DIP-switch settings at any time by running the self test.

Table 2 DIP switch 2

SW	Description	ON	OFF
1-1 1-2 1-3 1-4	International character sets/ character tables	See Tables 3 and 4 below	
1-5	Print direction	Unidirectional	Bidirectional
1-6	Not used	—	—
1-7	Input buffer	None	8 Kbytes
1-8	1 -inch skip-over-perforation	On	Off

Table 2 DIP switch 2

SW	Description	ON	OFF
2-1 2-2	Page length (for continuous paper)	See Table 5 below	
2-3	Tear off	On	Off
2-4	Auto line feed	On	Off

Table 3 International character sets

Country	1-1	1-2	1-3	1-4
USA	On	On	On	Off
France	On	On	Off	Off
Germany	On	Off	On	Off
United Kingdom	On	Off	Off	Off
Denmark 1	Off	On	On	Off
Sweden	off	On	off	Off
Italy	Off	off	On	Off
Spain 1	Off	Off	off	Off

Table 4 Character tables

Character table	1-1	1-2	1-3	1-4
Italic	Set international character sets according to Table 3 above			Off
PC 437 (United States)	On	On	On	On
PC 850 (Multilingual)	On	On	Off	On
PC 860 (Portugal)	On	Off	On	On
PC 863 (Canada-French)	On	Off	Off	On
PC 865 (Norway)	Off	On	On	On

Table 5 Page length

Page length	2-1	2-2
6.5 inches (216 mm)	Off	On
11 inches (279 mm)	Off	Off
11.7 inches (296 mm)	On	On
12 inches (305 mm)	On	Off

DIP-switch functions

This section describes all of the functions you can select with the DIP switches.

International character sets

You can change 12 characters in the italic character table to suit your printing needs. Since these characters are often used in other languages, they are named after countries and referred to as international character sets.

Select the international character set with DIP switches 1-2, 1-3, and 1-4, according to DIP-switch Table 3.

The character sets you can select by DIP switch are USA, France, Germany, United Kingdom, Denmark I, Sweden, Italy, and Spain I. However, you can also select the following sets with the ESC R software command: Japan (English), Norway, Denmark II, Spain II, Latin America, Korea, and Legal.

Note: If you send the ESC t 0 command (to select italics) while DIP switch 1-4 is on, the international character set is always USA.

International character sets

Country	ASCII code (hex)										DIP switch						
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E	1-1	1-2	1-3	1-4	
0 USA	#	\$	@	[\		^	'	{	}	~	On	On	On	Off		
1 France	#	\$	à	.	ç	§	^	'	6	ù	è	"	On	On	Off	off	
2 Germany	#	\$	§	X	Ö	Ü	^	'	ä	ö	ü	ß	On	Off	On	off	
3 United Kingdom	#	\$	·	[\]	^	'	{	}	~	On	Off	Off	Off		
4 Denmark I	#	\$	@	Å	Ø	Ä	^	'	æ	ø	å	~	Off	On	On	off	
5 Sweden	#	¤	Å	Ö	Ä	Ü	^	'	ä	ö	å	ü	Off	On	Off	off	
6 Italy	#	\$	@	'	\	é	^	'	ù	à	ò	è	ì	Off	Off	On	Off
7 Spain I	£	\$	e	i	Ñ	¿	^	'	"	A	~	Off	Off	Off	Off		

The following eight additional sets are available only by using the ESC R software command.

Additional international character sets

Country	ASCII code (hex)												
	23	24	40	56	5C	5D	5E	60	7B	7C	7D	7E	
8 Japan (English)	#	\$	@	[¥]	^	'	{	}	~		
9 Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	
10 Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	
11 Spain II	#	\$	á	í	Ñ	¿	é	'	í	A	6	ii	
12 Latin America	#	\$	á	í	Ñ	¿	é	ü	í	ñ	ó	ú	
13 Korea	#	\$	@	[₩]	^	'	{	}	~		
64 Legal	#	\$	§	'	"	¶	'	°	•	†	™		

Character tables

Your printer has six character tables built-in five graphics character tables and one italics character table.

You can select the character tables with DIP switches 1-2, 1-3, and 1-4, according to Table 4.

To select a graphics character table, you must first turn DIP switch 1-4 on.

Note: If you send the ESC t 1 command (to select graphics) while DIP switch 1-4 is off, the graphics character table is always PC 437 (United States).

Print direction

Printing is normally bidirectional. However, turning DIP switch 1-5 on for unidirectional printing-in which the print head prints in one direction only-allows for precise vertical printing alignment. This makes it ideal for printing graphics such as lines or boxes.

If DIP switch 1-5 is on, printing is unidirectional even if you select bidirectional with the ESC U 0 software command.

Input buffer capacity

The printer stores print data sent from your computer in its input buffer. Keep DIP switch 1-7 off to select an 8-Kbyte buffer.

Skip-over-perforation

Turning DIP switch 1-8 on when you are using continuous paper enables the skip-over-perforation function. Use this function to leave a 1-inch (25.4-mm) margin between the last printable line on one page and the first printable line on the next page. This causes the printer to skip over the perforation between continuous sheets.

