

Apple

Letter Quality Printer



Operator's Guide

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WARNING

The equipment described in this manual generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

828-0502

100182



Letter Quality Printer

Operator's Manual

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In conjunction with

apple computer

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Part 1. Getting Ready

Now that you are the proud owner of an APPLE Letter Quality Printer (LQP), you are probably eager to hook it to your APPLE computer and begin using it. This booklet will help you do just that; and, with the help of the enclosed floppy disk, you'll soon be taking advantage of the LQP's many outstanding features.

BUT...before you can do anything with your printer, you'll need to have some accessories. Just what? That depends upon the model of APPLE computer you're planning to use with the printer. Use the chart below to determine which special items you will need to connect the LQP to either an Apple II Series or Apple III Series Computer. You will also need a screwdriver (or quarter), and a supply of single sheet or continuous fanfold paper.

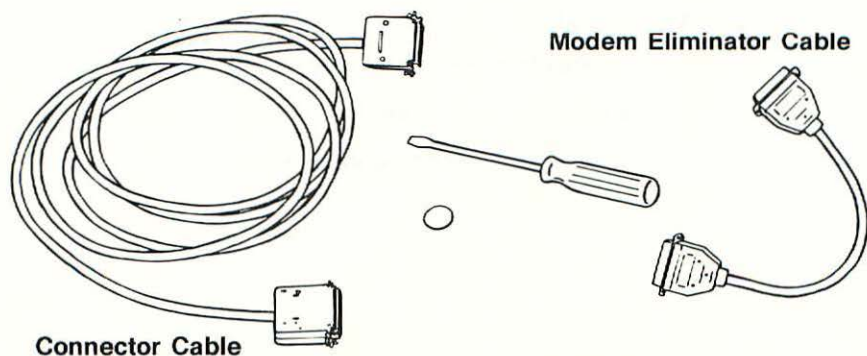
Special items needed to connect the LQP to your Apple Computer

APPLE II Series APPLE II "Super Serial Card"

Connector Cable with a "male" DB-25 connector at each end.

APPLE III Series Connector Cable with a "male" DB-25 connector at each end.

Modem Eliminator Cable with a "male" DB-25 connector on one end and a "female" DB-25 connector on the other end.

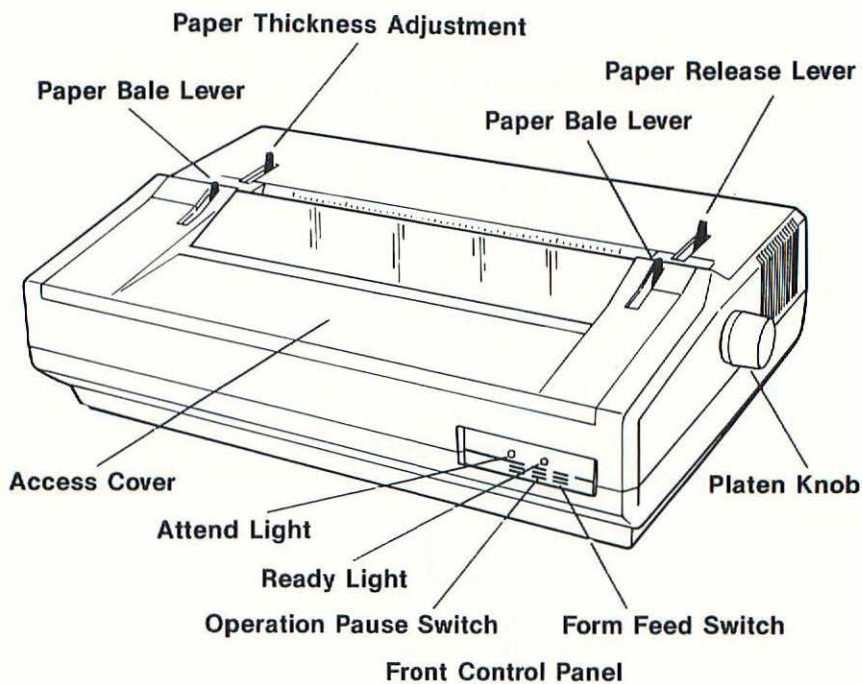


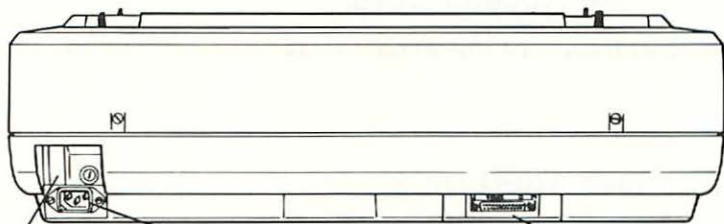
Part 2. Readying The Printer

The LQP is almost ready to run when you unpack it. A few things need to be removed (these were used to protect the printer during shipping), and a few things need to be put into place. This "assembly" will take about 40 minutes or so. The only "tools" you will need are scissors (or knife) and a screwdriver (or quarter).

Before going on, let's look at a picture of the assembled printer. This will give us some labels to use when talking about its parts.

Front:





Rear:

Power ON/OFF Switch

Power Cord Connector

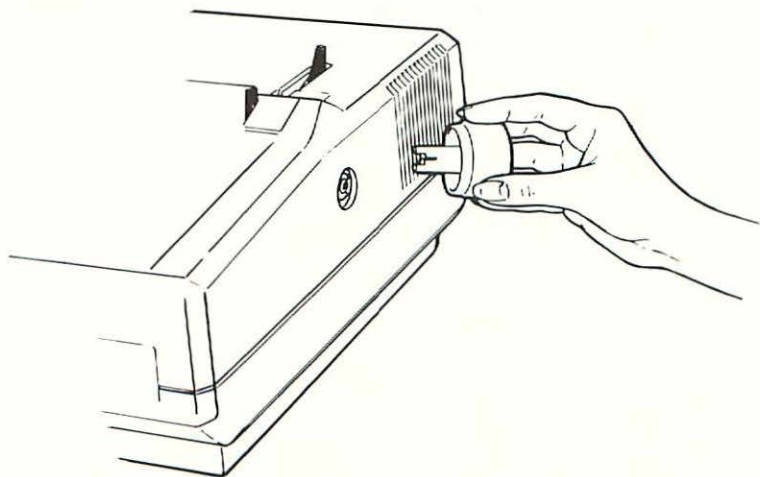
DB-25 Connector

Attach Platen Knob

Our first step is to attach the **Platen Knob** to the printer. It goes into the hole on the right side of the case (as you face the LQP's front).

Notice the Platen Knob has two "*teeth*" extending from it. These must align with the open spaces of the grasping mechanism inside the printer.

If the teeth are properly aligned, the knob will fit almost flush against the side of the case and will turn the platen (the cylinder inside the printer) when rotated.



Remove Access Cover

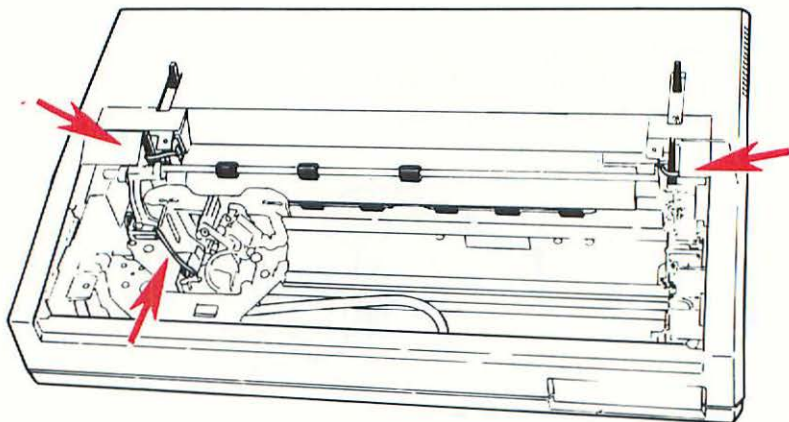
Grasp the *lip* of the **Access Cover** and gently slide the cover toward the front of the machine. Lift upward and remove it.

Remove Tie-Downs

Tie-Downs were used to hold the **Paper Bale** and the **Print Mechanism** stationary during shipment. The tie-downs must be removed. This will require you to be somewhat of a detective.

