

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

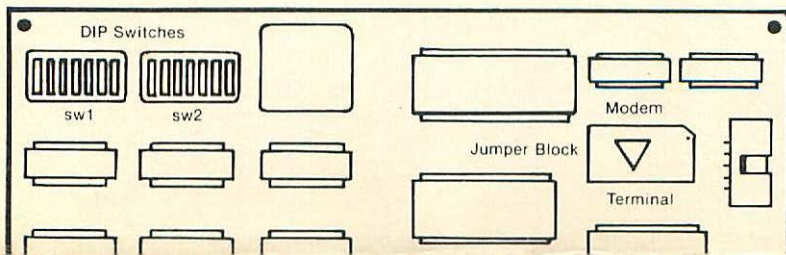
Apple II Series Computers should be connected to the DWP with:

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.



Daisy Wheel Printer Command Set

ASCII Symbol(s)	Hex Code	Decimal Code	Resulting Printer State
-----------------	----------	--------------	-------------------------

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<=p<160 ; a1 = asc (hex (p/10)) ; a0 = asc (p mod 10) ; e.g. ESC (A 0 , 0 4 . sets cols 4 and 100.
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<=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 15 <a>	27 21 <a>	Define Horizontal Spacing Increments. Alternate:

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

* 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;

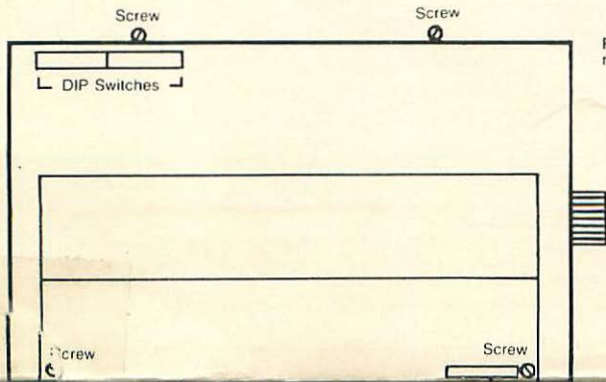
SSC Switch 2 (sw2) Configuration

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

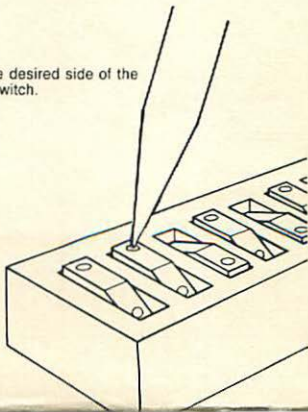
o f f o o f f

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.



			Space n/120" units per SP code; 0<n<126; a = ascii (n + 1) ; eg. 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) ; eg. 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) ; eg. 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

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: 11½"	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	

open *closed*
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		

ESC I < p> (lower case 'ell')	1B 6C < p>	27 10B < 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	1B 48 <a2><a1><a0>	27 72 <a2><a1><a0>	Relative Horizontal Motion:

0: No Paper Out Stop	*0: Full Duplex	*0: No Auto CR/LF	0: Print Uni- Directional	0010: Italian 0011: Swedish	0110: German 0111: Spanish
-------------------------	--------------------	----------------------	------------------------------	------------------------------------	-----------------------------------

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

SI=Shift In Mode

Apple Daisy Wheel Printer Prestige Elite Character Set

SO=Shift Out Mode

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	②	@	96	60	⑦	°
01	01	SOH	SOH	33	21	!	!	65	41	A	£	97	61	a	î
02	02	STX	STX	34	22	"	"	66	42	B	¢	98	62	b	ô
03	03	ETX	ETX	35	23	①	#	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	ğ
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	ı
10	0A	LF	LF	42	2A	*	*	74	4A	J	i	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	Ä	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	Ä	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	â	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

<a2><a1><a0>			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/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	½ Line Feed: int (linefeedunits/2).
ESC D	1B 44	27 68	Negative ½ 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
--------	-------	-------	--

24	1B	CAN	CAN	56	38	8	8	88	58	X	û	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	à	122	7A	z	z
27	1B	ESC	ESC	59	3B	:	:	91	5B	(3)*	[	123	7B	(8)*	§
28	1C	FS	FS	60	3C	<	<	92	5C	(4)*	®	124	7C	(9)*	¶
29	1D	GS	GS	61	3D	=	=	93	5D	(5)*	]	125	7D	(10)*	†
30	1E	RS	RS	62	3E	>	>	94	5E	(6)*	©	126	7E	(11)*	™
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	à	ò	è	ì
SWEDISH	#	@	Å	Ö	Ä	^	~	ä	ö	å	~
ENGLISH (UK)	£	@	[	\	]	^	~	{		}	~
FRENCH	£	à	°	ç	§	^	~	é	ù	è	..
GERMAN	#	§	Å	Ö	Ü	^	~	ä	ö	ü	ß
SPANISH	£	§	í	ñ	¿	^	~	°	ñ	ç	~

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