Most application programs take care of the top and bottom margins. Do not turn on skip-over-perforation unless your program does not provide these margins.

Adjust your top-of-form position with the MICRO **FEED buttons** to get half of the margin at the bottom of one page and half at the top of the next page.

Continuous paper page length

When you are printing on continuous paper, DIP switches 2-1 and 2-2 let you select from the four page lengths described in DIP-switch Table 5.

Tear off

When you turn DIP switch 2-3 on, the tear-off feature is automatic when using continuous paper. The printer automatically advances the last printed page to the tear-off position. You can then easily tear off the printed paper.

The printer automatically returns the paper to the loading position when it receives more print data. You can also return the paper to the loading position by pressing the **TEAR OFF** button or the **LOAD/EJECT** button.

Use the tear-off feature only with continuous paper loaded with the push tractor. Do not use the tear-off feature with the pull tractor.

Auto line feed

When auto line feed is on (DIP switch 2-4 on), the printer accompanies each carriage-return code (CR) received with a **linefeed** code (LF).

If your printer is double spacing, turn DIP switch 2-4 off. If each line overprints the next, turn DIP switch 2-4 on.

Interface Specifications

Your printer is equipped with a parallel interface.

Specifications and pin assignments

The built-in parallel interface has the following characteristics:

<i>Data format:</i>	8-bit parallel
<i>Synchronization:</i>	STROBE pulse
<i>Handshake timing:</i>	BUSY and ACKNLG signal
<i>Signal level:</i>	TTL compatible level
<i>Connector:</i>	36-pin 57-30360 (Amphenol) connector or equivalent

Connector pin assignments and a description of their respective interface signals are shown in the following table.

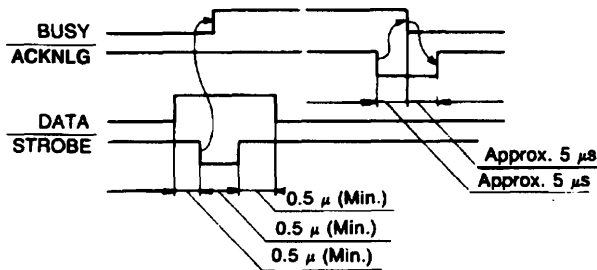
Signal Pin	Return Pin	Signal	Direction	Description
1	19	STROBE	IN	STROBE pulse to read data. Pulse width must be more than 0.5 microseconds at the receiving terminal.
2	20			
3	21	DATA 1	IN	These signals represent information of the 1st to 8th bits of parallel data, respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
4	22	DATA 2	IN	
5	23	DATA 3	IN	
6	24	DATA 4	IN	
7	25	DATA 5	IN	
8	26	DATA 6	IN	
9	27	DATA 7	IN	
10	28	ACKNLG	OUT	About an 11-microsecond pulse. LOW indicates that data has been received and that the printer is ready to accept more data.
11	29	BUSY	OUT	HIGH signal indicates that the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (ea. char. time) 2) During printing 3) During PAUSE 4) During printer-error state
12	30	PE	OUT	A HIGH signal indicates that the printer is out of paper.
13	—	SLCT	OUT	Pulled up to 5V through 3.3 Kohm resistance.
14	—	AUTO FEED XT	IN	When this signal is LOW, the paper is automatically fed 1 line after printing. (The signal level can be fixed to this by setting DIP switch 2-4 to ON.)
15	—	NC	—	Not used.
16	—	GND	—	Logic ground level.
17	—	CHASSI: GND	—	Printer's chassis ground, which is isolated from the logic ground.
18	—	NC	—	Not used.
19-30	—	GND	—	Twisted-pair return signal ground level.
31	16	INIT	IN	When this level becomes LOW, the printer controller is reset to its power-up state and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 microseconds at the receiving terminal.
32	—	ERROR	OUT	This level becomes LOW when the printer is: 1) in paper out state, 2) in PAUSE state, 3) in error state
33	—	GND	—	Same as for Pins 19-30.
34	—	NC	—	Not used.
35	—	—	OUT	Pulled up to 5V through 3.3 Kohm
36	—	SLCT IN	IN	The DC1/DC3 code is valid only when this signal is HIGH. This signal is always LOW.

Note:

- The column heading "Direction" refers to the direction of signal flow as viewed from the printer.
- "Return" denotes the twisted-pair return to be connected at signal ground level. For the interface wiring be sure to use a twisted-pair cable for each signal and to complete the connection on the return side.
- All interface conditions are based on TTL level. Both the rise and fall times of each signal must be less than 0.2 microseconds.
- Data transfer must be carried out by observing the ACKNLG or BUSY signal. (Data transfer to this printer can be carried out only after receipt of the ACKNLG signal or when the level of the BUSY signal is LOW.)

Interface timing

The figure below shows the timing for the parallel interface:



Interface Cards

You can use optional interface boards to supplement your printer's built-in parallel interface.