The tie-downs for the Paper Bale are usually attached to each end of the Paper Bale.

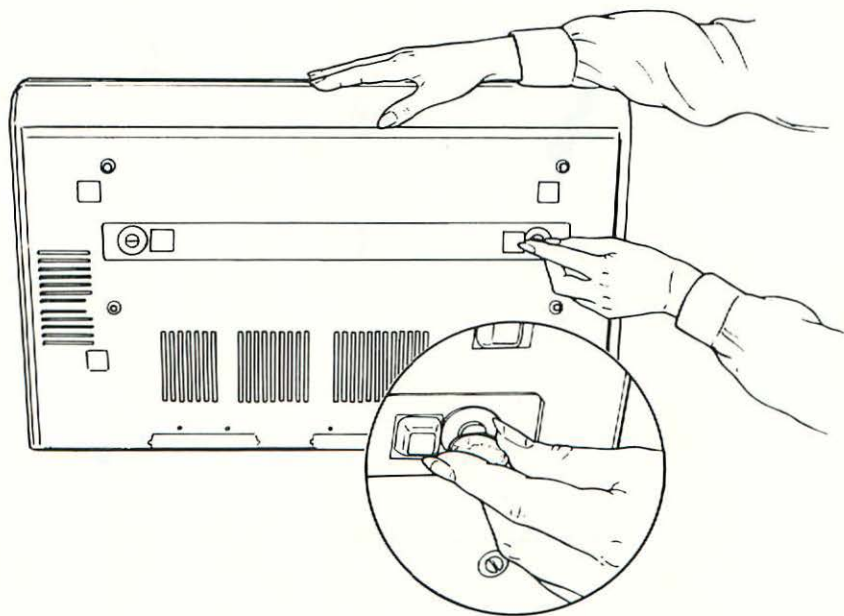
The tie-down for the Print Mechanism is usually located next to the **Print Mechanism** against the far left side of the machine.



Remove the Metal Shipping Strip

Underneath the printer is a metal strip with two rubber feet. This must be removed for the printer to work properly.

- Tilt the printer back on its rear edge while holding it with one hand. **CAUTION:** Continue to hold the printer upright or it may topple and be damaged.
- Remove the two screws holding the metal strip and take the strip away.
- Lower the machine so that it is standing on its feet, and put the metal strip and the set of screws and washers in the styrofoam shipping cradle.

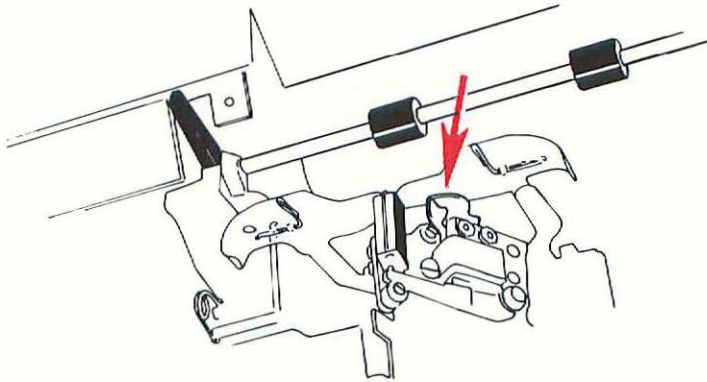


Attach the Daisywheel Print Element

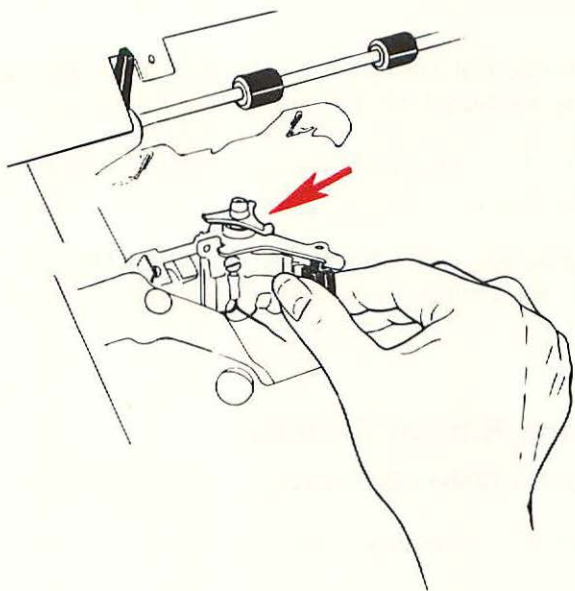
Now that the print mechanism is free, it's time to put the daisywheel in place. If you've used a typewriter with a daisywheel element, you will be familiar with this procedure. Otherwise, it may seem a little awkward at first. In either case, it is harder to describe than do.

Note: The LQP uses a special, oversize, 130-character daisywheel. Smaller daisywheels will not work on the LQP.

- Locate the **Release Lever** on the **Print Mechanism** and move it toward the **Print Hammer**. (The easiest way to do this is to grasp **both** the Release Lever and the Print Hammer between your thumb and forefinger, and then squeeze your fingers together.)

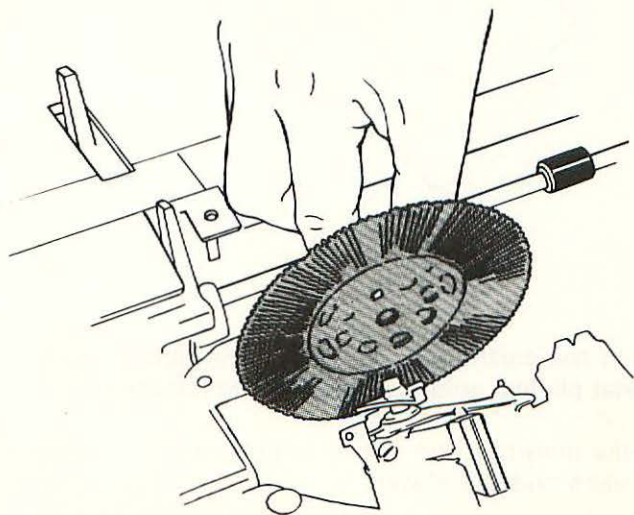


- As you squeeze the Release Lever toward the Print Hammer, pull back on the mechanism. (It should tilt toward you.)
- You will now see a triangular-shaped object that rotates and has a **cylindrical** protrusion at its center. The daisywheel attaches to this.



- Take the daisywheel from its plastic case. Hold it by its handle, and place the hole on the opposite side of the daisywheel over the cylindrical protrusion on the Print Mechanism.

Make sure that the **square cutout** in the daisywheel aligns with the **upturned leg** of the triangle. (It is easiest to do this when the leg points up.)



- Press firmly but gently on the daisywheel until it is securely anchored on its base.
- Push the Print Mechanism away from you until it clicks into place.

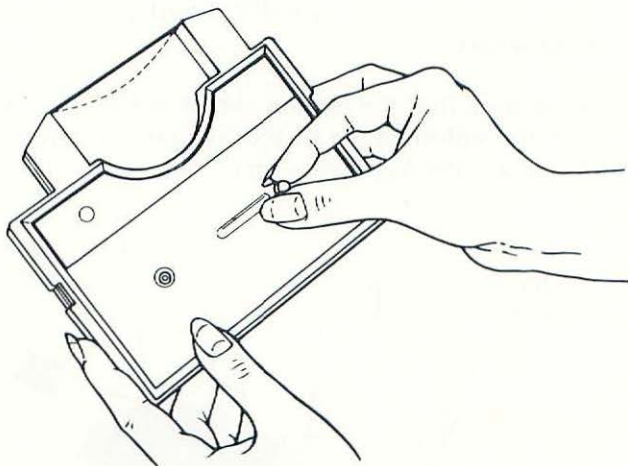
(A *word of caution*—don't move the Print Mechanism by pulling or pushing on the daisywheel.)

Attach the Ribbon Cartridge

- Pick up the **Ribbon Cartridge** so that its top is facing up.

Remove the protective cardboard insert.

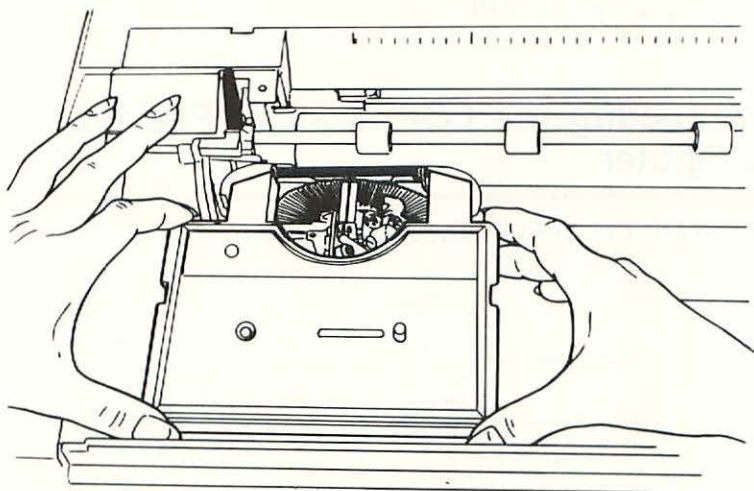
If the ribbon is not taut, turn the knob on the top of the cartridge counterclockwise until the ribbon is taut.



- Hold the cartridge level, and fit the ribbon through the **two metal pin-like guides** in the Print Mechanism.

Make sure that the ribbon is **between** the daisywheel's spokes and the platen.

- Align the indentations in the cartridge so that they are directly over the clamps in the Print Mechanism, and press down on the cartridge until it snaps into place.

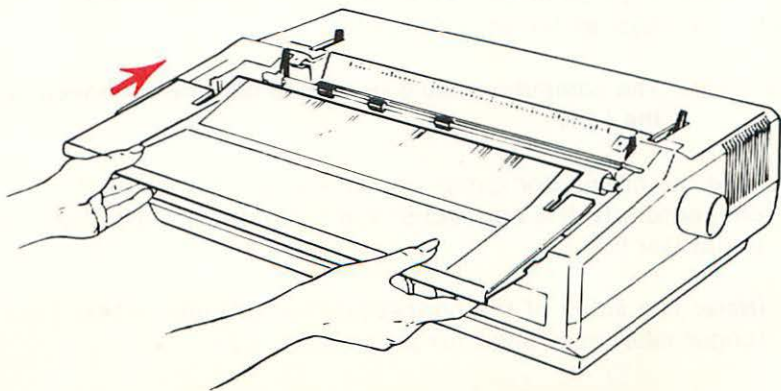


□ Replace the Access Cover

Insert the cover's plastic guides in the spaces in the track that run along each side of the case.

Hold the cover level and gently *slide* it toward the back of the printer until it's completely closed.

Remember, the LQP will not operate if the Access Cover is not completely closed.

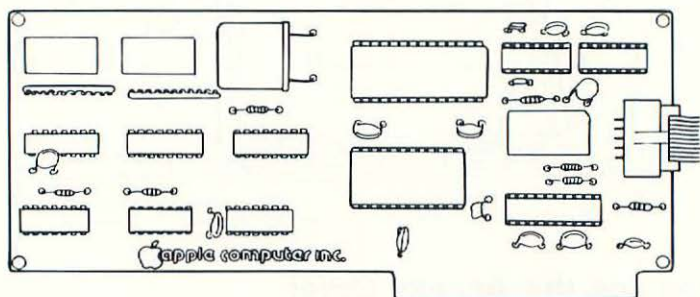


Connect the Printer to Your Computer

- If you own an APPLE III computer, go to Page 12.
- If you own an APPLE II series computer, continue on this page.

Connecting the LQP to an APPLE II Series Computer

YOU NEED: The APPLE "Super Serial Card"



A connector cable with a "male" DB-25 connector at each end.

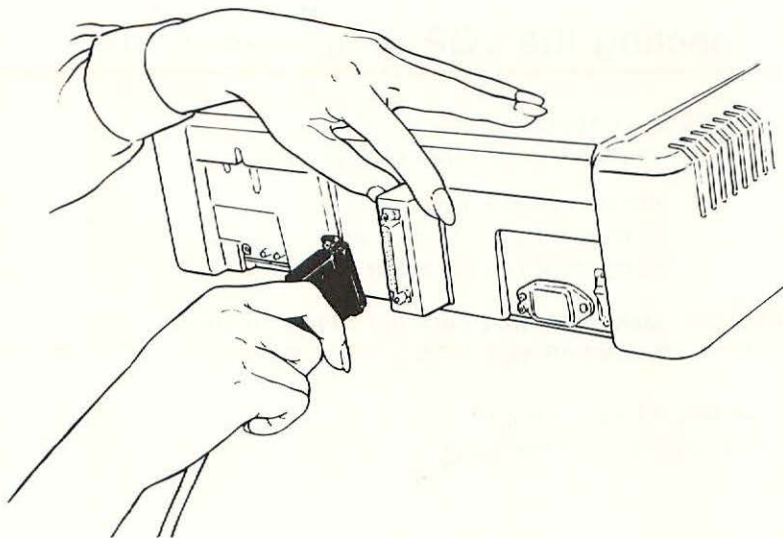
If you haven't yet installed your "Super Serial Card," use the directions included with the card, and install the card now...

Note: It is suggested that the card be installed in SLOT #1. The instruction diskette included with this booklet expects the "Super Serial Card" to be in Slot #1. (See your OWNER'S GUIDE to determine Slot #1 for your computer.)

CAUTION: The computer should be turned off when connecting it to the LQP.

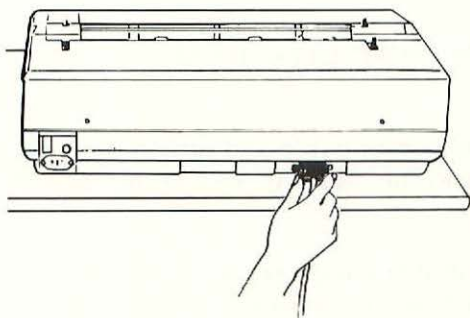
- Take the connector cable and attach one of its DB-25 connectors to the connector that leads to the installed "Super Serial Card."

(**Note:** The sides of the connectors are different sizes. The longer side must align for proper contact.)



- Take the other end of the connector cable and attach it to the connector in the back of the printer.

The longer sides of each connector must be aligned for proper contact. It is suggested that you use jackscrews to insure permanent contact.



- Install the LQP's power cord in the receptacle in the back of the printer next to the ON/OFF switch.

CAUTION: Make sure the switch is in the OFF position before you plug in the printer!

- Go to Page 13

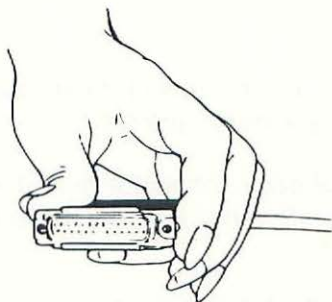
Connecting the LQP to an APPLE III

YOU NEED: A connector cable with a “male” DB-25 connector at each end.

Modem Eliminator Cable with a “male” DB-25 connector on one end and a “female” DB-25 connector on the other end.

CAUTION: Make sure that *both* the APPLE III and the LQP are turned off before connecting them.

The APPLE III has a built-in “female” DB-25 connector which is labeled “Port C” on the back of the computer.



- Connect the “male” end of the Modem Eliminator Cable to Port C.
- Take the connector cable and attach one of its DB-25 connectors to the “female” end of the Modem Eliminator Cable.

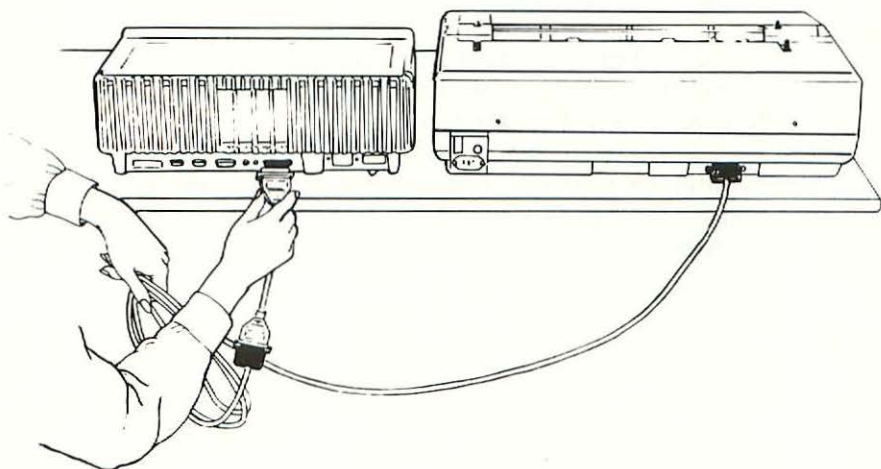
Make sure that the tops of the connectors—their wider parts—are aligned to insure proper contact.