The Epson interfaces below are compatible with your printer:

Model Number	Name
C823051	Serial interface card
C823071	32 KB serial interface card
C823101	32 KB parallel interface card
MACLQ	Eoson Talk interface card
C823151	Twinax interface card
C823141	Coax interface card

Option Specifications

Cut-sheet feeders

Dimensions *and weight*

Printer Cut-sheet feeder	Height	Width	Depth	Weight
LQ-1070+ Single-bin C806391	377 mm (14.8 inches)	609 mm (24.0 inches)	444mm (17.5 inches)	0.75 kg (1.65 lb)
LQ-1070+ High-capacity C806401	367 mm (14.4 inches)	600mm (24.0 inches)	434mm (17.1 inches)	2.15 kg (4.74 lb)

Note: Dimensions when mounted on the printer; includes printer dimensions

Bin capacity

- Single sheets:* C806391
Up to 50 sheets of 82-g/m² (22-lb) paper
C806401
Up to 150 sheets of 82-g/m² (22-lb) paper
- Envelopes:* C806401
Up to 25 (plain bond)
Up to 30 (air mail)

Paper:

		single sheets	Envelopes
Width	C806391	182 to 420 mm (7.17 to 16.5 inches)	N/A
	C806401	182 to 420 mm (7.1710 to 16.5 inches)	165 to 241 mm (6.50 to 9.49 inches)
Length		210 to 305 mm (8.27 to 12.00 inches)	92 to 104 mm (3.62 to 4.09 inches)
Thickness		0.07 to 0.10 mm (0.0028 to 0.0039 inches)	0.16 to 0.52 mm (0.0063 to 0.0205 inches)
Weight		64 to 82 g/m ² (1.7 to 22 lbs)	45 to 91 g/m ² (12 to 24 lbs)

Paper storage conditions:

Temperature: 18° to 22°C (64° to 72°F)
Humidity: 40% to 60%

Environmental

Temperature: Operation: 5° to 35°C (41° to 95°F)
Storage: -30° to 60°C (-22° to 140°F)

Humidity (without condensation):

Operation: 15% to 80%
Storage: 5% to 90%

Note:

- 90-g/m² paper printing is only available at normal operating conditions.
- Envelope printing is only available with the C806381 cut-sheet feeder, at normal operating conditions.

Command Changes from ESC/P

New Commands

The following are new commands that have been added to the ESC/P command set:

- ESC (C Set page length in defined unit
- ESC (G Select graphics mode
- ESC (U Define unit
- ESC (V Set absolute vertical print position
- ESC (^ Print data as characters
- ESC (c Set page format
- ESC (t Assign character table
- ESC (v Set relative vertical print position
- ESC . Print raster graphics
- ESC X Select font by pitch and point
- esc c Set horizontal motion index (HMI)

Deleted Commands

The following commands are not supported on Epson ESC/P 2 printers:

- ESC b Set vertical tabs in VFU channels
- ESC / Select vertical tab channel
- ESC a Select justification

Non-recommended Commands

Epson recommends against using the following commands because some of these commands are not supported in existing printers and some are duplicates of other commands.

BEL	Beeper
Bs	Backspace
DC1	Select printer
DC3	Deselect printer
CAN	Cancel data
ESC #	Cancel MSB control
ESC <	Unidirectional printing for one line
E s c =	Set MSB to 0
ESC >	Set MSB to 1
ESC?	Reassign bit-image mode
ESCA	Select <i>n/60-inch</i> line spacing
ESCK	Select 8-dot , single-density, bit-image printing
ESC L	Select 8-dot , double-density, bit-image printing
ESC Y	Select 8-dot , double-speed, double-density, bit-image printing
E s c z	Select quadruple-density bit-image printing
DEL	Delete character

Installation/Support Tips

Most application programs let you specify the type of printer you use 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.

Choosing from a menu

To take **full** advantage of your printer's features, including ESC/P 2, choose the LQ-570+/1070+ or Stylus 800/1000 from the menu. If these printers are not listed, contact the software manufacturer to see if an update to the software is available. **Until** you receive an update, choose from the **following list**:

ActionPrinter 5000+
 ActionPrinter 5000
 LQ-570/1070
 LQ-870/1170
 LQ-100
 SQ-870/1170
 LQ-510/550
 LQ-500
 LQ-86O/LQ-1060
 LQ-85O/LQ-1050
 LQ-2550

If none of these printers is listed, select the first one available from the following list:

EX, FX, LX, RX, MS, Epson printer, Standard printer, Draft printer

To use all the features of your printer, however, it is best to choose a program with your printer on its menu. If your program does not list this printer, contact the manufacturer of the software to see if an update is available.

Information Reference List

Engineering Change Notices

None.

Product Support Bulletins

None.

Technical Information Bulletins

None.

Related Documentation

LQ1070+ADD	LQ-570/1070 and LQ-570+/1070+, ActionPrinter 5000/5500 and ActionPrinter 5000+ Service Manual
PL-LQ1070+	LQ-1070-k Parts Price List
SPKLQ1070+	LQ-1070+ Self Paced Kit
4002064	LQ-570+/LQ-1070+ User's Guide