- Attach the connector at the other end of the cable to the built-in connector in the LQP.

Again, make sure the tops of the connectors are properly aligned.

It is suggested that the connectors be permanently secured using jackscrews.

- Install the LQP's power cord in the receptacle in the back of the printer next to the ON/OFF switch. **CAUTION: Make sure the switch is in the OFF position before you plug in the printer!**
- Continue on this page.



Load the Paper

The LQP can print on single sheets of paper and on continuous fanfold paper.

Both are loaded into the printer in the same manner as putting paper into a typewriter.

- Pull either Paper Bale Lever forward toward the front of the LQP.
- Pull the Paper Release Lever toward the back of the LQP.
- Adjust the Paper Thickness Lever to match the thickness of the paper being used:

For Single Sheets & Thinner Forms

The Lever should point toward the **front** of the LQP.

For Multiple Sheets & Thicker Forms

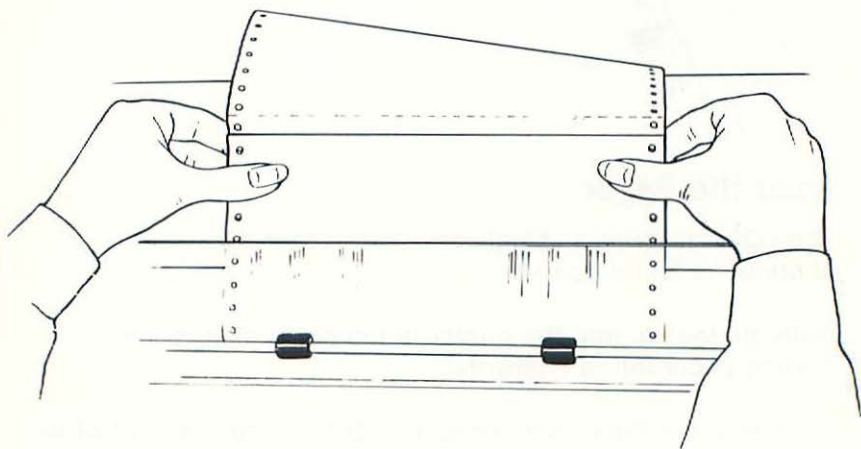
The Lever should point toward the **back** of the LQP.

- Insert the paper into the back of the Paper Platen, and turn the Platen Knob *clockwise* (away from you as you face the printer's front).

Turn the Platen Knob until about six inches of paper extend above the printing mechanism.

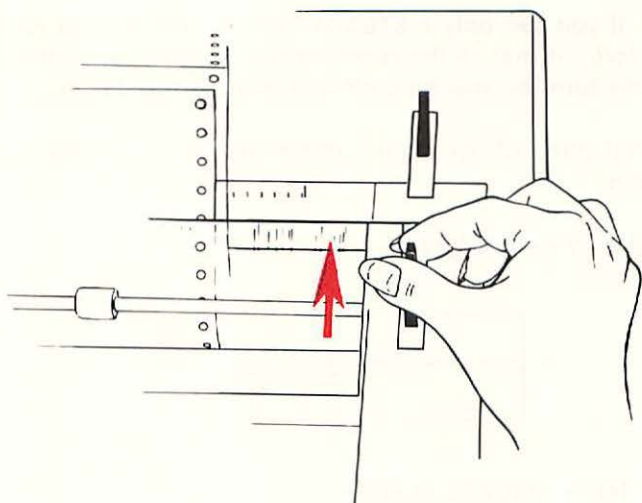
- Position and align the paper by moving the Release Lever toward the front of the LQP, and then moving the paper to where you want it located in the printer.

(For continuous fanfold paper, align the top of the paper that comes out of the Paper Platen with the perforated edge of a sheet going into the Paper Platen.)



- Push the Paper Release Lever toward the back of the LQP. Repeat for the Paper Bale.

The paper is now firmly in place, hopefully where you want it. If, however, you decide you want to reposition the paper, just repeat the process. (In a few minutes we'll tell you how to establish the "top-of-form" position so that the LQP will begin to print in a similar place on each sheet of continuous fanfold paper.)



Check the LQP's Operation

We're about to turn on the LQP for the first time. However, *each* time you turn on the LQP you will want to follow these instructions:

CAUTION: Make sure the printer's switch is in the OFF position before plugging in the power cord.

- Plug the power cord into a 3-prong outlet.
- Turn the ON/OFF switch in the back of the printer to the ON position.
- Check the **status lights** on the Front Control Panel.

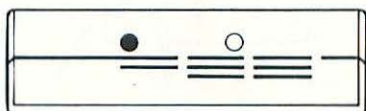
You should see one of these conditions:

- A STEADY "Attend Light"
 - A STEADY "Ready Light"
 - A FLASHING "Ready Light"
 - A FLASHING "Ready Light" and A STEADY "Attend Light"
-

CAUTION: If you see only a STEADY "Attend Light" and no steady "Ready Light," it means the machine has an internal malfunction. Immediately turn the machine off and contact the dealer.

Here's what each of the other conditions mean and what to do about them:

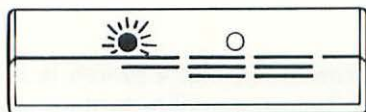
- A STEADY "Ready Light"



The printer is ready to operate.

Proceed to use it.

- A FLASHING "Ready Light"

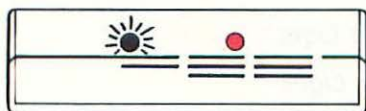


The printer is in a PAUSE condition.

Touch the Operation Pause Switch on the Front Control Panel.

(The LQP should become operational, and you should now see a STEADY "Ready Light".)

- A FLASHING "Ready Light" and A STEADY "Attend Light"



The printer needs attention!

Check the following:

1. Is the **Access Cover** open?
2. Is the LQP **out of paper**, or has the paper been **incorrectly loaded**?
3. Is the **Ribbon Cartridge** out of ribbon?

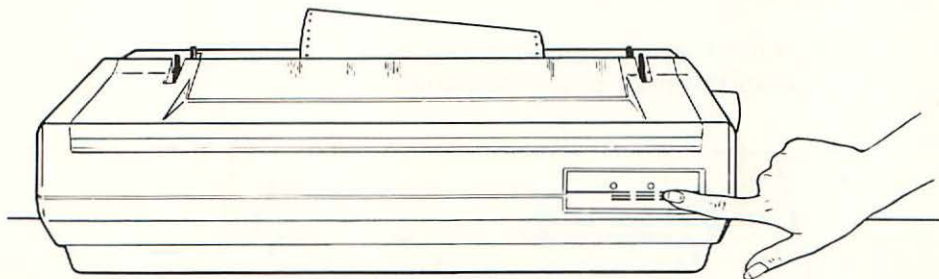
Correct any "YES" situation and then press the Operation Pause Switch on the Front Control Panel.

The "Attend Light" should go out and you should see a STEADY "Ready Light."

If this doesn't happen, or if you are unable to find any reason for the "Attend Light" to be on, turn off the printer and call your dealer.

Set the "Top-of-Form" Feature

The **Form Feed Switch** on the Front Control Panel is a touch-sensitive switch with two functions. When pressed, it advances the paper in the machine for easy removal. It also can be used to tell the LQP where the top of a form (or piece of paper) begins.



The "top-of-form" feature is especially useful when you use continuous fanfold paper. It ensures that the printer will begin to type at the same distance from the top of each sheet.

You will usually want to set the “top-of-form” whenever you initially turn on the printer. This is how to do it:

- Check the LQP to make sure it is loaded with an adequate supply of continuous fanfold paper, and add paper if necessary.
- Turn on the printer and check its status lights.
- Press the Form Feed Switch if you have a STEADY “Ready Light.”

Paper will advance through the printer. It will run awhile, so don't worry.

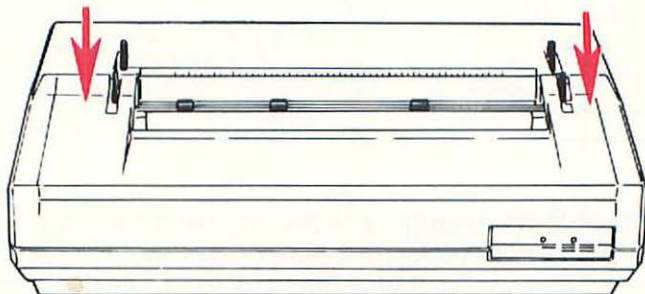
When the LQP stops, it will “think” that it is at the **top** of a sheet of paper.

If you're happy with the LQP's idea of where the “top-of-form” should be, fine. Stop right here and begin to use the printer.

But, if you want the “top-of-form” to be at a different distance from the perforated edge of the paper, you will have to adjust the paper.

This involves steps similar to those used when putting paper into the printer.

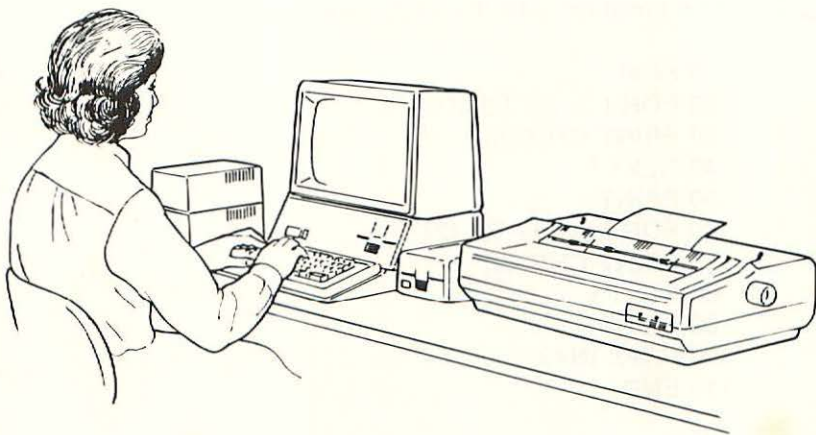
- Pull the Paper Bale Levers and the Paper Release Lever toward the front of the machine.



- Take the paper in your hands. Without moving the platen, move the paper forward or backward in the printer until its top is at the desired distance from the daisywheel print element.
- Align the paper.
- Push the Paper Bale Levers and the Paper Release Lever toward the back of the LQP.

The "top-of-form" has now been set. The printer will begin printing on each sheet just where you ordered it. Push the Form Feed Switch to check this out. The paper should advance (it will run awhile). When it stops, the printer will be ready to print at the appropriate distance from the top of the paper. Of course, if you decide you don't like this new "top-of-form," you can repeat the process until you get one that is suited to your requirements.

Now, let's have a test run.



Part 3. Performing a Test Run

Now that your LQP is hooked to your APPLE computer and is loaded with paper, it is time for a test run.

Procedures for the test run will be different for owners of APPLE II series computers and APPLE III owners.

- APPLE III owners should turn to Page 22.
- APPLE II owners should continue on this page.

Test Running the LQP with APPLE II Series Computers

- Turn the APPLE computer and printer on. (Hit Control-Reset if your computer has the automatic boot feature.)
- Check the status lights on the LQP and proceed only after seeing a STEADY "Ready Light."
- Type this program into the computer exactly as shown below.

```

10 PR#1
20 FOR I = 32 TO 111
30 PRINT CHR$(I);
40 NEXT I
50 PRINT
60 FOR I = 112 TO 127
70 PRINT CHR$(I);
80 NEXT I
90 PRINT
100 PR#0: IN#0
110 END

```

- Type: RUN

- You should get a printout that looks like this:

```

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstu vwxyz{|}~

```


If all went well, go to Page 24.

BUT...if your printout looks different, or if nothing happened, don't get discouraged! Let's see if we can find what went wrong. (If we can't, help is only a phone call away!)

- Use the LIST command, and list the program you typed. Does it match exactly the one we gave you?

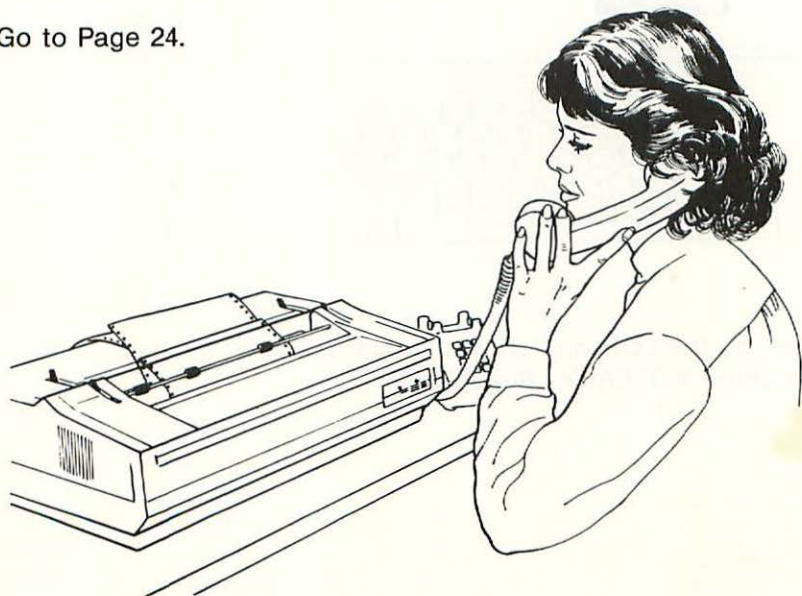
Correct any errors.

- Check the connectors. Are they securely attached?
- Is the "Super Serial Card" properly installed?
- Is the LQP's STEADY "Ready Light" burning brightly?

Having checked all of these things, let's try again. Hopefully your printer will spring to life and produce a printout for you that matches the model. If so, good!

If not, call your dealer and ask for assistance—after all, that's what dealers are for.

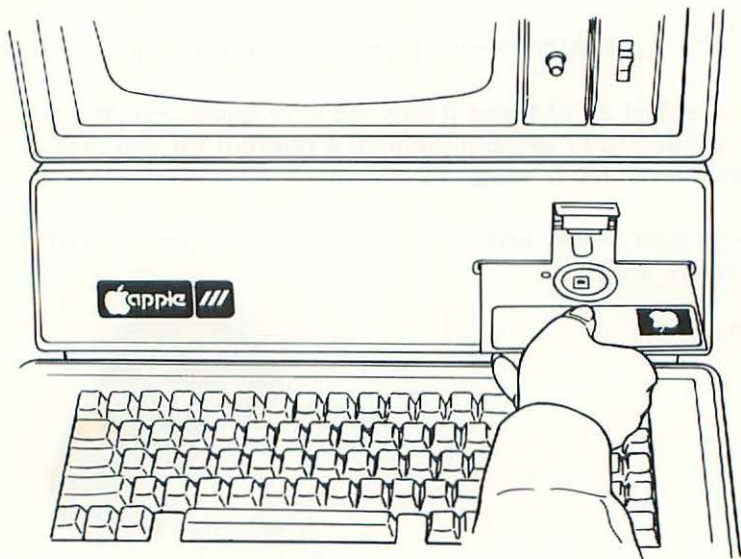
Go to Page 24.



Test Running the LQP with an APPLE III.

YOU WILL NEED **APPLE BUSINESS BASIC** TO PERFORM THE TEST BELOW. (If you don't own **APPLE BUSINESS BASIC** but have an **APPLE II Emulation** diskette and an **APPLE II System Master** diskette with **DOS 3.3** or later version, you can test the LQP using the program on Page 20. Boot the Emulation diskette and then the System Master. Then type the program on Page 20, modifying Line 10 by typing **PR#5** instead of **PR#1**.)

- Load **BUSINESS BASIC** into your **APPLE III**.



- Turn on the LQP, and check the status lights. Proceed when you have a **STEADY "Ready Light"**

- Type the following program into your APPLE III. The program must be typed exactly as shown below to work properly.

```

10 OUT$ = ".PRINTER"
20 OPEN #1, OUT$
30 FOR I = 32 TO 111
40 PRINT #1; CHR$(I);
50 NEXT I
60 PRINT #1;
70 FOR I = 112 TO 127
80 PRINT #1; CHR$(I);
90 NEXT I
100 PRINT #1;
110 CLOSE #1
120 END

```

- Now type: RUN

If all is well, the LQP should spring to life and give you a printout like this:

```

! ' # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z [ \ ] ^ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~

```

If all went well, go to Page 24.

- BUT... if your printout looks different, or if nothing happened, don't give up the ship!

Before calling your dealer for help, let's check a few things:

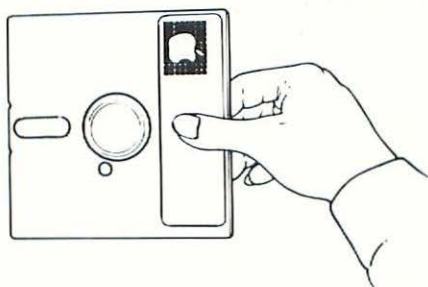
- LIST your program and see if it matches the one we gave you. Correct any differences.
- Check the connector cable and connectors to make sure they are making contact.
- Check the "Ready Light" on the LQP. It should be ON and STEADY.

After you've checked these things, try to run the program again. If it still doesn't work properly, call your dealer.

Go To Page 24

Part 4. Getting The Most From Your LQP

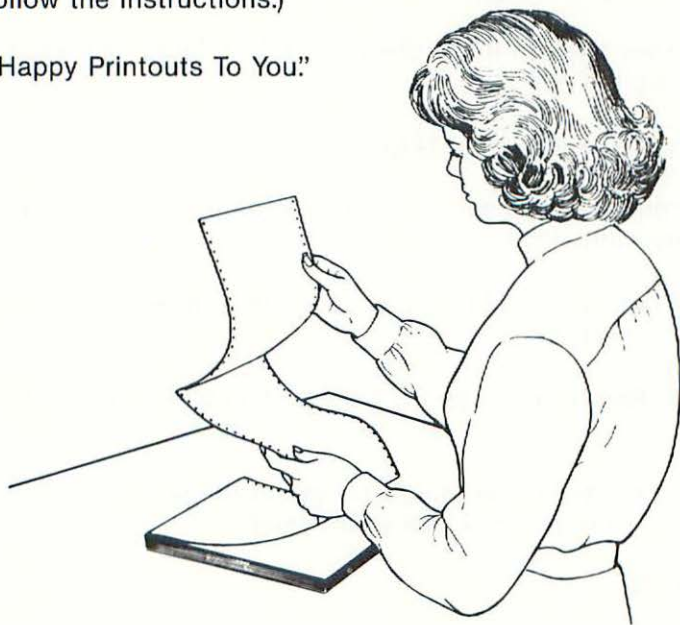
By this time you should be ready to learn how to make your LQP perform. It is a very versatile printer. It can print correspondence quality letters, tables, charts and graphs. It can underline words and type in **bold face**. But you have to know how to unleash its capabilities. The enclosed floppy disk will teach you how.



Whenever you're ready, boot the disk in your APPLE computer.

(Note: The enclosed floppy will "boot" directly on an APPLE II series computer, but if you have an APPLE III series computer, you will have to "boot" the APPLE II Emulation Diskette first and follow the instructions.)

"Happy Printouts To You!"



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apple computer DAISY WHEEL PRINTER REFERENCE CARD

Apple III System Configuration

Apple III Series Computers should be connected to the DWP with:
Apple Modem Eliminator Cable #A3M0019 and an Apple Serial Interface Cable #A2M0050.

Refer to the Apple III Standard Drivers Manual to install the Apple III SOS Serial Printer Driver, using the Driver Configuration Block shown below.

Apple III Serial Driver Configuration Block

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
08	22	00	00	00											

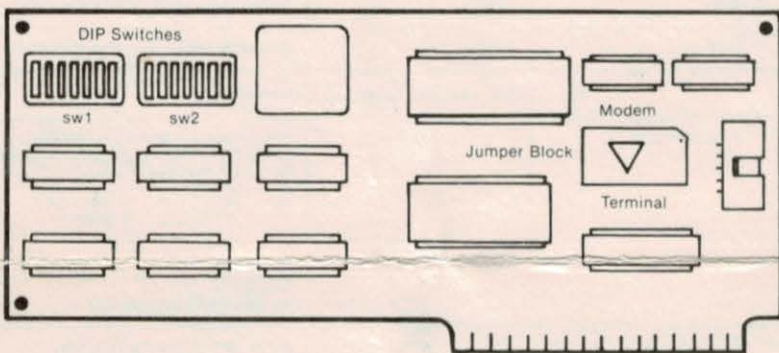
Apple II System Configuration

Apple II Series Computers should be connected to the DWP with:
Apple Super Serial Interface Card #A2B0044 and an Apple Serial Interface Cable #A2M0050.

Refer to the SSC DIP Switch Configuration below to correctly set up your system.

Apple II Super Serial Interface Card DIP Switch Configuration

The small triangle figure (▼) on the jumper block should be pointing toward "TERMINAL" as shown in the illustration.
Refer to your Super Serial Interface Card Installation and Operations Manual for DIP switch function descriptions.



SSC Switch 1 (sw1) Configuration

1	2	3	4	5	6	7
OFF	ON	ON	ON	OFF	ON	ON

f f f o f o o

SSC Switch 2 (sw2) Configuration

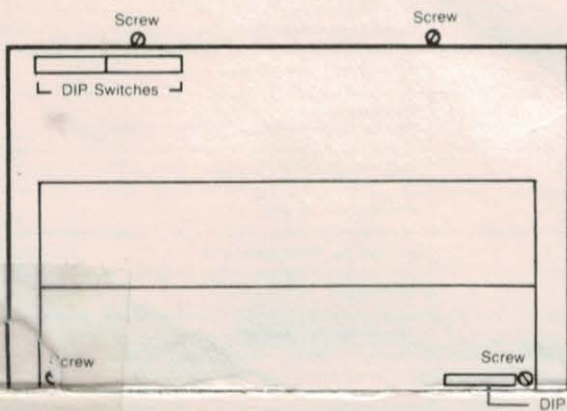
1	2	3	4	5	6	7
ON	OFF	OFF	OFF	ON	OFF	OFF

o f f o o f f

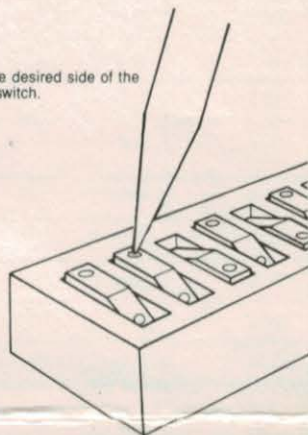
* These two switches control the Line Width/Video:
40/Video on: 3=ON, 4=ON; 72/Video off: 3=ON, 4=OFF;
80/Video off: 3=OFF, 4=ON; 132/Video off: 3=OFF, 4=OFF.

Apple Daisy Wheel Printer DIP Switch Configuration

You can change factory-set formatting, spacing, and other operating conditions by means of three sets of DIP switches. The formatting and spacing DIP switches are on the inside of the front panel, under the access cover on the right side. The other two sets of DIP switches are inside the top cover on the left side of the rear panel. You will seldom, if ever, want to change these rear switch settings.



Press down on the desired side of the rocker to set the switch.



Setting A Rocker-Type DIP Switch

To access the rear DIP switches, first be sure to **disconnect your printer's power cord**. Then remove the platen knob. Loosen the two large screws at the front of the printer beneath the access panel, and remove the two medium screws at the rear of the printer. Lift the top cover off. **Do not reconnect the power cord until the top cover is properly secured.**

The three DIP Switch Configuration Charts, numbered in the same order as the printer's DIP switches, summarize printer-state options. Asterisks reflect Apple's factory-set DIP switch settings.

Front Panel DIP Switch Configuration

8	7	6	5	4	3	2	1
1: 8 lines per inch	1: Auto LF after CR	Form Length				Type Pitch	
		0000: 3"	0011: 5½"	0111: 8½"	1001: 11¼"	00: 10 cpi	
		0001: 3½"	0100: 6"	1101: 9"	1010: 12"	*01: 12 cpi	
*0: 6 lines per inch	*0: No auto LF after CR	0010: 4"	0101: 7"	1110: 10"	1011: 14"	10: 15 cpi	
		1100: 5"	0110: 8"	*1000: 11"	1111: 16"	11: PS	

1=CLOSED, 0=OPEN, *=factory set

Rear Panel DIP Switch (sw1) Configuration

8	7	6	5	4	3	2	1
Parity		*1: No Modem	Handshake		Baud Rate		
*11: Space		0: Modem	*00: ETX/ACK & DTR		000: 110 baud	*100: 1200 baud	
10: Mark			01: XON/XOFF		001: 150 baud	101: 2400 baud	
01: Even			10: DTR		010: 300 baud	110: 4800 baud	
00: Odd			11: Not Used		011: 600 baud	111: 9600 baud	

1=ON, 0=OFF, *=factory set

Rear Panel DIP Switch (sw2) Configuration

8	7	6	5	4	3	2	1
*1: STOP if Paper Out	1: Half Duplex	1: Auto CR/LF	*1: Print Bi-Directional	Language Character Set Options			
				*0000: ASCII Standard	0100: English (UK)		
				0001: USA WP	0101: French		
0: No Paper Out Stop	*0: Full Duplex	*0: No Auto CR/LF	0: Print Uni-Directional	0010: Italian	0110: German		
				0011: Swedish	0111: Spanish		

1=ON, 0=OFF, *=factory set

DEC	HEX	SI ASCII	SO ASCII	DEC	HEX	SI ASCII	SO ASCII	DEC	HEX	SI ASCII	SO ASCII	DEC	HEX	SI ASCII	SO ASCII
00	00	NUL	NUL	32	20	SP	SP	64	40	Ⓜ	@	96	60	Ⓡ	°
01	01	SOH	SOH	33	21	!	!	65	41	A	£	97	61	a	ï
02	02	STX	STX	34	22	"	"	66	42	B	ç	98	62	b	ð
03	03	ETX	ETX	35	23	Ⓛ	#	67	43	C	{	99	63	c	æ
04	04	EOT	EOT	36	24	\$	\$	68	44	D	\	100	64	d	ı
05	05	ENQ	ENQ	37	25	%	%	69	45	E	}	101	65	e	ç
06	06	ACK	ACK	38	26	&	&	70	46	F	~	102	66	f	ß
07	07	BEL	BEL	39	27	'	'	71	47	G	^	103	67	g	~
08	08	BS	BS	40	28	(	(	72	48	H	~	104	68	h	*
09	09	HT	HT	41	29	)	)	73	49	I	~	105	69	i	i
10	0A	LF	LF	42	2A	*	*	74	4A	J	ı	106	6A	j	j
11	0B	VT	VT	43	2B	+	+	75	4B	K	ı	107	6B	k	k
12	0C	FF	FF	44	2C	,	,	76	4C	L	š	108	6C	l	l
13	0D	CR	CR	45	2D	-	-	77	4D	M	ö	109	6D	m	m
14	0E	SO	SO	46	2E	.	.	78	4E	N	ü	110	6E	n	n
15	0F	SI	SI	47	2F	/	/	79	4F	O	Å	111	6F	o	o
16	10	DLE	DLE	48	30	0	0	80	50	P	Ñ	112	70	p	p
17	11	DC1	DC1	49	31	1	1	81	51	Q	Æ	113	71	q	q
18	12	DC2	DC2	50	32	2	2	82	52	R	ä	114	72	r	r
19	13	DC3	DC3	51	33	3	3	83	53	S	ö	115	73	s	s
20	14	DC4	DC4	52	34	4	4	84	54	T	ü	116	74	t	t
21	15	NAK	NAK	53	35	5	5	85	55	U	å	117	75	u	u
22	16	SYN	SYN	54	36	6	6	86	56	V	ñ	118	76	v	v
23	17	ETB	ETB	55	37	7	7	87	57	W	é	119	77	w	w
24	18	CAN	CAN	56	38	8	8	88	58	X	ù	120	78	x	x
25	19	EM	EM	57	39	9	9	89	59	Y	è	121	79	y	y
26	1A	SUB	SUB	58	3A	:	:	90	5A	Z	â	122	7A	z	z
27	1B	ESC	ESC	59	3B	;	;	91	5B	Ⓜ	[	123	7B	Ⓢ	§
28	1C	FS	FS	60	3C	<	<	92	5C	Ⓞ	Ⓜ	124	7C	Ⓣ	¶
29	1D	GS	GS	61	3D	=	=	93	5D	Ⓟ	]	125	7D	Ⓡ	†
30	1E	RS	RS	62	3E	>	>	94	5E	Ⓠ	Ⓜ	126	7E	Ⓜ	‡
31	1F	US	US	63	3F	?	?	95	5F	-	-	27 32	1B 20	|	|
												27 47	1B 2F	~	~

Ⓜ * Reference numbers can be interpreted by referring to the Apple Daisy Wheel Printer Extended Character Set (For Foreign Languages) table below.

Apple Daisy Wheel Printer Extended Character Set (For Foreign Languages)

REFERENCE NUMBER	1	2	3	4	5	6	7	8	9	10	11
HEXADECIMAL	23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
ASCII STANDARD	#	@	[	\	\]	^	~	{	|	}	~
USA WP	#	@	[Ⓞ]	Ⓟ	°	§	¶	†	‡
ITALIAN	£	§	°	ç	é	^	ù	â	ð	è	ï
SWEDISH	#	@	š	ö	Å	^	~	ä	ö	å	~
ENGLISH (UK)	£	@	[	\	\]	^	~	{	|	}	~
FRENCH	£	â	°	ç	§	^	~	é	ü	è	~
GERMAN	#	§	š	ö	ü	^	~	ä	ö	ü	ß
SPANISH	£	§	ı	Ñ	ı	^	~	°	ñ	ç	~

ASCII Symbol(s)	Hex Code	Decimal Code	Resulting Printer State
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Page Formatting Commands

ESC 9	1B 39	27 57	Set Left Margin at Current Print Position
ESC 0	1B 30	27 48	Set Right Margin at Current Print Position
ESC 1	1B 31	27 49	Set Horizontal Tab Stop at Current Position
ESC 8	1B 38	27 56	Clear Horizontal Tab Stop at Current Position
ESC (<list>	1B 28 <list> 2E	27 40 <list> 46	Set Tab Stops Defined in Parameter List: <list> = <p1>[, <p2> . . . , <pn>]. Note comma separators and period terminator. <p> = <a1><a0> 0<n>=p<160 ; a1 = asc (hex (p/10)) ; a0 = asc (p mod 10) ; e.g. ESC (A 0 , 0 4 . sets cols 4 and 10.
ESC) <list>	1B 29 <list> 2E	27 41 <list> 46	Clear Tab Stops Defined in Parameter List: <list> = <p1> [, <p2> . . . , <pn>]. Note comma separators and period terminator. <p> = <a1><a0> 0<n>=p<160 ; a1 = asc (hex (p/10)) ; a0 = asc (p mod 10) ; e.g. ESC) F 9 , 1 1 . clears cols 11 and 159
ESC 2	1B 32	27 50	Clear All Horizontal Tab Stops
ESC F <a1> <a0>	1B 46 <a1> <a0>	27 70 <a1> <a0>	Set Form Length from Current Top-of-Form: length defined in n/6" units, 0<n<128; a1 = ascii (hex (int (n/10))) ; a0 = ascii (n mod 10) ; e.g. ESC F 6 6 for 11" form length; ESC F A 8 for 18" (108/6") form length.
ESC +	1B 2B	27 43	Set Top Margin at Current Print Position.
ESC -	1B 2D	27 45	Set Bottom Margin at Current Print Position.

Horizontal/Vertical Spacing Commands

ESC E <a1> <a0>	1B 45 <a1> <a0>	27 69<a1> <a0>	Define Horizontal Spacing Increments: Space n/120" units per SP code; 0<n<160; a1 = ascii (hex (int (n/10))) ; a0 = ascii (n mod 10) ; e.g. ESC E 1 2 to space 1/10"; ESC E C 0 to space 1".
ESC US <a>	1B 1F <a>	27 21 <a>	Define Horizontal Spacing Increments, Alternate: Space n/120" units per SP code; 0<n<126; a = ascii (n + 1) ; e.g. ESC US VT to space 1/12".
ESC L <a1> <a0>	1B 4C <a1> <a0>	27 76 <a1> <a0>	Define Vertical Spacing Increments: Space n/48" units per line feed, 0<n<160; a1 = ascii (hex (int (n/10))) ; a0 = ascii (n mod 10) ; e.g. ESC L 0 8 for 1/6" linefeed; ESC L F 9 for 159/48" linefeed.
ESC RS <a>	1B 1E <a>	27 30 <a>	Define Vertical Spacing Increments, Alternate: Space n/48" per line feed; 0<n<126; a = ascii (n + 1) ; e.g. ESC RS % for 3/4" linefeed.

Printer System Configuration Commands

ESC SUB I	1B 1A 49	27 26 73	Initialize Printer (Hard Reset)
ESC CR P	1B 0D 50	27 13 80	Initialize Printer (Soft Reset)
ESC ,	1B 2C	27 44	Line Feed to Follow Every Carriage Return
ESC Z	1B 5A	27 90	Auto Carriage Return/Line Feed Off
ESC W	1B 57	27 87	Auto CR/LF Generated at Right Margin
ESC O	1B 4F	27 79	Right Margin Control On: Auto CR if SP encountered in Hot Zone (within 5 cols before right margin).
ESC .	1B 2E	27 46	Auto Line Feed Off
ESC Y	1B 59	27 89	Right Margin Control Off
ESC 5	1B 35	27 53	Forward Print
ESC 6	1B 36	27 54	Backward Print: Reverse horizontal motion until CR or Forward Print
ESC <	1B 3C	27 60	Auto Bidirectional Printing On
ESC >	1B 3E	27 62	Auto Bidirectional Printing Off
ESC S	1B 53	27 83	No Print ON: Inhibit print hammer.
ESC T	1B 54	27 84	No Print OFF
ESC X	1B 58	27 88	Execute Pending Motions.

Character Commands

ESC I < p> (lower case 'ell')	1B 6C< p>	27 108 <p>	Select Language: < p> = A ASCII Standard B USA WP C Italian D Swedish E English (UK) F French G German H Spanish Q DIP Switch Setting
ESC \$	1B 24	27 36	PS On: Using Proportional Spacing Printwheel
ESC %	1B 25	27 37	PS Off
ESC Q	1B 51	27 81	Shadow Print ON: Print each char twice: 2nd 1/120" from 1st.
ESC R	1B 52	27 82	Shadow Print OFF
ESC K < a>	1B 4B <a>	27 75 <a>	Bold Overprint ON: Print each char n times, same position; 0<n<5; a = ascii(n) ;
ESC M	1B 4D	27 77	Bold Overprint OFF
SO	0E	14	Shift Out to Extended Character Codes
SI	0F	15	Shift In to Standard 94-Character Sequence
ESC SP	1B 20	27 32	Print Character on Printwheel Position 004
ESC /	1B 2F	27 47	Print Character on Printwheel Position 002
ESC I	1B 49	27 73	Underscore ON
ESC J	1B 50	27 80	Underscore OFF
ESC N	1B 4E	27 78	No Carriage Motion after Printing Next Character e.g. ESC N a _ results in underlined 'a'.

Position Print Head Commands

HT	09	09	Horizontal Tab
ESC C <a1><a0>	1B 43 <a1> <a0>	27 67 <a1> <a0>	Absolute Horizontal Tab: Move right or left to column n, 0<=n<160 ; a1 = ascii (hex (int (n/10))) ; a0 = ascii (n mod 10) ; e.g. ESC C D 0 tabs to column 130 (max).
ESC HT <a>	1B 09 <a>	27 09 <a>	Absolute Horizontal Tab, Alternate: a = ascii (n + 1) ; 0<=n<126; e.g. ESC HT LF tabs to column 10.
ESC H <a2><a1><a0>	1B 48 <a2><a1><a0>	27 72 <a2><a1><a0>	Relative Horizontal Motion: Move paper right or left n/120", 0<=n<1585; a2 = ascii (64 + int(n/256)) if moving right, ascii (80 + int(n/256)) if moving left; a1 = ascii (64 + int((n mod 256)/16)) ; a0 = ascii (64 + int(n mod 16)) ; e.g. ESC H @ @ C spaces right 3/120"; ESC H R M @ spaces left 6" (720/120").
SP	20	32	Space
BS	08	08	Backspace
ESC BS	1B 08	27 08	Backspace 1/120"
CR	0D	13	Carriage Return
FF	0C	12	Form Feed: Advance paper to next top-of-form; paper length, determined by DIP switches, may be redefined by software control.
ESC P <a1><a0>	1B 50 <a1> <a0>	27 80 <a1><a0>	Absolute Vertical Tab (TOF = Line 0): Move paper up/down to line n, 0<=n<128; a1 = ascii (hex (int (n/10))) ; a0 = ascii (n mod 10) ; e.g. ESC P C 7 tabs down to line 127 (max).
ESC VT <a>	1B 0B <a>	27 11 <a>	Absolute Vertical Tab, Alternate: a = ascii (n + 1) ; 0<=n<126; e.g. ESC VT ! tabs to Line 32.
ESC V <a2><a1><a0>	1B 56 <a2><a1><a0>	27 86 <a2><a1><a0>	Relative Vertical Motion: Move paper up/down n/48" units, 0<=n<1792; a2 = ascii (64 + int(n/256)) if moving paper up, ascii (80 + int(n/256)) if moving paper down; a1 = ascii (64 + int((n mod 256)/16)) ; a0 = ascii (64 + int(n mod 16)) ; e.g. ESC V @ @ A spaces down (paper up) 1/48" ESC V Q B @ moves paper down 6" (288/48").
LF	0A	10	Line Feed: Advance paper 1/6" or 1/8", per DIP switch; n/48" if n set by software; 1/48" if graphics
ESC LF	1B 0A	27 10	Negative Line Feed
ESC U	1B 55	27 85	1/2 Line Feed: int (linefeedunits/2)
ESC D	1B 44	27 68	Negative 1/2 Line Feed

Program-Mode Output Commands

ESC SO	1B 0E	27 14	Shift to Program Mode: ESC SO [<a1><b1><a2><b2>... <an><bn>] a = ascii character to be printed; b = hammer intensity + spacing
ESC #	1B 23	27 35	Enter Secondary Program Mode: ESC SO ESC # [<a1><b1><pl>...]
ESC SI	1B 0F	27 15	Return to Normal Mode: Deselects program modes, User Test Mode.
US <d>	1F <d>	31 <d>	Program Mode Carriage Command

Graphics-Mode Output Commands

ESC 3	1B 33	27 51	Graphics On: 1/60" horizontal spacing; 1/48" vertical spacing; Auto LF and auto CR/LF ignored in graphics modes. CR deselects graphics modes.
ESC G	1B 47	27 71	Graphics On: 1/120" horizontal spacing; 1/48" vertical spacing.
ESC 4	1B 34	27 52	Graphics-Mode Off.

Status Commands

ESC SUB ENQ	1B 1A 05	27 26 05	Status Request
ESC : <status>	1B 3A <status>	27 58 <status>	Status Reply

Radio and Television Interference

You can determine whether your computer is causing interference by turning it off. If the interference stops, it was probably caused by the computer. If your computer does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the TV or radio antenna until interference stops.
- Move the computer to one side or the other of the TV or radio.
- Move the computer farther away from the TV or radio.
- Plug the computer into an outlet that is on a different circuit from the TV or radio. (That is, make certain the computer and the TV or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock number 004-000-00345-4.



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